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// ANNUAL REPORT



STUDY

Bandwidth stockholders and friends:

In 2022, our guiding principle at Bandwidth was to “Build.” We built trust with our most important customers, a new 40-acre global headquarters in Raleigh for our growing team, a new go-to-market strategy, and a stronger leadership team. I’m grateful to all our bandmates for their amazing work and I thank God for another tremendous year together.

Building a stronger leadership team

To achieve these goals, we welcomed new executive leaders with proven track records in the technology sector. Our new Chief Operating Officer, Chief Revenue Officer, Chief Innovation Officer, and Chief Software Strategy Officer collaborated with our existing team to define a blueprint for serving the Global 2000 enterprises, spearheaded by COO Anthony Bartolo’s three-year plan.

Activating a new enterprise strategy

We established a **dedicated** line of business for Global 2000 enterprises,

aligning our product team around three market offers for our key customer categories of enterprises, programmable services, and global communications plans. Our focus on addressing the challenges faced by enterprise chief information officers led to the development of innovative products like AI-powered voice biometric authentication and fraud detection, a native text messaging app for Microsoft Teams called “Send To,” which won the Internet Telephony Product of the Year award from TMCNet, and a backup solution for toll-free calling named Call Assure, which was a finalist in the prestigious CX Awards.

To better support our customers, we introduced new enterprise-class customer support tiers, as well as strengthened our onboarding teams to cater to the unique needs of large, global organizations.

Uniting sales and marketing

Under the leadership of our new Chief Revenue Officer, Sandy Preizler, we united our sales and marketing teams into a single Revenue organization, providing comprehensive training and support to address complex enterprise sales cycles. Our marketing efforts focused on driving enterprise-level engagement and reaching chief information officers with targeted campaigns, showcasing how Bandwidth addresses the “telecomplexity” challenges faced by Global 2000 organizations during their cloud communications migrations.

Building deeper roots in our communities

Throughout 2022, we continued to prioritize community outreach. From Raleigh to Romania, our “Go Do!” and “BandwidthCares” volunteer programs encouraged team members to give back to their local communities. Furthermore, we remained committed to building a world-class team with the widest range of backgrounds to serve our worldwide customers.

Completing our new global headquarters

As our business grows, so does our need for excellent workspace. We are currently finishing a 40-acre corporate campus in Raleigh, scheduled for completion in summer 2023. This state-of-the-art facility will include amenities to support our unique culture of innovation and collaboration, as well as an onsite, integrated Montessori-inspired school for employees’ young children.

Continued on next page →

Generating significant enterprise and financial growth

Our efforts in 2022 yielded **impressive** results,

including numerous enterprise customer wins across industries like healthcare, hospitality, security, banking, and retail. Among these, a global healthcare and hospitality customer consolidated 20 different carrier relationships with Bandwidth, the largest security and alarm monitoring service in the U.S. chose us for our toll-free call redundancy, and a top-10 bank expanded its partnership with us for an additional business unit in their contact center portfolio.

These successes contributed to a 17% increase in total revenue compared to 2021, a record non-GAAP gross margin of 55%, and a dollar-based net retention rate of 115% for customers spending over \$100,000 annually. Our customer retention rate remained above 99%, demonstrating the effectiveness of our direct-to-enterprise focus.

Strong momentum

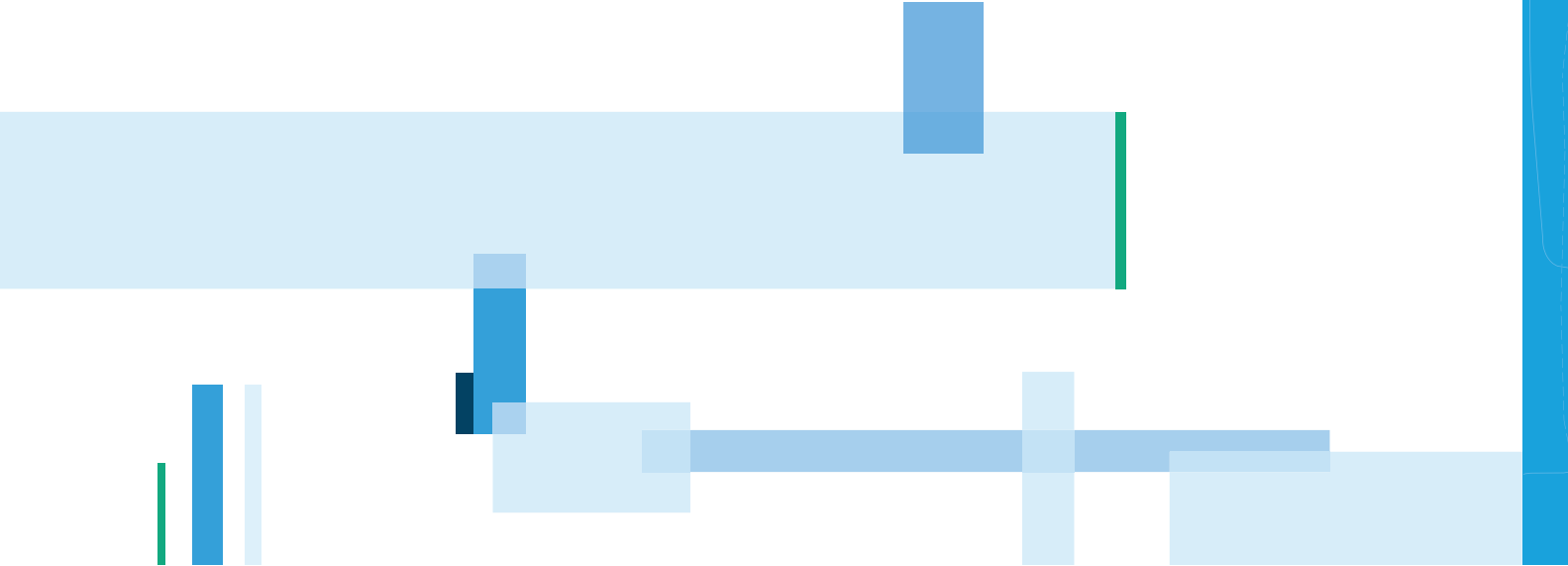
As we embark on 2023, we are excited about the results of our hard work and the opportunities ahead. With a winning business model, tremendous team, focused market strategy, global reach, and operational excellence, we are poised to capitalize on the massive potential for cloud communications within the Global 2000.

Thank you for your support!



A handwritten signature in black ink that reads "David Morken".

David Morken
Cofounder, Chief Executive Officer, and Chairman



**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from

to

Commission File Number: 001-38285

BANDWIDTH INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

56-2242657

(I.R.S. Employer
Identification Number)

**900 Main Campus Drive
Raleigh, NC 27606**

(Address of principal executive offices) (Zip Code)

(800) 808-5150

(Registrant's telephone number, including area code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of each class

Trading Symbol(s)

Name of each exchange on which registered

Class A Common Stock, par value \$0.001 per share

BAND

NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, was \$448.3 million based upon the closing price reported for such date on the NASDAQ Global Select Market.

As of February 17, 2023, 23,477,180 shares of the registrant's Class A common stock and 1,965,170 shares of registrant's Class B common stock were outstanding, respectively.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement for the 2023 Annual Meeting of Stockholders are incorporated herein by reference in Part II and Part III of this Annual Report on Form 10-K to the extent stated herein. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2022.

BANDWIDTH INC.
Annual Report on Form 10-K
For the Year Ended December 31, 2022

Table of Contents

	<u>Page</u>
<u>PART I</u>	
<u>Item 1.</u> <u>Business</u>	<u>6</u>
<u>Item 1A.</u> <u>Risk Factors</u>	<u>18</u>
<u>Item 1B.</u> <u>Unresolved Staff Comments</u>	<u>54</u>
<u>Item 2.</u> <u>Properties</u>	<u>55</u>
<u>Item 3.</u> <u>Legal Proceedings</u>	<u>55</u>
<u>Item 4.</u> <u>Mine Safety Disclosures</u>	<u>55</u>
<u>PART II</u>	
<u>Item 5.</u> <u>Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	<u>56</u>
<u>Item 6.</u> <u>[Reserved]</u>	<u>57</u>
<u>Item 7.</u> <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>58</u>
<u>Item 7A.</u> <u>Quantitative and Qualitative Disclosures About Market Risk</u>	<u>79</u>
<u>Item 8.</u> <u>Financial Statements and Supplementary Data</u>	<u>81</u>
<u>Item 9.</u> <u>Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>	<u>132</u>
<u>Item 9A.</u> <u>Controls and Procedures</u>	<u>133</u>
<u>Item 9B.</u> <u>Other Information</u>	<u>134</u>
<u>Item 9C.</u> <u>Disclosure Regarding Foreign Jurisdictions that Prevent Inspections</u>	<u>134</u>
<u>PART III</u>	
<u>Item 10.</u> <u>Directors, Executive Officers and Corporate Governance</u>	<u>134</u>
<u>Item 11.</u> <u>Executive Compensation</u>	<u>134</u>
<u>Item 12.</u> <u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	<u>134</u>
<u>Item 13.</u> <u>Certain Relationships and Related Transactions and Director Independence</u>	<u>134</u>
<u>Item 14.</u> <u>Principal Accountant Fees and Services</u>	<u>134</u>
<u>PART IV</u>	
<u>Item 15.</u> <u>Exhibits and Financial Statement Schedules</u>	<u>135</u>
<u>Item 16.</u> <u>Form 10-K Summary</u>	<u>139</u>

Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements contained in this Annual Report on Form 10-K, other than statements of historical fact, are forward-looking statements. Forward-looking statements generally can be identified by the words “may,” “will,” “expect,” “believe,” “anticipate,” “intend,” “could,” “would,” “project,” “plan,” “estimate,” or “continue,” or the negative of these words or other similar terms or expressions that concern our expectations strategy, plans or intentions. Forward-looking statements contained in this Annual Report on Form 10-K include, but are not limited to, statements about:

- our beliefs regarding the impact of macroeconomic conditions, including inflationary and/or recessionary pressures, on our business and financial condition;
- our ability to attract and retain customers, including large enterprises;
- our approach to identifying, attracting and keeping new and existing customers, as well as our expectations regarding customer turnover;
- our beliefs regarding network traffic growth and other trends related to the usage of our products and services;
- the impact of our customers’ violation of applicable laws, our policies or other misuse of our platform;
- our ability to successfully defend our network, systems and data against ever-evolving cybersecurity threats, including denial-of-service and ransomware attacks;
- our expectations regarding revenue, costs, expenses, gross margin, dollar based net retention rate, adjusted EBITDA, non-generally accepted accounting principles in the United States of America (“GAAP”) net income and capital expenditures;
- our beliefs regarding the growth of our business and how that impacts our liquidity and capital resources requirements;
- our expectations about the impact of public health epidemics, such as COVID-19 (as defined herein), or natural disasters on the global economy and our business, results of operations and financial condition;
- the sufficiency of our cash and cash equivalents to meet our liquidity needs;
- our ability to attract, train, and retain qualified employees and key personnel;
- our beliefs regarding the expense and productivity of and competition for our sales force;
- our expectations regarding headcount;
- our ability to maintain and benefit from our corporate culture;
- our plans to further invest in and grow our business, including international offerings, and our ability to effectively manage our growth and associated investments;
- our ability to introduce new products and services and enhance existing products and services;
- our ability to successfully integrate and benefit from any strategic acquisitions, including our acquisition of Voxbone (as defined herein), or future strategic acquisitions or investments;
- our ability to effectively manage our international operations and expansion;
- our ability to compete successfully against current and future competitors;

- the evolution of technology affecting our products, services and markets;
- the impact of certain new accounting standards and guidance, as well as the time and cost of continued compliance with existing rules and standards;
- our beliefs regarding the use of Non-GAAP financial measures;
- our ability to comply with modified or new industry standards, laws and regulations applicable to our products, services and business, including the General Data Protection Regulation (“GDPR”), the California Consumer Privacy Act of 2018 and other privacy regulations that may be implemented in the future, and Secure Telephone Identity Revisited and Signature-based Handling of Asserted Information Using toKENs (“STIR/SHAKEN”), and other robocalling prevention and anti-spam standards and increased costs associated with such compliance;
- our ability to manage fees that have been or may be instituted by network providers that increase our costs;
- our ability to maintain, protect and enhance our intellectual property;
- our expectations regarding litigation and other pending or potential disputes;
- our ability to service the interest on our Convertible Notes (as defined herein) and repay such Convertible Notes, to the extent required; and
- other risks related to our indebtedness.

We caution you that the foregoing list may not contain all the forward-looking statements made in this Annual Report on Form 10-K.

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this Annual Report on Form 10-K primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition, results of operations and prospects. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in the section titled “Risk Factors” and elsewhere in this Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this Annual Report on Form 10-K. We cannot assure you that the results, events and circumstances reflected in the forward-looking statements will be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements.

The forward-looking statements made in this Annual Report on Form 10-K relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this Annual Report on Form 10-K to reflect events or circumstances after the date of this Annual Report on Form 10-K or to reflect new information or the occurrence of unanticipated events, except as required by law. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

Risk Factors Summary

The following is a summary of the principal risks that could adversely affect our business, results of operations and financial condition.

Risks Related to Our Business

- Our future growth and the success of our expansion plans depend on a number of factors that are beyond our control.
- Our growth and financial health are subject to a number of economic risks.
- The market in which we participate is highly competitive, and we may not compete effectively.
- We may not be able to attract new customers in a cost-effective manner.
- The market for some of our services is new and unproven, and may decline or experience limited growth.
- Our ability to meet our goals for revenue growth, cash flow and operating performance depends on customers increasing their use of our services.
- We may not be able to increase the revenue that we derive from enterprises.
- We may not be able to develop service enhancements or new services that achieve market acceptance.
- As we continue to expand geographically and otherwise, we may experience difficulty maintaining our corporate culture and operational infrastructure.
- We have grown rapidly, and may not be able to manage the growth effectively.
- Our pricing and billing systems are complex, and errors could adversely affect our results of operations.
- We must continue to develop effective systems to support our business.
- We may not be able to maintain and enhance our brand and increase market awareness.
- Failure to deliver high-quality support may adversely affect our customer relationships.
- We operate internationally, which exposes us to significant risks.
- The military conflict between Russia and Ukraine, including an expansion of that conflict to other areas, may adversely affect our business.
- If the COVID-19 infection rate returns to pandemic levels, it may harm our business and results of operations.
- Some of our revenue is concentrated in a limited number of enterprise customers.
- Attacks on or breaches of our networks or systems, or on those of third parties on which we rely, including denial-of-service and other cyberattacks, may result in disruption to our services, which could harm our business.
- We are currently subject to litigation, including litigation related to taxes and charges associated with our provision of 911 services.
- Customer misuse of our services and software could result in litigation and harm our business.
- We are subject to litigation in the ordinary course of business, which may harm our business.
- The communications industry faces significant regulatory uncertainties.
- The effects of increased regulation of IP-based service providers are unknown.
- We must obtain and maintain numerous licenses and permits, in the United States and internationally, to operate our network.
- If we violate regulatory requirements that apply to our operations, we may not be able to conduct our business.
- The FCC's repeal of its Network Neutrality Rules could harm our business.
- Our business is subject to complex and evolving laws, commercial standards, contractual obligations and other requirements regarding privacy and data protection.
- Our business may be harmed if we cannot obtain, retain and distribute local or toll-free numbers.
- We may be exposed to liabilities under anti-corruption, export control and economic sanction regulations.
- Third party intellectual property rights could prevent us from using technologies needed to provide our services.
- Our use of open source software could negatively affect our ability to sell our services and subject us to litigation.
- Indemnity provisions in various agreements potentially expose us to substantial liability.
- We may fail to protect our internally developed systems, technology and software and our intellectual property.
- We may be liable for the information that content owners or distributors distribute over our network.
- Third parties may use our services to commit fraud or steal our services.
- Our customers may choose to discontinue use of VoIP-based services and revert to traditional network service providers.
- We may lose customers if our platform or network fails or is disrupted.

- Defects or errors in our services could harm our business.
- If our emergency services do not function properly, we may be exposed to significant liability.
- Termination of relationships with key suppliers could cause delay and additional costs.
- Our customer churn rate may increase.
- The prices for some of our services have decreased in the past and may do so again in the future.
- The need to obtain additional IP circuits or interconnect with other networks could increase our costs.
- The loss of any member of our senior management team or key employees could harm our business.
- If we are unable to hire, retain and motivate qualified personnel, our business will suffer.
- We could be subject to additional tax liabilities for historic and future sales, use and similar taxes.
- Our global operations and legal entity structure subject us to potentially adverse income tax consequences.
- Our ability to use our net operating loss and tax credit carryforwards to offset future taxable income may be limited.
- We may be subject to significant tax-related liabilities and indemnity obligations if the Spin-Off (as defined below) is taxable.
- Our estimates or judgments relating to our critical accounting policies may prove to be incorrect.
- We may be unable to maintain an effective system of disclosure controls and internal control over financial reporting.
- If our goodwill or intangible assets become impaired, we may be required to record a significant charge.
- Foreign currency exchange rate fluctuations may harm our business.
- Natural disasters, pandemics, power outages, terrorist attacks, acts of war, civilian unrest and similar events could harm our business.
- We may acquire other businesses, which may divert our management's attention and impact our stock price.

Risks Related to the Convertible Notes

- Servicing our future indebtedness may require a significant amount of cash, which we may not have.
- We may not have the ability to raise the funds necessary for cash settlement of the Convertible Notes.
- The conditional conversion feature of the Convertible Notes may adversely affect our financial condition and operating results.
- The capped call transactions may affect the value of the Convertible Notes and our Class A common stock.
- We are subject to counterparty risk with respect to the Capped Calls.

Risks Related to Ownership of Our Class A Common Stock

- The trading price of our Class A common stock may be volatile and you could lose all or part of your investment.
- Substantial future sales of shares of our Class A common stock could cause the price of our Class A to decline.
- Our dual class capital structure concentrates voting control.
- We cannot predict the impact our capital structure may have on our stock price.
- We are effectively controlled by David A. Morken, our Co-Founder and Chief Executive Officer, whose interests may differ from other stockholders.
- Our stock price and trading volume could decline if securities or industry analysts stop covering our Class A Common Stock.
- Anti-takeover provisions in our organizational documents and Delaware law, could impair a takeover attempt.
- Our certificate of incorporation and bylaws include super-majority voting provisions.
- Our bylaws provide that Delaware will be the sole and exclusive forum for certain stockholder litigation.
- We may need additional capital in the future and such capital may be limited or unavailable.
- We do not intend to pay dividends for the foreseeable future.

PART I - FINANCIAL INFORMATION

Item 1. Business

Overview

A global communications transformation is underway, and we believe Bandwidth is at the center. Our mission is to develop and deliver the power to communicate. We enable innovative organizations—from startup app developers to the world’s largest enterprises—to engage their end-users and deliver exceptional experiences everywhere people live, learn, work and play. Backed by the Bandwidth Communications Cloud, a global owned-and-operated network spanning more than 60 countries reaching over 90 percent of global gross domestic product (“GDP”), innovative enterprises use Bandwidth’s Application Programming Interfaces (“APIs”) to easily embed voice, messaging and emergency services capabilities into software and applications. Bandwidth was the first CPaaS provider to offer a robust selection of APIs built on our own cloud platform. Our award-winning support teams help businesses around the world solve complex communications challenges every day.

Bandwidth’s business benefits from multiple global megatrends, including the enterprise migration to the cloud, the adoption of Contact Center as a Service platforms, the need to be able to work from anywhere, the reinvention of customer experience and the growth in messaging applications to engage directly with consumers. We believe these megatrends, which have created sizable total addressable markets, are secular, long-lasting and still early in the adoption curve.

With the combination of our software APIs, our global Communications Cloud and our broad range of experience with global regulatory frameworks, we believe Bandwidth is one of the best-positioned providers in our space to deliver business-critical communications for global enterprises. In fact, Bandwidth already powers all the 2022 Gartner[®] Magic Quadrant Leaders in the key cloud communications categories of Unified Communications as a Service (“UCaaS”) and Contact Center as a Service (“CCaaS”).

Our long-term vision is to continue strengthening this position as the key enabling platform for communications transformation. We will seek to do this in three ways: (1) by cross-selling and up-selling within our existing customers as they benefit from our global footprint and powerful APIs to automate and scale cloud communications; (2) by focusing on direct-to-enterprise growth to serve Global 2000 enterprises that come directly to Bandwidth to leverage our services to accelerate their digital transformations, and (3) by aiming to be the preferred provider for Software as a Service (“SaaS”) platforms that use conversational messaging to create digital engagements that enhance the customer experience. These three strategies are the foundation of the durable business we seek to build.

Operating Segments

As a result of certain changes in our business during the quarter ended March 31, 2022, we re-evaluated our segment reporting and determined that one segment was appropriate, rather than the previously reported segments comprising “CPaaS” and “Other”. The primary drivers for this change were the strategic alignment of our operating departments and the sale of certain immaterial legacy businesses. We currently operate in one operating segment. Operating segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the chief operating decision maker, who is our Chief Executive Officer, in deciding how to allocate resources and assessing performance. Our chief operating decision maker allocates resources and assesses performance based upon consolidated financial information.

Go-to-Market Strategy

Bandwidth’s go-to-market strategy is designed around the global shift from on-premises based technology to cloud-based communications. We believe we are the only global CPaaS provider that also owns and operates our own Communications Cloud network. This competitive differentiator has enabled Bandwidth to power each successive wave of the cloud communications revolution—from the unified communications hyperscalers, to the messaging platform leaders, and now directly to global enterprises. As each of these customer categories uses

services on the Bandwidth Communications Cloud in its own unique way, we have designed three key market offerings to power digital communications transformation:

- *Market Offering 1: Global Communications Plans.* This serves the leading power platforms at the forefront of the communications transformation in UCaaS and CCaaS, through a business-to-business-to-business (“B2B2B”) delivery model. We enable these customers to rapidly automate voice, global number management and many other services on a scalable, global basis.
- *Market Offering 2: Programmable Services.* This comprises our text messaging solutions, through which we support innovative SaaS platforms with use cases like retail and eCommerce promotions, financial services identity authentication, and healthcare patient engagement, through a business-to-business-to-consumer (“B2B2C”) delivery model. Programmable Services customers come to our Bandwidth Communications Cloud because we offer high capacity, volume and deliverability. We believe this category represents a significant opportunity for future growth due to our ability to scale with customer demand.
- *Market Offering 3: Global Enterprises.* This category is a business-to-business channel, where Global 2000 enterprises can now engage directly with us to leverage our services in their digital transformation. Bandwidth provides solutions to facilitate these customers’ efficient transition from their current on-premises equipment to a fully cloud-based solution. To capitalize on this growing opportunity, we now have a dedicated focus on enterprises.

Market Offering 1: Global Communications Plans

Through our Global Communications Plans market offering, we power all the leaders in UCaaS and CCaaS, as recognized by the research firm Gartner, including Microsoft, Google, Zoom, RingCentral, Genesys, and Five9. We have been co-creating with many of these customers for more than a decade.

These leaders rely on Bandwidth to deliver the voice, messaging, and emergency services that are central to their own user experiences. Our APIs also expedite customer onboarding with real-time global programmable number management (ordering, porting, provisioning) to allow providers to customize their customer journeys, embed our global communications capability into their platforms, and reduce friction to accelerate onboarding. These platforms are global in nature, and they expect a communications partner who can provide direct global coverage and regulatory insight. We believe our leadership in this space continues to expand with our global footprint.

We believe Bandwidth’s toll-free voice solution is a major reason contact center platforms build with Bandwidth for their North American business. Offering 5X redundancy with available hands-free alternative routing, our own toll-free voice network is directly peered with four additional network partners, offering customers greater peace of mind. Whenever possible, Bandwidth keeps calls on its own network to enable excellent quality and better return on investment. Our four additional peered networks further enable best-in-class coverage as well as resilience—so if one network experiences quality-impacting issues, calls can be routed to a different network seamlessly, before impacts are even felt. Bandwidth’s Call Assure solution, announced in October 2022, provides hands-free alternative routing that is fully insulated from the core network to protect against an extraordinary disruption, such as a fire, natural disaster or cyberattack.

Market Offering 2: Programmable Services

Our Programmable Services market offering is aimed at B2B2C platforms that use Bandwidth to deliver digital engagement experiences, primarily through our text messaging solutions.

With a 98 percent open rate by users, text messaging has become a business-critical communication channel to reach consumers. Our easy-to-use APIs and proven track record for deliverability have made Bandwidth a choice for many leading platforms in text messaging.

Our messaging customers are powering digital engagements across many of the major brands of products people wear, eat, drive, and use every day. Use cases include retail and eCommerce promotions, financial services identity authentication, healthcare patient engagement, and many more. Bandwidth offers a full suite of messaging products, including Application to Person (“A2P”) messaging solutions supporting both SMS and MMS on Local Numbers (“10DLC”), Toll Free Numbers, and Short Codes. All our solutions support bi-directional unicode, including emojis.

Bandwidth’s capacity, high deliverability, and regulatory know-how have positioned us as a leading provider for messaging platforms. We believe we will continue to win high-volume contracts from enterprises that have run out of capacity with our competitors

Market Offering 3: Global Enterprises

Much as the leading platforms in cloud communications have done for years, followed by the messaging leaders in SaaS, now Global 2000 enterprises need to accelerate their digital transformations. Bandwidth can help these large enterprises transition from their current on-premises equipment to a fully or hybrid cloud-based solution. We now have a dedicated go-to-market focus on enterprises in the Global 2000.

By partnering with Bandwidth, global enterprises can reduce complexity, gain greater control, centralize communication resources and operational workloads, and better prepare for future scale. We believe Bandwidth’s history as an enabler to the platform leaders creates additional competitive benefits, such as deep automation of communications services, enterprise-grade quality and support, as well as deep operational relationships with the largest UCaaS and CCaaS platforms.

With these three market offerings, we aim for Bandwidth to be a “one stop shop” and critical enabler for global enterprises, SaaS platforms, and cloud communications platforms. We believe the combined power of our software platform and global Communications Cloud helps our customers to future-proof their strategy for the integrations of today, and new services to come.

The Bandwidth Communications Cloud

We believe one of our key competitive differentiators is the Bandwidth Communications Cloud. It provides a communications developer platform on top of an all-IP, owned-and-operated network with global reach. We believe we provide reliability, scalability, and usage-based control for global business-critical communications.

Automation and Workflow

The Bandwidth Communication Cloud’s command over our own numbering resources enables real-time porting, provisioning and number ordering en masse, and includes:

- coverage in more than 60 countries, serving 90 percent of global GDP;
- network platform paired with peering relationships with major global networks ensure our customers are never more than one hop away from the public switched telephone network (“PSTN”);
- 5x resilient U.S. toll-free network, with interconnections to four toll-free networks in addition to our own, designed for best-in-class resiliency from a single provider;
- public safety connectivity purpose-built for today’s dynamic, increasingly remote workforce, interconnected with emergency calling networks worldwide;
- A2P messaging designed to support best-in-class deliverability and insight; and
- a broad range of experience with global regulatory frameworks earned through offering communications services in more than 60 countries and territories.

Core Product Domains

Bandwidth is continually investing in new domains in our Communications Cloud. Below are some of the major product offerings and use cases supported:

Voice. We offer customers the ability to interact with our voice services through SIP or programmable voice API. Our voice services are used to build voice calling in applications and platforms, orchestrate call flows between users or machines, record and bridge calls, initiate text-to-speech for interactive voice response and more. Enterprises can customize high-quality call routing for business voice use cases and global reach. Some of the common use cases are:

- ***Powering calling plans within cloud communications platforms (UCaaS, CCaaS, Meetings Solutions):*** Our platform empowers cloud communications leaders to connect their enterprise end-users with local and toll-free connectivity at global scale.
- ***Embedding ‘click-to-call’ feature:*** We enhance our enterprise customers’ ability to connect with consumers instantly. Our programmable voice API enables many use cases including call notifications and surveys, advertising campaigns, etc.
- ***Transitioning from traditional premise focused communications to cloud based services:*** As enterprises migrate from on-premises equipment to the cloud, Bandwidth can fuel their digital transformation with our software-driven SIP trunking services designed to integrate in hybrid or full cloud deployments.

Messaging API. Our software APIs for messaging deliver a full suite of A2P messaging capabilities, designed to help brands engage with their customers. Bandwidth’s North American messaging services are enabled for local and toll-free phone numbers as well as short codes. While we provide a wide range of functionalities, some of the common use cases are:

- ***Automated real-time notification and alerts:*** Our APIs empower product leaders and enterprise developers with predefined functionalities to send and receive A2P messages, uniquely integrated with their own business processes or tech stacks.
- ***Two-factor authentication:*** We enable enterprises to verify the identity and maintain security of end users through our software-based, multi-channel verification service that sends unique codes to end users to log in to mobile and web applications.
- ***Group messaging:*** Product owners utilize our platform to build messaging applications that enable their end-users to share SMS and MMS messages, videos, carry out polls and surveys amongst other uses without leaving the application.

Emergency Services. We provide complete communications solutions (full PSTN replacement) with integrated local emergency services in 38 countries around the globe. We can instantly connect numbers, devices or applications to emergency services with reliable and accurate emergency routing.

- ***Dynamic Location Routing:*** Enables real-time, geocoded routing based on X,Y coordinates of the caller and defined Public Safety Answering Point boundaries. This helps enterprises meet compliance requirements and enable increasingly remote workforces.
- ***Emergency Calling API:*** Connects apps to the public safety infrastructure without the need for on-premise technology or telephony expertise.
- ***Emergency Notification API:*** Enables a multi-channel notification sent to on-site security personnel when an emergency call takes place within a large enterprise.

Video API. Our API for video easily combines with our programmable voice API to create an integrated collaboration experience, and enables users to join calls by video or by voice calling. Easily deployed with mobile,

browser, and server SDKs, our Video API provides such features as multi-party conferencing, support for VP8, H.264 video codecs, screen sharing, connection to the PSTN, and detailed call records.

- ***PSTN, SIP and browser-based endpoints:*** We allow customers to connect to PSTN, SIP, and browser-based voice and video endpoints to create a multi-party communication experience, and enable users to make and receive calls around the globe.
- ***Improve the impact of direct in-application communications:*** Our API allows applications that depend on making a real connection, such as telehealth, the ability to do so without leaving the context of the application, allowing them to connect face-to-face with consumers with a trackable video.

Phone Numbers. The Bandwidth Dashboard is Bandwidth's user-friendly interface for a comprehensive number management solution. Every function within The Bandwidth Dashboard has an accompanying API, allowing our customers' product leaders and developers to integrate Bandwidth's functionality within their own user interfaces or web applications.

- ***Global Number Management:*** Order, provision, and activate local and toll-free phone numbers around the world, in real-time, allowing customers to search and sort by availability, geographic region, city/state, country/area code and many other options.
- ***Programmatically port up to 20,000 numbers simultaneously:*** Gain control over the confusing carrier landscape and automate number porting across all major carriers. This allows for a more reliable end-user experience with controlled scheduling and triggered porting activation.

Insights. Bandwidth Insights gives customers a detailed view of their voice and messaging performance to make data-driven decisions and ensure quality of service.

- ***Understand and solve for deliverability issues:*** Real-time error codes and alerting allows enterprises to understand and solve for SMS deliverability challenges in an ever-changing text messaging environment.
- ***Real-time call quality analytics:*** We provide our customers with real-time call analytics including data such as call duration, customer sentiment and other attributes to better understand call performance and customer experience.
- ***Track trends, benchmarks and usage:*** Our Insights API shows trends, delivery rates and usage patterns by product and carrier.

CCaaS and UCaaS Platform Integrations. Bandwidth's global Communications Cloud integrates with several leading UCaaS and CCaaS platforms under the Duet™ solutions portfolio, to provide a holistic solution that's seamlessly aligned with the organization, and allows enterprises to move communications to the cloud at their own pace. Once numbers are in the Bandwidth Communications Cloud, they can be moved from platform to platform without leaving Bandwidth, decreasing cloud migration risk and complexity.

- ***Duet™ for Microsoft Teams:*** As mentioned earlier, we have a Duet partnership with the leading CCaaS platform. We also have Duets in the UCaaS space, including Duet for Microsoft Teams. This includes:
 - ***Direct routing & dynamic E911:*** Consolidate SIP globally with meaningful direct access to the telephony, and solve for an increasingly dynamic workforce from a single provider.
 - ***Hosted session border controllers (SBCs):*** Connect telephony without another piece of on-premise equipment. A hosted SBC eliminates complexity and allows for a truly cloud deployment.
 - ***Send-to SMS web application:*** Allows enterprises the ability to send text messages in and outside of the organization from within the Teams environment, built to work seamlessly with a direct routing or BYOC strategy.

Competitive Strengths

We believe three things give Bandwidth a competitive advantage. First, we have an all-IP platform with global reach. The Bandwidth Communications Cloud provides the connectivity, APIs, security, privacy, workflows, and tools to give enterprises of all sizes a simple, scalable way to consume our services. Second, our API-first approach facilitates the embedding of automation, enterprise-grade tooling, and simple UX/UI throughout the Bandwidth Communications Cloud. Third, we have a broad range of experience with global regulatory frameworks informed by our communications services offerings. We believe customers view Bandwidth as a trusted resource, helping them navigate constant change in the global regulatory landscape. In addition, our innovation-rich culture, customer-centric solutions and track record of successful execution provide us with the following competitive strengths:

A full-stack, open Communications Cloud: We built the Bandwidth Communications Cloud to be enterprise grade. As a result, we believe our deployment is fast, our software APIs are flexible and we enable enterprises to launch and scale quickly. The scale and quality of our Communications Cloud allows us to serve large-scale Internet companies and cloud service providers. It also allows us to provide enterprises with one of the broadest, most complete communications services solutions in the industry--solutions that are ready to integrate with leading UC and contact center platforms to create customized, best-of-breed solutions. Our large library of APIs (including voice, messaging, numbers, emergency services, insights and integrations) allows customers to incorporate a broad range of capabilities into their products and services that would be otherwise unattainable.

Global reach from a single source: Our Communications Cloud provides coverage in more than 60 countries covering more than 90 percent of global GDP. This means our customers can consolidate their communications vendor relationships with Bandwidth, while gaining global reach, resiliency and efficiency for their communications stack. We offer greater levels of quality and delivery assurance than providers offering aggregated services across the public Internet or through resold partnerships. We believe that the control we have over our Communications Cloud gives us distinct competitive advantages that include: enabling our customers to deploy cloud-native services, consistent high quality, in-depth enterprise support, real-time traffic visibility and economies of scale.

CPaaS based emergency calling capabilities: We believe we are one of the only CPaaS providers with full stack emergency service capabilities. In many countries, it is a legal obligation to ensure on-premise access to local emergency services. Our customers can meet compliance commitments using a single provider in multiple markets where they do business—across North America, Europe and Asia-Pacific. Moreover, our dynamic geospatial routing capability routes emergency calls based on a real-time location of the caller to produce industry-leading results.

Experience & Expertise: Our senior leadership team consists of both new and long-tenured leaders – each an expert with deep and proven experience in the telecommunications and SaaS space. We regularly interact with local regulators in more than 30 countries, and we currently power all the 2022 Gartner Magic Quadrant Leaders in UCaaS and CCaaS. We seek to bring this body of experience and knowledge to all our customer engagements.

Growing Relationships with Low Customer Churn: We address the complex needs of the customers we serve, and as a result, these enterprises have continued to innovate and grow with our platform over many years. A number of our largest enterprise customers have been on our platform for more than ten years. Our relationship with each of the enterprises we serve often spans product suites, divisions and use cases over time. Based on surveys conducted after customer interactions in 2022, our customers have expressed a 97% satisfaction rate.

A unique culture focused on people: At Bandwidth, we are mission first. To accomplish that mission, we've created a unique, service-oriented culture, centered on meaningful work, lifting each other up, and investing in the bodies, minds, and spirits of our Bandmates. For our customers, this means there's always a smiling, world-class Bandmate on the other end of the line who will go the extra mile for them. We often hear from our customers that Bandwidth just cares more. For our employees, this means we make a “whole person promise” to offer meaningful work and programs that ensure Bandmates can find the work/life balance necessary to enjoy a healthy

and fulfilling life. Our culture is focused on helping each other succeed in our mission and makes work-life balance possible isn't just something to feel good about. It drives real results. Our Bandmate engagement and satisfaction scores are consistently ranked higher than our peers. While we are exceptionally proud of the team we have assembled, we also acknowledge that there is important work for us to do to continue developing a more diverse and inclusive team. We believe diverse and inclusive teams are more innovative and make better business decisions.

At Bandwidth, we say, "Your music matters to the BAND." We celebrate differences and encourage our team members to be their authentic selves. No matter what music a team member makes, we support each team members' unique gifts and needs with our programs that deliver on our Whole Person Promise. The real masterpiece is in the music we make together with the strength and ingenuity to lift up all those we serve.

Our Your Music Matters program builds outreach programs and initiatives to fill our recruiting funnel with diverse candidates who possess the "Bandwidth Edge"—smart, common sense, hardworking, honest, competitive energy and emotional intelligence. We build external and internal campaigns to fill the recruiting funnel using our talented team members, creative local and non-local outreach partnerships, and virtual platforms to connect with talent who come from different backgrounds, skills, abilities and experiences.

We believe the benefits that we offer each of our team members are an important component of our Whole Person Promise. These benefits, which vary based on country location and applicable laws, include: robust medical benefits in which we pay 100% of the premiums for medical, dental and vision insurance; 401(k); industry leading parental leave; and access to mental health resources.

Bandwidth's compensation philosophy embraces transparency and educates all Bandmates on our benchmarking process, pay structure design and logical approach to compensation strategy. Research has shown that rigorously-designed compensation strategies like ours are one of the best ways to combat pay disparity and ensure fairness for every team member.

Our Customers

We have a broad and diversified customer base. We benefit from long-standing relationships with some of the largest tech companies, well-recognized enterprise customers, as well as innovative SaaS platforms. Many of our customers have multi-year contracts, with no single customer representing 10% of total revenue for the year ended December 31, 2022.

Our management is highly focused on creating and maintaining strategic partnerships beyond standard transactional customer relationships. We seek to empower enterprises to create, scale and operate business-critical services across any mobile application or connected device, and this capability reinforces our customer relationships.

The majority of our customers sign master service agreements ("MSAs") that contain standard terms and conditions, including billing and payment, default, termination, limitations of liability, confidentiality, assignment and notification, and other key terms and conditions. Customers order specific services in separate service order forms that incorporate the applicable MSA. Each service order form details the minimum contract duration, any applicable monthly recurring charge and applicable non-recurring charges. The terms and conditions for each order are also specified in the applicable service order form.

Sales and Marketing

Our sales and marketing teams are part of a single revenue organization that works closely together to identify and acquire new customers, expand relationships with existing enterprises, and integrate them with the Bandwidth Communications Cloud. Our marketing team generates marketing qualified leads and pipeline for sales through a number of demand-generating channels, including our website, marketing campaigns, webinars, sponsored virtual and live events, white papers and blogs, public relations, social media, analyst relations, paid

search and search engine optimization and outbound lead development efforts. These marketing initiatives enhance awareness, preference and adoption of our services, and help us cross-sell opportunities with existing customers.

We engage potential customers and existing customers through an enterprise-focused sales approach. Our sales and marketing executives often directly engage C-level executives and other senior business, product and technical decision makers responsible for the end-user experience and financial results at their enterprises. Our sales and marketing executives work to educate these decision makers and their teams about the benefits of using the Bandwidth Communications Cloud to engage their end-users and deliver exceptional experiences everywhere people live, learn, work and play. Our sales team includes a full stack of sales development, inside sales, field sales, revenue enablement and sales engineering functions.

Research and Development

Our ability to compete depends in large part on our continuous commitment to research and development (“R&D”). We seek to continuously enhance our existing offerings and develop new products and services. Our product and network teams are responsible for the ongoing design, development, testing and release of new features and functions in the Bandwidth Communications Cloud. Our executive management is responsible for creating a vision for our product roadmap and new innovation, and our sales and marketing teams relay customer insights, enterprise needs and possible new use cases or enhancements.

Our vision for the Bandwidth Communications Cloud is to be viewed as a singular resource for global enterprise communications. Our near-term roadmap includes a range of solutions to help enterprises create a better total experience for consumers and employees whether through the contact center, hybrid work, text messaging engagement, intelligent emergency services, or a combination thereof.

Competition

The CPaaS market is rapidly evolving and increasingly competitive. We believe that the principal competitive factors in our market are:

- platform scalability, reliability, deliverability, security and performance;
- network control and quality;
- global reach;
- completeness of offering;
- ease of integration and programmability;
- product features;
- customer support;
- ability to deliver measurable value and savings;
- the cost of deploying and using our service offerings;
- the strength of sales and marketing efforts;
- brand awareness and reputation; and
- credibility with product executives and developers.

We believe that we compete favorably based on the factors listed above and believe that none of our competitors currently competes directly with us across the combination of our global scale, all-IP Communications Cloud, enterprise-grade APIs, and broad regulatory experience gained through our service offerings.

Our competitors fall into two primary categories:

- CPaaS companies that offer a narrower set of software APIs, more limited global reach, less robust customer support and fewer other features while relying on third-party networks and physical infrastructure; and
- Incumbent network operators that offer limited geographical reach and limited developer functionality on top of their networks and physical infrastructure, such as AT&T, Colt, Lumen and Verizon.

Some of our competitors have greater financial and technical resources, geographic reach, name recognition or intellectual property portfolios than we do. In addition, some competitors may offer a greater number and variety of products and services than we do, or may offer services in geographies in which we do not operate. We expect competition to intensify in the future. See “Risk Factors—Risks Related to Our Business” elsewhere in this Annual Report on Form 10-K, for additional information on the competitive environment in which we operate, and risks related thereto.

Intellectual Property

We rely on a combination of patent, copyright, trademark and trade secret laws in the United States and other jurisdictions, as well as license agreements and other contractual protections, to protect our proprietary technology. We also rely on registered and unregistered trademarks to protect our brand.

As of December 31, 2022, we had twenty-nine U.S. patents and three U.S. patent applications pending. In addition, as of December 31, 2022, we had nineteen registered trademarks and two trademark applications pending in the United States and elsewhere.

We seek to protect our intellectual property rights by requiring our employees and independent contractors involved in development of intellectual property on our behalf to enter into agreements acknowledging that all works or other intellectual property generated or conceived by them on our behalf are our property, and assigning to us any rights, including intellectual property rights, that they may claim or otherwise have in those works or property, to the extent allowable under applicable law. See “Risk Factors—Risks Related to Our Business” elsewhere in this Annual Report on Form 10-K for additional information on our intellectual property rights and risks related thereto.

Employees

As of December 31, 2022, we had approximately 1,100 employees, who are primarily located in the United States, Europe and Asia Pacific. None of our employees are represented by a labor union or covered by a collective bargaining agreement. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

Regulatory

General

We and the communications services that we provide through our Communications Cloud and software APIs are subject to many U.S. federal and state and foreign laws and regulations. These laws and regulations may concern telecommunications, as well as privacy, data protection, intellectual property, competition, consumer protection, taxation or other subjects. Many of the laws and regulations that apply to us and the communications services that we provide through our Communications Cloud and software APIs are still evolving and being tested in courts and could be interpreted or applied in ways that could harm our business. We describe below certain material components of the regulatory framework in which we operate. See “Risk Factors—Risks Related to Our Business” elsewhere in this Annual Report on Form 10-K for additional information on the regulatory framework in which we operate and risks related thereto.

Federal Telecommunications Regulation

The Federal Communications Commission (“FCC”) has jurisdiction over interstate and international telecommunications services in the U.S. We have obtained FCC authorization to provide services on a facilities and resale basis.

Under the Communications Act of 1934, as amended by the Telecommunications Act of 1996 (the “1996 Act”), any entity, including cable television companies and electric and gas utilities, may enter any telecommunications market, subject to reasonable state regulation of safety, quality and consumer protection. The industry continues to evolve toward new services built upon IP technologies. With these technological advances, there have been challenges to the traditional regulatory structure under the 1996 Act. Among the challenges are fraud and abuse in the form of illegal robocalling and unwanted text messaging. In December 2019, Congress adopted the Telephone Robocall Abuse Criminal Enforcement and Deterrence (“TRACED”) Act. Among other things, the TRACED Act directs the FCC to conduct a number of different rulemaking proceedings and increases the FCC’s enforcement authority. As a result, the FCC is conducting several proceedings to understand and address fraud and abuse in the form of illegal robocalling. Separately, the FCC and other governmental agencies work to thwart illegal robocalling through the Telephone Consumer Protection Act of 1991 (the “TCPA”), which restricts telemarketing calls and the use of automatic text messages without the recipient’s proper consent. The Federal Trade Commission and state attorneys general also have the authority to enforce compliance with the TCPA. Moreover, the TCPA also allows aggrieved private parties to directly seek civil remedies and seek statutory-defined damages for calls or text messages received without recipients’ proper consent.

VoIP Regulation. Some communications services provided through our software APIs may qualify as Voice-over Internet Protocol (“VoIP”). The FCC has imposed regulatory requirements on VoIP providers that previously applied only to traditional telecommunications providers, such as obligations to provide 911 functionality, to contribute to the federal universal service fund, to comply with regulations relating to local number portability, to abide by the FCC’s service discontinuance rules, to contribute to the Telecommunications Relay Services fund and to abide by the regulations concerning Customer Proprietary Network Information (“CPNI”), outage reporting, access for persons with disabilities, the Communications Assistance for Law Enforcement Act and expanded obligations with respect to the transmission of emergency calls. In some instances, these regulations indirectly affect us because they directly apply to our customers. Additionally, several state public utility commissions are conducting regulatory proceedings that could affect our rights and obligations, or the rights and obligations of our customers, with respect to IP-based voice applications. Some states have taken the position that the “local” component of VoIP service is subject to traditional regulations applicable to local telecommunications services, such as the obligation to pay intrastate universal service fees and other state-related telecommunications taxes, fees and surcharges. We cannot predict whether the FCC or state public utility commissions will impose additional requirements, regulations or charges upon our provision of services related to IP communications.

Universal Service. Some services are subject to federal and state regulations that implement universal service support for access to communications services in rural and high-cost areas and to low-income consumers at reasonable rates; and access to advanced communications services by schools, libraries and rural health care providers. In some instances, these regulations indirectly affect us because they directly apply to our customers. The FCC assesses a contribution amount based on a percentage of interstate and international revenue we receive from certain customers as our contribution to the Federal Universal Service Fund. These assessments are generally passed on to our customers. Additionally, the FCC has ruled that states may assess contributions to their state Universal Service Funds on VoIP providers’ intrastate revenue. Any change in the assessment methodology may affect our revenue and expenses, but at this time it is not possible to predict the extent we would be affected.

Inter-carrier Compensation. Telecommunications carriers compensate one another for traffic carried on each other’s networks. Interexchange carriers pay access charges to local telephone companies for long distance calls that originate and terminate on local networks. Local telephone companies historically have charged one another for local and Internet-bound traffic terminating on each other’s networks. The methodology by which carriers have

compensated one another for exchanged traffic, whether it be for local, intrastate or interstate traffic, has been subject to ongoing reform efforts at the FCC.

In its November 2011 Universal Service Fund/Intercarrier Compensation Transformation Order (the “USF/ICC Transformation Order”) and subsequent related FCC orders, most terminating switched access charges and all reciprocal compensation charges were capped at then-current levels, and were reduced to zero over, as relevant to us, generally a six-year transition period that began July 1, 2012.

Pursuant to the USF/ICC Transformation Order, VoIP, while remaining unclassified as either an information or a telecommunications service, was prospectively categorized as either local or non-local traffic. On December 17, 2019, the FCC issued an order that concludes that local exchange carriers (“LECs”) may assess end office switched access charges only if the LEC or its VoIP partner provides a physical connection to the last-mile facilities used to serve an end user. If neither the LEC nor its VoIP partner provides such a physical connection, the LEC may not assess end office switched access charges because it is not providing the functional equivalent of end office switched access. The FCC also decided to give its order retroactive effect. We cannot predict the impact on our business, including whether other carriers will agree with our legal interpretations and treatments, at this time.

In a Report and Order released on October 9, 2020, the FCC adopted new rules governing various aspects of the intercarrier compensation structure applicable to toll free (8YY) calls (“8YY Originating Access Reform Order”). The new 8YY originating access rules took effect on December 28, 2020. The new rules are generally intended to shift most switched access charges for 8YY calls to a bill-and-keep framework over a three-year period.

Emergency Services. Pursuant to Federal legislation called Ray Baum’s Act and Kari’s Law, the FCC adopted new emergency calling regulations that began to take effect in early 2020 continuing through January 2022. These new regulations address the obligations of communication service providers and software providers, like us, as well as equipment installers, managers and operators of a variety of different types of communications systems, and generally require uniformity in dialing patterns for contacting emergency operators, implementing central notification functionalities. The rules also require the transmission of more precise location information in enterprise or campus environments. The granularity of the location information depends on the type of service. There is some ambiguity in the rules as to the specific obligations of each party involved in the service delivery chain and the rules have not yet been interpreted by the FCC or a court. More recently, in November 2022, the FCC released new 911 outage reporting requirements that expanded the scope of previous 911 outage reporting obligations to now broadly include originating service providers.

State Telecommunications Regulation

The 1996 Act was intended to increase competition in the telecommunications industry, especially in the local market. With respect to local services, incumbent local exchange carriers (“ILECs”) such as AT&T are required to allow interconnection to their incumbent networks and to provide access to network facilities, as well as several other pro-competitive measures.

State regulatory agencies have jurisdiction when our facilities and services are used to provide intrastate telecommunications services. A portion of our traffic may be classified as intrastate telecommunications and therefore subject to state regulation. We are authorized to provide competitive local exchange telecommunications services in 49 states and the District of Columbia, and thus are subject to these additional regulatory regimes. Changes in applicable state regulations could affect our business.

In addition, we need to maintain interconnection agreements with ILECs where we wish to provide service, which are subject to approval by individual states and subject to state arbitration in the event of disputes. We expect that we should be able to negotiate or otherwise obtain renewals or successor agreements through adoption of others’ contracts or through arbitration proceedings, although the rates, terms and conditions applicable to interconnection and the exchange of traffic with certain ILECs could change significantly in certain cases.

International

As an international company, we are subject to telecommunications laws and regulations in the non-US jurisdictions in which we offer our services. These laws and regulations may concern telecommunications, as well as privacy, data protection, intellectual property, competition, consumer protection, taxation or other subjects. In European markets, we are subject to the European Electronic Communications Code (the “Code”) and its transposition into the laws of the European Union (“EU”) and European Economic Area (“EEA”) countries in which we operate. The Code sets forth the European regulatory framework and harmonized rules across the EU and EEA, which govern the provision of electronic communications networks and services. While the Code provides a harmonized framework, laws of each jurisdiction of the EU and the EEA, and related regulations, will differ from country to country. For example, rules around suballocation of numbering resources differ from country to country.

The E-Privacy Directive seeks to ensure privacy and confidentiality in the processing of personal data in electronic communications. The E-Privacy Directive requires providers of publicly available electronic communications services to take appropriate technical and organizational measures to safeguard the security of services. These measures must: ensure that personal data can be accessed only by authorized personnel for legally authorized purposes; protect personal data stored or transmitted against accidental or unlawful destruction, accidental loss or alteration, and unauthorized or unlawful storage, processing, access or disclosure; and ensure the implementation of a security policy with respect to the processing of personal data. The E-Privacy Directive also requires notification of any breach or loss of personal data to the applicable NRA.

The United Kingdom’s (“U.K.”) departure from the EU was finalized in December 2020. While the Code is therefore no longer directly applicable in the U.K., we do not currently anticipate that considerable changes will be made to the U.K. regulatory framework.

Corporate Information

Bandwidth Inc. was founded in July 2000 and incorporated in Delaware on March 29, 2001. Our principal executive offices are located at 900 Main Campus Drive, Raleigh, NC 27606, and our telephone number is (800) 808-5150. Our website address is www.bandwidth.com. Information contained on, or that can be accessed through, our website does not constitute part of this Annual Report on Form 10-K.

Available Information

The following information can be found, free of charge, on our corporate website at <https://www.bandwidth.com/>:

- our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission (the “SEC”);
- our policies related to corporate governance, including our Code of Business Conduct and Ethics applicable to our directors, officers and employees (including our principal executive officer and principal financial and accounting officer), that we have adopted to meet applicable rules and regulations; and
- the charters of the Audit and Compensation Committees of our Board of Directors.

In addition, copies of our annual report will be made available, free of charge, upon written request.

We intend to satisfy the applicable disclosure requirements regarding amendments to, or waivers from, provisions of our Code of Business Conduct and Ethics by posting such information on our website. The information contained on, or that can be accessed through, our website is not incorporated by reference into this Annual Report on Form 10-K and should not be considered part of this report.

Item 1A. Risk Factors

A description of the risks and uncertainties associated with our business is set forth below. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Annual Report on Form 10-K, including the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. The risks and uncertainties described below may not be the only ones we face. If any of the risks actually occur, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the market price of our Class A common stock could decline.

Risks Related to Our Business

Our future growth and the success of our expansion plans depend on a number of factors that are beyond our control.

We have grown our business considerably over the last several years. We cannot guarantee that we will be able to maintain our growth or that we will choose to target the same pace of growth in the future. Our success in achieving continued growth depends upon several factors including:

- our ability to hire and retain qualified and effective personnel, including, but not limited to, those with the expertise required to develop and maintain our service offerings, to sell those offerings and to operate our business effectively;
- the overall economic health of new and existing markets;
- the number and effectiveness of competitors;
- the pricing structure under which we will be able to purchase services required to serve our customers;
- our ability to introduce new service offerings and maintain or enhance existing offerings;
- the availability to us of technologies needed to remain competitive;
- federal, state and international regulatory conditions, including the maintenance of regulation that protects us from unfair business practices by traditional network service providers or others with greater market power who have relationships with us as both competitors and suppliers; and
- changes in industry standards, laws, regulations, or regulatory enforcement in the United States and internationally.

Our growth and financial health are impacted by a number of risks, including uncertain capital markets, recessionary fears, high rates of inflation and higher interest rates.

In recent years, the financial markets in the United States have experienced substantial volatility in securities prices, reduced liquidity and credit availability, rating downgrades of certain investments and declining values with respect to others. If capital and credit markets continue to experience uncertainty, we may not be able to obtain debt or equity financing or to refinance our existing indebtedness on favorable terms or at all, which could impair our ability to execute on our strategy, and harm our financial performance. These conditions currently have not precluded us from accessing credit markets or financing our operations, but there can be no assurance that financial markets and confidence in major economies will not deteriorate.

In addition, we are vulnerable to changes in market preferences or other market changes, such as general economic conditions, recession and fears of recession, interest rates, tax rates and policies, and inflation. The U.S. is currently experiencing higher rates of inflation than in previous years, and we may experience a compression in our gross margins as a result. These inflationary pressures could affect wages, the cost of and our ability to obtain

components, the price of our products and services, our ability to meet customer demand, and our gross margins and operating profit. Inflation may further exacerbate other risks discussed in this “Risk Factors” section, such as risks related to our sales and marketing efforts and our ability to attract, motivate and retain sales, engineering and other key personnel. If we are unable to successfully manage the effects of inflation, our business, operating results, cash flows and financial condition may be adversely affected.

In an attempt to temper these higher rates of inflation, beginning in March 2022, the U.S. Federal Reserve steadily raised its benchmark federal funds interest rate, resulting in a commensurate rise in interest rates across numerous borrowing categories. This rise in interest rates may impact our ability to access debt capital on terms acceptable to us, or at all.

The U.S. and global economies have in the past, and will in the future, experience recessionary periods and periods of economic instability. During such periods, our existing and potential customers may choose not to expend the amounts that we anticipate based on our expectations with respect to the addressable market for the services we offer. There could also be a number of other effects from adverse general business and economic conditions on our business, including insolvency of any of our third-party suppliers or contractors, decreased market confidence, decreased interest in communications solutions, decreased discretionary spending and reduced customer demand for the services we offer, any of which could have a material adverse effect on our business, financial condition and results of operations and exacerbate some of the other risk factors contained in this Annual Report on Form 10-K.

Key vendors upon which we rely also could be unwilling or unable to provide us with the materials or services that we need to operate our communications platform or otherwise on a timely basis or on terms that we find acceptable. Our financial counterparties, insurance providers or others also may default on their contractual obligations to us. If any of our key vendors fail, we may not be able to replace them without disruptions to, or deterioration of, our services and we also may incur higher costs associated with new vendors. Transitioning to new vendors also may result in the loss of the value of assets associated with our integration of third-party services into our network or service offerings.

The market in which we participate is highly competitive, and if we do not compete effectively, our business, results of operations and financial condition could be adversely affected.

The market for cloud communications is rapidly evolving, significantly fragmented and highly competitive, with relatively low barriers to entry in some segments. The principal competitive factors in our market include completeness of our suite of service offerings, credibility with enterprises and developers, global reach, ease of integration and programmability, product features, platform scalability, reliability, deliverability, security and performance, brand awareness and reputation, the strength of sales and marketing efforts and customer support, as well as the cost of deploying and using our services. Our competitors fall into two primary categories:

- CPaaS companies that offer software APIs, less robust customer support and fewer other features, while relying on third-party networks and physical infrastructure; and
- network service providers that offer limited developer functionality on top of their own networks and physical infrastructure.

Some of our competitors and potential competitors are larger and have greater name recognition, longer operating histories, more established customer relationships, a larger global reach, larger budgets and significantly greater resources than we do. In addition, they have the operating flexibility to bundle competing products and services at little or no incremental cost, including offering them at a lower price as part of a larger sales transaction. As a result, our competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In addition, some competitors may offer services that address one or a limited number of functions at lower prices, with greater depth than our services or in different geographies. Our current and potential competitors may develop and market new services with comparable functionality to our services, and this could lead to us having to decrease prices in order to remain competitive. In

addition, some of our competitors have lower list prices than us, which may be attractive to certain customers even if those services have different or lesser functionality. If we are unable to maintain our current pricing due to competitive pressures, our revenue and margins will be reduced and our business, results of operations and financial condition would be adversely affected. Customers utilize our services in many ways and use varying levels of functionality that our services offer or are capable of supporting or enabling within their applications. Customers that use many of the features of our services or use our services to support or enable core functionality for their applications may have difficulty or find it impractical to replace our services with a competitor's services, while customers that use only limited functionality may be able to more easily replace our services with competitive offerings.

With the introduction of new services and new market entrants, we expect competition to intensify in the future. In addition, some of our customers choose to use our services and our competitors' services at the same time in order to provide redundancy in their ability to deliver their own product offerings. Moreover, as we expand the scope of our services, we may face additional competition.

If one or more of our competitors were to merge or partner with another of our competitors, this change in the competitive landscape could further adversely affect our ability to compete effectively. In addition, pricing pressures and increased competition generally could result in reduced revenue, reduced margins, increased losses or the failure of our services to achieve or maintain widespread market acceptance, any of which could harm our business, results of operations and financial condition.

Our current and potential competitors have developed and may develop in the future service offerings that are available internationally, as well as domestically. To the extent that customers seek service offerings that include support and scaling internationally, they may choose to use other service providers to fill their communication service needs before we can fully develop and integrate our international offerings. Each of these factors could lead to reduced revenue, slower growth and lower brand name recognition amongst our industry competitors, any or all of which could harm our business, results of operations and financial condition.

If we are unable to attract new customers in a cost-effective manner, then our business, results of operations and financial condition would be adversely affected.

In order to grow our business, we must continue to attract new customers in a cost-effective manner. We use a variety of marketing channels to promote our services and our communications platform, and we periodically adjust the mix of our marketing programs. If the costs of the marketing channels we use increase dramatically, then we may choose to use alternative and less expensive channels, which may not be as effective as the channels we currently use. As we add to or change the mix of our marketing strategies, we may need to expand into more expensive channels than those we are currently in, which could adversely affect our business, results of operations and financial condition. We will incur marketing expenses before we are able to recognize any revenue that the marketing initiatives may generate, and these expenses may not result in increased revenue or brand awareness. We have made in the past, and may make in the future, significant expenditures and investments in new marketing campaigns. We cannot assure you that any new investments in sales and marketing, including any increased focus on enterprise sales efforts, will lead to the cost-effective acquisition of additional customers or increased sales or that our sales and marketing efficiency will be consistent with prior periods. If we are unable to maintain effective marketing programs, then our ability to attract new customers could be materially and adversely affected, our advertising and marketing expenses could increase substantially and our results of operations may suffer.

The market for some of our services is new and unproven, may decline or experience limited growth and is dependent in part on enterprises and developers continuing to adopt our platform and use our services.

We have been developing and providing a cloud-based platform that enables developers and organizations to integrate voice and messaging communications capabilities into their software applications. This market is relatively new and unproven and is subject to a number of risks and uncertainties. We believe that our future success will depend in large part on the growth, if any, of this market. For example, the utilization of software APIs by

developers and organizations to build communications functionality into their applications is still relatively new, and developers and organizations may not recognize the need for, or benefits of, our services and platform. If they do not recognize the need for and benefits of our services and platform, they may decide to adopt alternative services and/or develop the necessary services in-house to satisfy their business needs. In order to grow our business and expand our market position, we intend to focus on educating enterprise customers about the benefits of our services and platform, expanding the functionality of our services and bringing new technologies to market to increase market acceptance and use of our platform. Our ability to expand the market that our services and platform address depends upon a number of factors, including the cost, performance and perceived value associated with such services and platform. The market for our services and platform could fail to grow significantly or there could be a reduction in demand for our services and platform as a result of a lack of customer acceptance, technological changes or challenges, our inability to successfully introduce new product offerings, competing services and platforms, decreases in spending by current and prospective customers, weakening economic conditions, geopolitical developments, global pandemics, adverse regulatory developments or other causes. If our market does not experience significant growth or demand for our services and platform decreases, then our business, results of operations and financial condition could be adversely affected.

Our ability to realize our goals for anticipated revenue growth, cash flow and operating performance depends on customers increasing their use of our services, and any loss of customers or decline in their use of our services could materially and adversely affect our business, results of operations and financial condition.

Customers generally are charged based on the usage of our services. Most of our customers do not have long-term contractual financial commitments to us and, therefore, most of our customers may reduce or cease their use of our services at any time without penalty or termination charges. We cannot accurately predict customers' usage levels, and the loss of customers or reductions in their usage levels of our services may each have a negative impact on our business, results of operations and financial condition and may cause our dollar-based net retention rate to decline in the future if our customers are not satisfied with our services. If a significant number of customers cease using, or reduce their usage of, our services, then we may be required to spend significantly more on sales and marketing than we currently plan to spend in order to maintain or increase revenue from customers. Such additional sales and marketing expenditures could adversely affect our business, results of operations and financial condition. More specifically, if:

- we do not maintain or improve our current relationships with existing key customers;
- we are not able to expand the available capacity on our network to meet our customers' demands in a timely manner;
- we do not develop and maintain relationships with new large enterprise customers; or
- our customers choose to obtain these services from either their own network or from one of our competitors,

then we may be unable to increase or maintain our revenue at acceptable margins.

If we are unable to increase the revenue that we derive from enterprises, our business, results of operations and financial condition may be adversely affected.

Our ability to expand our sales to enterprise customers will depend, in part, on our ability to effectively organize, focus and train our sales and marketing personnel and to attract and retain sales personnel with experience selling to enterprises. We believe that there is significant competition for experienced sales professionals with the skills and technical knowledge that we require. Our ability to achieve significant revenue growth in the future will depend, in part, on our ability to recruit, train and retain a sufficient number of experienced sales professionals, particularly those with experience selling to enterprises. In addition, even if we are successful in hiring qualified sales personnel, new hires require significant training and experience before they achieve full productivity, particularly for sales efforts targeted at enterprises and new territories. Our recent hires and planned hires may not

become as productive as quickly as we expect and we may be unable to hire or retain sufficient numbers of qualified individuals in the future in the markets where we do business.

With respect to enterprise customers, the decision to adopt our services may require the approval of multiple technical and business decision makers, including security, compliance, procurement, operations and IT. In addition, while enterprise customers may quickly deploy our services on a limited basis, before they will commit to deploying our services at scale, they often require extensive education about our services and significant customer support time, engage in protracted pricing negotiations and seek to secure readily available development resources. In addition, sales cycles for enterprises are inherently complex and lengthy, and some enterprise customers may not generate revenue that justifies the cost to obtain such customers. In addition, these complex and resource-intensive sales efforts could place additional strain on our limited product and engineering resources. Further, enterprises, including some of our customers, may choose to develop their own solutions that do not include our services. They also may demand reductions in pricing as their usage of our services increases, which could have an adverse impact on our gross margin. Our efforts to sell to these potential customers may not be successful. If we are unable to increase the revenue that we derive from enterprises, then our business, results of operations and financial condition may be adversely affected.

If we do not develop enhancements to our services and introduce new services that achieve market acceptance, our business, results of operations and financial condition could be adversely affected.

Our ability to attract new customers and increase revenue from existing customers depends in part on our ability to enhance and improve our existing services, increase adoption and usage of our services and introduce new services. The success of any enhancements or new services depends on several factors, including timely completion, adequate quality testing, actual performance quality, market-accepted pricing levels and overall market acceptance. Enhancements and new services that we develop may not be introduced in a timely or cost-effective manner, may contain errors or defects, may have interoperability difficulties with our communications platform, network or other services or may not achieve the broad market acceptance necessary to generate significant revenue. We also must integrate with a variety of network, hardware, mobile and software platforms and technologies, which requires us to enhance and modify our products and our communications platform to adapt to changes and innovation in these technologies. Wireline and wireless telephone providers or cell-phone operating system providers such as Apple and Google have developed and may in the future develop new applications, functions or technologies intended to filter illegal robocalls or other unwanted phone calls or messages. Such applications, functions or technologies may inadvertently filter legal and desired calls or messages to or from our customers. In certain instances, we may need to update our services and technology to work with these applications, functions or technologies. Any failure to operate effectively with evolving or new technologies could reduce the demand for our services. If we cannot respond to these changes in a cost-effective manner, our services may become less competitive or obsolete, and our business, results of operations and financial condition could be adversely affected. To the extent that upgrades of existing products, services and technology are required for the introduction of new services, the success of these upgrades also may be dependent on reaching mutually acceptable terms with vendors and on vendors meeting their obligations in a timely manner.

Furthermore, our ability to increase the usage of our services depends, in part, on the development of new use cases for our services, which may be outside of our control. Our ability to generate usage of additional services by our customers may also require increasingly sophisticated and more costly sales efforts and result in a longer sales cycle. If we are unable to successfully enhance our existing services to meet evolving customer requirements, increase adoption and usage of our services or develop new services, or if our efforts to increase the usage of our services are more expensive than we expect, then our business, results of operations and financial condition would be adversely affected.

As we continue to expand geographically and otherwise, we may experience difficulties in maintaining our corporate culture, operational infrastructure and management, and our business, results of operations and financial condition could be adversely affected.

We have experienced substantial expansion in our business, including internationally through our acquisition of Voxbone in late 2020. We believe that our corporate culture has been a critical component of our success. We have invested substantial time and resources in building our team and nurturing our culture. As we further expand our business and continue to grow internationally, we may find it difficult to maintain our corporate culture. Any failure to manage organizational changes in a manner that preserves the key aspects of our culture could hurt our chance for future success, including our ability to recruit and retain personnel, and effectively focus on and pursue our corporate objectives. This, in turn, could adversely affect our business, results of operations and financial condition.

In addition, our organizational structure has become more complex. In order to manage these increasing complexities, we will need to continue to scale and adapt the way in which we are organized, our operational, financial and management controls, and our reporting systems and procedures. The expansion of our systems and infrastructure will require us to commit substantial financial, operational and management resources before our revenue increases and without any assurances that our revenue will increase.

This expansion could strain our ability to maintain reliable service levels for our customers. If we fail to achieve the necessary level of efficiency in our organization as we grow, then our business, results of operations and financial condition could be adversely affected.

Our pricing and billing systems are complex, and errors could adversely affect our results of operations.

Our pricing and billing systems are complex to develop and challenging to implement. To be profitable, we must have accurate and complete information about the costs associated with voice and messaging, and properly incorporate such information into our pricing model. Our pricing model must also reflect accurate and current information about the market for our services, including the pricing of competitive alternatives for our services, as well as reliable forecasts of traffic volume. We may determine pricing for our services based on data that is outdated or otherwise flawed. Even if we have complete and accurate market information, we may not set prices that optimize both revenue and profitability. If we price our services too high, the amount of traffic that our customers may route to our network may decrease and accordingly our revenue may decline. If we price our services too low, our margins may be adversely affected, which will reduce our ability to achieve and maintain profitability.

Additionally, we rely on third parties to provide us with key software and services for our billing. If these third parties cease to provide those services to us for any reason, or fail to perform billing services accurately and completely, we may not be able to deliver accurate invoices promptly. Delays in invoicing can lead to delays in revenue recognition, and inaccuracies in our billing could result in lost revenue. If we fail to adapt quickly and effectively to changes affecting our costs, pricing and billing, our profitability and cash flow will be adversely affected.

We must continue to develop effective business support systems to implement customer orders and to provide and bill our customers for services.

We depend on our ability to continue to develop effective business support systems. This complicated undertaking requires significant resources and expertise and support from third-party vendors. Following the development of the business support systems, the data migration must be completed for the full benefit of the systems to be realized. Business support systems are needed for:

- quoting, accepting and inputting customer orders for services;
- provisioning, installing and delivering services;
- providing customers with direct access to the information systems included in our communications platform so that they can manage the services they purchase from us, generally through web-based customer portals; and
- billing for services.

If we are not able to maintain and enhance our brand and increase market awareness of our company and services, then our business, results of operations and financial condition may be adversely affected.

We believe that maintaining and enhancing our brand identity and increasing market awareness of our company and services are critical to achieving widespread acceptance of our company and our communications platform, as well as to strengthen our relationships with our existing customers and to our ability to attract new customers. The successful promotion of our brand will depend largely on our continued marketing efforts, our ability to continue to offer high quality services that meet the evolving needs of our existing and prospective customers and our ability to successfully differentiate our services from competing products and services. Our brand promotion activities may not be successful or yield increased revenue. In addition, independent industry analysts often provide reviews of our services and competing products and services, which may significantly influence the perception of our services in the marketplace. If these reviews are negative or not as strong as reviews of our competitors' services, then our brand may be harmed.

From time to time, our customers have complained about our services, such as complaints about our pricing and customer support. Additionally, we sometimes experience customer complaints relating to disruption to, or outage of, our services. If we do not handle customer complaints effectively, then our brand and reputation may suffer, our customers may lose confidence in us and they may reduce or cease their use of our services. In addition, many of our customers post and discuss on social media about products and services, including our services and our communications platform. Our success depends, in part, on our ability to generate positive customer feedback and minimize negative feedback on social media channels where existing and potential customers seek and share information. If actions we take or changes we make to our services or our communications platform upset these customers, then their online commentary could negatively affect our brand and reputation. Complaints or negative publicity about us, our services or our communications platform could materially and adversely affect our ability to attract and retain customers, our business, results of operations and financial condition.

The promotion of our brand also requires us to make substantial expenditures, and we anticipate that these expenditures will increase as our market becomes more competitive and as we expand into new markets. To the extent that these activities increase revenue, this revenue still may not be enough to offset the increased expenses we incur. In addition, due to restrictions on travel and in-person meetings resulting from COVID-19, we have attended planned customer and industry events as virtual-only experiences and cancelled others. We may alter, postpone or cancel other events in the future. Virtual meetings, events and interactions may not be as successful and may constrain our marketing, promotional and sales activity. If we do not successfully maintain and enhance our brand, then our business may not grow, we may see our pricing power reduced relative to competitors and we may lose customers, all of which would adversely affect our business, results of operations and financial condition.

Any failure to deliver and maintain high-quality customer support may adversely affect our relationships with our customers and prospective customers and could adversely affect our reputation, business, results of operations and financial condition.

Many of our customers depend on our customer support team to assist them in deploying or using our services effectively, to help them resolve post-deployment issues quickly and to provide ongoing support. If we do not devote sufficient resources or are otherwise unsuccessful in assisting our customers effectively, it could adversely affect our ability to retain existing customers and could prevent prospective customers from adopting our services. We may be unable to respond quickly enough to accommodate short-term increases in demand for customer support. We also may be unable to modify the nature, scope and delivery of our customer support to compete with changes in the support services provided by our competitors. Increased demand for customer support, without corresponding revenue, could increase costs and adversely affect our business, results of operations and financial condition. Our sales are highly dependent on our business reputation and on positive recommendations from existing customers. Any failure to deliver and maintain high-quality customer support, or a market perception that we do not maintain high-quality customer support, could adversely affect our reputation, business, results of operations and financial condition.

We operate internationally, which exposes us to significant risks.

We have expanded our international operations, including through the deployment of data centers in certain European locations and our acquisition of Voxbone in late 2020. As part of our growth strategy, we will continue to evaluate potential opportunities for further international expansion.

Operating in international markets requires significant resources and management attention, and subjects us to legal, regulatory, economic and political risks in addition to those we face in the United States. We have limited experience with international operations, and further international expansion efforts may not be successful.

In addition, we face risks in doing business internationally that could adversely affect our business, including:

- exposure to political developments in the United Kingdom (“U.K.”) as a result of the January 2020 departure of the U.K. from the European Union (“EU”), which has created an uncertain political and economic environment, instability for businesses and volatility in global financial markets and the value of foreign currencies, all of which could disrupt trade, the sale of our services and the mobility of our employees and contractors between the U.K., EU and other jurisdictions;
- difficulties in managing and staffing international operations, including difficulties related to the increased operations, travel, infrastructure, employee attrition and legal compliance costs associated with numerous international locations;
- our ability to effectively price our products in competitive international markets;
- new and different sources of competition;
- costs associated with network service providers outside of the United States;
- the need to adapt and localize our products for specific countries;
- challenges in understanding and complying with local laws, regulations and customs in foreign jurisdictions, particularly in the areas of telecommunications, data privacy and security;
- complexities related to differing technical standards, data privacy and telecommunications regulations and certification requirements outside the United States, which could prevent customers from deploying our products or limit their usage;
- export controls and economic sanctions administered by the Bureau of Industry and Security of the U.S. Department of Commerce and the Office of Foreign Assets Control of the U.S. Department of the Treasury;
- compliance with various anti-bribery and anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and U.K. Bribery Act 2010;
- international trade policies, tariffs and other non-tariff barriers, such as quotas;
- more limited protection for intellectual property rights in some countries;
- adverse consequences relating to the complexity of operating in multiple international jurisdictions with differing tax frameworks;
- fluctuations in currency exchange rates, which could increase the price of our products outside of the United States, increase the expenses of our international operations and expose us to foreign currency exchange rate risk;
- currency control regulations, which might restrict or prohibit our conversion of other currencies into U.S. dollars;

- restrictions on the transfer of funds;
- deterioration of political relations between the United States and other countries;
- public health epidemics, such as COVID-19, or natural disasters, which could have an adverse impact on our employees, contractors, customers, partners, travel and the global economy; and
- political or social unrest, acts of war or economic instability in a specific country or region in which we operate, which could have an adverse impact on our operations in that location.

In addition, due to potential costs from our international expansion efforts and network service provider fees outside of the United States, our gross margin for international customers may be lower than our gross margin for domestic customers. As a result, our overall gross margin may fluctuate as we further expand our operations and customer base internationally.

Our failure to manage any of these risks successfully could harm our international operations, and adversely affect our business, results of operations and financial condition.

The military conflict between Russia and Ukraine, and the global response to this conflict, may adversely affect our business and results of operations.

In response to the military conflict between Russia and Ukraine, the U.S., U.K., EU and others have imposed significant new sanctions and export controls against Russia and certain Russian individuals and entities. This conflict has also resulted in significant volatility and disruptions to the global markets. It is not possible to predict the short- or long-term implications of this conflict, which could include but are not limited to further sanctions, uncertainty about economic and political stability, increases in inflation rates and energy prices, supply chain challenges and adverse effects on currency exchange rates and financial markets. In addition, the U.S. government has reported that U.S. sanctions against Russia in response to the conflict could lead to an increased threat of cyberattacks against U.S. companies. These increased threats could pose risks to the security of our information technology systems, our network and our service offerings, as well as the confidentiality, availability and integrity of our data.

We have operations, as well as current and potential new customers, in several locations in Europe, including an office in Romania. If the conflict extends beyond Ukraine or further intensifies, it could have an adverse impact on our operations in Romania or other affected areas. Due to the complexity and operational burden required to provide services in compliance with imposed sanctions related to the conflict, we terminated our service offerings in Russia and Belarus. Although neither Russia nor Belarus constituted a material portion of our business, a significant escalation or further expansion of the conflict's current scope or related disruptions to the global markets could have a material adverse effect on our results of operations. And while we do not offer any services in Ukraine, we continue to monitor the situation in that country and globally, and assess the military conflict's potential impact on our business.

If the COVID-19 infection rate returns to pandemic levels, it may harm our business and results of operations.

The global spread of novel coronavirus disease ("COVID-19") and efforts to manage its impact created significant volatility, uncertainty and economic disruption in locations where we, our customers, suppliers and third-party business partners conduct business. COVID-19 is generally believed to have reduced to endemic levels globally, and its persistent nature has diminished in the present period. However, a return of COVID-19 infection rates to pandemic levels could result in decreased business spending by our customers and prospective customers, lower renewal rates by our customers, longer or delayed sales cycles, or reduced budgets or minimum commitments for the services that we offer, any of which could have an adverse impact on our financial condition and results of operations. Specifically, we may experience impact from enterprises reducing usage of our services or delaying decisions to implement our services. We cannot predict whether and to what extent COVID-19 infection rates may

increase in the future, or what the short- or long-term impact of any such increase might be on our business, financial condition or results of operations.

Some of our revenue is concentrated in a limited number of customers.

A significant portion of our revenue is concentrated among a limited number of customers. If we lost one or more of our top ten customers, or, if one or more of these major customers significantly decreased orders for our services, our business would be materially and adversely affected.

Attacks on or breaches of our networks or systems, or those of third parties upon which we rely, could degrade our ability to conduct our business, compromise the integrity of our services and our communications platform, result in service degradation or outages, significant data losses, the theft of our intellectual property, investigations by government agencies and damage to our reputation, and could expose us to liability to third parties and require us to incur significant additional costs to maintain the security of our networks and data.

We depend upon our IT systems to conduct virtually all of our business operations, ranging from our internal operations and R&D activities to our marketing and sales efforts and communications with our customers and business partners. Cyber-attacks, including through the use of malware, computer viruses, distributed denial of services (“DDoS”) attacks, credential harvesting and other means for obtaining unauthorized access to or disrupting the operation of our networks and systems and those of our suppliers, vendors and other service providers, could cause harm to our business, including by misappropriating our proprietary information or that of our customers, employees and business partners or to cause interruptions of our services and our communications platform. Cyber-attacks may cause service degradation or outages, equipment failures, loss of information, including sensitive personal information of customers or employees or valuable technical and marketing information, as well as disruptions to our or our customers’ operations. Cyber-attacks against companies have increased in frequency, scope and potential harm in recent years. Further, the perpetrators of cyber-attacks are not restricted to particular groups or persons. These attacks may be committed by company employees or external actors operating in any geography, including jurisdictions where law enforcement measures to address such attacks are unavailable or ineffective, and may even be launched by or at the behest of nation states.

Despite our efforts to reduce the risks associated with cyber-attacks, including the implementation of a number of defensive measures and protocols designed to protect our systems and networks, such efforts may be insufficient to repel or mitigate the effects of a major cyber-attack. Cybersecurity events, like the DDoS attack we experienced in late 2021 (discussed under “Management’s Discussion and Analysis of Financial Condition and Results of Operations—DDoS Attack” in this Annual Report on Form 10-K), may have cascading effects that unfold over time and result in additional costs, including costs associated with defensive measures, investigations, contractual claims, performance penalties, litigation, the loss of future business and other losses and liabilities that may be difficult to foresee. Any perception by existing and prospective customers that our network and systems are not secure could result in a material loss of business and revenue and damage our reputation. We will continue to deploy security enhancements in an effort to further secure our network.

The techniques used by individuals or entities to access, disrupt or sabotage devices, systems and networks change frequently and may not be recognized until launched against a target. We may be unable to anticipate these techniques, and we may not become aware in a timely manner of a security breach, which could exacerbate the negative impact of such an event on our business or that of our customers. Additionally, we depend upon our employees and contractors to appropriately handle confidential and sensitive data, including customer data and customer proprietary network information pursuant to applicable federal law, and to deploy our IT resources in a safe and secure manner that does not expose our network systems to security breaches or the loss of data. Any data security incidents, including inadvertent disclosure or internal malfeasance by our employees, unauthorized access or usage, virus or similar breach or disruption of us or our services providers, could result in a loss of confidential information, theft of our intellectual property, damage to our reputation, loss of customers, litigation, regulatory investigations, fines, penalties and other liabilities.

Our existing general liability and cyber liability insurance policies may not cover, or may cover only a portion of, any potential claims related to cyber incidents or security breaches that we experience or may not be adequate to indemnify us for all or any portion of liabilities that may be imposed. We also cannot be certain that our existing insurance coverage will continue to be available on acceptable terms or in amounts sufficient to cover the potentially significant losses that may result from a security incident or breach or that the insurer will not deny coverage of any future claim. At least one prominent global insurance carrier has announced that, beginning in 2023, it will exclude from its cyber insurance policies coverage for attacks carried out by nation-states. Accordingly, if our cybersecurity measures and those of our service providers fail to protect against unauthorized access, attacks (which may include sophisticated cyber-attacks) and the mishandling of data by our employees and contractors, then our reputation, business, results of operations and financial condition could be adversely affected.

We are currently subject to litigation related to taxes and charges associated with our provision of 911 services, which could divert management's attention and adversely affect our results of operations.

We, along with many other telecommunications companies and similar service providers, currently are subject to litigation regarding our billing, collection and remittance of non-income-based taxes and other similar charges regarding 911 services alleged to apply in certain states, counties, and municipalities located in California, Illinois and New York. See "Part II, Item 3. Legal Proceedings," in this Annual Report on Form 10-K. We may face similar litigation in other jurisdictions in the future. While we are vigorously defending these lawsuits, litigation is inherently uncertain. Tax assessments, penalties and interest or future requirements arising from these lawsuits, the settlement of any such lawsuit or any other lawsuits that may arise in other jurisdictions, may adversely affect our business, results of operations and financial condition.

We face a risk of litigation resulting from customer misuse of our services and software to make or send unauthorized and/or unsolicited calls and/or messages, including those in violation of the Telephone Consumer Protection Act. Customer misuse of our services and software also could damage our reputation.

Calls and/or text messages originated or passed to us by our customers may subject us to potential risks, including litigation, regulatory enforcement, fines, and reputational damage. For example, the Telephone Consumer Protection Act of 1991 (the "TCPA") restricts telemarketing and the use of technologies that enable automatic calling and/or messaging without proper customer consent. This may result in civil claims against us, including those arising due to our customers' use of our platform, and requests for information through third-party subpoenas or regulatory investigations. Internationally, we also may become subject to similar laws imposing limitations on marketing calls to wireline and wireless numbers. The scope and interpretation of the laws that are or may be applicable to the making and/or delivery of calls and/or messages are continuously evolving and developing. If we do not comply with these laws or regulations or if we become liable under these laws or regulations due to the failure of our customers to comply with these laws by taking mandatory actions such as obtaining proper customer consent, we could become subject to lawsuits, fines, civil penalties, potentially significant statutory damages, consent decrees, injunctions, adverse publicity, loss of user confidence in our services, loss of users and other adverse consequences, which could materially harm our business.

Some of our customers may use our platform to transmit illegal, offensive, unsolicited and/or unauthorized calls and messages, including spam, phishing scams, and links to harmful applications. Some of our customers also may reproduce and distribute copyrighted material or the trademarks of others without permission. Such actions violate our practices and policies, including our Acceptable Use Policy, which applies to all customers. We generally complete considerable "know-your-customer" reviews before a customer, and in certain jurisdictions, an end user, can use our platform, although we cannot always conduct proactive audits of our customers thereafter to confirm compliance with our practices and policies, including our Acceptable Use Policy. We generally rely on our customers' contractual representations to us that their use of our platform will comply with applicable law and our practices and policies. In cases where our customers are reselling our services, we are relying on a contractual pass-through by our customers of similar contractual representations from their end users. We also generally evaluate complaints that we receive regarding our customers' use of our platform. Our substantial efforts will not prevent all illegal robocalls and other fraudulent activity. The unlawful or fraudulent use of our platform could subject us to

claims for damages, copyright or trademark infringement, regulatory enforcement, fraud, or negligence or damage our reputation. Even if claims asserted against us do not result in liability, we may incur substantial costs to investigate and defend such claims. If we are found to be liable for our customers' activities, we could be required to pay fines or penalties, redesign our business methods, limit our provision of certain services or otherwise expend resources to remedy any damages caused by such actions and avoid future liability.

We are also subject to litigation in the ordinary course of business, and uninsured judgments or a rise in insurance premiums may adversely affect our results of operations.

In the ordinary course of business, we are subject to various claims and litigation. Any such claims, regardless of merit, could be time-consuming and expensive to defend and could divert management's attention and resources. In accordance with customary practice, we maintain insurance against some, but not all, of these potential claims. We may elect not to obtain insurance if we believe that the cost of available insurance is excessive relative to the risks presented. The levels of insurance we maintain may not be adequate to fully cover any and all losses or liabilities. Further, we may not be able to maintain insurance at commercially acceptable premium levels or at all. If any significant judgment, claim (or a series of claims), a settlement or other event is not fully insured or indemnified against, it could have a material adverse impact on our business, financial condition and results of operations. There can be no assurance as to the actual amount of these liabilities or the timing thereof. We cannot be certain that the outcome of current or future litigation will not have a material adverse impact on our business and results of operations.

The communications industry faces significant regulatory uncertainties and the resolution of these uncertainties could harm our business, results of operations and financial condition.

If current or future regulations change, the Federal Communications Commission (the "FCC"), state regulators or regulators in other jurisdictions may not grant us required regulatory authorizations or may take action against us if we are found to have provided services without obtaining the necessary authorizations, or to have violated other requirements of their rules and orders. Delays in receiving required regulatory approvals or the enactment of new adverse regulation or regulatory requirements may slow our growth and have a material adverse effect on our business, results of operations and financial condition.

Proceedings before the FCC or regulators from international jurisdictions could limit our access to various network services or further increase the rates we must pay for such services. For example, proceedings before the FCC could result in an increase in the amount we pay to other carriers or a reduction in the revenue we derive from other carriers in, or retroactive liability for, access charges and reciprocal compensation. On December 17, 2019, the FCC issued an order that revised its interpretation of the Voice-over Internet Protocol ("VoIP") symmetry rule. The FCC now concludes that LECs may assess end office switched access charges only if the LEC or its VoIP partner provides a physical connection to the last-mile facilities used to serve an end user. If neither the LEC nor its VoIP partner provides such a physical connection, the LEC may not assess end office switched access charges. The FCC also decided to give its order retroactive effect. We cannot predict the impact this FCC order may have on our business, including whether other carriers will agree with our legal interpretations and treatments, at this time. Other proceedings before the FCC could also result in increases in the cost of regulatory compliance. For example, the FCC continues to examine how to improve the delivery of emergency 911 services and whether to expand requirements to include communications services not currently subject to emergency calling obligations. A number of states also have proceedings pending that could impact our access to and the rates we pay for network services. Other state proceedings could limit our pricing and billing flexibility. Our business would be substantially impaired if the FCC, the courts or state commissions eliminated our access to the facilities and services we use to serve our customers, substantially increased the rates we pay for facilities and services, increased the costs or complexity associated with providing emergency 911 services or adversely affected the revenue we receive from other carriers or our customers. In addition, congressional legislative efforts to rewrite the Telecommunications Act of 1996 or enact other telecommunications legislation, as well as various state legislative initiatives, may cause major industry and regulatory changes. We cannot predict the outcome of these proceedings or legislative initiatives or the effects, if any, that these proceedings or legislative initiatives may have on our business and operations.

While we believe we comply in all material respects with all material federal, state, local and international rules and regulations, these regulations are subject to interpretation and the relevant regulators may determine that our application of these rules and regulations is not consistent with their interpretation. Additionally, third parties or government agencies may bring action with federal, state, local or international regulators if they believe a provider has breached applicable rules and regulations.

The effects of increased regulation of IP-based service providers are unknown.

While the FCC has generally subjected IP-based service providers in the United States to less stringent regulatory oversight than traditional common carriers, the FCC has imposed certain regulatory obligations on providers of interconnected and non-interconnected VoIP services, including the obligations to contribute to the Universal Service Fund, to provide 911 services, and to comply with the Communications Assistance for Law Enforcement Act. The TRACED Act aims to mitigate illegal robocalls by directing the FCC to conduct certain rulemaking proceedings that include adopting rules that require participation in the technical standard known as STIR/SHAKEN, among other requirements. For large carriers operating in the United States, IP-based network equipment and the IP services that operate on such equipment were required to support the STIR/SHAKEN framework as of June 30, 2021. We previously reported that we had a small subset of services and customer accounts that operated on legacy IP equipment that was not STIR/SHAKEN capable prior to the prescribed deadline; however, that equipment was retired in 2022 and we are currently in compliance with STIR/SHAKEN requirements. While additional countries have adopted or are expected to adopt the STIR/SHAKEN framework, other countries may seek to impose alternative regulatory obligations in an effort to mitigate illegal robocalling.

Noncompliance with applicable FCC or other regulations or requirements could subject us to investigations, sanctions, enforcement actions, fines, consent decrees or other collateral consequences. If any governmental sanctions or fines are imposed, our business, results of operations, and financial condition could be materially adversely affected. In addition, responding to any governmental action will likely result in a diversion of management's attention and resources and an increase in professional fees.

Our operations are subject to significant regulation and require us to obtain and maintain numerous governmental licenses and permits in the United States and internationally. If we fail to obtain and maintain those licenses and permits, we may not be able to conduct our business. Moreover, changes in regulatory requirements could significantly increase our costs or otherwise adversely affect our operations.

In the ordinary course of operating our network and providing our services, we must obtain and maintain a variety of telecommunications and other licenses, permits and authorizations. We also must comply with a variety of ongoing regulatory obligations. If we are unable to obtain and maintain the licenses and permits needed to operate and expand our network on acceptable terms and on a timely basis, our business could be materially adversely affected. In addition, the cancellation or non-renewal of the licenses or permits we hold could materially adversely affect our business. Our failure to comply with the obligations imposed upon license and permit holders, including the payment of fees, may cause sanctions or additional costs, including the revocation of authority to provide services.

Our operations are subject to regulation at the country, state and local levels. Changes to existing regulations or rules, or the failure of regulatory agencies to regulate in areas historically regulated on matters such as network neutrality, licensing fees, environmental, health and safety, privacy, intercarrier compensation, emergency services, interconnection, illegal robocalling, extraterritorial use of telephone numbers, and other areas, in general or particular to our industry, may increase uncertainty, increase costs, restrict operations or decrease revenue.

Our inability or failure to comply with telecommunications and other laws and regulations could cause the temporary or permanent suspension of our operations. In addition, if we cannot provide emergency calling functionality through our communications platform to meet any applicable federal, state or international

requirements, the competitive advantages that we have may not persist, adversely affecting our ability to obtain and to retain enterprise customers which could have an adverse impact on our business.

We are subject to telecommunications laws and regulations in the non-U.S. countries where we offer our services. Numerous country-specific laws and governmental regulations apply to our business and may increase our costs, impact our products and communications platform or prevent us from offering or providing our products in certain countries. Many existing non-U.S. laws and regulations may not fully contemplate CPaaS solutions and the interpretation and enforcement of non-U.S. laws and regulations may involve significant uncertainties. For example, several European countries have adopted “know your customer” requirements regarding end users and have mandated the real-time provisioning of data to national law enforcement authorities’ systems.

In January 2018, the FCC repealed its Network Neutrality Rules. Our business could suffer with respect to the quality of the services we offer, our ability to maintain our internet-based services and our services offered through our communications platform, a reduction in our profitability or an increase in the price of our services making our offerings less competitive in the marketplace.

In January 2018, the FCC adopted an order largely repealing its network neutrality rules (the “Order”). Among other things, the pre-existing network neutrality rules prevented providers of broadband internet access services—like cable and telephone companies—from blocking, impairing and degrading service offerings from non-affiliated third parties like us. In 2019, the U.S. Court of Appeals for the District of Columbia Circuit largely affirmed the Order, but vacated the portion of the Order that would bar states from imposing any rule or requirement inconsistent with the FCC’s order. In April 2022, after losing an appeal before the U.S. Circuit Court of Appeals for the 9th Circuit, California’s state law establishing net neutrality went into effect. Since then, a number of states have adopted legislation that results in restoring the pre-existing network neutrality rules. If broadband providers were to block, impair or degrade our internet-based services or services we offer through our communications platform, or were to charge us or our customers to access and use our internet-based services or services offered through our communications platform, we could lose customers and our business could be materially adversely affected. Most major broadband internet access providers have publicly stated they will not block, impair or degrade third party offerings. We cannot predict the potential impact of any future efforts to restore Net Neutrality at the federal level.

Our business is subject to complex and evolving laws and regulations, commercial standards, contractual obligations and other requirements related to information collection.

We are subject to various federal, state, local and foreign laws and regulations, contractual commitments and industry standards that create obligations and impose restrictions with respect to the collection, storage, retention, use, processing, transmission, sharing, disclosure and protection of personal data and other customer data, including “customer proprietary network information” under applicable U.S. laws. We must comply with these obligations and restrictions and may be subject to significant consequences, including penalties and fines, if we fail to comply. These obligations and restrictions continue to develop and evolve rapidly, and it is possible that we may not be, or may not have been, compliant with each such obligation and restriction.

The complexity and evolving nature of these obligations and restrictions subject us to the risk of differing interpretations, inconsistency or conflicts among countries or rules, and creates uncertainty regarding their application to our business. Uncertainty and changes in the requirements of multiple jurisdictions may increase the cost of compliance, delay or reduce demand for our services, restrict our ability to offer services in certain locations, impact our customers’ ability to utilize our services in certain jurisdictions, or subject us to sanctions by national data protection regulators, all of which could harm our business, financial condition and results of operations.

These obligations and restrictions may limit our ability to collect, store, process, use, transmit and share data with our customers, employees, consultants and third-party providers, which may result in our inability in certain cases to provide services to our customers or to offer a global customer experience. These obligations may also limit the ability of our customers to collect, store, retain, protect, use, process, transmit, share and disclose data

with others through our services. Compliance with, and other burdens imposed by, such obligations and restrictions could increase the cost of our operations and adversely impact our business.

Any failure to comply with these obligations and restrictions or our own posted privacy policies and notices, or any security incident that results in a personal data breach or the unauthorized access to, or the acquisition, release or transfer of, other customer data, could subject us to investigations, proceedings or actions against us by governmental entities or others, lawsuits, fines, criminal penalties, statutory damages, consent decrees, injunctions, adverse publicity, contractual liability, civil liabilities, loss of customer confidence, damage to our brand and reputation or a loss of customers, any of which could materially harm our business.

If we were to suffer or if one of our customers or vendors were to suffer a personal data breach or other security incident, we may be subject to the jurisdiction of a variety of governmental agencies. We may have to comply with a variety of data breach requirements at the national and state levels in the United States and in other countries, comply with any resulting investigations, as well as offer mitigation to customers and potential end users of certain customers to which we provide services. We could also be subject to fines, forfeitures and other penalties that may adversely impact our business.

From time to time, various federal, state and foreign legislative or regulatory bodies may enact new or additional laws and regulations concerning data-protection issues. For example, certain laws or regulations may mandate disclosure of customer information to domestic or international law enforcement bodies, which could adversely impact our business, our brand or our reputation with customers and may not always provide a level of protection for such information that is required by other laws or regulations. In other cases, some countries may limit the transfer of personal data or require that that personal data regarding customers in their country be maintained solely in their country. Having to maintain local data centers and redesign product, service and business operations to limit the processing of personal data to within individual countries could increase our operating costs significantly.

Additionally, some of our third-party vendors may have access to customer, end user or employee data. If these third-party vendors violate obligations and restrictions related to applicable data protection laws or our policies or contractual commitments, such violations may also put us, or data relating to our customers, end users or employees, at risk and could in turn have a material and adverse effect on our business.

Our business could suffer if we cannot obtain or retain local or toll-free numbers, are prohibited from obtaining local or toll-free numbers, or are limited to distributing local or toll-free numbers to only certain customers.

Our future success depends on our ability to procure large quantities of local and toll-free numbers to meet customer demands at reasonable cost and without undue restrictions. Our ability to procure and distribute numbers depends on factors outside of our control, such as regulations, the practices of the communications carriers that provide numbers to us in certain jurisdictions, the cost of obtaining and managing numbers and the level of demand for new numbers. Due to their limited availability, there are certain popular area code prefixes and specialized numbers that we may not be able to obtain in desired quantities. Our inability to acquire or retain numbers would make our services, including our communications platform, less attractive to potential customers that desire assignments of particular numbering resources. In addition, future growth of our customer base, together with growth of customer bases of other providers of communications services, has increased, which increases our dependence on needing large quantities of local and toll-free numbers associated with desirable area codes or specific toll-free numbering resources at a reasonable cost and without undue restriction. If we are not able to obtain or retain adequate local and toll-free numbers, or attractive subsets of such resources, our business, results of operations and financial condition could be materially adversely affected.

In addition, in order to procure, distribute and retain telephone numbers in certain foreign jurisdictions, we will be required to register with the local telecommunications regulatory authorities, some of which have been increasingly monitoring and regulating the categories of phone numbers that are eligible for provisioning to our customers, including geographical, regional, local and toll-free phone numbers. We have obtained licenses or are

obtaining licenses in various countries in which we do business, but in some countries, the regulatory regime around provisioning of phone numbers is unclear, subject to change, and may conflict from jurisdiction to jurisdiction. Furthermore, these regulations and governments' approach to their enforcement, as well as our products and services, are evolving and we may be unable to maintain compliance with applicable regulations, or enforce compliance by our customers, on a timely basis or without significant cost. Also, compliance with these regulations may require changes in products or business practices that result in reduced revenue. If we or our customers use or assign phone numbers in these countries in a manner that violates applicable rules and regulations, we may also be subject to significant penalties or governmental action, including government-initiated audits and, in extreme cases, may be precluded from doing business in that particular country. In the event of non-compliance, we may be forced to reclaim phone numbers from our customers, which could result in loss of customers, breach of contract claims, loss of revenue and reputational harm, all of which could have a material adverse effect on our business, results of operations and financial condition.

We may be exposed to liabilities under anti-corruption, export control and economic sanction regulations, and similar laws and regulations, and any determination that we violated any of these laws or regulations could have a material adverse effect on our business.

We are subject to the Foreign Corrupt Practices Act ("FCPA"), the U.K. Bribery Act and other laws that prohibit improper payments or offers of payments to foreign governments and their officials, political parties, and/or private parties by persons and entities for the purpose of obtaining or retaining business. Our international activities create the risk of unauthorized payments or offers of payments by one of our employees or consultants, even though these parties are not always subject to our control. Our policies prohibit these practices by our employees and consultants, although our existing safeguards and any future improvements may prove to be less than effective, and our employees or consultants may engage in conduct for which we might be held responsible. Violations of the FCPA, the U.K. Bribery Act or other laws may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results, and financial condition.

Our products and services may be subject to export control and economic sanctions regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control. Our products and services must be offered and sold in compliance with these laws and regulations. If we do not comply with these laws or regulations or if we become liable under these laws or regulations due to the failure of our customers to comply with these laws by obtaining proper consent, we could face liability. In addition, changes in our products or services, changes in applicable regulations, or change in the target of such regulations, could also result in decreased use of our products and services, or in our decreased ability to sell our products or provide our services to existing or prospective customers with international operations. Any decreased use of our products and services or limitation on our ability to export our products and provide our services could adversely affect our business, results of operations and financial condition.

Intellectual property and proprietary rights of others could prevent us from using necessary technology to provide our services or subject us to expensive intellectual property litigation.

If technology that we require to provide our services, including our communications platform, was determined by a court to infringe a patent held by another entity that will not grant us a license on terms acceptable to us, we could be precluded by a court order from using that technology and we would likely be required to pay significant monetary damages to the patent holder. The successful enforcement of these patents, or our inability to negotiate a license for these patents on acceptable terms, could force us to cease (i) using the relevant technology and (ii) offering services incorporating the technology. If a claim of infringement was brought against us based on the use of our technology or against our customers based on their use of our services for which we are obligated to indemnify, we could be subject to litigation to determine whether such use or sale is, in fact, infringing. This litigation could be expensive and distracting, regardless of the outcome.

While our own limited patent portfolio may deter other operating companies from bringing such actions, patent infringement claims may also be asserted by patent holding companies, which do not use technology and whose sole business is to enforce patents against operators, such as us, for monetary gain. Because such patent holding companies, commonly referred to as patent “trolls,” do not provide services or use technology, the assertion of our own patents by way of counter-claim would be largely ineffective.

Our use of open source software could negatively affect our ability to sell our services and subject us to possible litigation.

Our services, including our communications platform, incorporate open source software, and we expect to continue to incorporate open source software in our services in the future. Few of the licenses applicable to open source software have been interpreted by courts, and there is a risk that these licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our services, including our communications platform. Moreover, although we have implemented policies to regulate the use and incorporation of open source software into our services, we cannot be certain that we have not incorporated open source software in our services in a manner that is inconsistent with such policies. If we fail to comply with open source licenses, we may be subject to certain requirements, including requirements that we offer our services that incorporate the open source software for no cost, that we make available source code for modifications or derivative works we create based upon, incorporating or using the open source software and that we license such modifications or derivative works under the terms of applicable open source licenses. If an author or other third-party that distributes such open source software were to allege that we had not complied with the conditions of one or more of these licenses, we could be required to incur significant legal expenses defending against such allegations and could be subject to significant damages, enjoined from generating revenue from customers using services that contained the open source software and required to comply with onerous conditions or restrictions on these services. In any of these events, we and our customers could be required to seek licenses from third parties in order to continue offering our services and to re-engineer our services or discontinue offering our services to customers in the event re-engineering cannot be accomplished on a timely basis. Any of the foregoing could require us to devote additional R&D resources to re-engineer our services, could result in customer dissatisfaction and may adversely affect our business, results of operations and financial condition.

Indemnity provisions in various agreements potentially expose us to substantial liability for intellectual property infringement and other losses.

Our agreements with customers and other third parties typically include indemnification or other provisions under which we agree to indemnify or are otherwise liable to them for losses suffered or incurred as a result of claims of intellectual property infringement, damages caused by us to property or persons or other liabilities relating to or arising from our services or platform or other acts or omissions. The term of these contractual provisions often survives termination or expiration of the applicable agreement. Large indemnity payments or damage claims from contractual breach could harm our business, results of operations and financial condition. Although we normally contractually limit our liability with respect to such obligations, we may still incur substantial liability related to them. Any dispute with a customer with respect to such obligations could have adverse effects on our relationship with that customer and other current and prospective customers, reduce demand for our services and adversely affect our business, results of operations and financial condition.

If we fail to protect our internally developed systems, technology and software and our patents and trademarks, we may become involved in costly litigation or our business or brand may be harmed.

Our ability to compete effectively is dependent in large part upon the maintenance and protection of systems and software that we have developed internally, including some systems and software based on open standards. We cannot patent much of the technology that is important to our business. In addition, any pending patent applications may not be granted, and any issued patent that we own may be challenged, narrowed, invalidated or circumvented. To date, we have relied on patent, copyright and trade secret laws, as well as confidentiality procedures and licensing arrangements, to establish and protect our rights to our technology. While

we typically enter into confidentiality agreements with our employees, consultants, customers, and vendors in an effort to control access to and distribution of technology, software, documentation and other information, these agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. Despite these precautions, it may be possible for a third party to copy or otherwise obtain and use our technology without authorization. In addition, others may independently discover trade secrets and proprietary information, and in such cases we could not assert any rights against such party. Policing unauthorized use of our technology is difficult. The steps we take may not prevent misappropriation of the technology we rely on. In addition, effective protection may be unavailable or limited in some jurisdictions outside the United States. Litigation may be necessary in the future to enforce or protect our rights or to determine the validity and scope of the rights of others. That litigation could cause us to incur substantial costs and divert resources away from our daily business, which in turn could adversely affect our business, results of operations and financial condition.

The unlicensed use of our brands by third parties could harm our reputation, cause confusion among our customers or impair our ability to market our services. Accordingly, we have registered trademarks and service marks and have applied for registration of our trademarks and service marks in the United States and certain jurisdictions outside the United States to establish and protect our brand names as part of our intellectual property strategy. The laws of some countries do not protect intellectual property and other proprietary rights to the same extent as the laws of the United States. Our exposure to unauthorized copying, transfer and use of our proprietary technology or information may increase as we expand our international operations. We cannot assure you that our pending or future trademark applications will be approved. Although we anticipate that we would be given an opportunity to respond to any such rejections, we may be unable to overcome any such rejections. In addition, in proceedings before the U.S. Patent and Trademark Office third parties are given an opportunity to oppose pending trademark applications and seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. In the event that our trademarks are successfully challenged, we could be forced to rebrand our services, which could result in loss of brand name recognition. Moreover, successful opposition to our applications might encourage third parties to make additional oppositions or commence trademark infringement proceedings against us, which could be costly and time consuming to defend against. If we decide to take limited or no action to protect our trademarks, our trademark rights may be diluted and subject to challenge or invalidation, which could materially and adversely affect our brand in the marketplace. Certain of the trademarks we may use may become so well known by the public that their use becomes generic and they lose trademark protection. Over the long term, if we are unable to establish name recognition based on our trademark and tradenames, then we may not be able to compete effectively and our business may be adversely affected. Further, we cannot assure you that competitors will not infringe our trademarks or that we will have adequate resources to enforce our trademarks.

We may be liable for the information that content owners or distributors distribute over our network.

The law relating to the liability of private network operators for information carried on or disseminated through their networks remains unsettled. While we disclaim any liability for third-party content in our services agreements, we may become subject to legal claims relating to the content disseminated on our network, even though such content is owned or distributed by our customers or a customer of our customers. For example, lawsuits may be brought against us claiming that material distributed using our network was inaccurate, offensive or violated the law or the rights of others. Claims could also involve matters such as defamation, invasion of privacy and copyright infringement. In addition, the law remains unclear over whether content may be distributed from one jurisdiction, where the content is legal, into another jurisdiction, where it is not. Companies operating private networks have been sued in the past, sometimes successfully, based on the nature of material distributed, even if the content is not owned by the network operator and the network operator has no knowledge of the content or its legality. It is not practical for us to monitor all of the content distributed using our network. We may need to take costly measures to reduce our exposure to these risks or to defend ourselves against such claims, which could adversely affect our results of operations and financial condition.

Third parties may fraudulently use our name to obtain access to customer accounts and other personal information, use our services to commit fraud or steal our services, which could damage our reputation, limit our growth or cause us to incur additional expenses.

Our customers may have been subject to “phishing,” which occurs when a third party calls or sends an email or pop-up message to a customer that claims to be from a business or organization that provides services to the customer. The purpose of the inquiry is typically to encourage the customer to visit a bogus website designed to look like a website operated by the legitimate business or organization or provide information to the operator. At the bogus website, the operator attempts to trick the customer into divulging customer account or other personal information such as credit card information or to introduce viruses through “Trojan horse” programs to the customers’ computers. This could result in identity theft from our customers and the unauthorized use of our services. Third parties also have used our communications services to commit fraud. If we are unable to detect and prevent “phishing” and other similar methods, use of our services for fraud and similar activities, our brand reputation and growth may suffer and we may incur additional costs, including costs to increase security, or be required to credit significant amounts to customers.

Third parties also have used our communications services without paying, including by submitting fraudulent credit information and fraudulent credit card information. This has resulted in our incurring the cost of providing the services, including incurring call termination fees, without any corresponding revenue. We have implemented anti-fraud procedures in order to limit the expenses resulting from theft of service. If our procedures are not effective, theft of service could significantly increase our expenses and adversely affect our business, results of operations and financial condition.

If our customers or their end users do not accept the differences between our service and traditional telephone service, they may choose to remain with their current telephone service provider or may choose to return to service provided by traditional network service providers.

Aspects of our services based on VoIP, including our communications platform, are not the same as traditional network service providers. Our continued growth is dependent on the adoption of our services by mainstream customers and their end users, so these differences are important. For example:

- Our 911 calling and other emergency calling services are different, in significant respects, from the 911 and other emergency calling services associated with traditional wireline and wireless telephone providers and, in certain cases, with other VoIP providers.
- In the event of a power loss or Internet access interruption experienced by a customer, our service may be interrupted.
- Our customers’ end users may experience lower call quality than they are used to from traditional wireline or wireless telephone companies, including static, echoes and delays in transmissions.
- Our customers’ end users may not be able to call premium-rate telephone numbers such as 1-900 numbers and 976 numbers.

We may lose customers if we experience failures of our system or communications platform that significantly disrupt the availability and quality of the services that we provide. Such failures may also cause interruptions to service delivery and the completion of other corporate functions.

Our operations depend on our ability to limit and mitigate interruptions or degradation in service for customers. Interruptions in service or performance problems, for whatever reason, could undermine our customers’ confidence in our services and cause us to lose customers or make it more difficult to attract new ones. Because many of our services are critical to the businesses or daily lives of many of our customers or our customers’ end users, any significant interruption or degradation in service also could result in lost profits or other losses to customers. Although our service agreements generally limit our liability for service failures and generally exclude

any liability for “consequential” damages such as lost profits, a court might not enforce these limitations on liability, which could expose us to financial loss. We also sometimes provide our customers with committed service levels. If we fail to meet these committed service levels, we could be required to provide service credits or other compensation to our customers, which could adversely affect our results of operations.

The failure of any equipment or facility on our network, including our network operations control centers and network data storage locations, could interrupt customer service and other corporate functions until we complete necessary repairs or install replacement equipment. Our business continuity plans also may be inadequate to address a particular failure that we experience. Delays, errors or network equipment or facility failures could result from natural disasters, pandemics such as COVID-19, disease, accidents, terrorist acts, acts of war, power losses, security breaches, vandalism or other illegal acts, computer viruses or other causes. These delays, errors or failures could significantly impair our business due to:

- service interruptions;
- malfunction of our communications platform on which our enterprise users rely for voice, messaging or emergency service functionality;
- exposure to customer liability;
- the inability to install new service;
- the unavailability of employees necessary to provide services;
- the delay in the completion of other corporate functions such as issuing bills and the preparation of financial statements; or
- the need for expensive modifications to our systems and infrastructure.

Defects or errors in our services could diminish demand for our services, harm our business and results of operations and subject us to liability.

Our customers use our services for important aspects of their businesses, and any errors, defects or disruptions to our services and any other performance problems with our services could damage our customers’ businesses and, in turn, hurt our brand and reputation. We provide regular updates to our services, which have in the past contained, and may in the future contain, undetected errors, failures, vulnerabilities and bugs when first introduced or released. Real or perceived errors, failures or bugs in our services could result in negative publicity, loss of or delay in market acceptance of our platform, loss of competitive position, lower customer retention or claims by customers for losses sustained by them. In such an event, we may be required, or may choose, for customer relations or other reasons, to expend additional resources in order to help correct the problem. In addition, we may not carry insurance sufficient to compensate us for any losses that may result from claims arising from defects or disruptions in our services. As a result, our brand and reputation could be harmed, and our business, results of operations and financial condition may be adversely affected.

If our emergency services do not function properly, we may be exposed to significant liability from our users.

Certain of our IP telephony offerings, as well as the 911 and other emergency services solutions that we offer are subject to FCC and other rules governing the delivery of emergency calling services. The rules and laws that govern emergency calling services are subject to change as communications technologies and consumer use cases evolve. Similar providers of IP telephony services, our 911 and other emergency services are different from those associated with traditional local telecommunications services. These differences may lead to an inability to make and complete calls that would not occur for users of traditional telephony services. For example, to provide the emergency calling services required by the FCC’s rules to our IP telephony consumers, we may use components of both the wireline and wireless infrastructure in unique ways that can result in failed connections and calls routed to incorrect emergency call centers. Routing emergency calls through the Internet may be adversely affected by

power outages and network congestion that may not occur for users of traditional telephony services. Emergency call centers may not be equipped with appropriate hardware or software to accurately process and respond to emergency calls initiated by consumers of our IP telephony services, and calls routed to the incorrect emergency call center can significantly delay response times for first responders. Users of our interconnected VoIP telephony services from a fixed address in the United States are required to manually update their location information for use when calling 911, and failure to do so may result in dispatching assistance to the wrong location. Even manual updates require a certain amount of time before the updated address appears in the relevant databases which could result in misrouting emergency calls to the wrong emergency calling center, dispatching first responders to the wrong address, or both. Similar requirements and delays applicable to relevant databases also apply to local emergency services provided outside the United States. Moreover, the relevant rules with respect to what address information should be provided to emergency call centers when the call originates from a mobile application are unsettled and evolving. As a result, we could be subject to enforcement action by the FCC or other entities — possibly exposing us to significant monetary penalties, cease and desist orders, civil liability, loss of user confidence in our services, loss of users, and other adverse consequences, which could materially harm our business. The FCC’s rules, and some states, also impose other obligations, such as properly recording our customers’ registered locations, obtaining affirmative acknowledgement from customers that they are aware of the differences between emergency calling services associated with IP telephony as compared with traditional telecommunications services, and distribution of appropriate warning labels to place on or near hardware used to place IP telephony calls. Similar obligations apply to local emergency services provided outside the United States. Failure to comply with these requirements, or failure of our communications platform such that 911 and other emergency calls did not complete or were misrouted, may result in FCC, foreign regulatory or other enforcement action, state attorneys’ general investigations, potential exposure to significant monetary penalties, cease and desist orders, civil liability to our users and their customers, loss of user confidence in our services, loss of users, and other adverse consequences, which could materially harm our business.

National regulations, including the FCC’s rules, also require that we timely report certain 911 and other emergency service outages. The FCC or other applicable regulatory authorities may make inquiries regarding matters related to any reported 911 or other emergency service outage. Any inquiry could result in regulatory enforcement action, potential monetary penalties and other adverse consequences.

Any disruption to or termination of arrangements with key suppliers could cause delay and additional costs and could harm our relationships with current and prospective customers.

Our business is dependent on third-party suppliers for fiber, computers, software, transmission electronics and related network components, as well as providers of network colocation facilities that are integrated into our network, some of which are critical to the operation of our business. If any of these critical relationships is terminated, a supplier either exits or curtails its business as a result of economic conditions, a supplier fails to provide critical services or equipment, or the supplier is forced to stop providing equipment or services due to supply chain issues or legal constraints, such as patent infringement, and we are unable to reach suitable alternative arrangements quickly, we may experience significant additional costs or we may not be able to provide certain services to customers. If that happens, our business, results of operations and financial condition could be materially adversely affected. There can be no assurance that alternative components or equipment will be available when required or on terms that are commercially reasonable, which could extend our lead times, increase the cost of maintaining our network, result in service outages and otherwise harm our business, operating results and financial condition. We may not be able to continue to procure components at reasonable prices, which may require us to enter into longer-term contracts with component suppliers to obtain components at competitive prices. Any of the foregoing disruptions could exacerbate other risk factors and increase our costs and decrease our gross margins, harming our business, operating results and financial condition.

Many of our third-party suppliers do not have long-term committed contracts with us and may interrupt services or terminate their agreements with us without notice or by providing 30 days prior written notice. Although we expect that we could receive similar services from other third-party suppliers, if any of our arrangements with

our third-party suppliers are terminated or interrupted, we could experience interruptions in our ability to make our services available to customers, as well as delays and additional expenses in arranging alternative providers. If a significant portion of our third-party suppliers fail to provide these services to us on a cost-effective basis or otherwise terminate or interrupt these services, the delay caused by qualifying and switching to other providers could be time consuming and costly and could adversely affect our business, results of operations and financial condition.

Our customer churn rate may increase.

Customer churn occurs when a customer reduces usage or discontinues service with us, whether voluntarily or involuntarily, such as a customer switching some or all of its usage to a competitor or going out of business. Changes in the economy, increased competition from other providers, cyber incidents such as the 2021 DDoS attack or issues with the quality of service we deliver can impact our customer churn rate. We cannot predict future pricing by our competitors, but we anticipate that price competition will continue. Lower prices offered by our competitors could contribute to an increase in customer churn. We cannot predict the timing, duration or magnitude of any deteriorated economic conditions or its impact on our target of customers. Higher customer churn rates could adversely affect our revenue growth. Higher customer churn rates could cause our dollar-based net retention rate to decline. A sustained and significant growth in the churn rate could have a material adverse effect on our business.

The market prices for certain of our services have decreased in the past and may decrease in the future, resulting in lower revenue than we anticipate.

Market prices for certain of our services have decreased over recent years. These decreases resulted from downward market pressure and other factors including:

- technological changes and network expansions, which have resulted in increased transmission capacity available for sale by us and by our competitors; and
- some of our competitors have been willing to accept smaller operating margins in the short term in an attempt to increase long-term revenue.

To retain customers and revenue, we must sometimes reduce prices in response to market conditions and trends. We cannot predict to what extent we may need to reduce our prices to remain competitive or whether we will be able to sustain future pricing levels as our competitors introduce competing services or similar services at lower prices. Our ability to meet price competition may depend on our ability to operate at costs equal to or lower than our competitors or potential competitors. As our prices for some of our services decrease, our operating results may suffer unless we are able to either reduce our operating expenses or increase traffic volume from which we can derive additional revenue.

The need to obtain additional IP circuits from other providers increases our costs. In addition, the need to interconnect our network to networks that are controlled by others could increase our costs and adversely impact our business.

We lease all of our IP circuits from third parties. We could incur material expenses if we were required to locate alternative IP circuits. We may not be able to obtain reasonable alternative IP circuits if needed. Failure to obtain usage of alternative IP circuits, if necessary, could have a material adverse effect on our ability to carry on business operations. In addition, some of our agreements with other providers require the payment of amounts for services whether or not those services are used. Our reliance on third-party providers may reduce our operating flexibility, ability to make timely service changes and ability to control quality of service.

In the normal course of business, we need to enter into interconnection agreements with many local telephone companies, as well as the owners of networks that our customers desire to access to deliver their services. We are not always able to secure these interconnection agreements on favorable terms. In some jurisdictions, we rely on third party access and networks for local connectivity. We are not always able to secure this access and local

connectivity on favorable terms. Costs of obtaining service from other communications carriers comprise a significant proportion of the operating expenses of long distance carriers. Changes in regulation, particularly the regulation of telecommunication carriers and local access network owners, could indirectly, but significantly, affect our competitive position. These changes could increase or decrease the costs of providing our services. Further, if problems occur with our third-party providers or local telephone companies, it may cause errors or poor quality communications, and we could encounter difficulties identifying the source of the problem. The occurrence of errors or poor quality communications on our services, whether caused by our platform or a third-party provider, may result in the loss of our existing customers or the delay of adoption of our services by potential customers and may adversely affect our business, results of operations and financial condition.

Network providers also may institute additional fees due to regulatory, competitive or other industry-related changes that increase our costs. For example, the major U.S. cellular carriers and their intermediaries have added a variety of fees that are applied to Application to Person (“A2P”) messages delivered to their subscribers. While we may be able to negotiate with network providers, absorb the increased costs, or charge these costs to our customers, we cannot assure you that we will be able to do so. In the case of new A2P fees, we currently pass, and expect to continue to pass, these fees on to our customers who send A2P messages to the carrier's subscribers. This is expected to increase our revenue and cost of goods sold, but is not expected to impact the gross profit received for sending these messages. However, these changes may still have a negative impact on our gross margins mathematically. We also may not be able to effectively respond to any new fees if all network providers in a particular market impose equivalent fee structures, if the magnitude of the fees is disproportionately large when compared to the underlying prices paid by our customers, or if market conditions limit our ability to increase the prices we charge our customers.

In connection with the delivery of text messages to customers of mobile carriers in the U.S., and in certain other instances, our customers’ traffic must be routed through intermediaries who have direct access to network service providers. Although we are seeking direct connections with network service providers in a number of countries, we expect that we will continue to rely on intermediaries for these services for some period of time. These intermediaries sometimes have offerings that directly compete with our products and may stop providing services to us on a cost-effective basis. If a significant portion of these intermediaries stop providing services or stop providing services on a cost-effective basis, our business could be adversely affected.

We depend largely on the continued services of our senior management and other key employees, the loss of any of whom could adversely affect our business, results of operations and financial condition.

Our future performance depends on the continued services and contributions of our senior management and other key employees to execute on our business plan, to develop our platform, to deliver our services to customers, to attract and retain customers and to identify and pursue opportunities. The loss of services of senior management or other key employees, such as those who develop and maintain our service offerings, could significantly delay or prevent the achievement of our development and strategic objectives. In particular, we depend to a considerable degree on the vision, skills, experience and effort of our Chief Executive Officer, David A. Morken. The replacement of any of our senior management personnel or other key employees can involve significant time and costs, and such loss could significantly delay or prevent the achievement of our business objectives. The loss of the services of our senior management or other key employees for any reason could adversely affect our business, results of operations and financial condition.

If we are unable to hire, retain and motivate qualified personnel, our business will suffer.

Our future success depends, in part, on our ability to continue to attract and retain highly skilled personnel, and our inability to do so could adversely affect our business, results of operations and financial condition. Competition for talent in the technology industry has become increasingly intense, and the market to recruit, retain and motivate talent has become even more competitive. Many key individual contributors, particularly in software development, sales and cloud computing and telecommunications infrastructure, are critical to our success and can attract very significant compensation packages. In addition, we believe that there is, and will continue to be, intense

competition for highly skilled management, technical, sales and other personnel with experience in our industry in the Raleigh, North Carolina area, where our headquarters are located, and in other geographic locations where we maintain offices.

We have experienced and may continue to experience difficulties attracting, hiring and retaining highly-skilled personnel with appropriate qualifications, and may not be able to fill positions in desired geographic areas or at all. These difficulties may be exacerbated by the reactions of employees and prospective employees to our policies related to remote working flexibility. As a result, we have also experienced and may continue to experience increased compensation and training costs that may not be offset by either improved productivity or higher sales, which could reduce our profitability.

We seek to provide competitive compensation packages and a high-quality work environment to hire, retain and motivate employees. If we are unable to retain and motivate our existing employees and attract qualified personnel to fill key positions, we may be unable to manage our business effectively, including the development, marketing and sale of our services, which could adversely affect our business, results of operations and financial condition. To the extent we hire personnel from competitors, we also may be subject to allegations that they have been improperly solicited or hired, or that they divulged proprietary or other confidential information.

Volatility or declines in our stock price may also affect our ability to attract and retain key personnel. Employees may be more likely to terminate their employment with us if the shares they own or the shares underlying any restricted stock units have not significantly appreciated in value, or if the value of the shares underlying restricted stock units they hold has depreciated significantly. If we are unable to retain our employees, our business, results of operations and financial condition could be adversely affected.

In addition, we believe our corporate culture has been a key contributor to our success to date. We, along with many companies in the technology industry, experienced higher than average attrition in the “great resignation,” in which the technology industry saw a dramatic increase in workers leaving their positions in 2020 and 2021 during the COVID-19 pandemic. As we continue to grow and expand globally and navigate shifting workforce priorities, including the desire of many of our employees and prospective employees for a hybrid work model with the ability to work remotely for part of the week, and the increasing demand of employees and prospective employees for fully remote work, we may find it difficult to maintain important aspects of our corporate culture. This could negatively affect our ability to retain and recruit personnel who are essential to our future success, and could ultimately have a negative impact on our ability to innovate our technology and our business. Since 2020, we have experienced and may continue to face higher than usual employee turnover rates, and as of December 31, 2022, approximately 24.8% of our employees have been employed by us for a year or less. As a result, we must be able to effectively integrate, develop and motivate a large number of new employees, while maintaining the effectiveness of our business execution and the beneficial aspects of our corporate culture.

We could be subject to additional tax liabilities for historic and future sales, use and similar taxes, which could adversely affect our results of operations.

We conduct operations in many tax jurisdictions throughout the United States and internationally. In many of these jurisdictions, non-income-based taxes such as sales, use and telecommunications taxes, including those associated with (or potentially associated with) VoIP telephony services or 911 services, are or may be assessed on our operations. We also face exposure to other non-income-based international taxes such as value added taxes that are or may be assessed on our operations. The systems and procedures necessary to comply in these jurisdictions are complex to develop and challenging to implement. Additionally, we rely heavily on third parties to provide us with key software and services for compliance. If these third parties cease to provide those services to us for any reason, or fail to perform services accurately and completely, we may not be able to accurately bill, collect or remit applicable non-income-based taxes. Historically, we have not billed or collected certain of these taxes and, in accordance with GAAP, we have recorded a provision for our tax exposure in these jurisdictions when it is both probable that a liability has been incurred and the amount of the exposure can be reasonably estimated. These estimates include several key assumptions including, but not limited to, the taxability of our services, the

jurisdictions in which we believe we have nexus, and the sourcing of revenue to those jurisdictions. In the event these jurisdictions challenge our assumptions and analysis, our actual exposure could differ materially from our current estimates.

Taxing authorities also may periodically perform audits to verify compliance and include all periods that remain open under applicable law, which customarily range from three to four years. At any point in time, we may undergo audits that could result in significant assessments of past taxes, fines and interest if we were found to be non-compliant. During the course of an audit, a taxing authority may, as a matter of policy, question our interpretation and/or application of their rules in a manner that, if we were not successful in substantiating our position, could potentially result in a significant financial impact to us.

Furthermore, certain jurisdictions in which we do not collect sales, use and similar taxes may assert that such taxes are applicable, which could result in tax assessments, penalties and interest, and we may be required to collect such taxes in the future. Such tax assessments, penalties and interest or future requirements may adversely affect our business, results of operations and financial condition.

Our global operations and legal entity structure subject us to potentially adverse income tax consequences.

We conduct our international operations through subsidiaries and report our taxable income in various jurisdictions worldwide based upon our business operations in those jurisdictions. Our intercompany relationships are subject to complex transfer pricing regulations administered by taxing authorities in various jurisdictions. Also, our tax expense could be affected depending on the applicability of withholding and other taxes under the tax laws of certain jurisdictions in which we have business operations. The relevant revenue and taxing authorities may disagree with positions we have taken generally, or our determinations as to income and expenses attributable to specific jurisdictions. If such a disagreement were to occur, and our position were not sustained, we could be required to pay additional taxes, interest and penalties, which could result in additional tax charges, higher effective tax rates, reduced cash flows and lower overall profitability of our operations.

We are unable to predict what global or U.S. tax reforms may be proposed or enacted in the future or what effects such future changes would have on our business. Any such changes in tax legislation, regulations, policies or practices in the jurisdictions in which we operate could increase the estimated tax liability that we have expensed to date and paid or accrued on our balance sheet; affect our financial position, future results of operations, cash flows, and effective tax rates where we have operations; reduce post-tax returns to our stockholders; and increase the complexity, burden, and cost of tax compliance. We are subject to potential changes in relevant tax, accounting, and other laws, regulations, and interpretations, including changes to tax laws applicable to corporate multinationals.

Certain government agencies in jurisdictions where we and our affiliates do business have had an extended focus on issues related to the taxation of multinational companies. For example, the Organisation for Economic Co-operation and Development (the “OECD”) is conducting a project focused on base erosion and profit shifting in international structures, which seeks to establish certain international standards for taxing the worldwide income of multinational companies. In addition, the OECD is working on a “BEPS 2.0” initiative, which is aimed at (i) shifting taxing rights to the jurisdiction of the consumer and (ii) ensuring all companies pay a global minimum tax. On October 8, 2021, the OECD announced an agreement by members of the Inclusive Framework delineating an implementation plan, and on December 20, 2021, the OECD released model rules for the domestic implementation of a 15% global minimum tax. Further, several countries have proposed or enacted taxes applicable to digital services, which could apply to our business. As a result of these developments, the tax laws of certain countries in which we and our affiliates do business could change on a prospective or retroactive basis, and any such changes could increase our liabilities for taxes, interest and penalties, and therefore could harm our business, cash flows, results of operations and financial position.

The governments of countries in which we operate and other governmental bodies could make unprecedented assertions about how taxation is determined in their jurisdictions that are contrary to the way in which we have interpreted and historically applied the rules and regulations in our tax returns filed in such

jurisdictions. New laws could significantly increase our tax obligations in the countries in which we do business or require us to change the way we operate our business. As a result of the large and expanding scale of our international business activities, many of these changes to the taxation of our activities could adversely impact our worldwide effective tax rate and harm our financial position, results of operations, and cash flows.

Our ability to use our net operating loss and tax credit carryforwards to offset future taxable income may be subject to certain limitations.

The future utilization of our net operating loss and tax credit carryforwards (collectively, “Tax Attributes”) may be limited due to changes in ownership as defined under Section 382 of the Internal Revenue Code of 1986, as amended (the “Code”). In general, if we experience a greater than 50% aggregate change in ownership of certain significant stockholders or groups over a three-year period, utilization of our pre-change Tax Attributes is subject to an annual limitation under Section 382 of the Code (and similar state laws). The annual limitation generally is determined by multiplying the value of our stock at the time of such ownership change (subject to certain adjustments) by the applicable long-term tax-exempt rate. Such limitations may result in expiration of a portion of the pre-change Tax Attributes before utilization and may be substantial. In the past we may have experienced, and in the future may experience, ownership changes as a result of subsequent shifts in our stock ownership. As a result, if we earn net taxable income, our ability to use our pre-change Tax Attributes to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us.

We may be subject to significant U.S. federal income tax-related liabilities and indemnity obligations if there is a determination that the Spin-Off is taxable for U.S. federal income tax purposes.

We may be subject to significant U.S. federal income tax-related liabilities with respect to our prior distribution of all of the issued and outstanding shares of the common stock of Relay, Inc. (f/k/a Republic Wireless, Inc.) (“Relay”), our former subsidiary, to our stockholders as of and on November 30, 2016 (the “Spin-Off”), if there is a determination that the Spin-Off is taxable for U.S. federal income tax purposes. In that regard, even if the Spin-Off otherwise qualified as a tax-free transaction to us and our stockholders under Section 355, Section 368(a)(1)(D) and related provisions of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) at the time of the Spin-Off, we would be subject to corporate-level taxable gain under Section 355(e) of the Code (“Section 355(e)”) if there was a 50% or greater change in ownership, by vote or value, of shares of our stock or Relay’s stock that occurred after the Spin-Off as part of a plan or series of related transactions that included the Spin-Off. For purposes of Section 355(e), any acquisitions or issuances of our stock, including pursuant to our initial public offering and pursuant to the reorganizations undertaken and arrangements entered into in connection with our initial public offering, or Relay’s stock, in each case, that occurred within two years after the Spin-Off are generally presumed to be part of a plan or series of related transactions with respect to the Spin-Off.

In connection with the Spin-Off, we received an opinion from Skadden, Arps, Slate, Meagher & Flom LLP substantially to the effect that, among other things, the Spin-Off should qualify as a tax-free transaction for U.S. federal income tax purposes under Section 355 and Section 368(a)(1)(D) of the Code. In addition, in light of the implications that would arise for us if Section 355(e) applied to the Spin-Off, we received an opinion from Kilpatrick Townsend & Stockton LLP in connection with our initial public offering substantially to the effect that (i) as of the date of the initial public offering, we would not be required to recognize gain with respect to the Spin-Off pursuant to Section 355(e), and (ii) any increases in voting power attributable to conversions of our Class B common stock to Class A common stock by those who held our Class B common stock as of the date of the initial public offering would not cause us to recognize gain with respect to the Spin-Off pursuant to Section 355(e) (together with the opinion from Skadden, Arps, Slate, Meagher & Flom LLP with respect to the Spin-Off, the “Tax Opinions”). Neither of the Tax Opinions is binding on the Internal Revenue Service (the “IRS”) or the courts, however, and the IRS or the courts may not agree with the conclusions reached in the Tax Opinions. Moreover, the Tax Opinions were based upon, among other things, the laws in effect at the time of each of the Tax Opinions and certain assumptions and representations as to factual matters made by us. Any change in applicable law, which may be retroactive, or the failure of any such assumptions or representations to be true, could adversely affect the validity of the conclusions reached in the Tax Opinions.

If the conclusions of the Tax Opinions are not correct, or if the Spin-Off is otherwise ultimately determined to be a taxable transaction, we would be liable for significant U.S. federal income tax related liabilities. In addition, pursuant to the Tax Sharing Agreement, dated November 30, 2016, between us and Relay (the “Tax Sharing Agreement”), we must generally indemnify Relay for any taxes or losses incurred by it (or its respective subsidiaries) resulting from the Spin-Off failing to qualify as a tax-free transaction for U.S. federal income tax purposes (including due to the application of Section 355(e)) as a result of subsequent actions we take or fail to take. The amount of any indemnity obligations we may have under the Tax Sharing Agreement in such case may be material.

Even if Section 355(e) does not apply to the Spin-Off as of the date of our initial public offering or as a result of an increase in voting power attributable to conversions of our Class B common stock by those who held such stock as of our initial public offering, subsequent acquisitions or issuances of our stock could be treated as part of a plan or series of related transactions with respect to the Spin-Off. Accordingly, in light of the requirements of Section 355(e), we might forego share repurchases, stock issuances and other strategic transactions. Notwithstanding the foregoing, it is possible that we, Relay or the holders of our respective stock might inadvertently cause, permit or otherwise not prevent a change in the ownership of our stock or Relay’s stock to occur, which would cause Section 355(e) to apply to the Spin-Off, thereby triggering significant U.S. federal income tax-related liabilities and indemnity obligations under the Tax Sharing Agreement of approximately \$50 million. This approximation is based on our current expectations and the tax laws in effect as of our initial public offering. However, we cannot provide any assurance that this estimate will prove to be accurate in the event that Section 355(e) were to apply.

If our estimates or judgments relating to our critical accounting policies prove to be incorrect, our results of operations could be adversely affected.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, as provided in “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” The results of these estimates form the basis for making judgments about the carrying values of assets, liabilities and equity, and the amount of revenue and expenses that are not readily apparent from other sources. Significant assumptions and estimates used in preparing our consolidated financial statements include those related to revenue recognition, capitalized internal-use software costs, other non-income taxes, business combination and valuation of goodwill and purchased intangible assets and share-based compensation. Our results of operations may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our results of operations to fall below the expectations of securities analysts and investors, resulting in a decline in the trading price of our Class A common stock.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”), and the rules and regulations of the applicable listing standards of the NASDAQ Global Select Market. We expect that the requirements of these rules and regulations will continue to increase our legal, accounting and financial compliance costs, make some activities more difficult, time-consuming and costly and place significant strain on our personnel, systems and resources.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. Our disclosure controls and other procedures are designed to ensure that information required to be disclosed by us in the reports that we will file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal

executive and financial officers, and we continue to evaluate how to improve controls. We are also continuing to improve our internal control over financial reporting. In order to develop, maintain and improve the effectiveness of our disclosure controls and procedures and internal control over financial reporting, we have expended, and anticipate that we will continue to expend, significant resources, including accounting-related costs and significant management oversight.

Our current controls and any new controls that we develop may become inadequate because of changes in conditions in our business. Further, weaknesses in our disclosure controls and internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls or any difficulties encountered in their implementation or improvement could harm our results of operations or cause us to fail to meet our reporting obligations and may result in a restatement of our consolidated financial statements for prior periods. Any failure to implement and maintain effective internal control over financial reporting could also adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the trading price of our Class A common stock. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on the NASDAQ Global Select Market.

Our independent registered public accounting firm is required to attest to the effectiveness of our internal control over financial reporting. Our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our internal control over financial reporting is documented, designed or operating. Any failure to maintain effective disclosure controls and internal control over financial reporting could have a material and adverse effect on our business, results of operations and financial condition and could cause a decline in the trading price of our Class A common stock.

If our goodwill or intangible assets become impaired, we may be required to record a significant charge to earnings.

We review our intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. An adverse change in market conditions, particularly if such change has the effect of changing one of our critical assumptions or estimates, could result in a change to the estimation of fair value that could result in an impairment charge to our goodwill or intangible assets. Any such charges may adversely affect our results of operations.

We face exposure to foreign currency exchange rate fluctuations, and such fluctuations could adversely affect our business, results of operations and financial condition.

We face exposure to the effects of fluctuations in currency exchange rates. While historically we have primarily transacted in U.S. dollars, we generally have transacted with customers and partners in Europe in British Pounds and Euros. We expect to expand the number of transactions with customers and partners that are denominated in foreign currencies in the future as we continue to expand our business internationally. We also incur expenses for some of our network service provider costs outside of the United States in local currencies and for employee compensation and other operating expenses in local currency. Fluctuations in the exchange rates between the U.S. dollar and other currencies could result in an increase to the U.S. dollar equivalent of such expenses.

In addition, our international subsidiaries maintain net assets denominated in currencies other than the functional operating currencies of these entities. As we expand our international operations, we will become more exposed to the effects of fluctuations in currency exchange rates. Accordingly, changes in the value of foreign currencies relative to the U.S. dollar may affect our results of operations due to transactional and translational re-measurements. Such foreign currency exchange rate fluctuations could make it more difficult to detect underlying trends in our business and results of operations. The trading price of our Class A common stock also could be

adversely affected if fluctuations in currency exchange rates cause our results of operations to differ from our expectations or the expectations of our investors and securities analysts who follow our stock.

We do not currently maintain a program to hedge transactional exposures in foreign currencies. However, in the future, we may use derivative instruments, such as foreign currency forward and option contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not offset any or more than a portion of the adverse financial effects of unfavorable movements in foreign exchange rates over the limited time the hedges are in place. Moreover, the use of hedging instruments may introduce additional risks if we are unable to structure effective hedges with such instruments.

Earthquakes, hurricanes, fires, floods, pandemics, power outages, terrorist attacks, acts of war, civilian unrest and other significant events could disrupt our business and ability to serve our clients.

A significant event, such as an earthquake, hurricane, a fire, a flood, a pandemic, a power outage, terrorist attack, act of war or civilian unrest could have a material adverse effect on our business, results of operations or financial condition. For example, the rapid and global spread of COVID-19 disrupted businesses and increased travel restrictions globally. Health concerns or governmental, legal, political or regulatory developments in the United States or other countries in which we or our customers, partners and service providers operate could cause economic, labor or social instability and could materially adversely affect our business and our results of operations and financial condition. Future developments, which are very uncertain, include evolving responses by governments and businesses. These future developments could materially adversely affect our business and our results of operations and financial condition. Our IP network is designed to be redundant and to offer seamless backup support in an emergency. While our network is designed to withstand the loss of any one data center at any point in time, the simultaneous failure of multiple data centers could disrupt our ability to serve our clients. Additionally, certain of our capabilities cannot be made redundant feasibly or cost-effectively. Acts of physical or cyber terrorism or other geopolitical unrest, including acts of war, also could cause disruptions in our business. The adverse impacts of these risks may increase if our disaster recovery plans prove to be inadequate.

We may acquire or invest in companies, which may divert our management's attention and result in debt or dilution to our stockholders. We may not be able to efficiently and effectively integrate acquired operations, and thus may not fully realize the anticipated benefits from such acquisitions.

We may evaluate and consider potential strategic transactions, including acquisitions of, or investments in, businesses, technologies, services, products and other assets in the future. We may also enter into relationships with other businesses to expand our products and platform, which could involve preferred or exclusive licenses, additional channels of distribution, discount pricing or investments in other companies.

Achieving the anticipated benefits of any acquisitions depends in part upon whether we can integrate new businesses in an efficient and effective manner. The integration of any acquired businesses involves a number of risks, including, but not limited to:

- demands on management related to any significant increase in size after the acquisition;
- the disruption of ongoing business and the diversion of management's attention from the management of daily operations to management of integration activities;
- failure to fully achieve expected synergies and costs savings;
- unanticipated impediments in the integration of departments, systems, including accounting systems, technologies, books and records and procedures, as well as in maintaining uniform standards, controls, including internal control over financial reporting required by the Sarbanes-Oxley Act, procedures and policies;

- difficulty establishing and maintaining appropriate governance, reporting relationships, policies, controls, and procedures for the acquired business, particularly if it is based in a country or region where we did not previously operate;
- new or more stringent regulatory compliance obligations and costs by virtue of the acquisition, including risks related to international acquisitions that may operate in new jurisdictions or geographic areas where we may have no or limited experience;
- loss of customers or the failure of customers to order incremental services that we expect them to order;
- difficulty and delays in integrating the products, technology platforms, operations, systems, and personnel of the acquired business with our own, particularly if the acquired business is outside of our core competencies and current geographic markets;
- failure to provision services that are ordered by customers during the integration period;
- higher integration costs than anticipated;
- difficulties in the assimilation and retention of highly qualified, experienced employees, many of whom may be geographically dispersed;
- litigation, investigations, proceedings, fines, or penalties arising from or relating to the transaction or the acquired business, and any resulting liabilities may exceed our forecasts;
- acquisition of businesses with different revenue models, different contractual relationships, and increased customer concentration risks;
- assumption of long-term contractual obligations, commitments, or liabilities (for example, the costs associated with leased facilities), which could adversely impact our efforts to achieve and maintain profitability and impair our cash flow;
- failure to successfully evaluate or utilize the acquired business' technology and accurately forecast the financial impact of an acquisition, including accounting charges; and
- drag on our overall revenue growth rate or an increase of our net loss, which could cause analysts and investors to reduce their valuation of our company.

Successful integration of any acquired businesses or operations will depend on our ability to manage these operations, realize opportunities for revenue growth presented by strengthened service offerings and expanded geographic market coverage, obtain better terms from our vendors due to increased buying power, and eliminate redundant and excess costs to fully realize the expected synergies. Because of difficulties in combining geographically distant operations and systems which may not be fully compatible, we may not be able to achieve the financial strength and growth we anticipate from the acquisitions.

We may not realize our anticipated benefits from our acquisitions, if any, or may be unable to efficiently and effectively integrate acquired operations as planned. If we fail to integrate acquired businesses and operations efficiently and effectively or fail to realize the benefits we anticipate, we would be likely to experience material adverse effects on our business, financial condition, results of operations and future prospects.

Acquisitions or investments may also require us to issue debt or equity securities, use our cash resources, incur debt or contingent liabilities, amortize intangibles, or write-off acquisition-related expenses. In addition, we cannot predict market reactions to any acquisitions we may make or to any failure to announce any future acquisitions.

While we would conduct due diligence in connection with any acquisition opportunities, there may be risks or liabilities that such due diligence efforts fail to discover, that are not disclosed to us or that we inadequately

assess. The failure to timely identify any material liabilities associated with any acquisitions could adversely affect our business, results of operations, and financial condition.

We have incurred, and may continue to incur, significant, non-recurring costs in connection with the acquisition and integrating our operations with those of Voxbone, including costs to consolidate business support systems and service offerings. We cannot ensure that the elimination of duplicative costs or the realization of other efficiencies will offset the transaction and integration costs in the near term or at all.

Risks Related to the Convertible Notes

Servicing our debt requires a significant amount of cash, and our business may not generate sufficient cash flow to repay our indebtedness.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance the Convertible Notes depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional debt financing or equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations. In addition, any of our future debt agreements may contain restrictive covenants that may prohibit us from adopting any of these alternatives. Our failure to comply with these covenants could result in an event of default which, if not cured or waived, could result in the acceleration of our indebtedness.

We may incur substantially more debt or take other actions which would intensify the risks discussed above.

We and our subsidiaries may be able to incur substantial additional debt in the future, some of which may be secured debt. We will not be restricted under the terms of the indentures governing the Convertible Notes from incurring additional debt, securing existing or future debt, recapitalizing our debt or taking a number of other actions that are not limited by the terms of the indentures governing the Convertible Notes that could have the effect of diminishing our ability to make payments on the Convertible Notes when due.

We may not have the ability to raise the funds necessary for cash settlement upon conversion of the Convertible Notes or to repurchase the Convertible Notes for cash following a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion of the Convertible Notes or to repurchase the Convertible Notes.

Subject to limited exceptions, holders of the Convertible Notes have the right to require us to repurchase their Convertible Notes upon the occurrence of a fundamental change at a cash repurchase price generally equal to 100% of the principal amount of the Convertible Notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date. In addition, upon conversion of the Convertible Notes, unless we elect to deliver solely shares of our Class A common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the Convertible Notes being converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Convertible Notes surrendered therefor or pay the cash amounts due upon conversion. In addition, our ability to repurchase the Convertible Notes or to pay cash upon conversions of the Convertible Notes may be limited by applicable law, by regulatory authorities or by agreements governing our future indebtedness. Our failure to repurchase the Convertible Notes at a time when such repurchase is required by the indentures governing the Convertible Notes or to pay the cash amounts due upon future conversions of the Convertible Notes as required by such indentures would constitute a default under such indentures. A default under the indentures governing the Convertible Notes or the fundamental change itself may also lead to a default under agreements governing our existing or future indebtedness, which may result in such existing or future indebtedness becoming immediately payable in full. We may not have sufficient funds to satisfy all amounts due under such

existing or future indebtedness and repurchase the Convertible Notes or make cash payments upon conversions thereof.

The conditional conversion feature of the Convertible Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the Convertible Notes is triggered, holders of Convertible Notes will be entitled to convert the Convertible Notes at any time during specified periods at their option as described in the indentures governing the Convertible Notes. If one or more holders elect to convert their Convertible Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our Class A common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their Convertible Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Convertible Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The Capped Calls may affect the value of the Convertible Notes and our Class A common stock.

In connection with the pricing of the Company's 0.25% Convertible Notes due March 1, 2026 (the "2026 Convertible Notes") and 0.50% Convertible Notes due April 1, 2028 (the "2028 Convertible Notes" and, together with the 2026 Convertible Notes, the "Convertible Notes"), we entered into privately negotiated capped call transactions (the "2026 Capped Calls" and the "2028 Capped Calls," respectively and, collectively, the "Capped Calls") with certain financial institutions (the "option counterparties"). The Capped Calls are expected generally to reduce the potential dilution upon any conversion of the Convertible Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Convertible Notes, as the case may be, with such reduction and/or offset subject to a cap.

We have been advised that, in connection with establishing their initial hedges of the Capped Calls, the option counterparties or their respective affiliates entered into various derivative transactions with respect to our Class A common stock concurrently with or shortly after the pricing of the Convertible Notes.

In addition, the option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our Class A common stock and/or purchasing or selling our Class A common stock or other securities of ours in secondary market transactions from time to time prior to the maturity of the Convertible Notes (and are likely to do so during any observation period related to a conversion of Convertible Notes). This activity could also cause or avoid an increase or a decrease in the market price of our Class A common stock or the Convertible Notes, which could affect your ability to convert the Convertible Notes and, to the extent the activity occurs during any observation period related to a conversion of Convertible Notes, it could affect the number of shares and value of the consideration that you will receive upon conversion of such Convertible Notes.

We do not make any representation or prediction as to the direction or magnitude of any potential effect that the transactions described above may have on the price of the Convertible Notes or our Class A common stock. In addition, we do not make any representation that the option counterparties will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

We are subject to counterparty risk with respect to the Capped Calls.

The option counterparties are financial institutions, and we will be subject to the risk that any or all of them might default under the Capped Calls. Our exposure to the credit risk of the option counterparties will not be secured by any collateral. Past global economic conditions have resulted in the actual or perceived failure or financial difficulties of many financial institutions. If an option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings with a claim equal to our exposure at that time under the capped call transactions with such option counterparty. Our exposure will depend on many factors

but, generally, an increase in our exposure will be correlated to an increase in the market price and in the volatility of our Class A common stock. In addition, upon a default by an option counterparty, we may suffer more dilution than we currently anticipate with respect to our Class A common stock. We can provide no assurances as to the financial stability or viability of the option counterparties.

Risks Related to Ownership of Our Class A Common Stock

The trading price of our Class A common stock may be volatile, and you could lose all or part of your investment.

Prior to our initial public offering, there was no public market for shares of our Class A common stock. On November 10, 2017, we sold shares of our Class A common stock to the public at \$20.00 per share. From November 10, 2017, the date that our Class A common stock began trading on the NASDAQ Global Select Market, through December 31, 2022, the trading price of our Class A common stock has ranged from \$18.05 per share to \$198.61 per share. The trading price of our Class A common stock may continue to be volatile and could fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- general market volatility caused by epidemics, endemics and pandemics such as COVID-19, acts of war, or other significant domestic or international events;
- price and volume fluctuations in the overall stock market from time to time;
- volatility in the trading prices and trading volumes of technology stocks;
- volatility in the trading volumes of our Class A common stock;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- sales of shares of our Class A common stock by us or our stockholders;
- failure of securities analysts to maintain coverage of us, changes in financial estimates by securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- the financial projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- announcements by us or our competitors of new products or services;
- the public's reaction to our press releases, other public announcements and filings with the SEC;
- rumors and market speculation involving us or other companies in our industry;
- actual or anticipated changes in our results of operations or fluctuations in our results of operations;
- actual or anticipated developments in our business, our competitors' businesses or the competitive landscape generally;
- litigation involving us, our industry or both;
- regulatory actions or developments affecting our operations, those of our competitors or our industry more broadly;
- developments or disputes concerning our intellectual property or other proprietary rights;
- announced or completed acquisitions of businesses, products, services or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;

- changes in accounting standards, policies, guidelines, interpretations or principles;
- new rules adopted by certain index providers, such as S&P Dow Jones, that limit or preclude inclusion of companies with multi-class capital structures in certain of their indices;
- any significant change in our management; and
- general economic conditions and slow or negative growth of our markets.

In addition, in the past, securities class action litigation has often been instituted following periods of volatility in the overall market and the market price of a particular company's securities. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

Substantial future sales of shares of our Class A common stock could cause the market price of our Class A common stock to decline.

The market price of our Class A common stock could decline as a result of substantial sales of our Class A common stock, particularly sales by our directors, executive officers and significant stockholders, or the perception in the market that holders of a large number of shares intend to sell their shares.

Additionally, the shares of Class A common stock subject to outstanding options and restricted stock unit awards under our equity incentive plans and the shares reserved for future issuance under our equity incentive plans will become eligible for sale in the public market upon issuance. Certain holders of our Class A common stock have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for our stockholders or ourselves.

The dual class structure of our common stock has the effect of concentrating voting control with those stockholders who held our capital stock prior to the completion of our initial public offering. This may limit or preclude stockholders' ability to influence corporate matters, including the election of directors, amendments to our organizational documents and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval.

Our Class A common stock has one vote per share, and our Class B common stock has ten votes per share. Substantially all of our Class B common stock continues to be held by our current Chairman and CEO, David Morken, and our co-Founder Henry Kaestner. Because of the ten-to-one voting ratio between our Class B and Class A common stock, these holders of our Class B common stock collectively control approximately 46% of the combined voting power of our common stock and therefore would be able to exert significant influence over all matters submitted to our stockholders for approval. This concentrated voting control limits or precludes stockholders' ability to influence corporate matters for the foreseeable future, including the election of directors, amendments to our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval. In addition, this may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that stockholders may feel are in their best interest as one of our stockholders.

Future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as certain transfers effected for estate planning purposes. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long term.

We cannot predict the impact our capital structure may have on our stock price.

In July 2017, S&P Dow Jones, a provider of widely followed stock indices, announced that companies with multiple share classes, such as ours, will not be eligible for inclusion in certain of their indices. As a result, our Class A common stock will likely not be eligible for these stock indices. Many investment funds are precluded from investing in companies that are not included in such indices, and these funds would be unable to purchase our Class

A common stock if we were not included in such indices. We cannot assure you that other stock indices will not take a similar approach to S&P Dow Jones in the future. Exclusion from indices could make our Class A common stock less attractive to investors and, as a result, the market price of our Class A common stock could be adversely affected.

In addition, several stockholder advisory firms have announced their opposition to the use of multiple class structures. As a result, the dual class structure of our common stock may cause stockholder advisory firms to publish negative commentary about our corporate governance practices or otherwise seek to cause us to change our capital structure. Any actions or publications by stockholder advisory firms critical of our corporate governance practices or capital structure could also adversely affect the value of our Class A common stock.

We are effectively controlled by David A. Morken, our Co-Founder and Chief Executive Officer, whose interests may differ from other stockholders.

Mr. Morken has the ability to effectively control the appointment of our management, the entering into of mergers, sales of substantially all or all of our assets and other extraordinary transactions and influence amendments to our certificate of incorporation and bylaws. In any of these matters, the interests of Mr. Morken may differ from or conflict with your interests. Moreover, this concentration of ownership may also adversely affect the trading price for our Class A common stock to the extent investors perceive disadvantages in owning stock of a company with a controlling stockholder.

If securities or industry analysts cease publishing research or reports about us, our business or our market, or if they change their recommendations regarding our Class A common stock adversely, the trading price of our Class A common stock and trading volume could decline.

The trading market for our Class A common stock is influenced by the research and reports that securities or industry analysts may publish about us, our business, our market or our competitors. If any of the analysts who may cover us change their recommendation regarding our Class A common stock in an adverse manner, or provide more favorable recommendations about our competitors relative to us, the trading price of our Class A common stock would likely decline. If any analyst who covers us were to cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause the trading price of our Class A common stock or trading volume to decline.

Anti-takeover provisions contained in our second amended and restated certificate of incorporation and second amended and restated bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our second amended and restated certificate of incorporation, second amended and restated bylaws and Delaware law contain provisions which could have the effect of rendering more difficult, delaying, or preventing an acquisition deemed undesirable by our board of directors. Among other things, our second amended and restated certificate of incorporation and second amended and restated bylaws include provisions:

- authorizing “blank check” preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our Class A and Class B common stock;
- limiting the liability of, and providing indemnification to, our directors and officers;
- limiting the ability of our stockholders to call and bring business before special meetings;
- providing for a dual class common stock structure in which holders of our Class B common stock have the ability to control the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the outstanding shares of our Class A and Class B common stock, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets;

- providing that our board of directors is classified into three classes of directors with staggered three-year terms;
- prohibiting stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- requiring super-majority voting to amend some provisions in our second amended and restated certificate of incorporation and second amended and restated bylaws;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our board of directors; and
- controlling the procedures for the conduct and scheduling of board of directors and stockholder meetings.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation Law, which prevents certain stockholders holding more than 15% of our outstanding common stock from engaging in certain business combinations without approval of the holders of at least two-thirds of our outstanding common stock not held by such 15% or greater stockholder.

Any provision of our second amended and restated certificate of incorporation, second amended and restated bylaws or Delaware law that has the effect of delaying, preventing or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our Class A common stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our second amended and restated certificate of incorporation and our second amended and restated bylaws include super-majority voting provisions that will limit your ability to influence corporate matters.

Our second amended and restated certificate of incorporation and our second amended and restated bylaws include provisions that require the affirmative vote of two-thirds of all of the outstanding shares of our capital stock entitled to vote to effect certain changes. These changes include amending or repealing our second amended and restated bylaws or second amended and restated certificate of incorporation or removing a director from office for cause. If all or substantially all of the holders of our Class B common stock convert their shares into Class A common stock voluntarily or otherwise, Mr. Morken may control the majority of the voting power of our outstanding capital stock, and therefore he may have the ability to prevent any such changes, which will limit a stockholder's ability to influence corporate matters.

Our second amended and restated bylaws provide, subject to certain exceptions, that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for certain stockholder litigation matters, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or stockholders.

Our second amended and restated bylaws provide, subject to limited exceptions, that the Court of Chancery of the State of Delaware will, to the fullest extent permitted by law, be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or stockholder to us or our stockholders; (iii) any action asserting a claim against us that is governed by the internal affairs doctrine; or (iv) any action arising pursuant to any provision of the Delaware General Corporation Law, our second amended and restated certificate of incorporation or our second amended and restated bylaws. This exclusive forum provision does not apply to suits brought to enforce a duty or liability created by the Exchange Act, which provides for exclusive jurisdiction of the federal courts. It could apply, however, to a suit that asserts claims under the Securities Act and falls within one or more of the categories enumerated in our choice of forum provision, inasmuch as Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the

Securities Act or the rules and regulations thereunder. There is uncertainty as to whether a court would enforce such provision with respect to claims under the Securities Act, and our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder.

Our choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims. While Delaware courts have determined that choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than that designated in our exclusive forum provision. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provision of our second amended and restated bylaws. Alternatively, if a court were to find the choice of forum provision contained in our second amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially and adversely affect our business, financial condition and results of operations.

We may need additional capital in the future and such capital may be limited or unavailable. Failure to raise capital when needed could prevent us from growing in accordance with our plans.

We may require more capital in the future from equity or debt financings to fund our operations, finance investments in equipment and infrastructure, acquire complementary businesses and technologies, and respond to competitive pressures and potential strategic opportunities. If we are required to raise additional funds through further issuances of equity or other securities convertible into equity, our existing stockholders could suffer significant dilution, and any new shares we issue could have rights, preferences or privileges senior to those of the holders of our Class A common stock. The additional capital we may seek may not be available on favorable terms or at all. If we are unable to obtain capital on favorable terms or at all, we may have to reduce our operations or forego opportunities, and this may have a material adverse effect on our business, financial condition and results of operations.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any cash dividends on our Class A common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

If a large number of shares of our Class A common stock is sold in the public market, the sales could reduce the trading price of our Class A common stock and impede our ability to raise future capital.

We cannot predict what effect, if any, future issuances by us of our Class A common stock will have on the market price of our Class A common stock. In addition, shares of our Class A common stock that we issue in connection with an acquisition may not be subject to resale restrictions. The market price of our Class A common stock could drop significantly if certain large holders of our Class A common stock, or recipients of our Class A common stock in connection with an acquisition, sell all or a significant portion of their shares of Class A common stock or are perceived by the market as intending to sell these shares other than in an orderly manner. In addition, these sales could impair our ability to raise capital through the sale of additional Class A common stock in the capital markets.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters is located in Raleigh, North Carolina, where we lease approximately 120,041 square feet of office space at 900 Main Campus Drive and 40,802 square feet of additional office space on the Centennial Campus of North Carolina State University in Raleigh, North Carolina.

We maintain offices in locations in the United States and internationally. In addition to our headquarters, we lease space in Denver, CO; Rochester, NY; Austin, TX; Simi Valley, CA; Brussels, Belgium; London, U.K.; Dublin, Ireland; Iasi, Romania; Singapore; Frankfurt, Germany; Madrid, Spain; and Istanbul, Turkey.

We maintain data centers located in Raleigh, NC (including our network operations center); Los Angeles, CA; Dallas, TX; Atlanta, GA; New York, NY; Frankfurt, Germany; and London, U.K.

We currently lease all our facilities. On June 4, 2021, we purchased approximately 40 acres of undeveloped land from the state of North Carolina to construct a new headquarters in Raleigh, NC. We subsequently sold approximately 24 acres of such property to a third party who is constructing our new headquarters facility, and retained approximately 17 acres of such property. We intend to relocate our corporate headquarters in mid-2023. We believe this new facility will provide the additional space needed to accommodate our growing work force.

Item 3. Legal Proceedings

Phone Recovery Services, LLC and Phone Administrative Services, Inc. acting or purporting to act on behalf of applicable jurisdictions, or the applicable county or city itself, have filed multiple lawsuits against us and/or one of our subsidiaries alleging that we failed to bill, collect and remit certain taxes and surcharges associated with the provision of 911 services.

The following county or municipal governments have named us in lawsuits that remain unresolved and are associated with the collection and remittance of 911 taxes and surcharges: (a) the City and County of San Francisco, California; (b) the following Illinois jurisdictions, collectively: Cook and Kane Counties, Illinois, the City of Chicago, Illinois, and the State of Illinois; and (c) the State of New York. The complaints allege that we failed to bill, collect and remit certain taxes and surcharges associated with 911 service pursuant to applicable laws.

On January 27, 2023, we were named as a defendant in an action brought by a non-practicing entity related to alleged patent infringement.

We intend to vigorously defend these lawsuits and believe we have meritorious defenses to each. However, litigation is inherently uncertain, and any judgment or injunctive relief entered against us or any adverse settlement could negatively affect our business, results of operations and financial condition.

In addition to the litigation discussed above, from time to time, we may be subject to legal actions and claims in the ordinary course of business. We have received, and may in the future continue to receive, claims from third parties relating to number management, and claims asserting, among other things, infringement of their intellectual property rights. Future litigation may be necessary to defend ourselves, our partners and our customers by determining the scope, enforceability and validity of third-party proprietary rights, or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

PART II - OTHER INFORMATION

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information for Class A Common Stock

Our Class A common stock has been listed on the NASDAQ Global Select Market under the symbol “BAND” since November 10, 2017. Prior to that date, there was no public trading market for our Class A common stock.

Stockholders

As of February 17, 2023, we had 22 holders of record of our Class A and Class B common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

Dividend Policy

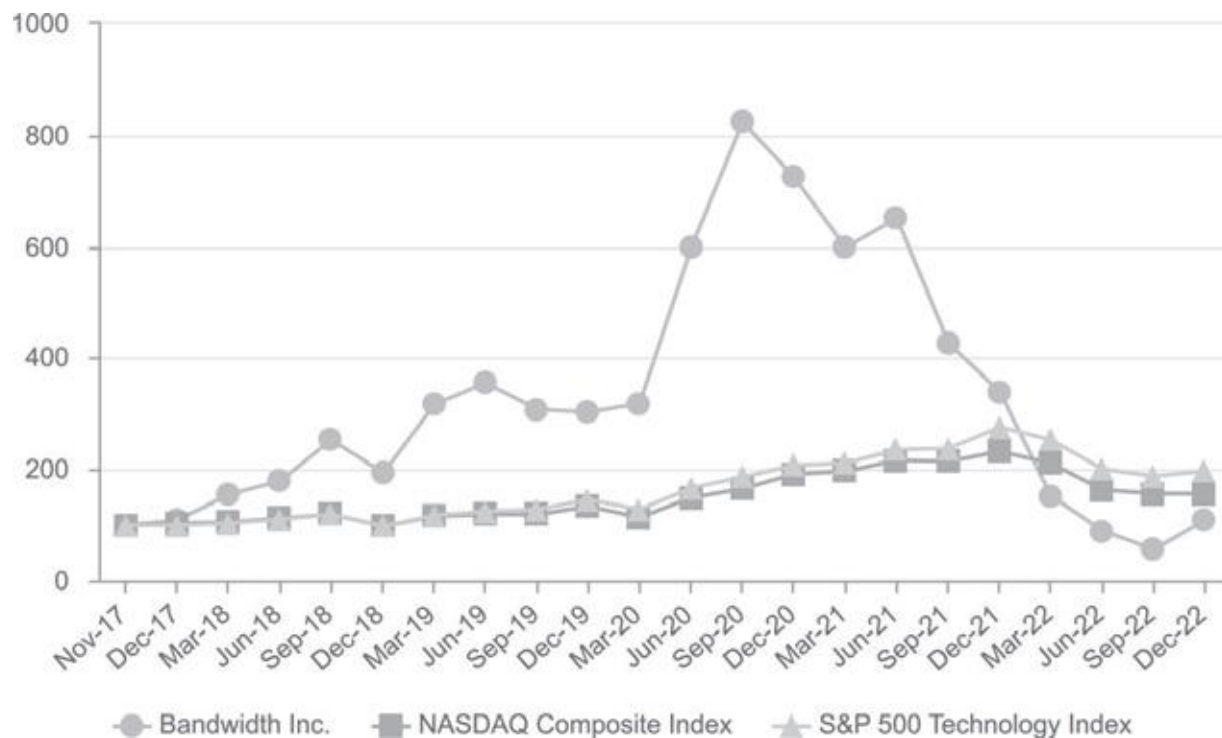
We have never declared or paid any cash dividend on our common stock. We currently intend to retain all of our future earnings, if any, generated by our operations for the development and growth of our business for the foreseeable future. The decision to pay dividends is at the discretion of our board of directors and depends upon our financial condition, results of operations, capital requirements, and other factors that our board of directors deems relevant.

Stock Performance Graph

This performance graph shall not be deemed “soliciting material” or to be “filed” with the SEC for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Bandwidth Inc. under the Securities Act or the Exchange Act.

The graph below compares the cumulative total return to our stockholders between November 10, 2017 (the date our Class A common stock commenced trading on the NASDAQ Global Select Market) through December 31, 2022 in comparison to the NASDAQ Composite Index and the S&P 500 Information Technology Index. The graph assumes \$100 was invested in the Class A common stock of Bandwidth Inc., the NASDAQ Composite Index and the S&P 500 Information Technology Index, in each case on November 10, 2017, and assumes reinvestment of any dividends.

The comparisons in the graph below are based on historical data and are not indicative of, nor intended to forecast, the future performance of our Class A common stock.



Securities Authorized for Issuance under Equity Compensation Plans

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the SEC within 120 days of the fiscal year ended December 31, 2022.

Recent Sales of Unregistered Securities

From January 1, 2022 through December 31, 2022, we did not sell any securities on an unregistered basis.

Item 6. [Reserved]

Management's Discussion and Analysis

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes that are included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements based upon current plans, expectations and beliefs that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under "Risk Factors" in this Annual Report on Form 10-K. Our fiscal year ends on December 31.

Overview

A global communications transformation is underway, and we believe Bandwidth is at the center. Our mission is to develop and deliver the power to communicate. We enable innovative organizations—from startup app developers to the world's largest enterprises—to engage their end-users and deliver exceptional experiences everywhere people live, learn, work and play. Backed by the Bandwidth Communications Cloud, a global owned-and-operated network spanning more than 60 countries reaching over 90 percent of GDP, innovative enterprises use Bandwidth's APIs to easily embed voice, messaging and emergency services capabilities into software and applications. Bandwidth was the first CPaaS provider to offer a robust selection of APIs built on our own cloud platform. Our award-winning support teams help businesses around the world solve complex communications challenges every day.

Bandwidth's business benefits from multiple global megatrends, including the enterprise migration to the cloud, the adoption of Contact Center as a Service platforms, the need to be able to work from anywhere, the reinvention of customer experience and the growth in messaging applications to engage directly with consumers. We believe these megatrends, which have created sizable total addressable markets, are secular, long-lasting and still early in the adoption curve.

With the combination of our software APIs, our global Communications Cloud and our broad range of experience with global regulatory frameworks, we believe Bandwidth is one of the best-positioned providers in our space to deliver business-critical communications for global enterprises. In fact, Bandwidth already powers all the 2022 Gartner[®] Magic Quadrant Leaders in the key cloud communications categories of UCaaS and CCaaS.

Our long-term vision is to continue strengthening this position as the key enabling platform for communications transformation. We will seek to do this in three ways: (1) by cross-selling and up-selling within our existing customers as they benefit from our global footprint and powerful APIs to automate and scale cloud communications; (2) by focusing on direct-to-enterprise growth to serve Global 2000 enterprises that come directly to Bandwidth to leverage our services to accelerate their digital transformations, and (3) by aiming to be the preferred provider for SaaS platforms that use conversational messaging to create digital engagements that enhance the customer experience. These three strategies are the foundation of the durable business we seek to build.

For the years ended December 31, 2022, 2021 and 2020, total revenue was \$573 million, \$491 million and \$343 million, respectively, representing an increase of 17% in 2022 and 43% in 2021. Net income in 2022 was \$20 million, and net loss in 2021 and 2020 was \$27 million and \$44 million, respectively. As of December 31, 2022, 2021 and 2020, the number of active customer accounts was 3,405, 3,300, and 2,879, respectively, representing a year-over-year increase of 3% in 2022 and 15% in 2021.

Segment Reporting Update and Cost Alignment

As a result of certain changes in our business during the quarter ended March 31, 2022, we re-evaluated our segment reporting and determined that one segment was appropriate, rather than the previously reported segments comprising "CPaaS" and "Other". The primary drivers for this change were the strategic alignment of our operating departments and the sale of certain immaterial legacy businesses.

Management's Discussion and Analysis

Additionally, during the quarter ended March 31, 2022, we changed our presentation of certain costs to align with benchmarked definitions of cost of revenue, research and development, sales and marketing and general and administrative expenses. See Note 2, "Summary of Significant Accounting Policies," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for additional information. For both matters, prior period information has been conformed to the current period presentation.

The following is a comparison of the change in costs to the prior period:

	Year ended December 31, 2021		Year ended December 31, 2020	
	As reported	As previously reported	As reported	As previously reported
(In thousands)				
Statement of Operations				
Cost of revenue	\$ 277,094	\$ 272,384	\$ 189,203	\$ 185,252
Research and development	69,505	55,173	54,555	42,059
Sales and marketing	82,333	51,817	61,216	40,552
General and administrative	64,212	113,770	51,644	88,755

Adoption of Accounting Standards Update 2020-06

We adopted Accounting Standards Update 2020-06 ("ASU 2020-06") on January 1, 2022 using the modified retrospective approach resulting in decreases in accumulated deficit of \$9 million, additional paid in capital of \$156 million, and deferred tax liability of \$1 million. We also recorded an increase in the Convertible Notes balance of \$148 million as a result of the reversal of the separation of the convertible debt between debt and equity. The adoption of this standard decreased the amount of non-cash interest expense to be recognized in current and future periods as a result of eliminating the discount associated with the equity component. For the year ended December 31, 2022, the combined interest expense of the 2026 Convertible Notes and 2028 Convertible Notes was \$27 million lower upon the adoption of ASU 2020-06. The number of diluted shares increased as a result of transitioning from the treasury stock method to the as-if converted method, which impacted the earnings per share for the year ended December 31, 2022. The transition did not impact the years ended December 31, 2021 and 2020, as we incurred a net loss in both reporting periods. See Note 2, "Summary of Significant Accounting Policies," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for additional information.

Repurchase of 2026 Convertible Notes

During November 2022, we entered into separate, privately negotiated repurchase agreements with a limited number of holders of the 2026 Convertible Notes to repurchase (the "Repurchases") approximately \$160 million aggregate principal amount of the 2026 Convertible Notes for an aggregate cash price of approximately \$117 million. The Repurchases closed on November 28, 2022. Following the Repurchases, approximately \$240 million aggregate principal amount of the 2026 Convertible Notes remains outstanding. The difference between the consideration used to repurchase the 2026 Convertible Notes and the carrying value of the 2026 Convertible Notes resulted in a gain of \$40 million recorded within other income (expense), net on our consolidated statements of operations included elsewhere in this Annual Report on Form 10-K.

COVID-19 Update

We believe COVID-19 has reduced to endemic levels globally however, while its persistent nature has diminished in the present period, it is possible it could potentially impact areas of the United States or the rest of the world to varying degrees in the future. During the COVID-19 pandemic, its adverse effects were prevalent in the locations where we, our customers, suppliers and third-party business partners conduct business. We acknowledge there may be additional impacts to the economy and our business going forward as a result of COVID-19 and that

Management's Discussion and Analysis

there is uncertainty regarding potentially broad or unknown implications of COVID-19 on our results of operations and overall financial performance remain uncertain. If the COVID-19 infection rate were to return to pandemic levels in the United States or in other global territories where we operate, we may experience curtailed customer demand that could materially adversely impact our business, results of operations and overall financial performance in future periods. Specifically, this could result in enterprises reducing usage of our services or delaying decisions to implement our services. See "Item 1A. Risk Factors" for further discussion of the possible impact of COVID-19 on our business.

DDoS Attack

Beginning on September 25, 2021, our communications network was subjected to a distributed denial of service attack (the "DDoS Attack") initially causing intermittent communications services disruptions affecting certain of our markets and customers. A DDoS attack is a malicious attempt to disrupt the normal traffic of a targeted server, service or network by overwhelming the target or its surrounding infrastructure with a flood of unwanted internet traffic from multiple sources, resulting in the slowdown or blockage of legitimate traffic. Our mitigation efforts, in conjunction with our partners from leading cybersecurity firms, have proven successful. Our network has been largely stable and operating at normal service levels since the evening of September 29, 2021, although there have been some continued intermittent disruptions.

Key Performance Indicators

We monitor the following key performance indicators ("KPIs") to help us evaluate our business, identify trends affecting our business, formulate business plans, and make strategic decisions. We believe the following KPIs are useful in evaluating our business:

	Year ended December 31,		
	2022	2021	2020
Number of active customers (as of period end) ⁽¹⁾	3,405	3,300	2,879
Dollar-based net retention rate ⁽¹⁾	112 %	117 %	131 %

⁽¹⁾ As a result of the change in revenue segment reporting, our KPIs of number of active customers and dollar-based net retention rates disclosed in previous SEC filings, press releases and presentations prior to reporting periods ending March 31, 2022, will not be directly comparable to our KPIs reported going forward. To facilitate comparison between the periods presented in the table above, number of active customers and dollar-based net retention rate have been conformed to the current period methodology.

Number of Active Customer Accounts

We define an active customer account at the end of any period as an individual account, as identified by a unique account identifier, for which we have recognized at least \$100 of revenue in the last month of the period. We believe usage of our platform by an active customer at or above the \$100 per month threshold is a stronger indicator of potential future engagement than trial usage at levels below \$100 per month. A single organization may constitute multiple unique active customer accounts if it has multiple unique account identifiers, each of which is treated as a separate active customer account. Customers who pay after using our platform and customers that have credit balances are included in the number of active customer accounts. For comparative purposes, the number of active customers presented in the table above has been updated to reflect the change in our reporting segments.

Management's Discussion and Analysis

Dollar-Based Net Retention Rate

Our ability to drive growth and generate incremental revenue depends, in part, on our ability to maintain and grow our relationships with our existing customers that generate revenue and seek to increase their use of our platform. We track our performance in this area by measuring the dollar-based net retention rate for our customers who generate revenue. To calculate the dollar-based net retention rate, we first identify the cohort of customers that generate revenue and that were customers in the same quarter of the prior year. The dollar-based net retention rate is obtained by dividing the revenue generated from that cohort in a quarter, by the revenue generated from that same cohort in the corresponding quarter in the prior year. The dollar-based net retention rate reported in a quarter is then obtained by averaging the result from that quarter, by the corresponding results from each of the prior three quarters. Customers of acquired businesses are included in the subsequent year's calendar quarter of acquisition. Our dollar-based net retention rate increases when such customers increase usage of a product, extend usage of a product to new applications or adopt a new product. Our dollar-based net retention rate decreases when such customers cease or reduce usage of a product or when we lower prices on our solutions.

As our customers grow their businesses and increase usage of our platform, they sometimes create multiple customer accounts with us for operational or other reasons. As such, when we identify a significant customer organization (defined as a single customer organization generating more than 1% of revenue in a quarterly reporting period) that has created a new customer, this new customer is tied to, and revenue from this new customer is included with, the original customer for the purposes of calculating this metric. For comparative purposes, the dollar-based net retention rate presented in the table above has been updated to reflect the change in our reporting segments.

Key Components of Statements of Operations

Revenue

Revenue is derived from (i) reoccurring sources such as per minute voice usage and voice calling, per text message usage and other usage services and fees, (ii) monthly recurring charges arising from phone number services, 911-enabled phone number services, messaging services and other services, and (iii) other various communications services and products, indirect revenue and messaging surcharge revenue.

For the years ended December 31, 2022, 2021 and 2020, we generated 78%, 75%, and 74%, respectively, of our revenue from reoccurring sources. The large bulk of our remaining revenue is generated from recurring monthly charges.

We recognize accounts receivable at the time the customer is invoiced. Additionally, we record a receivable for unbilled revenue if services have been delivered and are billable in subsequent periods. Unbilled revenue made up 45%, 52%, and 50% of outstanding accounts receivable, net of allowance for doubtful accounts, as of December 31, 2022, 2021 and 2020, respectively.

Cost of Revenue and Gross Margin

Cost of revenue consists of fees paid to other network service providers, network operations costs, personnel costs, allocated costs of facilities and information technology, amortization of acquired technology intangibles and depreciation.

Fees paid to other network service providers arise when we purchase services such as minutes of use, phone numbers, messages, porting of customer numbers and network circuits.

Network operations costs are incurred for web services and cloud infrastructure, capacity planning and management, software licenses, hardware and software maintenance fees, customer support and network-related facility rents.

Management's Discussion and Analysis

Personnel costs (including non-cash stock-based compensation expenses) arise for employees who are responsible for the delivery of services and the operations and maintenance of the communications network.

Gross margin is calculated by subtracting cost of revenue from revenue, divided by revenue, expressed as a percentage. Our cost of revenue and gross margin have been, and will continue to be, affected by several factors, including the timing and extent of our investments in our network, our ability to manage off-network minutes of use and messaging costs, changes to the mix or amount of personnel-related costs included in our cost of revenue, the product mix of revenue, the timing of amortization of capitalized software development costs and fluctuations in the price we charge our customers for services.

Operating Expenses

The most significant components of operating expenses are personnel costs, which consist of salaries, benefits, bonuses, and stock-based compensation expenses. We also incur other non-personnel costs related to our general overhead expenses, including facility expenses, software licenses, web services, depreciation and amortization of assets unrelated to delivery of our services. We expect that our operating expenses will increase in absolute dollars driven by the growth in our business.

Research and Development

Research and development expenses consist of salaries and related personnel costs for the design, development, testing and enhancement of our cloud network and software products. Research and development expenses include depreciation and allocated costs of facilities and information technology utilized by our research and development staff.

Sales and Marketing

Sales and marketing expenses consist of salaries and related personnel costs, commissions, and costs related to advertising, marketing, brand awareness activities, sales support and professional services fees, and customer billing and collections functions. Sales and marketing expenses include depreciation, amortization of acquired customer relationship intangible assets, and allocated costs of facilities and information technology utilized by our sales and marketing staff.

General and Administrative

General and administrative expenses consist of salaries and related personnel costs for accounting, legal, human resources, corporate, and other administrative and compliance functions. General and administrative expenses include depreciation, expenditures for third party professional services, and allocated costs of facilities and information technology utilized by our corporate and administrative staff.

Income Taxes

For the years ended December 31, 2022, 2021 and 2020 our effective tax rate was (13.1)%, 12.3% and (51.8)%, respectively. The decrease in our effective tax rate is primarily due to the split of earnings and losses between jurisdictions. In 2022 we were in a pre-tax loss position in jurisdictions without valuation allowances and as such, recognized income tax benefit. However, as a result of income recognized in connection with our debt buy-back, we recognized pre-tax income in the U.S. The income resulted in nominal tax expense in the U.S. due to the utilization of tax attributes and the valuation allowance position.

Judgment is required in determining whether deferred tax assets will be realized in full or in part. Management assesses the available positive and negative evidence on a jurisdictional basis to estimate if deferred tax assets will be recognized and when it is more likely than not that all or some deferred tax assets will not be realized, and a valuation allowance must be established. As of December 31, 2022, we continue to maintain a valuation allowance for our U.S. federal and state net deferred tax assets.

Management's Discussion and Analysis

Results of Operations

Consolidated Results of Operations

The following table sets forth the consolidated statements of operations for the periods indicated.

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Revenue	\$ 573,152	\$ 490,907	\$ 343,113
Cost of revenue	334,799	277,094	189,203
Gross profit	238,353	213,813	153,910
Operating expenses:			
Research and development	97,990	69,505	54,555
Sales and marketing	96,658	82,333	61,216
General and administrative	68,029	64,212	51,644
Total operating expenses	262,677	216,050	167,415
Operating loss	(24,324)	(2,237)	(13,505)
Other income (expense), net:			
Net gain on extinguishment of debt	40,205	—	—
Interest expense, net	(3,048)	(28,784)	(13,672)
Other income (expense), net	4,473	(174)	(1,795)
Total other income (expense), net	41,630	(28,958)	(15,467)
Income (loss) before income taxes	17,306	(31,195)	(28,972)
Income tax benefit (provision)	2,264	3,833	(15,005)
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)

The following table sets forth our results of operations as a percentage of our total revenue for the periods presented. *

	Year ended December 31,		
	2022	2021	2020
Revenue	100 %	100 %	100 %
Cost of revenue	58 %	56 %	55 %
Gross profit	42 %	44 %	45 %
Operating expenses:			
Research and development	17 %	14 %	16 %
Sales and marketing	17 %	17 %	18 %
General and administrative	12 %	13 %	15 %
Total operating expenses	46 %	44 %	49 %
Operating loss	(4)%	— %	(4)%
Other income (expense), net:			
Net gain on extinguishment of debt	7 %	— %	— %
Interest expense, net	(1)%	(6)%	(4)%
Other income (expense), net	1 %	— %	(1)%
Total other income (expense), net	7 %	(6)%	(5)%
Income (loss) before income taxes	3 %	(6)%	(8)%
Income tax benefit (provision)	— %	1 %	(4)%
Net income (loss)	3 %	(5)%	(13)%

(*) Columns may not foot due to rounding.

Management's Discussion and Analysis

Comparison of the Years Ended December 31, 2022 and 2021

Revenue

	Year ended December 31,		Change	
	2022	2021		
	(Dollars in thousands)			
Revenue	\$ 573,152	\$ 490,907	\$ 82,245	17 %

In 2022, our total revenue increased by \$82 million, or 17%, compared with the same period in 2021. This growth was the result of higher usage of our core messaging offering and additional A2P pass-through messaging surcharges imposed by certain carriers. Growth in our revenue other than from pass-through messaging surcharges, compared with the same period in 2021, was led by our core messaging offerings, which grew 46%, and phone number and 911-enabled phone number services, mostly offset by lower revenue from voice offerings. The growth in our core messaging offering was aided by higher messaging volumes from certain customers leading up to the U.S. midterm elections in November 2022. Compared with the same period last year, our voice offerings revenue in 2022 remained affected by lower usage arising from the 2021 DDoS incident as well as the absence of revenue from businesses divested earlier in 2022.

Active customer accounts increased 3% to 3,405 as of December 31, 2022, as compared with 3,300 active accounts as of December 31, 2021. Our dollar-based net retention rate as of December 31, 2022 was 112%.

Cost of Revenue and Gross Margin

	Year ended December 31,		Change	
	2022	2021		
	(Dollars in thousands)			
Cost of revenue	\$ 334,799	\$ 277,094	\$ 57,705	21 %
Gross profit	\$ 238,353	\$ 213,813	\$ 24,540	11 %
Total gross margin	42 %	44 %		

In 2022, total cost of revenue increased \$58 million, compared with the same period in 2021, driven by higher pass-through messaging surcharges of \$56 million. In 2022, the combination of changes in total revenue and total cost of revenue yielded an increase in total gross profit of \$25 million, or 11%, compared with the same period in 2021, driven by profit improvements from the combination of our revenue and cost of revenue derived other than from pass-through messaging surcharges.

Our total gross margin percentage of 42% in 2022 declined two percentage points, compared with the same period in 2021, as operating and product mix improvements were more than offset by the inclusion of higher pass-through messaging surcharges within total revenue.

Operating Expenses

	Year ended December 31,		Change	
	2022	2021		
	(Dollars in thousands)			
Research and development	\$ 97,990	\$ 69,505	\$ 28,485	41 %
Sales and marketing	96,658	82,333	14,325	17 %
General and administrative	68,029	64,212	3,817	6 %
Total operating expenses	\$ 262,677	\$ 216,050	\$ 46,627	22 %

Management's Discussion and Analysis

As a percentage of revenue, total operating expenses for the years ended December 31, 2022 and 2021 were 46% and 44%, respectively.

In 2022, research and development expenses increased by approximately \$28 million, or 41%, compared with the same period in 2021. This increase was primarily due to increased personnel costs from greater numbers of employed staff of \$22 million. The increase in headcount also contributed to higher allocated facilities and IT expenses of \$7 million.

In 2022, sales and marketing expenses increased by \$14 million, or 17%, compared with the same period in 2021, primarily due to an increase in sales personnel costs from a greater number of employed staff of \$13 million.

In 2022, general and administrative expenses increased \$4 million, or 6%, compared with the same period in 2021, primarily due to an increase in personnel costs of \$5 million.

Interest Expense, Net

In 2022, interest expense, net of interest income, decreased by \$26 million compared with the same period in 2021, due to a \$24 million decrease in interest expense primarily related to the impact of the adoption of ASU 2020-06 on the Convertible Notes. See Note 8, "Debt," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for additional details.

Income Tax Benefit

For the year ended December 31, 2022, we recognized an income tax benefit of \$2 million, a decrease of \$2 million compared with the same period in 2021. The resulting effective tax rate for the year ended December 31, 2022 was (13.1)% compared with 12.3% in 2021. For the year ended December 31, 2022, the favorable change to the effective tax rate was primarily due to the split of earnings and losses between jurisdictions. In 2022, we were in a pre-tax loss position in jurisdictions without valuation allowances and as such, recognized income tax benefit. However, as a result of income recognized in connection with our debt buy-back, we recognized pre-tax income in the U.S. This income resulted in nominal income tax expense in the U.S. due to the utilization of tax attributes and the valuation allowance position. For the years ended December 31, 2022 and 2021, the effective tax rates of (13.1)% and 12.3%, respectively, differed from the federal statutory rate of 21% in the U.S. primarily due to the valuation allowance recognized against federal and state deferred tax assets in the U.S.

Most of the permanent tax adjustments within our effective tax rate are offset by a valuation allowance. These adjustments include state taxes, federal research tax credits under Internal Revenue Code Section 41, equity compensation in the U.S. and other non-deductible expenditures in the U.S. Excluding the impact of the valuation allowance, we realize an estimated state effective tax rate of 4.3%. In addition, exclusive of the valuation allowance, we continue to generate income tax benefits in the current period related to income tax credits recognized for qualified research activities in the U.S. The applicable federal tax law and regulations define qualified research activities as research and development activities conducted in the U.S. that involve a process of experimentation designed to discover new information intended to develop a new or improved business component. Absent the valuation allowance, equity compensation also impacts the effective tax rate to the extent the income tax deduction exceeds or is below the related book expense, as required under ASC 718-740-35-2. Other U.S. non-deductible expenses that are offset by the valuation allowance consist primarily of non-deductible executive compensation under Internal Revenue Code 162(m).

Permanent tax adjustments within our effective tax rate that are not offset by the valuation allowance included minimum state taxes, foreign tax benefits and foreign rate differentials. As we continue to scale our international business, any changes to foreign business activity may impact our effective tax rate in the future.

We continue to expect recurring changes to the valuation allowance as deferred tax assets within the U.S. increase or decrease in subsequent periods. We will maintain a valuation allowance against all U.S. federal and state deferred tax assets until it becomes more likely than not that the benefit of our federal and state deferred tax assets will be realized.

Management's Discussion and Analysis

Comparison of the Years Ended December 31, 2021 and 2020

Revenue

	Year ended December 31,		Change	
	2021	2020		
	(Dollars in thousands)			
Revenue	\$ 490,907	\$ 343,113	\$ 147,794	43 %

In 2021, our total revenue increased by \$148 million, or 43%, compared with the same period in 2020. This growth was led by increases in our core voice, messaging and related surcharges, and phone number services of \$71 million, \$41 million, and \$26 million, respectively. This growth was aided by a full year of revenue contribution from the acquisition of Voxbone in November 2020. We believe our revenue results were lowered by approximately \$10.0 million in 2021 from lost transaction volume and customer credits due to the previously disclosed 2021 DDoS Attack.

Cost of Revenue and Gross Margin

	Year ended December 31,		Change	
	2021	2020		
	(Dollars in thousands)			
Cost of revenue	\$ 277,094	\$ 189,203	\$ 87,891	46 %
Gross profit	\$ 213,813	\$ 153,910	\$ 59,903	39 %
Total gross margin	44 %	45 %		

In 2021, total cost of revenue increased \$88 million, compared with the same period in 2020. This growth was driven by higher cost of revenue in our messaging business and related surcharges, network related costs, and core voice of \$33 million, \$24 million, and \$23 million, respectively. This growth was aided by a full year of cost of revenue contribution from the acquisition of Voxbone in November 2020.

In 2021, the combination of changes in total revenue and total cost of revenue yielded an increase in total gross profit of \$60 million, or 39%, compared with the same period in 2020, driven by higher revenue and improved operating leverage. For the year ended December 31, 2021, total gross margin was 44.0% compared with 45.0% for the year ended December 31, 2020 and was impacted by higher pass-through messaging surcharges within total revenue.

Operating Expenses

	Year ended December 31,		Change	
	2021	2020		
	(Dollars in thousands)			
Research and development	\$ 69,505	\$ 54,555	\$ 14,950	27 %
Sales and marketing	82,333	61,216	21,117	34 %
General and administrative	64,212	51,644	12,568	24 %
Total operating expenses	\$ 216,050	\$ 167,415	\$ 48,635	29 %

As a percentage of revenue, total operating expenses for the years ended December 31, 2021 and 2020, were 44% and 49%, respectively.

In 2021, research and development expenses increased by approximately \$15 million, or 27%, compared with the same period in 2020. This increase was primarily due to increased personnel costs from greater numbers of employed staff of \$10 million, which was driven by the acquisition of Voxbone in November 2020.

Management's Discussion and Analysis

In 2021, sales and marketing expenses increased by \$21 million, or 34%, compared with the same period in 2020, driven by the increase in sales personnel costs from a greater number of employed staff of \$8 million from the acquisition of Voxbone in November 2020.

In 2021, general and administrative expenses increased by approximately \$13 million, or 24%, compared with the same period in 2020, mainly from higher headcount costs of \$14 million, driven by the acquisition of Voxbone in November 2020.

Interest Expense, Net

In 2021, interest expense, net of interest income increased by \$15 million compared with the same period in 2020, due to a \$12 million increase in interest expense related to the Convertible Notes and a \$2 million decrease in interest income from the investment of follow-on equity offering proceeds. See Note 8, "Debt," to the consolidated financial statements, for additional details.

Income Tax Benefit (Provision)

In 2021, income tax expense decreased by \$19 million compared with the same period in 2020. The effective tax rate for the year ended December 31, 2021, was 12.3% compared with (51.8)% in the same period in 2020. The increase in our effective tax rate is primarily due to a change in the valuation allowance related to certain deferred tax assets.

Management's Discussion and Analysis

Liquidity and Capital Resources

Our liquidity is provided by our cash flow from operations less expenditures for capital equipment, and supplemented by financing activities from time to time. Our cash flow from operations is driven by monthly payments from customers for communication services consumed during the period. Our primary uses of cash include operating costs, such as fees paid to other network service providers, network operations costs, personnel costs and facility expenses, as well as the purchase of property plant and equipment to support growth on our communications platform and the purchase of land for our new corporate headquarters.

On June 6, 2022, we entered into a credit agreement (the "Credit Agreement") among us, as borrower, the lenders from time to time party thereto, and Silicon Valley Bank as administrative agent, issuing lender and swingline lender. The Credit Agreement provides for a \$50 million revolving credit facility (the "Credit Facility"), including a \$20 million sublimit for the issuance of letters of credit and a swingline subfacility of up to \$5 million. The Credit Facility matures on June 6, 2025. As of December 31, 2022, there were no borrowings under the Credit Facility.

Additionally, in the last three years we have supplemented our liquidity with proceeds from our issuance of the 2026 Convertible Notes and the 2028 Convertible Notes in February 2020 and March 2021, respectively. We used a majority of the proceeds from the issuance of our 2026 Convertible Notes to consummate the acquisition of Voxbone. On November 2, 2022, we repurchased \$160 million of our 2026 Convertible Notes as further described in Note 8, "Debt," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K. We may, at any time and from time to time, seek to retire or purchase our 2026 Notes or 2028 Notes through cash purchases and/or exchanges for equity or debt, in open-market purchases, privately negotiated transactions or otherwise. Such repurchases or exchanges, if any, will be upon such terms and at such prices as we may determine, and will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

We believe that our cash and cash equivalents balances and the cash flows generated by our operations will be sufficient to satisfy our anticipated cash needs for working capital and capital expenditures for at least the next 12 months. However, our belief may prove to be incorrect, and we could utilize our available financial resources sooner than we currently expect. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth in the section titled "Risk Factors." We may be required to seek additional equity or debt financing in order to meet these future capital requirements. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us, or at all. If we are unable to raise additional capital when desired, our business, results of operations and financial condition would be adversely affected.

Our principal future commitments consist of (i) an aggregate of \$490 million in Convertible Notes (see Note 8, "Debt" to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K, for a discussion of the 2026 Convertible Notes and the 2028 Convertible Notes), (ii) a \$496 million non-cancelable lease for our future office headquarters, which is anticipated to commence in mid-2023 and continue for an initial twenty (20) year term (the "Headquarters Lease") (see Note 5, "Right-of-Use Asset and Lease Liabilities" to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a discussion of our Headquarters Lease), (iii) \$12 million in non-cancelable purchase obligations and future minimum payments under contracts to various service providers, and (iv) \$17 million in future minimum rent payments for our current office space. See Note 12, "Commitments and Contingencies," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for future lease commitments.

Management's Discussion and Analysis

Statement of Cash Flows

The following table summarizes our cash flows for the periods indicated:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Net cash provided by operating activities	\$ 34,906	\$ 40,803	\$ 4,518
Net cash (used in) provided by investing activities	(133,449)	2,833	(455,085)
Net cash (used in) provided by financing activities	(120,005)	207,027	346,891
Effect of exchange rate changes on cash, cash equivalents and restricted cash	881	189	109
Net (decrease) increase in cash, cash equivalents, and restricted cash	\$ (217,667)	\$ 250,852	\$ (103,567)

Cash Flows from Operating Activities

In 2022, net cash provided by operating activities was \$35 million and was generated by our aggregate results of \$40 million during the period, net of non-cash items comprising depreciation and amortization, non-cash reduction to the right-of-use asset, amortization of debt discount and issuance costs, stock-based compensation, deferred tax expense and other and net gain on extinguishment of debt and a \$14 million cash inflow from increased operating liabilities, partially offset by a net cash outflow from operating assets aggregating \$19 million. The net gain on extinguishment of debt was a result of the repurchase of \$160 million aggregate principal amount of the 2026 Convertible Notes. Within operating liabilities, the net cash provided as a result of higher accounts payable of \$17 million during 2022 was primarily related to the timing and amounts of purchases of both services and tangible goods and their related payment arrangements. The cash provided as a result of higher accrued expenses and other liabilities of \$3 million during 2022 primarily related to higher accruals for lease incentives and higher advanced billings. This was partially offset by a cash outflow related to the operating right-of-use liability of \$8 million. Within operating assets, cash used as a result of higher accounts receivable of \$13 million during 2022 was driven by higher unbilled receivables balances of \$2 million arising from higher usage amounts in the last month of 2022 and \$11 million from timing of collection of invoiced amounts. The cash used as a result of higher prepaid expenses and other assets of \$6 million during 2022 was driven by higher VAT receivables and the timing of advance payments for software and other services.

In 2021, net cash provided by operating activities was \$41 million consisting of net loss of \$27 million adjusted for non-cash items of \$76 million and offset by cash used by changes in operating assets and liabilities of \$8 million. Cash used in operating assets and liabilities included an increase in accounts receivable of \$7 million, a decrease in operating right-of-use liability of \$6 million, and an increase in prepaid expenses and other assets of \$7 million. Offsetting these cash use items in assets and liabilities was an increase in accrued expenses and other liabilities of \$10 million, and an increase in accounts payable of \$2 million. The non-cash items included depreciation and amortization expense of \$37 million, amortization of debt discount and issuance costs of \$27 million, stock-based compensation expense of \$15 million, right-of-use asset amortization of \$6 million, and loss on disposal of property, plant and equipment of \$1 million, offset by a deferred tax benefit of \$8 million.

In 2020, net cash provided by operating activities was \$5 million consisting of net loss of \$44 million adjusted for non-cash items of \$62 million and offset by cash used changes in operating assets and liabilities of \$13 million. Cash generated in operating assets and liabilities included an increase in accrued expenses and other liabilities of \$14 million. Offsetting these cash generating items in assets and liabilities were an increase in accounts receivable of \$19 million, a decrease in operating right-of-use liability of \$5 million, and an increase in prepaid expenses and other assets of \$4 million. The non-cash items included depreciation and amortization expense of \$17 million, amortization of debt discount and issuance costs of \$16 million, deferred tax expense of \$14 million, stock-based compensation expenses of \$10 million, and right-of-use amortization of \$5 million.

Management's Discussion and Analysis

Cash Flows from Investing Activities

In 2022, net cash used in investing activities was \$133 million. Cash used in investing activities included the purchase of marketable securities of \$180 million partially offset by proceeds from the sales and maturities of marketable securities of \$109 million. Cash used for deposits for construction in progress and the purchase of property, plant and equipment, primarily for our Raleigh, NC headquarters, was \$60 million.

In 2021, net cash provided by investing activities was \$3 million. Cash provided by investing activities included proceeds from sales and maturities of other investments of \$40 million, proceeds from the sale of land of \$17 million, offset by the purchase of land of \$30 million, purchase of property, plant and equipment of \$21 million and capitalized internally developed software costs of \$4 million.

In 2020, net cash used in investing activities was \$455 million, mainly from the costs related to the Voxbone acquisition of \$400 million, net of cash. In addition, cash used in investing activities was the purchase of other investments of \$231 million, the purchase of property, plant and equipment of \$12 million and capitalized internally developed software costs of \$2 million, offset by the proceeds from sales and maturities of other investments of \$191 million.

Cash Flows from Financing Activities

In 2022, net cash used in financing activities was \$120 million, consisting primarily of \$117 million net cash paid to repurchase \$160 million aggregate principal amount of the 2026 Convertible Notes.

In 2021, net cash provided by financing activities was \$207 million consisting primarily of \$250 million in proceeds from the issuance of the 2028 Convertible Notes and \$1 million in proceeds from the exercise of stock options, partially offset by \$26 million in the purchase of the 2028 Capped Calls, \$8 million in payments of debt issuance cost, \$7 million in payment of holdback proceeds to former Voxbone shareholders, and \$4 million in value of equity awards withheld for tax liabilities.

In 2020, net cash provided by financing activities was \$347 million consisting primarily of \$400 million in proceeds from the issuance of the 2026 Convertible Notes and \$4 million in proceeds from the exercise of stock options, partially offset by \$43 million in the purchase of the 2026 Capped Calls, \$12 million in payments of debt issuances cost, and \$2 million in value of equity awards withheld for tax liabilities.

Off-Balance Sheet Arrangements

With the acquisition of Voxbone, we have off-balance sheet agreements for short-term office leases in the amount of less than \$1 million ending prior to December 31, 2023.

Management's Discussion and Analysis

Non-GAAP Financial Measures

We use Non-GAAP gross profit, Non-GAAP gross margin, Non-GAAP net income, Adjusted EBITDA and free cash flow for financial and operational decision making and to evaluate period-to-period differences in our performance. Non-GAAP gross profit, Non-GAAP gross margin, Non-GAAP net income, Adjusted EBITDA and free cash flow are non-GAAP financial measures, which we believe are useful for investors in evaluating our overall financial performance. We believe these measures provide useful information about operating results, enhance the overall understanding of past financial performance and future prospects and allow for greater transparency with respect to key performance indicators used by management in its financial and operational decision making. See below for a reconciliation of each of the non-GAAP financial measures described below.

Non-GAAP Gross Profit and Non-GAAP Gross Margin

GAAP defines gross profit as revenue less cost of revenue. Cost of revenue includes all expenses associated with our various service offerings as more fully described under the caption "Key Components of Statements of Operations-Cost of Revenue and Gross Margin." We define Non-GAAP gross profit as gross profit after adding back the following items:

- depreciation and amortization;
- amortization of acquired intangible assets related to acquisitions; and
- stock-based compensation

We calculate Non-GAAP gross margin by dividing Non-GAAP gross profit by revenue less pass-through messaging surcharges, expressed as a percentage of revenue.

In our calculation of Non-GAAP gross profit and Non-GAAP gross margin, we eliminate the impact of depreciation and amortization, amortization of acquired intangible assets related to acquisitions, stock-based compensation, pass-through messaging surcharges, and all non-cash items, because we do not consider them indicative of our core operating performance. The exclusion of these items facilitates comparisons of our operating performance on a period-to-period basis. Management uses Non-GAAP gross profit and Non-GAAP gross margin to evaluate operating performance and to determine resource allocation among our various service offerings. We believe Non-GAAP gross profit and Non-GAAP gross margin provide useful information to investors and others to understand and evaluate our operating results in the same manner as our management and board of directors and allows for better comparison of financial results among our competitors. Non-GAAP gross profit and Non-GAAP gross margin may not be comparable to similarly titled measures of other companies because other companies may not calculate Non-GAAP gross profit and Non-GAAP gross margin or similarly titled measures in the same manner we do.

Management's Discussion and Analysis

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Gross Profit	\$ 238,353	\$ 213,813	\$ 153,910
Gross Profit Margin %	42 %	44 %	45 %
Depreciation	13,602	12,606	9,997
Amortization of acquired intangible assets	7,657	8,543	1,445
Stock-based compensation	404	364	306
Non-GAAP Gross Profit	\$ 260,016	\$ 235,326	\$ 165,658
Non-GAAP Gross Margin % ⁽¹⁾	55 %	52 %	50 %

⁽¹⁾ Calculated by dividing Non-GAAP gross profit by revenue less pass-through messaging surcharges of \$99 million, \$41 million, and \$11 million in the years ended December 31, 2022, 2021 and 2020, respectively.

Non-GAAP Net Income

We define Non-GAAP net income as net income or loss adjusted for certain items affecting period-to-period comparability. Non-GAAP net income excludes:

- stock-based compensation;
- amortization of acquired intangible assets related to acquisitions;
- amortization of debt discount and issuance costs for convertible debt;
- acquisition related expenses;
- impairment charges of intangibles assets, if any;
- net cost associated with early lease terminations and leases without economic benefit;
- (gain) loss on sale of business;
- net (gain) loss on extinguishment of debt;
- non-recurring items not indicative of ongoing operations and other; and
- estimated tax impact of above adjustments, net of valuation allowances

We calculate Non-GAAP basic and diluted shares by adding the weighted average of outstanding Series A redeemable convertible preferred stock, if any, to the weighted average number of outstanding basic and diluted shares, respectively. The tax-effect of Non-GAAP adjustments is determined by recalculating the tax provision on a Non-GAAP basis. When we have a valuation allowance recorded and no tax benefits will be recognized, the rate is considered to be zero.

We believe Non-GAAP net income is a meaningful measure because by removing certain non-cash and other expenses, we are able to evaluate our operating results in a manner we believe is more indicative of the current period's performance. We believe the use of Non-GAAP net income may be helpful to investors because it provides consistency and comparability with past financial performance, facilitates period-to-period comparisons of results of operations and assists in comparisons with other companies, many of which may use similar Non-GAAP financial information to supplement their GAAP results. As a result of the adoption of ASU No. 2020-06 on January 1, 2022, we add back cash interest expense on the Convertible Notes, as if converted at the beginning of the period, if the impact is dilutive for the purposes of calculating diluted Non-GAAP net income or loss per Non-GAAP share.

Management's Discussion and Analysis

	Year ended December 31,		
	2022	2021	2020
	(In thousands, except share and per share amounts)		
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)
Stock-based compensation	20,655	14,537	9,881
Amortization of acquired intangibles	17,180	19,119	3,666
Amortization of debt discount and issuance costs for convertible debt	2,977	26,672	15,565
Acquisition-related expenses	—	—	14,458
Gain on sale of business	(3,777)	—	—
Net gain on extinguishment of debt	(40,205)	—	—
Non-recurring items not indicative of ongoing operations and other ⁽¹⁾	1,992	832	334
Estimated tax effects of adjustments ⁽²⁾	(3,396)	(8,087)	14,266
Non-GAAP net income	\$ 14,996	\$ 25,711	\$ 14,193
Interest expense on Convertible Notes ⁽³⁾	1,666	—	—
Numerator used to compute Non-GAAP diluted net income per share	\$ 16,662	\$ 25,711	\$ 14,193
Net income (loss) per share			
Basic	\$ 0.77	\$ (1.09)	\$ (1.83)
Diluted	\$ (0.48)	\$ (1.09)	\$ (1.83)
Non-GAAP net income per Non-GAAP share			
Basic	\$ 0.59	\$ 1.02	\$ 0.59
Diluted	\$ 0.54	\$ 0.97	\$ 0.55
<i>Weighted average number of shares outstanding</i>			
Basic	25,282,796	25,090,916	24,092,574
Diluted	30,907,869	25,090,916	24,092,574
Non-GAAP basic shares	25,282,796	25,090,916	24,092,574
Convertible debt conversion	5,625,073	987,149	1,022,941
Stock options issued and outstanding	100,088	180,318	443,738
Nonvested RSUs outstanding	—	197,538	352,854
Non-GAAP diluted shares	31,007,957	26,455,921	25,912,107

⁽¹⁾ Non-recurring items not indicative of ongoing operations and other include \$0.9 million of foreign currency losses on the settlement of intercompany borrowings, which were repatriated in conjunction with the repurchase of a portion of the 2026 Convertible Notes and \$0.6 million of nonrecurring litigation expense for the year ended December 31, 2022, and \$0.5 million, \$0.8 million, and \$0.3 million of losses on disposals of property, plant and equipment during the years ended December 31, 2022, 2021 and 2020, respectively.

Management's Discussion and Analysis

⁽²⁾ The estimated tax-effect of adjustments is determined by recalculating the tax provision on a Non-GAAP basis. The Non-GAAP effective income tax rate was 7.0%, 14.2%, and 5.0% for the years ended December 31, 2022, 2021 and 2020, respectively. For the year ended December 31, 2022, the Non-GAAP effective income tax rate differed from the federal statutory tax rate of 21% in the U.S. primarily due to research and development tax credits generated in 2022. For the years ended December 31, 2021 and 2020, these effective income tax rates differ from the federal statutory tax rate of 21% in the U.S. primarily due to the valuation allowance recognized against federal and state deferred tax assets in the U.S. We analyze the Non-GAAP valuation allowance position on a quarterly basis. In the fourth quarter of 2022, we removed the valuation allowance against all U.S. deferred tax assets for Non-GAAP purposes as a result of cumulative Non-GAAP U.S. income over the past three years and a significant depletion of net operating loss and tax credit carryforwards on a Non-GAAP basis. As of December 31, 2022, we have no valuation allowance against our remaining deferred tax assets for Non-GAAP purposes.

⁽³⁾ Upon the adoption of ASU 2020-06, net income is increased for interest expense as part of the calculation for diluted Non-GAAP earnings per share. See Note 2, "Summary of Significant Accounting Policies," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for additional details on the adoption of ASU 2020-06.

Adjusted EBITDA

We define Adjusted EBITDA as net income or losses from continuing operations, adjusted to reflect the addition or elimination of certain income statement items including, but not limited to:

- income tax (benefit) provision;
- interest (income) expense, net;
- depreciation and amortization expense;
- acquisition related expenses;
- stock-based compensation expense;
- impairment of intangible assets, if any;
- (gain) loss on sale of business;
- net cost associated with early lease terminations and leases without economic benefit;
- net (gain) loss on extinguishment of debt; and
- non-recurring items not indicative of ongoing operations and other

Adjusted EBITDA is a key measure used by management to understand and evaluate our core operating performance and trends, to generate future operating plans and to make strategic decisions regarding the allocation of capital. In particular, the exclusion of certain expenses in calculating Adjusted EBITDA facilitates comparisons of our operating performance on a period-to-period basis.

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)
Income tax (benefit) provision	(2,264)	(3,833)	15,005
Interest expense, net	3,048	28,784	13,672
Depreciation	18,419	17,523	13,137
Amortization	17,180	19,119	3,666
Acquisition-related expenses	—	—	14,458
Stock-based compensation	20,655	14,537	9,881
Gain on sale of business	(3,777)	—	—
Net gain on extinguishment of debt	(40,205)	—	—
Non-recurring items not indicative of ongoing operations and other ⁽¹⁾	1,992	832	334
Adjusted EBITDA	\$ 34,618	\$ 49,600	\$ 26,176

Management's Discussion and Analysis

⁽¹⁾ Non-recurring items not indicative of ongoing operations and other include \$0.9 million of foreign currency losses on the settlement of intercompany borrowings, which were repatriated in conjunction with the repurchase of a portion of the 2026 Convertible Notes and \$0.6 million of nonrecurring litigation expense for the year ended December 31, 2022, and \$0.5 million, \$0.8 million, and \$0.3 million of losses on disposals of property, plant and equipment during the years ended December 31, 2022, 2021 and 2020, respectively.

Free Cash Flow

Free cash flow represents net cash provided by or used in operating activities less net cash used in the acquisition of property, plant and equipment and capitalized development costs of software for internal use. We believe free cash flow is a useful indicator of liquidity and provides information to management and investors about the amount of cash generated from our core operations that can be used to invest in our business. Free cash flow has certain limitations because it is subject to working capital timing, it does not represent the total increase or decrease in the cash balance for the period, it does not take into consideration investment in long-term securities, nor does it represent residual cash flows available for discretionary expenditures. Therefore, it is important to evaluate free cash flow along with our consolidated statements of cash flows.

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Net cash provided by operating activities	\$ 34,906	\$ 40,803	\$ 4,518
Net cash used in investing in capital assets ⁽¹⁾⁽²⁾	(45,416)	(37,167)	(14,592)
Free cash flow	\$ (10,510)	\$ 3,636	\$ (10,074)

⁽¹⁾ Represents the acquisition cost of property, plant and equipment and capitalized development costs for software for internal use.

⁽²⁾ Includes the net cash used from the purchase of land of \$(30.0) million offset by the proceeds from the sale of land of \$17.5 million from investing activities of the statement of cash flows for the year ended December 31, 2021.

Management's Discussion and Analysis

Critical Accounting Policies and Significant Judgments and Estimates

Our consolidated financial statements are prepared in accordance with GAAP. The preparation of these financial statements requires our management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs, and expenses and related disclosures. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these judgments and estimates under different assumptions or conditions, and any such differences may be material.

We believe the accounting policies discussed below are critical to the process of making significant judgments and estimates in the preparation of our financial statements, and to understanding our historical and future performance.

Revenue Recognition and Deferred Revenue

We generate revenue primarily from the sale of communications services to enterprise customers. Revenue recognition commences upon transfer of control of promised goods or services to customers in an amount that we expect to receive in exchange for those goods or services.

The majority of our revenue is generated from usage-based fees earned from customers accessing our communications platform. Access to the communications platform is considered a series of distinct services, with continuous transfer of control to the customer, comprising one performance obligation. Usage-based fees are recognized in revenue in the period the traffic traverses our network.

Revenue from service-based fees, such as the provision and management of phone numbers and emergency services access, is recognized on a ratable basis as the service is provided, which is typically one month.

We enter into arrangements with customers that are typically 2 to 3 years in length with an auto-renewal feature. When required as part of providing service, revenues and associated expenses related to nonrefundable, upfront service activation and setup fees are deferred and recognized over the longer of the associated service contract period or estimated period of benefit.

Our arrangements do not contain general rights of return or provide customers with the right to take possession of the software supporting the applications. Amounts that have been invoiced are recorded in accounts receivable and in revenue or deferred revenue depending on whether the revenue recognition criteria have been met.

We maintain a reserve for sales credits. Credits are accounted for as variable consideration and are estimated based on several inputs including historical experience, contractual obligations and current trends of credit issuances. Adjustments to the reserve are recorded against revenue.

Business Combinations

We use the acquisition method of accounting for business combinations which requires the tangible and intangible assets acquired and liabilities assumed to be recorded at their respective fair market value as of the acquisition date. Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired. The fair values of the assets acquired and liabilities assumed are determined based upon management's valuation and involves making significant estimates and assumptions based on facts and circumstances that existed as of the acquisition date. We use a measurement period following the acquisition date to gather information that existed as of the acquisition date that is needed to determine the fair value of the assets acquired and liabilities assumed. The measurement period ends once all information is obtained, but no later than one year from the acquisition date.

Management's Discussion and Analysis

Goodwill and Intangible Assets

Goodwill

Goodwill represents the excess of the aggregate fair value of consideration transferred in a business combination, over the fair value of assets acquired, net of liabilities assumed. Goodwill is not amortized, but is subject to an annual impairment test. We test goodwill for impairment annually on December 31 of each calendar year or more frequently if events or changes in business circumstances indicate the asset might be impaired. Goodwill is tested for impairment at the reporting unit level. In evaluating the recoverability of goodwill, we perform a qualitative analysis to determine whether events and circumstances exist that indicate that it is more likely than not that goodwill is impaired. The qualitative factors we consider include but are not limited to, macroeconomic conditions, industry and market conditions, company-specific events and changes in circumstances. We completed our annual goodwill impairment analysis in each of the years ended December 31, 2022, 2021 and 2020 and no impairment charges were recorded. As of December 31, 2022 goodwill was \$326 million.

Long-Lived Assets

Long-lived assets, including intangible assets with definite lives, are amortized over their estimated useful lives and are reviewed for impairment if indicators of impairment arise.

We evaluate the recoverability of our long-lived assets for impairment whenever events or circumstances indicate that the carrying amount of the assets may not be recoverable. Recoverability of long-lived assets are measured by comparison of the carrying amount of the asset to the future undiscounted cash flows the asset is expected to generate. If the asset is considered to be impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. As of December 31, 2022, intangible assets, net of accumulated amortization, were \$177 million, which consists primarily of client relationships, client contracts and developed technology. No indicators of impairment were identified for the years ended December 31, 2022, 2021 and 2020.

Internal-Use Software Development Costs

Internal-use software includes software that has been acquired, internally developed, or modified exclusively to meet the Company's needs. We capitalize qualifying internal-use software development costs that are incurred during the application development stage. Capitalization of costs begins when two criteria are met: (i) the preliminary project stage is completed and (ii) it is probable that the software will be completed and used for its intended function. Capitalization ceases when the software is substantially complete and ready for its intended use, including the completion of all significant testing. We also capitalize costs related to specific upgrades and enhancements when it is probable the expenditures will result in additional functionality and expense costs incurred for maintenance and minor upgrades and enhancements. Costs related to preliminary project activities and post-implementation operating activities are expensed as incurred. As of December 31, 2022, software development costs, net of accumulated amortization, were \$8 million.

Capitalized costs of platform and other software applications are included in property, plant and equipment. These costs are amortized over the estimated useful life of the software on a straight-line basis over three years, which is recorded in cost of revenue in the statement of operations. We evaluate the useful life of these assets on an annual basis and test for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets.

Income Taxes

We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that are included in the financial statements. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in

Management's Discussion and Analysis

which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

We reduce the measurement of a deferred tax asset, if necessary, by a valuation allowance if it is more likely than not that we will not realize some or all the deferred tax asset. Quarterly, we review the deferred tax assets for recoverability based on historical taxable income, projected future taxable income, the expected timing of the reversals of existing temporary differences, the implementation of prudent and feasible tax planning strategies, and results of recent operations. The evaluation of the recoverability of deferred tax assets requires judgment in assessing future profitability. Should there be a change in the ability to recover deferred tax assets, our income tax provision would increase or decrease in the period in which the assessment is changed.

We account for uncertain tax positions by recognizing the financial statement effects of a tax position only when, based upon technical merits, it is more likely than not that the position will be sustained upon examination. The tax benefit recognized is measured as the largest amount of benefit determined on a cumulative probability basis that we believe is more likely than not to be realized upon ultimate settlement of the position. We recognize potential accrued interest and penalties associated with unrecognized tax positions in income tax expense.

Other Contingencies

We are subject to legal proceedings and litigation arising in the ordinary course of business. Periodically, we evaluate the status of each legal matter and assess our potential financial exposure. If the potential loss from any legal proceeding or litigation is considered probable and the amount can be reasonably estimated, we accrue a liability for the estimated loss. Significant judgment is involved in the determination of the probability of a loss and whether the amount of the loss is reasonably estimable. The outcome of any proceeding is not determinable in advance. As a result, the assessment of a potential liability and the amount of any accruals recorded are based only on the information available to us at the time. As additional information becomes available, we reassess the potential liability related to the legal proceeding or litigation, and may revise our estimates. Any revisions could have a material effect on our results of operations.

We conduct operations in many tax jurisdictions throughout the United States and globally. In many of these jurisdictions, non-income-based taxes and fees, such as sales and use taxes, Value Added Taxes ("VAT"), telecommunications taxes, and regulatory fees including those associated with (or potentially associated with) VoIP telephony services or 911 services, are assessed or may be assessed on our operations. We are subject to indirect taxes, and may be subject to certain other taxes and surcharges in some of these jurisdictions. We generally bill and collect from our customers these taxes and surcharges. We record a liability for tax collected from customers but not yet paid to the appropriate jurisdiction. In addition, we record a provision for non-income based taxes and fees in jurisdictions where it is both probable that liability has been incurred and the amount of the exposure can be reasonably estimated. As a result, we have recorded a liability of \$8 million and \$11 million as of December 31, 2022 and 2021, respectively, included in accrued expenses and other current liabilities. These estimates are based on several key assumptions, including the taxability of our services, the jurisdictions in which we believe we have nexus and the sourcing of revenue to those jurisdictions. In the event these jurisdictions challenge our assumptions and analysis, our actual exposure could differ materially from our current estimates.

Recently Issued Accounting Guidance

See Note 2, "Summary of Significant Accounting Policies," to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a summary of recently adopted accounting standards and recent accounting pronouncements not yet adopted.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to certain market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in interest rates and foreign currency exchange rates.

Interest Rate Risk

Our primary exposure to market risk relates to interest rate changes. We had cash and cash equivalents of \$114 million and marketable securities of \$71 million as of December 31, 2022, which were held for working capital purposes. Our cash and cash equivalents are comprised primarily of interest bearing checking and direct deposit accounts, and money market accounts. Marketable securities consist of corporate debt securities, U.S. treasury securities, and commercial paper not otherwise classified as cash equivalents.

Such interest-earning instruments carry a degree of interest rate risk. To date, fluctuations in interest income have not been significant. The primary objective of our investment activities is to preserve principal while maximizing income without significantly increasing risk. We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure. Due to the short-term nature of our investments, we have not been exposed to, nor do we anticipate being exposed to, material risks due to changes in interest rates. A hypothetical 10% change in interest rates would not have had a material impact on our financial results included elsewhere in this Annual Report on Form 10-K.

On June 6, 2022, we entered into the Credit Agreement, which provides for a \$50 million Credit Facility. Interest on borrowings accrues at an annual rate tied to a base rate or the Secured Overnight Financing Rate (“SOFR”), at our election. Loans based on SOFR bear interest at a rate equal to SOFR plus an applicable margin between 1.50% and 2.00% depending upon our consolidated adjusted quick ratio for the immediately preceding quarter and loans based on the base rate bear interest at a rate equal to the base rate plus an applicable margin between 0.50% and 1.00% depending upon our consolidated adjusted quick ratio for the immediately preceding quarter. As a result, we are exposed to interest rate risk as we make draws on the Credit Facility. As of December 31, 2022, there were no outstanding borrowings.

In February 2020 and March 2021, we issued \$400 million and \$250 million aggregate principal amount of the 2026 Convertible Notes and the 2028 Convertible Notes, respectively. On November 2, 2022, we repurchased \$160 million of our 2026 Convertible Notes as further described in Note 8, “Debt,” to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K. As the Convertible Notes have a fixed annual interest rate, we have no financial or economic interest exposure associated with changes in interest rates. However, the fair value of fixed rate debt instruments fluctuates when interest rates change. Additionally, the fair value can be affected when the market price of our common stock fluctuates. We carry the Convertible Notes at face value less unamortized discount on our balance sheet, and we present the fair value for required disclosure purposes only.

Foreign Currency Risk

The functional currencies of our foreign subsidiaries are the respective local currencies of the jurisdictions in which they operate, which are primarily the Euro and the British Pound. Approximately 10% of our total revenue was generated outside the United States for the year ended December 31, 2022. The majority of our revenues and operating expenses are denominated in U.S. dollars, and therefore are not currently subject to significant foreign currency risk. Our subsidiaries remeasure monetary assets and liabilities at period-end exchange rates, while non-monetary items are remeasured at historical rates. Revenue and expense accounts are remeasured at the average exchange rate in effect during the year. Foreign currency translation adjustments are accounted for as a component of accumulated other comprehensive loss within stockholders' equity. Gains or losses due to transactions in foreign currencies are included in other income (expense), net in our consolidated statements of operations. We do not currently engage in any hedging activity to reduce our potential exposure to currency fluctuations, although we may choose to do so in the future. To the extent the U.S. dollar weakens against foreign currencies, the translation of these foreign currencies result in increased revenue and operating expenses for our non-U.S. operations. Similarly, our revenue and operating expenses for our non-U.S. operations decrease if the U.S. dollar strengthens against foreign currencies. A hypothetical 10% adverse change in foreign currency exchange rates would have adversely impacted our net income for the year ended December 31, 2022 by approximately \$2.4 million.

Item 8. Financial Statements and Supplementary Data

BANDWIDTH INC.

Index to Consolidated Financial Statements

	Page
<u>Reports of Independent Registered Public Accounting Firm</u>	<u>82</u>
<u>Consolidated Balance Sheets</u>	<u>85</u>
<u>Consolidated Statements of Operations</u>	<u>86</u>
<u>Consolidated Statements of Comprehensive Loss</u>	<u>87</u>
<u>Consolidated Statements of Changes in Stockholders' Equity</u>	<u>88</u>
<u>Consolidated Statements of Cash Flows</u>	<u>90</u>
<u>Notes to Consolidated Financial Statements</u>	<u>92</u>

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Bandwidth Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Bandwidth Inc. (the Company) as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 23, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the account or disclosure to which it relates.

Revenue Recognition

Description of the Matter

As discussed in Note 2, the Company recognizes revenue from the sale of communications services offered through software solutions, which are generally derived from usage and monthly service fees. Usage revenue includes voice communication (primarily driven by inbound minutes, outbound minutes and toll-free minutes) and messaging communication (driven by the number of messages) that traverse the platform and network. Revenue for these services is recognized in the period the usage occurs. Monthly service fees include the provisioning and management of phone numbers and emergency services access, which is recognized on a ratable basis as the service is provided, which is typically one month.

The processing and recording of revenue from voice and messaging data usage is highly automated and involves capturing and pricing significant volumes of data across multiple systems. Similarly, the provisioning and management of phone numbers and emergency services access is also highly automated and involves capturing and pricing the quantity of phone numbers in service and the quantity of phone numbers with emergency services access during the month. Given the complex automated systems utilized to capture, process, and ultimately record revenue, performing procedures to audit revenue required a high degree of auditor judgment and extensive audit effort.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design, and tested the operating effectiveness of controls that address the risks of material misstatement relating to the measurement and occurrence of revenue. This included involvement of audit professionals with significant experience in the use of information technology (IT) to support business operations and related controls. With the involvement of our IT professionals, we identified the significant systems used to capture and process voice usage, phone number services, emergency services access, and messaging volume, and tested the IT general controls over those systems, including testing of user access and change management controls. In addition, our audit procedures included testing of other manual reconciliation and analytical review controls designed to determine the accuracy and completeness of data processed and transferred across multiple platforms in connection with the recognition of revenue for voice and messaging usage, the quantity of phone numbers in service, and the quantity of phone numbers with emergency services access during the period.

To test the Company's revenue, our audit procedures included, among other procedures, performing data analytics by extracting data from the Company's systems to evaluate the completeness and accuracy of recorded revenues, testing a sample of revenue transactions, which included evaluating the transaction price based on inspection of customer contracts and approved rate tables, as well as testing the mathematical accuracy of the recorded revenue based on the voice and messaging usage, as well as the quantity of phone numbers in service and quantity of phone numbers with emergency services access during the period.

We have served as the Company's auditor since 2012.

/s/ Ernst & Young LLP

Raleigh, North Carolina
February 23, 2023

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Bandwidth Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Bandwidth Inc.'s internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Bandwidth Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and our report dated February 23, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Raleigh, North Carolina
February 23, 2023

BANDWIDTH INC.
Consolidated Balance Sheets
(In thousands, except share and per share amounts)

	As of December 31,	
	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 113,641	\$ 331,453
Restricted cash	981	836
Marketable securities	71,231	—
Accounts receivable, net of allowance for doubtful accounts	74,465	61,572
Deferred costs	3,566	3,204
Prepaid expenses and other current assets	15,724	15,820
Total current assets	279,608	412,885
Property, plant and equipment, net	99,753	69,604
Operating right-of-use asset, net	9,993	14,061
Intangible assets, net	177,370	211,217
Deferred costs, non-current	4,938	4,676
Other long-term assets	31,251	8,673
Goodwill	326,405	344,423
Total assets	\$ 929,318	\$ 1,065,539
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 26,750	\$ 9,142
Accrued expenses and other current liabilities	62,577	65,921
Current portion of deferred revenue	7,181	6,248
Advanced billings	10,049	6,380
Operating lease liability, current	7,450	5,807
Total current liabilities	114,007	93,498
Other liabilities	11,176	6,018
Operating lease liability, net of current portion	4,640	10,958
Deferred revenue, net of current portion	8,306	7,634
Deferred tax liability	38,466	48,396
Convertible senior notes	480,546	486,440
Total liabilities	657,141	652,944
Commitments and contingencies		
Stockholders' equity:		
Preferred stock; \$0.001 par value; 10,000,000 shares authorized; 0 shares issued	—	—
Class A voting common stock; \$0.001 par value; 100,000,000 shares authorized as of December 31, 2022 and 2021; 23,379,000 and 23,177,988 shares issued and outstanding as of December 31, 2022 and 2021, respectively	23	23
Class B voting common stock, \$0.001 par value; 20,000,000 shares authorized as of December 31, 2022 and 2021; 1,965,170 shares issued and outstanding as of December 31, 2022 and 2021	2	2
Additional paid-in capital	364,913	502,477
Accumulated deficit	(48,547)	(76,867)
Accumulated other comprehensive loss	(44,214)	(13,040)
Total stockholders' equity	272,177	412,595
Total liabilities and stockholders' equity	\$ 929,318	\$ 1,065,539

See accompanying notes.

BANDWIDTH INC.
Consolidated Statements of Operations
(In thousands, except share and per share amounts)

	Year ended December 31,		
	2022	2021	2020
Revenue	\$ 573,152	\$ 490,907	\$ 343,113
Cost of revenue	334,799	277,094	189,203
Gross profit	238,353	213,813	153,910
Operating expenses:			
Research and development	97,990	69,505	54,555
Sales and marketing	96,658	82,333	61,216
General and administrative	68,029	64,212	51,644
Total operating expenses	262,677	216,050	167,415
Operating loss	(24,324)	(2,237)	(13,505)
Other income (expense), net:			
Net gain on extinguishment of debt	40,205	—	—
Interest expense, net	(3,048)	(28,784)	(13,672)
Other income (expense), net	4,473	(174)	(1,795)
Total other income (expense), net	41,630	(28,958)	(15,467)
Income (loss) before income taxes	17,306	(31,195)	(28,972)
Income tax benefit (provision)	2,264	3,833	(15,005)
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)
Earnings per share:			
Net income (loss) per share:			
Basic	\$ 0.77	\$ (1.09)	\$ (1.83)
Diluted	\$ (0.48)	\$ (1.09)	\$ (1.83)
Numerator used to compute net income (loss) per share:			
Basic	\$ 19,570	\$ (27,362)	\$ (43,977)
Diluted	\$ (14,897)	\$ (27,362)	\$ (43,977)
Weighted average number of common shares outstanding:			
Basic	25,282,796	25,090,916	24,092,574
Diluted	30,907,869	25,090,916	24,092,574

See accompanying notes.

BANDWIDTH INC.
Consolidated Statements of Comprehensive Loss
(In thousands)

	Year ended December 31,		
	2022	2021	2020
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)
Other comprehensive (loss) income			
Unrealized gain on marketable securities, net	314	—	—
Foreign currency translation	(31,855)	(41,150)	27,900
Unrealized gain on employee benefit plan, net	367	169	—
Total other comprehensive (loss) income	(31,174)	(40,981)	27,900
Total comprehensive loss	\$ (11,604)	\$ (68,343)	\$ (16,077)

See accompanying notes.

BANDWIDTH INC.

Consolidated Statements of Changes in Stockholders' Equity

(In thousands, except share amounts)

	Class A voting common stock		Class B voting common stock		Additional paid-in capital	Accumulated other comprehensive income (loss)	Accumulated deficit	Total stockholders' equity
	Shares	Amount	Shares	Amount				
Balance at December 31, 2019	18,584,478	\$ 19	4,927,401	\$ 5	\$ 275,553	\$ 41	\$ (5,528)	\$ 270,090
Issuance of debt conversion option	—	—	—	—	104,553	—	—	104,553
Debt conversion option issuance costs, net of tax	—	—	—	—	(3,742)	—	—	(3,742)
Capped call option purchase price	—	—	—	—	(43,320)	—	—	(43,320)
Exercises of vested stock options	593,084	1	—	—	4,075	—	—	4,076
Vesting of restricted stock units	161,067	—	—	—	—	—	—	—
Equity awards withheld for tax liability	(20,295)	—	—	—	(1,916)	—	—	(1,916)
Conversion of Class B voting common stock to Class A voting common stock	2,431,276	1	(2,431,276)	(3)	—	—	—	(2)
Equity consideration for Voxbone acquisition	663,394	1	—	—	106,379	—	—	106,380
Foreign currency translation	—	—	—	—	—	27,900	—	27,900
Stock based compensation	—	—	—	—	9,881	—	—	9,881
Net loss	—	—	—	—	—	—	(43,977)	(43,977)
Balance at December 31, 2020	22,413,004	22	2,496,125	2	451,463	27,941	(49,505)	429,923
Issuance of debt conversion option	—	—	—	—	66,908	—	—	66,908
Debt conversion option issuance costs, net of tax	—	—	—	—	(2,019)	—	—	(2,019)
Capped call option purchase price	—	—	—	—	(25,500)	—	—	(25,500)
Exercises of vested stock options	73,985	—	—	—	923	—	—	923
Vesting of restricted stock units	186,502	—	—	—	—	—	—	—
Equity awards withheld for tax liability	(26,458)	—	—	—	(3,835)	—	—	(3,835)
Conversion of Class B voting common stock to Class A voting common stock	530,955	1	(530,955)	—	—	—	—	1
Foreign currency translation	—	—	—	—	—	(41,150)	—	(41,150)
Unrealized gain on employee benefit pension plan	—	—	—	—	—	169	—	169
Stock-based compensation	—	—	—	—	14,537	—	—	14,537
Net loss	—	—	—	—	—	—	(27,362)	(27,362)
Balance at December 31, 2021	23,177,988	23	1,965,170	2	502,477	(13,040)	(76,867)	412,595
Exercises of vested stock options	20,468	—	—	—	163	—	—	163
Vesting of restricted stock units	231,234	—	—	—	—	—	—	—
Equity awards withheld for tax liability	(50,690)	—	—	—	(2,134)	—	—	(2,134)
Adjustment to opening retained earnings due to adoption of ASU 2020-06	—	—	—	—	(156,248)	—	8,750	(147,498)
Unrealized gain on marketable securities	—	—	—	—	—	314	—	314
Foreign currency translation	—	—	—	—	—	(31,855)	—	(31,855)

BANDWIDTH INC.

Consolidated Statements of Changes in Stockholders' Equity

(In thousands, except share amounts)

	Class A voting common stock		Class B voting common stock		Additional paid-in capital	Accumulated other comprehensive income (loss)	Accumulated deficit	Total stockholders' equity
	Shares	Amount	Shares	Amount				
Unrealized gain on employee benefit pension plan	—	—	—	—	—	367	—	367
Stock-based compensation	—	—	—	—	20,655	—	—	20,655
Net income	—	—	—	—	—	—	19,570	19,570
Balance at December 31, 2022	23,379,000	\$ 23	1,965,170	\$ 2	\$ 364,913	\$ (44,214)	\$ (48,547)	\$ 272,177

See accompanying notes.

BANDWIDTH INC.
Consolidated Statements of Cash Flows
(In thousands)

	Year ended December 31,		
	2022	2021	2020
Cash flows from operating activities			
Net income (loss)	\$ 19,570	\$ (27,362)	\$ (43,977)
Adjustments to reconcile net income (loss) to net cash provided by operating activities			
Depreciation and amortization	35,599	36,642	16,803
Non-cash reduction to the right-of-use asset	6,977	5,722	4,812
Amortization of debt discount and issuance costs	3,082	26,754	15,647
Stock-based compensation	20,655	14,537	9,881
Deferred taxes and other	(5,557)	(7,486)	14,600
Net gain on extinguishment of debt	(40,205)	—	—
Changes in operating assets and liabilities:			
Accounts receivable	(13,341)	(6,711)	(18,832)
Prepaid expenses and other assets	(5,795)	(6,751)	(3,823)
Accounts payable	17,210	1,992	315
Accrued expenses and other liabilities	4,291	9,693	14,393
Operating right-of-use liability	(7,580)	(6,227)	(5,301)
Net cash provided by operating activities	34,906	40,803	4,518
Cash flows from investing activities			
Purchase of property, plant and equipment	(41,661)	(17,686)	(12,273)
Deposits for construction in progress	(18,674)	(3,000)	—
Capitalized software development costs	(3,755)	(3,926)	(2,319)
Purchase of land	—	(30,017)	—
Proceeds from sale of land	—	17,462	—
Purchase of marketable securities	(179,598)	—	—
Proceeds from sales and maturities of marketable securities	108,681	—	—
Purchase of other investments	—	—	(230,780)
Proceeds from sales and maturities of other investments	—	40,000	190,780
Proceeds from sale of business	1,558	—	—
Acquisition, net of cash acquired	—	—	(400,493)
Net cash (used in) provided by investing activities	(133,449)	2,833	(455,085)
Cash flows from financing activities			
Payments on finance leases	(190)	(212)	(28)
Proceeds from issuance of convertible senior notes	—	250,000	400,000
Net cash paid for debt extinguishment	(117,286)	—	—
Purchase of Capped Call	—	(25,500)	(43,320)
Payment of Acquisition holdback	—	(6,689)	—
Payment of debt issuance costs	(553)	(7,544)	(11,990)
Proceeds from exercises of stock options	163	926	4,073
Value of equity awards withheld for tax liabilities	(2,139)	(3,954)	(1,844)
Net cash (used in) provided by financing activities	(120,005)	207,027	346,891
Effect of exchange rate changes on cash, cash equivalents and restricted cash	881	189	109
Net (decrease) increase in cash, cash equivalents, and restricted cash	(217,667)	250,852	(103,567)
Cash, cash equivalents, and restricted cash, beginning of period	332,289	81,437	185,004
Cash, cash equivalents, and restricted cash, end of period	\$ 114,622	\$ 332,289	\$ 81,437

BANDWIDTH INC.
Consolidated Statements of Cash Flows
(In thousands)

	Year ended December 31,		
	2022	2021	2020
Supplemental disclosure of cash flow information			
Cash paid for interest	\$ 18	\$ 1,476	\$ 579
Cash paid for taxes	\$ 3,932	\$ 1,999	\$ 454
Right-of-use assets obtained in exchange for new operating lease liabilities	\$ 3,421	\$ 526	\$ 3,105
Property, plant and equipment obtained in exchange for new finance lease liabilities	\$ —	\$ —	\$ 462
Supplemental disclosure of noncash investing and financing activities			
Purchase of property, plant and equipment, accrued but not paid	\$ 1,741	\$ 3,760	\$ 6,043
Lease incentive	\$ 5,791	\$ 4,677	\$ —
Value of common stock issued in acquisition	\$ —	\$ —	\$ 106,379
Acquisition holdback	\$ —	\$ —	\$ 8,595
Equity awards withheld for tax liabilities, accrued but not paid	\$ 121	\$ 127	\$ 247
Unrealized gain on marketable securities, accrued but not realized	\$ 314	\$ —	\$ —
Acquisition of equipment through finance leases	\$ 147	\$ 160	\$ 113

See accompanying notes.

BANDWIDTH INC.
Notes to Consolidated Financial Statements

1. Organization and Description of Business

Bandwidth Inc. (together with its subsidiaries, “Bandwidth” or the “Company”) was founded in July 2000 and incorporated in Delaware on March 29, 2001. The Company’s headquarters are located in Raleigh, North Carolina. The Company is an international cloud-based, software-powered communications platform-as-a-service (“CPaaS”) provider that enables enterprises to create, scale and operate voice or messaging communications services across any mobile application or connected device.

As a result of certain changes in the Company’s business during the quarter ended March 31, 2022, the Company re-evaluated its segment reporting and determined that one segment was appropriate, rather than the previously reported segments comprising “CPaaS” and “Other”. The primary drivers for this change were the Company’s strategic alignment of its operating departments and the sale of legacy assets. All previously reported segment information has been recast to conform with the one segment structure.

2. Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements and accompanying notes were prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”).

Cost Alignment

During the quarter ended March 31, 2022, the Company changed its presentation of certain costs to align with benchmarked definitions of cost of revenue, research and development, sales and marketing, and general and administrative expenses. As part of the benchmarked definitions, the Company has included allocations of facilities and shared IT costs based on employee headcount within the cost of revenue, research and development, sales and marketing, and general and administrative expense categories. Additionally, the product management function is now included in research and development rather than general and administrative as previously reported and the customer billing and collections function and the amortization of acquired customer relationship intangible assets are now included in sales and marketing rather than general and administrative as previously reported. Management believes use of the benchmarked definitions will increase comparability to peers and therefore usability of its financial statements.

All periods presented have been conformed to the current definitions of cost of revenue, research and development, sales and marketing, and general and administrative expenses. There was no impact to revenue or net income for any periods presented due to the change in presentation. The consolidated balance sheets, consolidated statements of changes in stockholders’ equity and consolidated statements of cash flows are not affected by these changes.

Notes to Consolidated Financial Statements (continued)

The following is a comparison of the change in costs to the prior period:

	Year ended December 31, 2021		Year ended December 31, 2020	
	As reported	As previously reported	As reported	As previously reported
(In thousands)				
Statement of Operations				
Cost of revenue	\$ 277,094	\$ 272,384	\$ 189,203	\$ 185,252
Research and development	69,505	55,173	54,555	42,059
Sales and marketing	82,333	51,817	61,216	40,552
General and administrative	64,212	113,770	51,644	88,755

Reclassification

The Company reclassified certain prior year amounts to conform to the current year presentation. These reclassifications had no impact on the previously reported total assets, liabilities, stockholder's deficit or net income.

Principles of Consolidation

The consolidated financial statements include the accounts of Bandwidth Inc. and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of the Company's consolidated financial statements in conformity with GAAP requires the Company to make estimates and judgments that affect the amounts reported in these financial statements and accompanying notes. These estimates in the consolidated financial statements include, but are not limited to, allowance for doubtful accounts, reserve for expected credit losses, reserve for sales credits, recoverability of long lived and intangible assets, fair value of acquired intangible assets and goodwill, discount rates used in the valuation of right-of-use assets and lease liabilities, the fair value of the liability and equity components of the Company's Convertible Notes (as defined herein), estimated period of benefit, valuation allowances on deferred tax assets, certain accrued expenses and contingencies, economic and demographic actuarial assumptions related to pension and other postretirement benefit costs and liabilities. Although the Company believes that the estimates it uses are reasonable, due to the inherent uncertainty involved in making these estimates, actual results reported in future periods could differ from those estimates.

Revenue Recognition

Revenue recognition commences upon transfer of control of promised goods or services to customers in an amount that the Company expects to receive in exchange for those products or services.

The Company determines revenue recognition through the following steps:

- identification of the contract, or contracts, with a customer;
- identification of the performance obligations in the contract;
- determination of the transaction price;
- allocation of the transaction price to the performance obligations in the contract; and
- recognition of revenue, when, or as, the Company satisfies a performance obligation.

Notes to Consolidated Financial Statements (continued)

Nature of Products and Services

Revenue consists primarily of the sale of communications services offered through Application Programming Interface (“API”) software solutions to large enterprise, as well as small and medium-sized business, customers and is generally derived from usage and service fees. Usage revenue includes voice communication (primarily driven by inbound minutes, outbound minutes and toll-free minutes) and messaging communication (driven by the number of messages) that traverse the platform and network. Service fees include the provision and management of phone numbers and emergency services access.

The majority of the Company’s revenue is generated from reoccurring fees earned from customers accessing and using the Company’s communications platform. Access to the Company’s communication platform is considered a series of distinct services with continuous transfer of control to the customer, comprising one performance obligation. Reoccurring fees are recognized in revenue in the period the traffic traverses the Company’s network. For the years ended December 31, 2022, 2021 and 2020, the revenue from reoccurring fees represented \$445.7 million, \$392.5 million, and \$260.6 million of total revenue, respectively.

Revenue from recurring fees is recognized on a ratable basis as the service is provided, which is typically one month. For the years ended December 31, 2022, 2021 and 2020, the revenue from recurring fees represented \$116.9 million, \$91.1 million and \$76.5 million of total revenue, respectively.

The remaining \$10.6 million, \$7.3 million, and \$6.0 million of revenue for the years ended December 31, 2022, 2021 and 2020, respectively, are generated from other miscellaneous services.

Infrequently, Bandwidth’s contracts with customers may include multiple performance obligations. For such arrangements, revenues are allocated to each performance obligation based on its relative standalone selling price. Generally, standalone selling prices are determined based on the prices charged to similar customers for similar services.

When required as part of providing service, revenues and associated expenses related to nonrefundable, upfront service activation and setup fees are deferred and recognized over the longer of the associated service contract period or estimated customer life.

The Company’s contracts do not contain general rights of return. However, occasionally credits may be issued. The Company’s contracts do not provide customers with the right to take possession of the software supporting the applications. Amounts that have been invoiced are recorded in accounts receivable and in revenue or deferred revenue depending on whether the revenue recognition criteria have been met.

The Company maintains a reserve for sales credits. Credits are accounted for as variable consideration and are estimated based on several inputs including historical experience and current trends of credit issuances. Adjustments to the reserve are recorded against revenue.

The Company has various sales commission plans for which eligible employees can earn commissions from the sale of products and services to customers. Eligible employees must be employed at the time of payment in order to receive a commission. The Company pays commissions over time and a corresponding requisite substantive service condition exists for the employee to receive the commission. The Company determined that the timing of the commission payments and the underlying service performed by the employee were commensurate. Accordingly, sales commissions are generally expensed as incurred. These costs are recorded within sales and marketing expenses.

Notes to Consolidated Financial Statements (continued)

Contract Assets and Liabilities

The following table provides information about receivables and contract liabilities from contracts with customers:

	As of December 31,	
	2022	2021
	(In thousands)	
Receivables ⁽¹⁾	\$ 74,465	\$ 61,572
Contract liabilities ⁽²⁾	15,487	13,882

⁽¹⁾ Included in accounts receivable, net of allowance for doubtful accounts on the consolidated balance sheets.

⁽²⁾ Included in current portion of deferred revenue and deferred revenue, net of current portion on the consolidated balance sheets.

Deferred revenue is recorded when cash payments are received in advance of future usage on contracts. Revenue is typically recognized in the following month when service is rendered or, in the case of nonrefundable upfront fees, over the estimated period of benefit from the date the fee is incurred by the customer. Customer refundable payments are recorded as advanced billings. During the year ended December 31, 2022, the Company recognized revenue of \$5.7 million related to contract liabilities recorded at the beginning of the year. The Company expects to recognize \$7.2 million in revenue over the next 12 months related to its contract liabilities as of December 31, 2022.

Cost of Revenue

Cost of revenue consists of fees paid to other network service providers, network operations costs, personnel costs, allocated costs of facilities and information technology, amortization of acquired technology intangibles and depreciation.

Fees paid to other network service providers arise when the Company purchases services such as minutes of use, phone numbers, messages, porting of customer numbers and network circuits.

Network operations costs are incurred for web services and cloud infrastructure, capacity planning and management, software licenses, hardware and software maintenance fees, customer support and network-related facility rents.

Personnel costs (including non-cash stock-based compensation expenses) arise for employees who are responsible for the delivery of services, and operations and maintenance of, the communications network.

Operating Expenses

Research and Development

Research and development expenses consist of salaries and related personnel costs for the design, development, testing and enhancement of our cloud network and software products. Research and development expenses include depreciation and allocated costs for facilities and information technology utilized by our research and development staff.

Sales and Marketing

Sales and marketing expenses consist of salaries and related personnel costs, commissions, and costs related to advertising, marketing, brand awareness activities, sales support and professional services fees, and customer billing and collections functions. Sales and marketing expenses include depreciation, amortization of acquired

Notes to Consolidated Financial Statements (continued)

customer relationship intangible assets, and allocated costs of facilities and information technology utilized by our sales and marketing staff.

General and Administrative

General and administrative expenses consist of salaries and related personnel costs for accounting, legal, human resources, corporate, and other administrative and compliance functions. General and administrative expenses include depreciation, expenditures for third party professional services, and allocated costs of facilities and information technology utilized by our corporate and administrative staff.

Cash and Cash Equivalents

The Company classifies all highly liquid investments with original stated maturities of three months or less from the date of purchase as cash equivalents. All highly liquid investments with original stated maturities of greater than three months from the date of purchase are classified as current marketable securities. Cash deposits are primarily in financial institutions in the United States. However, cash for monthly operating costs of international operations are deposited in banks outside the United States. The Company has a policy of making investments only with commercial institutions that have at least an investment grade credit rating. The Company utilizes money market funds as an investment option and only invests in AAA rated funds.

Restricted Cash

Restricted cash consists primarily of employee withholding tax liability and employee benefits contributions not yet remitted. The Company has classified this asset as a short-term asset in order to match the expected period of restriction.

Marketable Securities

The Company's marketable securities consist of time deposits, U.S. treasury debt securities, commercial paper, and corporate debt securities. The Company classifies marketable securities as available-for-sale at the time of purchase and reevaluates such classification as of each balance sheet date. The Company may sell these securities at any time for use in current operations even if they have not yet reached maturity. As a result, the Company classifies investments with maturities greater than 90 days as marketable securities in the accompanying consolidated balance sheets. Available-for-sale securities are recorded at fair value at the end of each reporting period. Unrealized gains and losses are excluded from earnings and recorded as a separate component within accumulated other comprehensive loss on the consolidated balance sheets until realized. Interest income is reported within other income (expense), net on the consolidated statements of operations. The Company evaluates its investments to assess whether the amortized cost basis is in excess of estimated fair value and determines what amount of that difference, if any, is caused by expected credit losses. Allowance for credit losses are recognized as a charge in other income (expense), net on the consolidated statements of operations, and any remaining unrealized losses are included in accumulated other comprehensive loss on the consolidated balance sheets. Due to the nature and investment grade of the Company's marketable securities, there were no credit losses recorded for the year ended December 31, 2022. There have been no impairment charges for any unrealized losses during the period. The Company determines realized gains and losses on the sale of marketable securities using the specific identification method and records such gains and losses in other income (expense), net on the consolidated statements of operations.

Accounts Receivable and Current Expected Credit Losses

Accounts receivable are stated at realizable value, net of allowances, which includes an allowance for doubtful accounts and a reserve for expected credit losses. The allowance for doubtful accounts is based on management's assessment of the collectability of its customer accounts. The Company regularly reviews the composition of the accounts receivable aging, historical bad debts, changes in payment patterns, customer creditworthiness, current economic trends, and reasonable and supportable forecasts about the future. Relevant risk

Notes to Consolidated Financial Statements (continued)

characteristics include customer size and historical loss patterns. Management has evaluated the expected credit losses related to trade accounts receivable and determined that allowances of approximately \$1.2 million and \$1.7 million for uncollectible accounts and customer balances that are disputed were required as of December 31, 2022 and 2021, respectively. Refer to Note 4, “Financial Statement Components” to these consolidated financial statements, for a rollforward of the components of the allowances as of December 31, 2022 and 2021.

The Company includes unbilled receivables in its accounts receivable balance. Generally, these receivables represent earned revenue from services provided to customers, which will be billed in the next billing cycle. All amounts are considered collectible and billable. As of December 31, 2022 and 2021, unbilled receivables were \$33.9 million and \$31.8 million, respectively.

Concentration of Credit Risk

Financial instruments that are exposed to concentration of credit risk consist primarily of cash and cash equivalents, marketable securities and trade accounts receivable. Cash deposits may be in excess of insured limits. The Company believes that the financial institutions that hold its cash deposits are financially sound and, accordingly, minimal credit risk exists with respect to these balances.

With regard to customers, credit evaluation and account monitoring procedures are used to minimize the risk of loss. The Company believes that no additional credit risk beyond amounts provided for by the allowance for doubtful accounts are inherent in accounts receivable. As of December 31, 2022, no individual customer represented more than 10% of the Company’s accounts receivable, net of allowance for doubtful accounts. As of December 31, 2021, one individual customer represented approximately 10% of the Company’s accounts receivable, net of allowance for doubtful accounts.

For the years ended December 31, 2022, 2021 and 2020, no individual customer represented more than 10% of the Company’s revenue.

Property, Plant and Equipment, net

Property, plant and equipment, net is stated at cost, less accumulated depreciation and amortization. Depreciation and amortization is calculated on a straight-line basis over the estimated useful lives of those assets as follows:

Computer hardware and software	1 to 7 years
Internal-use software development costs	4 to 7 years
Furniture and fixtures	2 to 5 years
Land	Indefinite
Leasehold improvements	Shorter of the estimated lease term or 4 to 7 years

Maintenance and repairs are charged to expense as incurred.

Deferred Costs

The Company defers certain direct and incremental upfront costs related to the generation of a revenue stream or obtaining a new customer agreement. These costs include installment fees, activation and other telecommunication fees. The Company capitalizes these costs and amortizes them over the longer of the term of the customer contract or the estimated period of benefit, which is approximately four years.

Internal-Use Software Development Costs

Internal-use software includes software that has been acquired, internally developed, or modified exclusively to meet the Company’s needs. The Company capitalizes qualifying internal-use software development costs that are incurred during the application development stage. Capitalization of costs begins when two criteria are met: (i) the preliminary project stage is completed, and (ii) it is probable that the software will be completed and

Notes to Consolidated Financial Statements (continued)

used for its intended function. Capitalization ceases when the software is substantially complete and ready for its intended use, including the completion of all significant testing. The Company also capitalizes costs related to specific upgrades and enhancements when the expenditures will result in additional functionality, and expenses costs incurred for maintenance and minor upgrades and enhancements. Costs related to preliminary project activities and post-implementation operating activities are expensed as incurred.

Capitalized costs of platform and other software applications are included in property, plant and equipment, net. These costs are amortized over the estimated useful life of the software on a straight-line basis over four to seven years. Management evaluates the useful life of these assets on an annual basis and tests for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets.

Debt Issuance Costs

The Company incurs debt issuance costs associated with obtaining and entering into credit agreements and issuing convertible notes. These costs customarily include non-refundable structuring fees, commitment fees, up-front fees and syndication expenses. The Company has a policy of deferring and amortizing these costs based on the effective interest method over the term of the credit agreements or the convertible notes, as applicable.

Amortization of Intangibles

Intangible assets determinable economic lives are carried at cost, less accumulated amortization. Amortization is computed over the estimated useful life of each asset on a straight-line basis. The Company determines the useful lives of identifiable intangible assets after considering the specific facts and circumstances related to each intangible asset. Factors the Company considers when determining useful lives include the contractual term of any agreement related to the asset, the historical performance of the asset, the Company's long-term strategy for using the asset, any laws or other local regulations which could impact the useful life of the asset and other economic factors, including competition and specific market conditions. Intangible assets without determinable economic lives are carried at cost, not amortized and reviewed for impairment at least annually. Refer to Note 7, "Goodwill and Intangible Assets" to these consolidated financial statements, for the useful lives of the Company's intangible assets as of December 31, 2022 and 2021.

Goodwill

In accordance with Accounting Standards Codification 350, "Intangibles - Goodwill and Other" ("ASC 350"), goodwill is not amortized, but rather is reviewed for impairment at the reporting unit level on the last day of the Company's fourth quarter of each fiscal year, or when there is evidence that events or changes in circumstances indicate that the fair value of the reporting unit is less than the carrying amount of the reporting unit, including goodwill.

The Company establishes its reporting units based on its current organizational structure and management's view of the business. The Company has determined it has one reporting unit.

Under ASC 350, the Company has the option to first assess qualitatively whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill. In performing qualitative assessments, consistent with ASC 350-20-35-3C, the Company considers, among other factors, macroeconomic conditions (both in the United States and internationally), the Company's overall financial performance (including, but not limited to, comparisons to prior periods, current period internal expectations, and comparable peer companies), broader industry and market considerations, and the trading price performance of the Company's Class A common stock.

As of December 31, 2022, the Company completed its annual qualitative assessment under ASC 350 to determine whether the existence of events or circumstances indicated that it was more likely than not that the fair value of its reporting unit was less than its respective carrying value. The Company concluded that based on the relevant events and circumstances, it was more likely than not that the reporting unit's fair value exceeded its related

Notes to Consolidated Financial Statements (continued)

carrying value and therefore no quantitative assessment was required. No goodwill impairment charges were recorded for the years ended December 31, 2022, 2021 and 2020.

Impairment of Long-Lived Assets

The Company evaluates long-lived assets, including property, plant and equipment and definite lived intangible assets, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets held and used is measured by a comparison of the carrying amount of an asset or an asset group to estimated undiscounted future net cash flows expected to be generated by the asset or asset group. If such evaluation indicates that the carrying amount of the asset or the asset group is not recoverable, any impairment loss would be equal to the amount the carrying value exceeds the fair value.

Business Combinations

The Company uses the acquisition method of accounting for business combinations which requires the tangible and intangible assets acquired and liabilities assumed to be recorded at their respective fair market value as of the acquisition date. Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired. The fair values of the assets acquired and liabilities assumed are determined based upon the Company's valuation and involves making significant estimates and assumptions based on facts and circumstances that existed as of the acquisition date. The Company uses a measurement period following the acquisition date to gather information that existed as of the acquisition date that is needed to determine the fair value of the assets acquired and liabilities assumed. The measurement period ends once all information is obtained, but no later than one year from the acquisition date.

On November 2, 2020, the Company acquired all shares of Voice Topco Limited through a Share Purchase Agreement ("SPA"). During the year ended December 31, 2021, the Company made measurement period adjustments to reflect facts and circumstances in existence as of October 31, 2020, the effective date of the SPA (the "Effective Date"). The adjustments primarily related to certain state and local tax liabilities as well as an adjustment related to the finalization of the net working capital adjustment, which were not reasonably estimable at the Effective Date and consisted of a \$1.0 million increase to goodwill and \$1.0 million increase to accrued expense and other current liabilities. Additionally in 2021 and in accordance with the SPA, the Company paid the selling stockholders \$7.6 million, which included \$7.4 million of the amount held in escrow as a holdback amount and \$0.2 million in interest earned from the escrow.

Advertising Costs

The Company expenses advertising costs as incurred. Advertising costs totaled \$1.5 million, \$1.8 million and \$1.6 million for the years ended December 31, 2022, 2021 and 2020, respectively, which are included in sales and marketing expenses in the accompanying consolidated statements of operations.

Commissions

Commissions consist of variable compensation earned by sales personnel and third-party resellers. Sales commissions associated with the acquisition of a new customer contract are paid over time, based on monthly revenues, and are recognized as sales and marketing expense in the period incurred.

Stock-Based Compensation

The Company accounts for stock-based compensation expense related to all stock-based awards based on the fair value of the award on the grant date. Stock-based compensation expense is recognized on a straight-line basis over the requisite service period, which is generally three or four years. The fair value of the restricted stock units is determined using the fair value of the Company's Class A common stock on the date of grant. The Company uses the Black-Scholes option pricing model, net of estimated forfeitures, to measure the fair value of its stock options.

Notes to Consolidated Financial Statements (continued)

The Company has elected to estimate expected forfeitures, and, as such, the Company must also determine a forfeiture rate to calculate the stock-based compensation expense for awards. Through December 31, 2022, the Company recognized compensation expense for only the portion of restricted stock units expected to vest using an estimated forfeiture rate that was derived from historical employee termination behavior. As of December 31, 2022, all outstanding stock options are fully vested.

Income Taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial statement and tax basis of assets and liabilities using enacted tax rates. The Company recognizes the effect of a change in tax rates on deferred tax assets and liabilities in the period that includes the enactment date.

The Company reduces the measurement of a deferred tax asset, if necessary, by a valuation allowance if it is more likely than not that it will not realize some or all the deferred tax asset. Quarterly, the Company reviews the deferred tax assets for recoverability based on historical taxable income, projected future taxable income, the expected timing of the reversals of existing temporary differences and the implementation of prudent and feasible tax planning strategies. The evaluation of the recoverability of deferred tax assets requires judgment in assessing future profitability. Should there be a change in the ability to recover deferred tax assets, the Company's income tax provision would increase or decrease in the period in which the assessment is changed.

The Company accounts for uncertain tax positions by recognizing the financial statement effects of a tax position only when, based upon technical merits, it is more likely than not that the position will be sustained upon examination. The tax benefit recognized is measured as the largest amount of benefit determined on a cumulative probability basis that the Company believes is more likely than not to be realized upon ultimate settlement of the position. The Company recognizes potential accrued interest and penalties associated with unrecognized tax positions in income tax expense.

Operating Segments

Operating segments are defined as components of an enterprise for which separate financial information is available and evaluated regularly by the chief operating decision maker in deciding how to make operating decisions, allocate resources and in assessing performance. The Company's chief operating decision maker is its Chief Executive Officer, who evaluates the Company's financial information on a consolidated basis. Accordingly, the Company has determined that it operates in one operating segment.

Earnings per Share

Basic earnings per share attributable to common stockholders is calculated by dividing the net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding for the period.

Diluted net income per share is calculated by giving effect to all potentially dilutive common stock when determining the weighted-average number of common shares outstanding. For purposes of the diluted net income (loss) per share calculation, options to purchase common stock, restricted stock units and redeemable convertible preferred stock are considered to be potential common stock.

Foreign currency translation

The Company has foreign operations with non-USD functional currencies. The Euro and British Pound are the primary functional currencies for the Company's international operations.

All of the assets and liabilities of these subsidiaries are translated to U.S. dollars at the exchange rate in effect at the balance sheet date, and equity accounts are translated at historical exchange rates. Revenue and expenses are translated at average exchange rates in effect during each reporting period. The net effect of currency

Notes to Consolidated Financial Statements (continued)

translation adjustments is included in shareholder's equity as a component of accumulated other comprehensive loss in the accompanying consolidated balance sheets.

Foreign currency transaction gains and losses are realized upon cash settlement of transactions denominated in currencies others than the functional currency. They result from exchange rate changes during the period of time between the consummation and cash settlement of such transactions. When realized, foreign currency transaction gains and losses are recognized in current period earnings as incurred. The Company recorded \$0.2 million in related gains during the year ended December 31, 2022 and less than \$0.1 million in related losses in each of the years ended December 31, 2021 and 2020 included in other income (expense), net in the Company's consolidated statements of operations.

Unrealized gains and losses result from the process of remeasuring foreign currency assets and liabilities into the appropriate functional currency at exchange rates in place as of the reporting date. Unrealized gains and losses are reported net in foreign currency translation on the accompanying consolidated statements of comprehensive loss.

Fair Value of Financial Instruments

The Company minimizes its credit risk associated with investments by investing primarily in investment grade, liquid securities. The Company policy is designed to preserve capital, maintain liquidity and minimize credit risk, and the policy limits exposure to any one issuer and also establishes minimum credit ratings of approved investments. Periodic evaluations of relative credit standing of those issuers are considered in the Company's investment strategy.

The Company uses a three-tier fair value hierarchy to classify and disclose all assets and liabilities measured at fair value on a recurring basis, as well as assets and liabilities measured at fair value on a non-recurring basis, in periods subsequent to their initial measurement. The hierarchy requires use of observable inputs when available, and to minimize the use of unobservable inputs when determining fair value. The three tiers are defined as follows:

- **Level 1.** Observable inputs based on unadjusted quoted prices in active markets for identical assets or liabilities;
- **Level 2.** Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
- **Level 3.** Unobservable inputs for which there is little or no market data, which requires the Company to develop its own assumptions.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Notes to Consolidated Financial Statements (continued)

Comprehensive Loss

The Company has elected to present comprehensive loss and its components as a separate financial statement. Comprehensive income refers to net income and other revenue, expenses, gains and losses that, under generally accepted accounting principles, are recorded as an element of stockholders' equity but are excluded from the calculation of net income.

Recently Adopted Accounting Standards

In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)* ("ASU 2020-06"), which is intended to address issues identified as a result of the complexity associated with applying GAAP for certain financial instruments with characteristics of liabilities and equity. For convertible instruments, ASU 2020-06 reduces the number of accounting models for convertible debt instruments and convertible preferred stock, and enhances information transparency by making targeted improvements to the disclosures for convertible instruments and EPS guidance on the basis of feedback from financial statement users. ASU 2020-06 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2021. Early adoption was permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Company adopted the new guidance on January 1, 2022 using the modified retrospective approach resulting in decreases in accumulated deficit of \$8.8 million, additional paid in capital of \$156.2 million, and deferred tax liability of \$1.0 million. The Company also recorded an increase in the Convertible Notes balance of \$148.4 million as a result of the reversal of the separation of the convertible debt between debt and equity. The adoption of this standard decreased the amount of non-cash interest expense to be recognized in current and future periods as a result of eliminating the discount associated with the equity component. For the year ended December 31, 2022, the combined interest expense of the Convertible Notes was \$27.5 million lower upon the adoption of ASU 2020-06. The number of diluted shares increased as a result of transitioning from the treasury stock method to the as-if converted method which impacted the earnings per share for the year ended December 31, 2022. The transition did not impact the years ended December 31, 2021 and 2020, as the Company incurred a net loss in both reporting periods.

In May 2021, the FASB issued Accounting Standards Update 2021-04, *Earnings Per Share (Topic 260), Debt—Modifications and Extinguishments (Subtopic 470-50), Compensation--Stock Compensation (Topic 718), and Derivatives and Hedging--Contracts in Entity's Own Equity (Subtopic 815-40)* ("ASU 2021-04"), which is intended to provide clarity surrounding the treatment for a modification or an exchange of a freestanding equity-classified written call option. The amendments also provide guidance for the recognition and measurement of earnings-per-share ("EPS") for certain modifications or exchanges of freestanding equity-classified written call options for entities that present EPS. The amendments do not affect a holder's accounting for freestanding call options. ASU 2021-04 is effective for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption was permitted, including adoption in an interim period. The Company adopted the new guidance on January 1, 2022. The Company did not have any modifications or exchanges of freestanding written call options classified in equity during the reporting period and therefore did not have an impact on its financial statements.

Recent Accounting Pronouncements Not Yet Adopted

The Company did not have any applicable recent accounting pronouncements not yet adopted.

3. Fair Value Measurements

The carrying amounts of cash and cash equivalents, accounts receivable, accounts payable and accrued expenses approximate fair value as of December 31, 2022 and 2021 because of the relatively short duration of these instruments. Marketable securities consist of time deposits, corporate debt securities, U.S. treasury securities, and commercial paper not otherwise classified as cash equivalents. All marketable securities are considered to be

Notes to Consolidated Financial Statements (continued)

available-for-sale and are recorded at their estimated fair values. Unrealized gain and losses for available-for-sale securities are recorded in other comprehensive loss.

The Company evaluated its financial assets and liabilities subject to fair value measurements on a recurring basis to determine the appropriate level in which to classify them for each reporting period.

The following tables summarize the assets measured at fair value as of December 31, 2022 and 2021:

	Amortized cost or carrying value	Unrealized gains	Unrealized losses	Fair value measurements on a recurring basis December 31, 2022			
				Level 1	Level 2	Level 3	Total
(In thousands)							
Financial assets:							
Cash and cash equivalents:							
Money market account	\$ 36,728	\$ —	\$ —	\$ 36,728	\$ —	\$ —	\$ 36,728
Commercial paper	28,254	—	—	28,254	—	—	28,254
Total included in cash and cash equivalents	<u>\$ 64,982</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 64,982</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 64,982</u>
Marketable securities:							
Time deposits	\$ 6,645	\$ —	\$ (15)	\$ 6,630	\$ —	\$ —	\$ 6,630
U.S. treasury securities	14,718	74	—	14,792	—	—	14,792
Corporate debt securities	23,412	—	(97)	—	23,315	—	23,315
Commercial paper	26,142	352	—	26,494	—	—	26,494
Total marketable securities	<u>\$ 70,917</u>	<u>\$ 426</u>	<u>\$ (112)</u>	<u>\$ 47,916</u>	<u>\$ 23,315</u>	<u>\$ —</u>	<u>\$ 71,231</u>
Total financial assets	<u>\$ 135,899</u>	<u>\$ 426</u>	<u>\$ (112)</u>	<u>\$ 112,898</u>	<u>\$ 23,315</u>	<u>\$ —</u>	<u>\$ 136,213</u>

Fair value measurements on a recurring basis December 31, 2021			
Level 1	Level 2	Level 3	Total
(In thousands)			

Financial assets:					
Cash and cash equivalents:					
Money market account		\$ 241,157	\$ —	\$ —	\$ 241,157
Total financial assets		<u>\$ 241,157</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 241,157</u>

The Company classifies its marketable securities as current assets as they are available for current operating needs. The following table summarizes the contractual maturities of marketable securities as of December 31, 2022:

	Amortized cost	Aggregate fair value
	(In thousands)	
Financial assets:		
Less than one year	\$ 70,917	\$ 71,231
Total	<u>\$ 70,917</u>	<u>\$ 71,231</u>

As of December 31, 2022, the marketable securities were in an unrealized gain position. The Company has determined that (i) it does not have the intent to sell any of these investments and (ii) it is not more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. As of

Notes to Consolidated Financial Statements (continued)

December 31, 2022, the Company anticipates that it will recover the entire amortized cost basis of its marketable securities before maturity.

During the year ended December 31, 2022, there were \$74.3 million in maturities of marketable securities. There were no maturities in marketable securities during the years ended December 31, 2021 and 2020.

Proceeds from sales of marketable securities were \$34.4 million for the year ended December 31, 2022. There were no sales in marketable securities during the years ended December 31, 2021 and 2020.

Interest earned on marketable securities was \$1.2 million for the year ended December 31, 2022. There was no interest earned on marketable securities during the years ended December 31, 2021 and 2020. The interest is recorded in other income (expense), net, on the accompanying consolidated statements of operations. As of December 31, 2022, the accrued interest receivable, net of allowance for credit losses, was \$0.3 million. Accrued interest receivable is recorded in prepaid expenses and other current assets on the accompanying consolidated balance sheet.

As of December 31, 2022, the fair value of the 2026 Convertible Notes and 2028 Convertible Notes, as further described in Note 8, "Debt," to these consolidated financial statements, was approximately \$180.9 million and \$156.5 million, respectively. As of December 31, 2021, the fair value of the 2026 Convertible Notes and the 2028 Convertible Notes was approximately \$427.1 million and \$194.2 million, respectively. The fair value was determined based on the closing price for the Convertible Notes on the last trading day of the reporting period and is considered as Level 2 in the fair value hierarchy.

As of the years ended December 31, 2022 and 2021, the fair value of the Pension Plan's assets, as further described in Note 13, "Employee Benefit Plans," to these consolidated financial statements, was approximately \$3.2 million and \$3.0 million, respectively. The fair value was determined by an independent actuary and is considered as Level 2 in the fair value hierarchy.

The Company monitors the availability of observable market data to assess the appropriate classification of financial instruments within the fair value hierarchy. Changes in economic conditions or model-based valuation techniques may require the transfer of financial instruments from one fair value level to another. In such instances, the transfer is reported at the beginning of the reporting period. There were no transfers between Levels 1, 2 or 3 during the years ended December 31, 2022 and 2021.

The money market account is included in cash and cash equivalents in the consolidated balance sheets as of December 31, 2022 and 2021.

4. Financial Statement Components

Accounts receivable, net of allowances consist of the following:

	As of December 31,	
	2022	2021
	(In thousands)	
Trade accounts receivable	\$ 40,332	\$ 31,036
Unbilled accounts receivable	33,863	31,786
Allowance for doubtful accounts and reserve for expected credit losses	(1,191)	(1,661)
Other accounts receivable	1,461	411
Total accounts receivable, net	\$ 74,465	\$ 61,572

Notes to Consolidated Financial Statements (continued)

Components of allowance for doubtful accounts and reserve for expected credit losses are as follows:

	Year ended December 31,	
	2022	2021
	(In thousands)	
<i>Allowance for doubtful accounts:</i>		
Balance, beginning of period	\$ (1,661)	\$ (1,203)
Charged to bad debt expense, net of reversals	(543)	(913)
Deductions (1)	983	416
Impact of foreign currency translation	30	39
Balance, end of period	\$ (1,191)	\$ (1,661)

(1) Write-off of uncollectible accounts after all collection efforts have been exhausted.

Accrued expenses and other current liabilities consisted of the following:

	As of December 31,	
	2022	2021
	(In thousands)	
Accrued expense	\$ 29,990	\$ 31,264
Accrued compensation and benefits	21,595	19,042
Accrued sales, use, VAT and telecommunications related taxes	7,799	11,046
Current portion of finance lease	143	177
Income tax payable	2,235	3,420
Other accrued expenses	815	972
Total accrued expenses and other current liabilities	\$ 62,577	\$ 65,921

5. Right-of-Use Asset and Lease Liabilities

Right-of-use (“ROU”) assets represent the Company’s right to use an underlying asset for the lease term, and lease liabilities represent the Company’s obligation to make lease payments arising from the lease. The Company determines if an arrangement is a lease at inception. ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. Operating lease expense attributable to lease payments is recognized on a straight-line basis over the lease term and is part of allocated facilities costs based on employee headcount within the cost of revenue, research and development, sales and marketing, and general and administrative expense categories on the Company’s consolidated statements of operations. Finance leases result in the recognition of depreciation expense, which is recognized on a straight-line basis over the expected life of the leased asset, and interest expense, which is recognized following an effective interest rate method. Depreciation expense attributable to finance leases is included in operating expenses on the Company’s consolidated statements of operations. The Company presents the operating leases in long-term assets and current and long-term liabilities in the accompanying consolidated balance sheets. Finance leases are reported in property, plant and equipment, net, accrued expenses and other current liabilities, and other liabilities on the Company’s consolidated balance sheets.

The Company has entered into various operating lease agreements for office space and finance lease agreements for automobiles.

Notes to Consolidated Financial Statements (continued)

The Company previously sub-leased approximately 17,073 square feet of office space to a related party, Relay, Inc. (f/k/a Republic Wireless, Inc.) (“Relay”). The lease term under this non-cancellable lease expired in July 2022.

As of December 31, 2022, the Company had various leased properties in the United States and internationally, with remaining lease terms of five months to 4 years, some of which include options to extend the leases for up to 5 years. None of the options to extend the leases are recognized in operating lease ROU assets or lease liabilities. The Company has one lease with an early-termination option, which it does not expect to exercise.

The components of lease expense recorded in the consolidated statement of operations were as follows:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Operating lease cost	\$ 7,750	\$ 6,818	\$ 5,949
Finance lease cost:			
Depreciation of assets	183	218	20
Interest on lease liabilities	14	18	2
Sublease income	(206)	(384)	(384)
Total net lease cost	<u>\$ 7,741</u>	<u>\$ 6,670</u>	<u>\$ 5,587</u>

During the years ended December 31, 2022, 2021 and 2020, short-term operating lease expense was \$0.6 million, \$1.3 million, and \$0.2 million, respectively.

Supplemental balance sheet information related to leases was as follows:

Leases	Classification	As of December 31,	
		2022	2021
		(In thousands)	
Assets:			
Operating lease assets	Operating right-of-use asset, net (1)	\$ 9,993	\$ 14,061
Finance lease assets	Property, plant and equipment, net (2)	307	373
Total leased assets		<u>\$ 10,300</u>	<u>\$ 14,434</u>
Liabilities:			
Current			
Operating	Operating lease liability, current	\$ 7,450	\$ 5,807
Finance	Accrued expenses and other current liabilities	143	177
Non-current			
Operating	Operating lease liability, net of current portion	4,640	10,958
Finance	Other liabilities	172	202
Total lease liabilities		<u>\$ 12,405</u>	<u>\$ 17,144</u>

(1) Operating lease assets are recorded net of accumulated amortization of \$17.7 million and \$14.8 million as of December 31, 2022 and 2021, respectively.

(2) Finance lease assets are recorded net of accumulated depreciation of \$0.3 million and \$0.2 million as of December 31, 2022 and 2021, respectively.

Notes to Consolidated Financial Statements (continued)

Supplemental cash flow and other information related to leases was as follows:

	Year ended December 31,		
	2022	2021	2020
(In thousands)			
Cash paid for amounts included in the measurement of lease liabilities			
Operating cash flows from operating leases	\$ 7,580	\$ 6,227	\$ 5,301
Financing cash flows from finance leases	190	212	28
	<u>\$ 7,770</u>	<u>\$ 6,439</u>	<u>\$ 5,329</u>
Weighted average remaining lease term (in years)			
Operating leases	2.12	2.95	3.79
Finance leases	2.53	2.44	2.99
Weighted average discount rate			
Operating leases	4.58 %	4.78 %	4.81 %
Finance leases	5.48 %	3.91 %	4.00 %

Maturities of lease liabilities were as follows:

	As of December 31, 2022	
	Operating Leases	Finance Leases
(In thousands)		
2023	\$ 7,809	\$ 162
2024	2,614	104
2025	1,587	51
2026	655	21
Total lease payments	<u>12,665</u>	<u>338</u>
Less: imputed interest	(575)	(23)
Total lease obligations	<u>12,090</u>	<u>315</u>
Less: current obligations	(7,450)	(143)
Long-term lease obligations	<u>\$ 4,640</u>	<u>\$ 172</u>

Future Corporate Headquarters

On June 4, 2021, the Company purchased approximately 40 acres of undeveloped land (the “Property”) in Raleigh, North Carolina, from the State of North Carolina (the “State”) for \$30.0 million. Additionally, as consideration for the Property, the Company agreed to construct, at its expense, a parking lot and related improvements (the “Parking Improvements”) on land owned by the State adjacent to the Property. Subsequent to the purchase of the Property, the Company sold a portion of the Property constituting approximately 23.76 acres (the “Conveyed Parcel”) to USEF Edwards Mill Owner, LLC (the “Developer”) for \$17.5 million. The Company retained approximately 17.06 acres of the Property, which was recorded at cost and is included in the Company’s consolidated balance sheets as a component of property, plant and equipment, net. A lease incentive was recognized for the difference between the consideration received from the Developer for the Conveyed Parcel and the cost basis of the Conveyed Parcel and is included as a component of other liabilities on the consolidated balance sheets. As of

Notes to Consolidated Financial Statements (continued)

December 31, 2022, the balance of the lease incentive, including additional incentives obtained during project development, was \$10.5 million.

On May 27, 2021, the Company entered into a Lease Agreement (the “Lease”) with the Developer for the Conveyed Parcel, together with improvements for office and related infrastructure to be constructed thereon, collectively constituting approximately 534,000 gross square feet (the “Project”). The lease became effective upon closing of the sale of the Conveyed Parcel to the Developer. When construction of the Project is completed, the Company intends to relocate its corporate headquarters to the Project. The lease term will commence upon substantial completion of the final building to be delivered, as evidenced by a certificate of occupancy issued by the City of Raleigh (the “Commencement Date”), and continue for a period of twenty (20) years (the “Initial Term”). It is anticipated that the Commencement Date will occur in mid-2023. The Company has the option to renew the Initial Term for two ten-year periods at a rental rate equal to 100% of the then-prevailing market rental rate for comparable buildings in the Raleigh, North Carolina, market. Upon the effective date, the Company deposited \$2.5 million with the Developer as security on the lease. Additionally, the Company made deposits of \$21.7 million to fund certain improvements expected to be constructed as part of the development of the Project. Deposits are recorded in other long-term assets on the Company’s consolidated balance sheets.

No ROU assets or lease liabilities have been recognized in connection with the lease as of December 31, 2022. Future lease payments are included in Note 12, “Commitments and Contingencies,” to these consolidated financial statements.

6. Property, Plant and Equipment

Property, plant and equipment, net consisted of the following:

	As of December 31,	
	2022	2021
	(In thousands)	
Furniture and fixtures	\$ 16,494	\$ 2,240
Computer and office equipment	14,160	5,419
Telecommunications equipment	80,251	76,963
Leasehold improvements	6,410	6,970
Software	7,051	6,942
Internal-use software development	23,677	22,917
Automobile	665	616
Land	23,090	17,269
Total cost	171,798	139,336
Less—accumulated depreciation	(72,045)	(69,732)
Total property, plant and equipment, net	\$ 99,753	\$ 69,604

The Company capitalizes the costs to design software for internal use related to the development of its platform during the application development stage of the projects. The costs are primarily comprised of salaries and benefits of the projects’ engineers and product development teams. Internally developed software is reported at cost less accumulated amortization. Amortization begins once the project is substantially complete and ready for its intended use. Costs incurred prior to the application development stage, maintenance activities or minor upgrades are expensed in the period incurred. Unamortized software development costs were approximately \$8.4 million and \$7.5 million as of December 31, 2022 and 2021, respectively.

The Company capitalized \$3.8 million, \$3.9 million, and \$2.3 million of software development costs for the years ended December 31, 2022, 2021 and 2020, respectively.

Notes to Consolidated Financial Statements (continued)

Amortization expense related to capitalized software development costs were \$2.2 million, \$1.8 million, and \$2.0 million for the years ended December 31, 2022, 2021 and 2020, respectively. As of December 31, 2022, unamortized implementation costs related to cloud computing arrangements are \$0.3 million, of which \$0.1 million are included in prepaid expenses and other current assets and \$0.2 million are included in other long-term assets.

The Company leases automobiles under leases accounted for as finance leases with expiration dates ranging from February 7, 2023 to June 23, 2026. As of December 31, 2022, cost and accumulated depreciation of the assets under finance leases recorded by the Company were \$0.7 million and \$0.3 million, respectively. As of December 31, 2021, cost and accumulated depreciation of the assets under finance leases recorded by the Company were \$0.6 million and \$0.2 million, respectively.

The Company recognized an impairment of \$0.5 million, \$0.5 million, and \$0.2 million during the years ended December 31, 2022, 2021 and 2020, respectively, related to capitalized software development costs that provided no future benefit and therefore were impaired. This expense is reflected within other income (expense), net as of December 31, 2022 and cost of revenue as of December 31, 2021 and 2020 in the accompanying consolidated statements of operations.

The Company recognized depreciation expense, which includes amortization of capitalized software development costs, as follows:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Cost of revenue	\$ 13,602	\$ 12,606	\$ 9,997
Research and development	2,311	2,166	1,446
Sales and marketing	1,331	1,090	1,275
General and administrative	1,175	1,661	419
Total depreciation expense	\$ 18,419	\$ 17,523	\$ 13,137

7. Goodwill and Intangible Assets

Goodwill

The changes in carrying amount of goodwill were as follows:

	Total
	(In thousands)
Balance as of December 31, 2020	\$ 372,239
Measurement period adjustment	999
Impact of foreign currency translation	(28,815)
Balance as of December 31, 2021	344,423
Impact of foreign currency translation	(18,018)
Balance as of December 31, 2022	\$ 326,405

Notes to Consolidated Financial Statements (continued)

Intangible Assets

Intangible assets, net consisted of the following as of December 31, 2022:

	Gross Amount	Accumulated Amortization	Net Carrying Value	Amortization Period
	(In thousands)			(In years)
Customer relationships	\$ 141,146	\$ (25,037)	\$ 116,109	15 - 20
Developed technology	77,409	(16,772)	60,637	10
Other, definite lived	2,828	(2,828)	—	2 - 7
Licenses, indefinite lived	624	—	624	Indefinite
Total intangible assets, net	\$ 222,007	\$ (44,637)	\$ 177,370	

Intangible assets, net consisted of the following as of December 31, 2021:

	Gross Amount	Accumulated Amortization	Net Carrying Value	Amortization Period
	(In thousands)			(In years)
Customer relationships	\$ 155,081	\$ (16,861)	\$ 138,220	15 - 20
Developed technology	82,548	(10,315)	72,233	10
Other, definite lived	3,158	(3,158)	—	2 - 7
Licenses, indefinite lived	764	—	764	Indefinite
Total intangible assets, net	\$ 241,551	\$ (30,334)	\$ 211,217	

The Company recognized amortization expense as follows:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Cost of revenue	\$ 7,657	\$ 8,543	\$ 1,445
Sales and marketing	9,523	10,576	2,221
Total amortization expense	\$ 17,180	\$ 19,119	\$ 3,666

The remaining weighted average amortization period for definite lived intangible assets is 11.0 years.

Future estimated amortization expense for definite lived intangible assets is as follows:

	As of December 31, 2022
	(In thousands)
2023	\$ 16,977
2024	16,977
2025	16,977
2026	16,977
2027	16,977
Thereafter	91,861
	\$ 176,746

8. Debt

Revolving Credit Facility

On June 6, 2022, the Company entered into a credit agreement (the “Credit Agreement”) among the Company, as borrower, the lenders from time to time party thereto, and Silicon Valley Bank as administrative agent, issuing lender and swingline lender. The Credit Agreement provides for a \$50.0 million revolving credit facility (the “Credit Facility”), including a \$20.0 million sublimit for the issuance of letters of credit and a swingline subfacility of up to \$5.0 million. The Credit Facility matures on June 6, 2025.

Interest on borrowings under the Credit Facility accrues at an annual rate tied to a base rate or the Secured Overnight Financing Rate (“SOFR”), at the Company’s election. Loans based on SOFR bear interest at a rate equal to SOFR plus an applicable margin between 1.50% and 2.00% depending upon the Company’s consolidated adjusted quick ratio for the immediately preceding quarter, and loans based on the base rate bear interest at a rate equal to the base rate plus an applicable margin between 0.50% and 1.00% depending upon the Company’s consolidated adjusted quick ratio for the immediately preceding quarter. The Company is required to pay a quarterly commitment fee equal to 0.0625% on the unused portion of the borrowing commitment. The Credit Agreement requires that the Company meet a minimum quick ratio on a quarterly basis if the Company does not maintain the minimum liquidity amount of \$70.0 million in cash and cash equivalents at all times.

As of December 31, 2022, unamortized debt issuance costs were \$0.4 million, of which \$0.2 million were included in prepaid expenses and other current assets and \$0.2 million were included in other long-term assets.

As of December 31, 2022, there were no borrowings under the Credit Facility and the Company was in compliance with all financial and non-financial covenants for all periods presented. The available borrowing capacity under the Credit Facility was \$50.0 million as of December 31, 2022.

Convertible Senior Notes and Capped Call Transactions

2026 Convertible Notes

On February 28, 2020, the Company issued \$400.0 million aggregate principal amount of 0.25% Convertible Notes due March 1, 2026 in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act (the “2026 Convertible Notes”). The interest on the 2026 Convertible Notes is payable semi-annually in arrears on March 1 and September 1 of each year, beginning on September 1, 2020.

The 2026 Convertible Notes may bear special interest under specified circumstances relating to the Company’s failure to comply with its reporting obligations under the indenture governing the 2026 Convertible Notes (the “2026 Indenture”) or if the 2026 Convertible Notes are not freely tradeable as required by the 2026 Indenture. The 2026 Convertible Notes will mature on March 1, 2026, unless earlier repurchased, redeemed by the Company, or converted pursuant to their terms. The total net proceeds from the 2026 Convertible Notes, after deducting initial purchaser discounts, costs related to the 2026 Capped Calls (as defined herein), and debt issuance costs, paid by the Company, were approximately \$344.7 million.

Each \$0.001 principal amount of the 2026 Convertible Notes is initially convertible into 10.9857 shares of the Company’s Class A common stock, par value \$0.001 per share, which is equivalent to an initial conversion price of approximately \$91.03 per share. The conversion rate is subject to adjustment upon the occurrence of certain specified events but will not be adjusted for any accrued and unpaid special interest. In addition, upon the occurrence of a make-whole fundamental change, as defined in the 2026 Indenture, the Company will, in certain circumstances, increase the conversion rate by a number of additional shares for a holder that elects to convert its 2026 Convertible Notes in connection with such make-whole fundamental change or during the relevant redemption period.

The 2026 Convertible Notes will be redeemable in whole or in part at the Company’s option on or after March 6, 2023, but before the fortieth (40th) scheduled trading day before the maturity date, at a cash redemption

Notes to Consolidated Financial Statements (continued)

price equal to 100% of the principal amount of the 2026 Convertible Notes to be redeemed, plus accrued and unpaid interest, if any, if the last reported sale price of the Class A common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading days ending on, and including, the trading day immediately before the date the redemption notices were sent; and the trading day immediately before such notices were sent.

Prior to the close of business on the business day immediately preceding September 1, 2025, the 2026 Convertible Notes may be convertible at the option of the holders only under the following circumstances:

- (1) during any calendar quarter commencing after the calendar quarter ending on June 30, 2020 (and only during such calendar quarter), if the last reported sale price per share of the Company's Class A common stock exceeds 130% of the conversion price for each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter;
- (2) during the five consecutive business days immediately after any 10 consecutive trading day period (such 10 consecutive trading day period, the "measurement period") in which the trading price per \$0.001 principal amount of 2026 Convertible Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price per share of the Company's Class A common stock on such trading day and the conversion rate on such trading day;
- (3) upon the occurrence of certain corporate events or distributions on its Class A common stock; and
- (4) if the Company calls such 2026 Convertible Notes for redemption.

On or after September 1, 2025, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders of the 2026 Convertible Notes may, at their option, convert all or a portion of their 2026 Convertible Notes regardless of the foregoing conditions.

Prior to and during the nine months ended September 30, 2021, the conditional conversion feature of the 2026 Convertible Notes was triggered as the last reported sale price of the Company's Class A common stock was more than or equal to 130% of the conversion price for at least 20 trading days (whether or not consecutive) in the period of 30 consecutive trading days ending on or after June 30, 2020 (the last trading day of the calendar quarter), and therefore the 2026 Convertible Notes were convertible, in whole or in part, at the option of the holders between July 1, 2020 through September 30, 2021. The conditional conversion feature of the 2026 Convertible Notes was not triggered from October 1, 2021 through December 31, 2022 as the last reported sale price of the Company's Class A common stock was not more than or equal to 130% of the conversion price for at least 20 trading days (whether or not consecutive) in the period of 30 consecutive trading days (the last trading day of the calendar quarter). Whether the 2026 Convertible Notes will be convertible following such period will depend on the satisfaction of this condition or another conversion condition in the future. The Company continues to classify the 2026 Convertible Notes as a long-term liability in its consolidated balance sheets as of December 31, 2022, based on contractual settlement provisions.

Upon conversion, the Company will pay or deliver, as the case may be, cash, shares of Class A common stock, or a combination of cash and shares of Class A common stock, at the Company's election. It is the Company's current intent to settle the principal amount of the 2026 Convertible Notes with cash.

No sinking fund is provided for the 2026 Convertible Notes. Upon the occurrence of a fundamental change (as defined in the 2026 Indenture) prior to the maturity date, holders may require the Company to repurchase all or a portion of the 2026 Convertible Notes for cash at a price equal to the principal amount of the 2026 Convertible Notes to be repurchased, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

Notes to Consolidated Financial Statements (continued)

In accounting for the issuance of the 2026 Convertible Notes, prior to the adoption of ASU 2020-06, the Company separated the 2026 Convertible Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was \$125.2 million and was determined by deducting the fair value of the liability component from the par value of the 2026 Convertible Notes. The difference represented the debt discount that was amortized to interest expense at an effective interest rate of 6.763% over the term of the 2026 Convertible Notes. The carrying amount of the equity component was \$57.5 million and is recorded in additional paid-in-capital. The equity component was not remeasured as long as it continued to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount, or the debt discount, was amortized to interest expense at an annual effective interest rate of 6.907% over the contractual terms of the 2026 Convertible Notes. Upon adoption of ASU 2020-06 on January 1, 2022, the Company reversed the separation of the debt and equity component representing the conversion option and accounted for the 2026 Convertible Notes in their entirety as debt. The Company also reversed the amortization of the debt discount, with a cumulative adjustment to retained earnings on the adoption date.

In accounting for the transaction costs related to the 2026 Convertible Notes, prior to the adoption of ASU 2020-06, the Company allocated the total amount incurred to the liability and equity components of the 2026 Convertible Notes based on the proportion of the proceeds allocated to the debt and equity components. Issuance costs attributable to the liability component were approximately \$8.2 million, were recorded as an additional debt discount and amortized to interest expense using the effective interest method over the contractual terms of the 2026 Convertible Notes. Issuance costs attributable to the equity component of \$3.7 million were netted with the equity component in stockholders' equity. Upon adoption of ASU 2020-06 on January 1, 2022, the Company reversed the allocation of the issuance costs to the equity component and accounted for the entire amount as debt issuance cost that will be amortized as interest expense at an effective interest rate of 0.513% for the term of the 2026 Convertible Notes with a cumulative adjustment to retained earnings on the adoption date.

During November 2022, the Company entered into separate, privately negotiated repurchase agreements with a limited number of holders of the 2026 Convertible Notes to repurchase approximately \$160.0 million aggregate principal amount of the 2026 Convertible Notes for an aggregate cash price of approximately \$117.2 million. The Repurchases closed on November 28, 2022. The Company had previously entered into capped call transactions with certain financial institutions in connection with the 2026 Convertible Notes. All of these transactions are expected to remain in effect notwithstanding the Repurchases. Following the Repurchases, approximately \$240.0 million principal amount of the 2026 Convertible Notes remain outstanding. The difference between the consideration used to repurchase the 2026 Convertible Notes and the carrying value of the 2026 Convertible Notes resulted in a gain of \$40.2 million recorded within other income (expense), net on the Company's consolidated statements of operations in the year ended December 31, 2022.

2028 Convertible Notes

On March 16, 2021, the Company issued \$250.0 million aggregate principal amount of 0.50% Convertible Notes due April 1, 2028 in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act (the "2028 Convertible Notes" and, together with the 2026 Convertible Notes, the "Convertible Notes"). The interest on the 2028 Convertible Notes is payable semi-annually in arrears on April 1 and October 1 of each year, beginning on October 1, 2021.

The 2028 Convertible Notes may bear special interest under specified circumstances relating to the Company's failure to comply with its reporting obligations under the indenture governing the 2028 Convertible Notes (the "2028 Indenture") or if the 2028 Convertible Notes are not freely tradeable as required by the 2028 Indenture. The 2028 Convertible Notes will mature on April 1, 2028, unless earlier repurchased, redeemed by the Company, or converted pursuant to their terms. The total net proceeds from the 2028 Convertible Notes, after deducting initial purchaser discounts, costs related to the 2028 Capped Calls (as defined herein), and debt issuance costs, paid by the Company, were approximately \$217.0 million.

Notes to Consolidated Financial Statements (continued)

Each \$0.001 principal amount of the 2028 Convertible Notes is initially convertible into 5.5781 shares of the Company's Class A common stock, par value \$0.001 per share, which is equivalent to an initial conversion price of approximately \$179.27 per share. The conversion rate is subject to adjustment upon the occurrence of certain specified events but will not be adjusted for any accrued and unpaid special interest. In addition, upon the occurrence of a make-whole fundamental change, as defined in the 2028 Indenture, the Company will, in certain circumstances, increase the conversion rate by a number of additional shares for a holder that elects to convert its 2028 Convertible Notes in connection with such make-whole fundamental change or during the relevant redemption period.

The 2028 Convertible Notes will be redeemable in whole or in part at the Company's option on or after April 6, 2025, but before the fortieth (40th) scheduled trading day before the maturity date, at a cash redemption price equal to 100% of the principal amount of the 2028 Convertible Notes to be redeemed, plus accrued and unpaid interest, if any, if the last reported sale price of the Class A common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading days ending on, and including, the trading day immediately before the date the redemption notices were sent; and the trading day immediately before such notices were sent.

On or after April 6, 2025 until the close of business on the scheduled trading day immediately preceding the maturity date, the 2028 Convertible Notes may be convertible at the option of the holders only under the following circumstances:

- (1) during any calendar quarter commencing after the calendar quarter ending on June 30, 2021 (and only during such calendar quarter), if the last reported sale price per share of the Company's Class A common stock exceeds 130% of the conversion price for each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter;
- (2) during the five consecutive business days immediately after any 10 consecutive trading day period (such 10 consecutive trading day period, the "measurement period") in which the trading price per \$0.001 principal amount of 2028 Convertible Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price per share of the Company's Class A common stock on such trading day and the conversion rate on such trading day;
- (3) upon the occurrence of certain corporate events or distributions on its Class A common stock; and
- (4) if the Company calls such 2028 Convertible Notes for redemption.

On or after October 1, 2027, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders of the 2028 Convertible Notes may, at their option, convert all or a portion of their Convertible Notes regardless of the foregoing conditions.

The conditional conversion feature of the 2028 Convertible Notes was not triggered during the years ended December 31, 2022 and 2021, as the last reported sale price of the Company's Class A common stock was not more than or equal to 130% of the conversion price for at least 20 trading days (whether or not consecutive) in the period of 30 consecutive trading days (the last trading day of the calendar quarter). Whether the 2028 Convertible Notes will be convertible following such period will depend on the satisfaction of this condition or another conversion condition in the future. The Company continues to classify the 2028 Convertible Notes as a long-term liability in its consolidated balance sheets as of December 31, 2022, based on contractual settlement provisions.

Upon conversion, the Company will pay or deliver, as the case may be, cash, shares of Class A common stock, or a combination of cash and shares of Class A common stock, at the Company's election. It is the Company's current intent to settle the principal amount of the 2028 Convertible Notes with cash.

Notes to Consolidated Financial Statements (continued)

No sinking fund is provided for the 2028 Convertible Notes. Upon the occurrence of a fundamental change (as defined in the 2028 Indenture) prior to the maturity date, holders may require the Company to repurchase all or a portion of the 2028 Convertible Notes for cash at a price equal to the principal amount of the 2028 Convertible Notes to be repurchased, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

In accounting for the issuance of the 2028 Convertible Notes, prior to the adoption of ASU 2020-06, the Company separated the 2028 Convertible Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was \$66.9 million and was determined by deducting the fair value of the liability component from the par value of the 2028 Convertible Notes. The difference represents the debt discount that was amortized to interest expense at an effective interest rate of 5.125% over the term of the 2028 Convertible Notes. The carrying amount of the equity component was \$39.4 million and was recorded in additional paid-in-capital. The equity component was not remeasured as long as it continued to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount, or the debt discount, was amortized to interest expense at an annual effective interest rate of 4.959% over the contractual terms of the 2028 Convertible Notes. Upon adoption of ASU 2020-06 on January 1, 2022, the Company reversed the separation of the debt and equity component representing the conversion option and accounted for the 2028 Convertible Notes in their entirety as debt. The Company also reversed the amortization of the debt discount, with a cumulative adjustment to retained earnings on the adoption date.

In accounting for the transaction costs related to the 2028 Convertible Notes, prior to the adoption of ASU 2020-06, the Company allocated the total amount incurred to the liability and equity components of the 2028 Convertible Notes based on the proportion of the proceeds allocated to the debt and equity components. Issuance costs attributable to the liability component were approximately \$5.5 million, were recorded as an additional debt discount and amortized to interest expense using the effective interest method over the contractual terms of the 2028 Convertible Notes. Issuance costs attributable to the equity component of \$2.0 million were netted with the equity component in stockholders' equity. Upon adoption of ASU 2020-06 on January 1, 2022, the Company reversed the allocation of the issuance costs to the equity component and accounted for the entire amount as debt issuance cost that will be amortized as interest expense at an effective interest rate of 0.442% for the term of the 2028 Convertible Notes with a cumulative adjustment to retained earnings on the adoption date.

As discussed above, upon adoption of ASU 2020-06, the Company reversed the separation of the debt and equity components of the 2026 Convertible Notes and the 2028 Convertible Notes, and accounted for the Convertible Notes wholly as debt. Additionally, the issuance costs of the 2026 Convertible Notes and the 2028 Convertible Notes were accounted for as debt issuance costs in their entirety. There is no longer a net carrying amount for the equity component as of the adoption date, January 1, 2022.

The net carrying amount of the liability components of the 2026 Convertible Notes and the 2028 Convertible Notes were as follows:

Notes to Consolidated Financial Statements (continued)

	As of December 31,	
	2022	2021
2026 Convertible Notes:	(In thousands)	
Principal	\$ 240,000	\$ 400,000
Unamortized discount	N/A	(92,034)
Unamortized debt issuance costs	(3,805)	(6,043)
2026 Convertible Notes net carrying amount	\$ 236,195	\$ 301,923
2028 Convertible Notes:		
Principal	\$ 250,000	\$ 250,000
Unamortized discount	N/A	(60,488)
Unamortized debt issuance costs	(5,649)	(4,995)
2028 Convertible Notes net carrying amount	\$ 244,351	\$ 184,517
Total net carrying amount	\$ 480,546	\$ 486,440

The net carrying amount of the equity components of the 2026 and 2028 Convertible Notes were as follows:

	As of December 31,	
	2022	2021
2026 Convertible Notes:	(In thousands)	
Proceeds allocated to the conversion options (debt discount)	N/A	\$ 125,152
Issuance costs	N/A	(3,742)
2026 Convertible Notes net carrying amount	N/A	\$ 121,410
2028 Convertible Notes:		
Proceeds allocated to the conversion options (debt discount)	N/A	\$ 66,908
Issuance costs	N/A	(2,019)
2028 Convertible Notes net carrying amount	N/A	\$ 64,889
Total net carrying amount	N/A	\$ 186,299

Notes to Consolidated Financial Statements (continued)

The following table sets forth the interest expense recognized related to the 2026 and 2028 Convertible Notes:

	Year ended December 31,	
	2022	2021
2026 Convertible Notes:	(In thousands)	
Contractual interest expense	\$ 997	\$ 1,000
Amortization of debt discount ⁽¹⁾	N/A	18,505
Amortization of debt issuance costs	1,915	1,214
Total interest expense related to the 2026 Convertible Notes	\$ 2,912	\$ 20,719
2028 Convertible Notes:		
Contractual interest expense	\$ 1,250	\$ 991
Amortization of debt discount ⁽¹⁾	N/A	6,419
Amortization of debt issuance costs	1,062	532
Total interest expense related to the 2028 Convertible Notes	\$ 2,312	\$ 7,942
Total interest expense	\$ 5,224	\$ 28,661

⁽¹⁾ Upon adoption of ASU 2020-06, the debt discount associated with the equity component on convertible debt outstanding was reversed, which resulted in a decrease in the amount of non-cash interest expense to be recognized going forward.

In connection with the offering of the 2026 Convertible Notes and the 2028 Convertible Notes, the Company entered into privately negotiated capped call transactions with certain counterparties (the “2026 Capped Calls” and the “2028 Capped Calls,” respectively and, collectively, the “Capped Calls”). The 2026 Capped Calls and the 2028 Capped Calls each have an initial strike price of approximately \$91.03 and \$179.27 per share, respectively, subject to certain adjustments, which corresponds to the initial conversion price of the 2026 Convertible Notes and the 2028 Convertible Notes. The 2026 Capped Calls and the 2028 Capped Calls have initial cap prices of \$137.40 and \$260.76 per share subject to certain adjustments, respectively. The 2026 Capped Calls and the 2028 Capped Calls cover, subject to anti-dilution adjustments, approximately 4,394,276 and 1,394,525 shares of Class A common stock for the 2026 Convertible Notes and 2028 Convertible Notes, respectively. The Capped Calls are generally intended to reduce or offset the potential dilution to the Class A common stock upon any conversion of the 2026 Convertible Notes and 2028 Convertible Notes with such reduction or offset, as the case may be, subject to a cap based on the cap price. The Capped Calls expire on the earlier of (i) the last day on which any convertible securities remain outstanding and (ii) March 1, 2026 for the 2026 Capped Calls and April 1, 2028 for the 2028 Capped Calls, subject to earlier exercise. The Capped Calls are subject to either adjustment or termination upon the occurrence of specified extraordinary events affecting the Company, including a merger event, a tender offer, and a nationalization, insolvency or delisting involving the Company. In addition, the Capped Calls are subject to certain specified additional disruption events that may give rise to a termination of the Capped Calls, including changes in law, insolvency filings, and hedging disruptions. The Capped Call transactions are recorded in stockholders’ equity and are not accounted for as derivatives. The net cost of \$43.3 million and \$25.5 million incurred to purchase the 2026 Capped Calls and the 2028 Capped Calls, respectively, was recorded as a reduction to additional paid-in capital in the accompanying consolidated balance sheets.

The Convertible Notes are effectively subordinated to the Company’s future senior secured indebtedness, including the Credit Facility, to the extent of the value of the collateral securing that indebtedness. The Convertible Notes are the senior, unsecured obligations of the Company and are equal in right of payment with the Company’s future senior unsecured indebtedness, if any, senior in right of payment to the Company’s existing and future indebtedness that is expressly subordinated to the Convertible Notes and the Convertible Notes will be structurally

Notes to Consolidated Financial Statements (continued)

subordinated to all existing and future indebtedness and other liabilities, including trade payables, and preferred equity, if any, of the Company's subsidiaries.

9. Geographic Information

The Company generates its revenue primarily in the United States. Revenue by geographic area is detailed in the table below (which is determined based on the customer billing address):

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
United States	\$ 514,036	\$ 433,463	\$ 324,449
International	59,116	57,444	18,664
Total	\$ 573,152	\$ 490,907	\$ 343,113

The Company's long-lived assets were primarily held in the United States as of December 31, 2022 and 2021. As of December 31, 2022 and 2021, long-lived assets held outside of the United States were \$10.8 million and \$9.2 million, respectively.

10. Stockholders' Equity

Preferred Stock

As of December 31, 2022 and 2021, the Company had authorized 10,000,000 shares of undesignated preferred stock, par value \$0.001, of which no shares were issued and outstanding.

Common Stock

As of December 31, 2022 and 2021, the Company had authorized 100,000,000 shares of Class A common stock, par value \$0.001 per share, with one vote per share and 20,000,000 shares of Class B common stock, par value \$0.001 per share, with ten votes per share.

As of December 31, 2022, 23,379,000 and 1,965,170 shares of Class A common stock and Class B common stock, respectively, were issued and outstanding.

As of December 31, 2021, 23,177,988 and 1,965,170 shares of Class A common stock and Class B common stock, respectively, were issued and outstanding.

Shares of Class B common stock are convertible into shares of Class A common stock on a 1:1 basis upon the stockholder's voluntary written notice to the Company's transfer agent or a transfer by the stockholder, subject to limited exceptions for transfers for estate planning purposes.

Voting Rights

The holders of Class A common stock and Class B common stock have identical rights, except that holders of Class A voting common stock are entitled to one vote per share of Class A common stock and holder of Class B common stock are entitled to ten votes per share of Class B common stock.

Dividends

Any dividends or distributions paid or payable to the holders of shares of Class A common stock and Class B common stock shall be paid pro-rata, on an equal priority. During the years ended December 31, 2022, 2021 and 2020, no dividends were declared. Dividend payments are not subject to restriction.

Notes to Consolidated Financial Statements (continued)

Reserved Shares

The Company had reserved shares of Class A common stock for issuance under stock-based award agreements as follows:

	As of December 31,	
	2022	2021
Stock options issued and outstanding	159,741	180,209
Nonvested restricted stock units issued and outstanding	2,607,106	344,486
Stock-based awards available for grant under the 2017 Plan	1,879,368	3,060,674
	<u>4,646,215</u>	<u>3,585,369</u>

11. Stock-Based Compensation

2010 Stock Option Plan

As of July 26, 2010, the Company adopted the 2010 Equity Compensation Plan (the “2010 Plan”). On November 9, 2017, the 2010 Plan was terminated in connection with the Company’s initial public offering. Accordingly, no shares are available for future issuance under the 2010 Plan. However, the 2010 Plan continues to govern the terms and conditions of the outstanding awards granted thereunder.

Amended and Restated 2017 Incentive Award Plan

The Company’s Amended and Restated 2017 Incentive Award Plan (as amended from time to time, the “2017 Plan”) became effective on November 9, 2017. The 2017 Plan provides for the grant of stock options, including incentive stock options and non-qualified stock options, stock appreciation rights, restricted stock, dividend equivalents, restricted stock units, and other stock or cash based awards to employees, consultants and directors of the Company. A total of 1,050,000 shares of the Company’s Class A common stock were originally reserved for issuance under the 2017 Plan. These available shares automatically increase each January 1, beginning on January 1, 2018, by 5% of the number of shares of the Company’s Class A common stock outstanding on the final day of the immediately preceding calendar year. On January 1, 2022, the shares available for grant under the 2017 Plan were automatically increased by 1,158,899 shares.

The terms of the stock option grants are determined by the Company’s Board of Directors. The Company’s stock options vest based on terms of the stock option agreements. The stock options have a contractual life of ten years.

Restricted stock units (“RSUs”) granted to employees and non-employee members of the Board of Directors under the 2017 Plan are generally subject to a time-based vesting condition. The compensation expense related to these awards is based on the grant date fair value of the RSUs and is recognized on a ratable basis over the applicable service period. Vesting schedules may differ as between different categories of award recipients.

Notes to Consolidated Financial Statements (continued)

Stock Options

The following summarizes the stock option activity for the periods presented:

	Number of options outstanding	Weighted- average exercise price (Per share)	Weighted- average remaining contract life (In years)	Aggregate intrinsic value (In thousands)
Outstanding as of December 31, 2021	180,209	\$ 10.14	3.39	\$ 11,104
Granted	—	—		
Exercised	(20,468)	7.95		
Forfeited or cancelled	—	—		
Outstanding as of December 31, 2022	<u>159,741</u>	\$ 10.42	2.57	\$ 2,001
Options vested and exercisable at December 31, 2022	<u>159,741</u>	\$ 10.42	2.57	\$ 2,001
Options vested and expected to vest as of December 31, 2022	<u>159,741</u>	\$ 10.42	2.57	\$ 2,001

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Aggregate intrinsic value of stock options exercised	\$ 635	\$ 9,297	\$ 54,088
Total estimated grant date fair value of options vested	—	247	416

Aggregate intrinsic value is computed based on the difference between the option exercise price and the fair value of the Company's common stock as of December 31, 2022, based on the Company's Class A common stock price as reported on the NASDAQ Global Select Market.

No options were granted for the year ended December 31, 2022.

As of December 31, 2022, the Company had no unrecognized compensation cost related to non-vested stock options. All outstanding stock options were fully vested prior to the current year.

Restricted Stock Units

The following summarizes the RSU activity for the period presented:

	Number of awards outstanding	Weighted- average grant date fair value (Per share)
Nonvested RSUs as of December 31, 2021	344,486	\$ 82.38
Granted	2,631,931	30.43
Vested	(231,234)	65.03
Forfeited or cancelled	(138,077)	67.35
Nonvested RSUs as of December 31, 2022	<u>2,607,106</u>	\$ 32.33

As of December 31, 2022, total unrecognized compensation cost related to non-vested RSUs was \$71.9 million, which will be amortized over a weighted-average period of 2.85 years.

Notes to Consolidated Financial Statements (continued)

Stock-Based Compensation Expense

The Company recognized total stock-based compensation expense as follows:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Cost of revenue	\$ 404	\$ 364	\$ 306
Research and development	7,523	3,681	3,030
Sales and marketing	2,808	2,225	1,834
General and administrative	9,920	8,267	4,711
Total	\$ 20,655	\$ 14,537	\$ 9,881

12. Commitments and Contingencies

Operating Leases

The Company leases office space under operating lease agreements that expire over the next 4 years. As of December 31, 2022, the Company has \$17.0 million in future minimum rent payments for its current office space. See Note 5, “Right-of-Use Asset and Lease Liabilities” to the consolidated financial statements, for additional details on the Company’s operating lease commitments.

Contractual Obligations

As of December 31, 2022, the Company has \$12.0 million in non-cancellable purchase obligations, consisting of primarily network equipment maintenance and software license contracts, of which \$9.9 million will be fulfilled within one year.

On May 27, 2021, the Company entered into the Lease with the Developer for the Conveyed Parcel, together with the Project. The respective obligations of the Company and the Developer under the Lease were conditioned upon the Developer acquiring fee simple title to the Conveyed Parcel, which occurred on June 4, 2021. The Lease term will commence upon the Commencement Date and continue for the Initial Term. It is anticipated that the Commencement Date will occur in mid-2023. If the Commencement Date does not occur within one hundred twenty (120) days from the scheduled Commencement Date, the Company shall be entitled to certain rent abatements, as described in the Lease. If the Commencement Date does not occur within twelve (12) months of the scheduled Commencement Date, the Company may terminate the Lease.

The Company has the option to renew the Initial Term for two ten-year periods. Base rent payments will begin on the Commencement Date. The initial base rent will increase by 1.85% on each anniversary of the Commencement Date. Total lease payments over the Initial Term are approximately \$495.7 million. See Note 5, “Right-of-Use Asset and Lease Liabilities” to the consolidated financial statements, for additional details on the Company's operating lease commitments.

Notes to Consolidated Financial Statements (continued)

Legal Matters

The Company is involved as a defendant in various litigation, including, but not limited to, (a) lawsuits alleging that the Company failed to bill, collect and remit certain taxes and surcharges associated with the provision of 911 services pursuant to applicable laws in various jurisdictions, and (b) an action brought by a non-practicing entity related to alleged patent infringement.

The Company intends to vigorously defend these lawsuits and believes that it has meritorious defenses to each. However, litigation is inherently uncertain, and any judgment or injunctive relief entered against the Company or any adverse settlement could adversely affect the Company's business, results of operations and financial condition.

Notes to Consolidated Financial Statements (continued)

13. Employee Benefit Plans

The Company sponsors a U.S. defined contribution 401(k), which allows eligible U.S.-based employees to defer a portion of their compensation. The Company, at its discretion, may make matching contributions. With the acquisition of Voxbone S.A. on November 1, 2020, the Company assumed sponsorship for Voxbone S.A.'s U.S. defined contribution 401(k). In connection with that acquisition, the Company also assumed sponsorship for a non-U.S. defined contribution plan for which it pays fixed contributions into a separate entity. The Company has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current or prior periods. The contributions are recognized as employee benefit expense when they are due. The Company made matching contributions for the defined contribution plans of \$4.6 million, \$3.8 million, and \$2.2 million for the years ended December 31, 2022, 2021 and 2020, respectively.

In addition, as a result of the acquisition of Voxbone S.A., the Company assumed sponsorship for Voxbone S.A.'s non-U.S. defined benefit pension plans. The liability recognized is the present value of the defined benefit obligation at the end of the reporting period less the fair value of the plan assets and is included in other liabilities in the accompanying consolidated balance sheets. The defined benefit obligation is calculated annually by an independent actuary using the Projected Unit Credit Method.

The following table summarizes information for the pension plans:

	As of December 31,	
	2022	2021
	(In thousands)	
Change in benefit obligation:		
Benefit obligation at beginning of year	\$ 3,874	\$ 4,064
Service cost	268	396
Interest cost	35	21
Actuarial gain	(418)	(237)
Taxes, insurance premiums and administrative expenses	(50)	(55)
Impact of foreign currency translation	(207)	(315)
Benefit obligation at end of year	\$ 3,502	\$ 3,874
Change in plan assets:		
Fair value of plan assets at beginning of year	\$ 2,958	\$ 2,882
Return on plan assets	26	14
Actuarial gain	72	6
Employer contribution	332	335
Taxes, insurance premiums and administrative expenses	(50)	(55)
Impact of foreign currency translation	(157)	(224)
Fair value of plan assets at end of year	3,181	2,958
Funded status, net liability	\$ 321	\$ 916

Notes to Consolidated Financial Statements (continued)

The following table presents the balance sheet location of the Company's pension liability for the Company's non-U.S. defined benefit pension plans:

	As of December 31,	
	2022	2021
	(In thousands)	
Other liabilities	\$ 321	\$ 916

The following table summarizes information for the Company's pension plans with an accumulated benefit obligation in excess of plan assets:

	As of December 31,	
	2022	2021
	(In thousands)	
Projected benefit obligation	\$ 3,502	\$ 3,874
Accumulated benefit obligation	3,265	3,282
Fair value of plan assets	3,181	2,958

The Company reports the service cost component of net periodic benefit cost in the same line item as other compensation costs arising from the services rendered by the employee and records the other components of net periodic benefit cost in other income (expense), net.

Pretax amounts for net periodic benefit cost and other amounts for the defined benefit pension plans consisted of the following components:

	Year ended December 31,		
	2022	2021	2020
	(In thousands)		
Service cost	\$ 268	\$ 396	\$ 75
Interest cost	35	21	3
Return on plan assets	(26)	(14)	(8)
Net periodic pension cost	277	403	70
Changes in plan assets and benefit obligations included in other comprehensive loss:			
Unrecognized net actuarial (gain) loss beginning of year	(227)	17	—
Actuarial (gain) loss on benefit obligation	(418)	(237)	15
Actuarial (gain) loss on fair value of plan assets	(72)	(6)	2
Impact of foreign currency translation	12	(1)	—
Total included in other comprehensive loss (before tax effect)	(705)	(227)	17
Total recognized in net periodic benefit cost and included in other comprehensive loss	\$ (428)	\$ 176	\$ 87

The Company uses significant judgment to determine the measurement of their non-U.S. defined benefit pension plans' assets and liabilities. These amounts are calculated by an independent actuary. The present value of the defined benefit obligation depends on a number of factors that are determined on an actuarial basis using a number of assumptions. Any change in these assumptions will impact the present value of the defined benefit obligation.

Notes to Consolidated Financial Statements (continued)

The actuarial gains and losses recognized in the pension expense are determined using the so-called “10% corridor” method, i.e. actuarial gains and losses which exceed 10% of the higher of the plan assets and the projected benefit obligation are amortized on a straight line basis over the average remaining service period of the active plan participants. Any prior service costs are amortized on a straight line basis over the average remaining service period of the active plan participants.

The Company determines the appropriate discount rate at the end of each year. This is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the pension obligations. In determining the appropriate discount rate, the Company considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related obligation. The other assumptions for pension obligations are based in part on market conditions.

Significant assumptions used in determining benefit obligations and net periodic benefit cost are as follows:

	Year ended December 31,		
	2022	2021	2020
Defined benefit obligations:			
Discount rate	3.80 %	0.90 %	0.50 %
Rate of salary increase	4.67 %	4.27 %	4.07 %
Inflation	2.30 %	1.80 %	1.60 %
Defined benefit cost:			
Discount rate	3.80 %	0.90 %	1.50 %
Rate of salary increase	4.67 %	4.27 %	4.37 %
Rate of return on plan assets	1.20 %	0.90 %	0.50 %
Inflation	2.30 %	1.80 %	1.90 %

Plan Assets

The Company’s non-U.S. defined benefit plans are insured by a third party. The investments are governed by the insurer, who oversees all investment decisions. The insurance contracts are classified as Level 2 because a portion of the underlying funds are valued using significant other observable inputs. The insurance contracts provide for a guaranteed interest credit and a profit-sharing adjustment based on the actual performance of the underlying investment assets of the insurer. The fair value of the contract is determined by the insurer based on the premiums paid by the Company plus interest credits plus the profit-sharing adjustment less benefit payments.

The major categories of plan assets are as follows:

	As of December 31,	
	2022	2021
(In thousands)		
Assets held by:		
Insurance companies (collective and individual)	\$ 3,181	\$ 2,958

Expected Cash Flows

The Company expects to contribute \$0.3 million to its non-U.S. defined benefit pension plans during 2023.

Notes to Consolidated Financial Statements (continued)

14. Income Taxes

The following table presents domestic and foreign components of income (loss) before income taxes for the tax years ended December 31, 2022, 2021 and 2020:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
United States	\$ 30,594	\$ (27,547)	\$ (25,745)
International	(13,288)	(3,648)	(3,227)
Income (loss) before income taxes	<u>\$ 17,306</u>	<u>\$ (31,195)</u>	<u>\$ (28,972)</u>

Benefit (provision) for income taxes from operations consists of the following:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Current:			
Federal	\$ (2,717)	\$ (2,713)	\$ 431
State	(803)	(145)	(87)
Foreign	(815)	(1,627)	(1,083)
Total	<u>(4,335)</u>	<u>(4,485)</u>	<u>(739)</u>
Deferred:			
Federal	1,004	(364)	(9,847)
State	(1)	—	(5,176)
Foreign	5,596	8,682	757
Total	<u>6,599</u>	<u>8,318</u>	<u>(14,266)</u>
Income tax benefit (provision)	<u>\$ 2,264</u>	<u>\$ 3,833</u>	<u>\$ (15,005)</u>

Notes to Consolidated Financial Statements (continued)

The following table presents a reconciliation of the statutory federal tax rate and the Company's effective tax rate for the years ended December 31, 2022, 2021 and 2020:

	Year Ended December 31,		
	2022	2021	2020
Federal Tax Rate	21.0 %	21.0 %	21.0 %
State Tax Rate - statutory blended rate	4.3	4.2	4.1
Other effective state tax adjustments	3.6	(1.4)	(2.1)
Non-deductible expenses	4.0	(6.1)	(9.2)
Research tax benefits	(31.6)	7.9	10.5
Stock-based compensation	6.3	13.9	46.8
Change in valuation allowance	(16.1)	16.3	(123.4)
Deferred tax rate change	0.5	(0.2)	0.2
Voxbone US 338(g) gain	—	(8.9)	—
Intangibles and deferred adjustments	(4.7)	(40.2)	—
Foreign rate differential	1.6	1.3	—
Other	(2.0)	4.5	0.3
Total	(13.1)%	12.3 %	(51.8)%

For the year ended December 31, 2022, the Company recognized an income tax benefit of \$2.3 million on pre-tax book income of \$17.3 million, resulting in an effective income tax rate of (13.1)%. Although the Company has pre-tax book income on a global basis, the Company recognized an income tax benefit due to the valuation allowance position within the U.S. For the year ended December 31, 2021, the Company recognized an income tax benefit of \$3.8 million on pre-tax book loss of \$31.2 million, resulting in an effective income tax rate of 12.3%. For the year ended December 31, 2020, the Company recognized an income tax expense of \$15.0 million on pre-tax book loss of \$29.0 million, resulting in an effective income tax rate of (51.8)%.

In 2022, the Company's valuation allowance in the U.S. continued to offset many of the permanent tax adjustments within the effective tax rate. These adjustments include state taxes, federal research tax credits under Internal Revenue Code Section 41, equity compensation in the U.S., and other non-deductible expenditures in the U.S. The Company has disclosed the statutory blended state income tax rate in the income tax rate reconciliation table. This statutory blended state income tax rate is the rate applied to the Company's U.S. taxable earnings to calculate its state income tax liability. The Company has also disclosed other effective state tax adjustments which primarily include the state tax impact of permanent tax adjustments and the reconciling adjustment to remove the statutory blended state income tax rate effect from income or loss generated outside of the U.S. The Company continues to generate income tax benefits in the current period related to income tax credits recognized for qualified research activities in the U.S. The applicable federal tax law and regulations define qualified research activities as research and development activities conducted in the U.S. that involve a process of experimentation designed to discover new information intended to develop a new or improved business component. Absent the valuation allowance, equity compensation also impacts the effective tax rate to the extent the income tax deduction exceeds or is below the related book expense, as required under ASC 718-740-35-2. Other U.S. non-deductible expenses that are offset by the valuation allowance consist primarily of non-deductible executive compensation under Internal Revenue Code 162(m). As a result of ASU 2020-06, the company decreased its deferred tax liability by \$37.2 million related to debt with a corresponding increase of \$36.2 million to valuation allowance. The net impact of these income tax changes related to ASU 2020-06 increased additional paid in capital by \$30.0 million and accumulated deficit by \$29.0 million, and decreased deferred tax liability by \$1.0 million.

Notes to Consolidated Financial Statements (continued)

The following table presents the significant components of the Company's net deferred tax liability:

	As of December 31,	
	2022	2021
(In thousands)		
Deferred tax assets:		
Allowance for doubtful accounts	\$ 173	\$ 262
Accrued liabilities	4,370	3,412
Operating lease liabilities	3,456	3,456
Deferred revenue	1,949	1,880
Stock-based compensation - deferred tax asset	3,216	2,278
OID	—	8,848
Section 174	20,997	—
Accrued lease incentive	2,645	—
Tax credits	10,948	9,214
Net operating losses	25,691	50,285
Other deferred tax assets	4,592	4,166
Gross deferred tax assets	78,037	83,801
Less: valuation allowance	(65,678)	(32,224)
Total deferred tax assets	12,359	51,577
Deferred tax liabilities:		
Property, plant and equipment	4,890	7,813
Goodwill	1,272	1,130
Intangibles	41,591	49,470
Operating lease assets	3,072	2,860
Debt	—	38,411
Other liability	—	289
Total deferred tax liabilities	50,825	99,973
Net deferred tax liability	\$ (38,466)	\$ (48,396)

The Company's accounting for deferred taxes involves the evaluation of a number of factors concerning the realizability of its deferred tax assets. The Company primarily considered the historic performance of Bandwidth, the nature of the Company's deferred tax assets and the timing, likelihood and amount, if any, of future taxable income during the periods in which those temporary differences and carryforwards become deductible. Based on an analysis of these factors, the Company maintained that in 2022 a valuation allowance against U.S. deferred tax assets was required.

As of December 31, 2022, the Company had approximately \$100.1 million in U.S. federal net operating loss carryforwards, \$3.8 million in U.K. loss carryforwards, and \$10.9 million in federal tax credits. All U.S. federal net operating loss carryforwards were generated after the enactment of the Tax Cuts and Jobs Act (the "Act") and as such do not expire, but can only be utilized to offset up to 80% of taxable income in any given year. The federal tax credits start to expire at various dates beginning in 2038.

As of December 31, 2022, the Company had approximately \$59.6 million in state net operating loss carryforwards. If not utilized, some state net operating loss carryforwards will expire at various dates beginning in 2025.

Notes to Consolidated Financial Statements (continued)

At December 31, 2022, the amount of unremitted earnings generated by the Company's foreign subsidiaries was not significant. The Company does not assert indefinite reinvestment on a portion of its unremitted earnings of certain foreign subsidiaries as of December 31, 2022. On the earnings that are not indefinitely reinvested, the Company did not recognize deferred income taxes related to those unremitted foreign earnings, due to the tax favorable manner in which it would be repatriated. For the subsidiaries that the Company asserts permanent reinvestment, if repatriation were to occur, the Company would be required to accrue U.S. taxes, if any, and remit applicable withholding taxes as appropriate. A determination of the amount of the unrecognized deferred tax liability related to these undistributed earnings is not practicable due to the complexity and variety of assumptions necessary based on the manner in which the undistributed earnings would be repatriated.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	Year Ended December 31,	
	2022	2021
	(In thousands)	
Unrecognized tax benefits—January 1,	\$ 3,062	\$ 2,414
Gross increases—tax positions in prior period	613	—
Gross increases—tax positions in current period	1,125	648
Unrecognized tax benefits—December 31,	<u>\$ 4,800</u>	<u>\$ 3,062</u>

If the \$4.8 million of unrecognized tax benefit is recognized, it would not impact the effective tax rate due to the valuation allowance on the Company's net U.S. deferred tax assets.

For the year ended December 31, 2022, the Company recognized interest and penalties of \$0.3 million related to income taxes within income tax expense. For the year ended December 31, 2021, the Company did not incur any material tax interest or penalties with respect to income taxes.

The Company expects no material changes in the twelve months following December 31, 2022 in its uncertain tax positions.

The Company files U.S. federal income tax returns as well as income tax returns in many U.S. states and foreign jurisdictions. The tax years 2017 - 2021 remain open to examination by the major jurisdictions in which the Company is subject to tax.

15. Related Parties

On April 20, 2015, the Company created a wholly owned subsidiary, Relay, Inc. (f/k/a Republic Wireless, Inc.) ("Relay"), which was incorporated in Delaware. On November 30, 2016, the Company completed a pro-rata distribution of the common stock of Relay to its stockholders of record as of the close of business. The Company has certain involvement with Relay via an ongoing Master Agreement and a Facilities Sharing Agreement that expired in July 2022. Amounts charged under these arrangements totaled \$1.1 million, \$1.8 million, and \$2.2 million for the years ended December 31, 2022, 2021 and 2020, respectively, and are included in revenue on the Company's consolidated statements of operations. Amounts due under these arrangements totaled less than \$0.1 million as of December 31, 2022 and 2021, and are reported in accounts receivable, net of allowance for doubtful accounts in the accompanying consolidated balance sheets.

Notes to Consolidated Financial Statements (continued)

16. Basic and Diluted Income (Loss) per Common Share

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of shares of common stock outstanding during the period. Diluted net income (loss) per share is computed by giving effect to all potential shares of common stock, including stock options and stock related to unvested restricted stock awards. The Company is in a net loss position for the years ended December 31, 2021 and 2020, and therefore diluted shares equals basic shares.

The components of basic and diluted income (loss) per share are as follows:

	Year ended December 31,		
	2022	2021	2020
(In thousands, except share and per share amounts)			
<i>Earnings per share</i>			
Net income (loss) attributable to common stockholders	\$ 19,570	\$ (27,362)	\$ (43,977)
Net income (loss) per share:			
Basic	\$ 0.77	\$ (1.09)	\$ (1.83)
Diluted	\$ (0.48)	\$ (1.09)	\$ (1.83)
Numerator used to compute net income (loss) per share:			
Basic	\$ 19,570	\$ (27,362)	\$ (43,977)
Net gain on extinguishment of debt, net of taxes	(39,614)	—	—
Interest expense on convertible notes, net of taxes	5,147	—	—
Diluted ⁽¹⁾	\$ (14,897)	\$ (27,362)	\$ (43,977)
Weighted average number of common shares outstanding:			
Basic	25,282,796	25,090,916	24,092,574
Convertible debt conversion	5,625,073	—	—
Diluted	30,907,869	25,090,916	24,092,574

⁽¹⁾ Upon the adoption of ASU 2020-06, net income is adjusted for the reversal of the net gain on extinguishment of debt and add back of interest expense as part of the calculation for diluted Non-GAAP earnings per share. See Note 2, "Summary of Significant Accounting Policies," to the consolidated financial statements, for additional details on the adoption of ASU 2020-06.

Notes to Consolidated Financial Statements (continued)

The following common share equivalents were excluded from the weighted average shares used to calculate net income (loss) per common share because their effects would have been anti-dilutive:

	As of December 31,		
	2022	2021	2020
Stock options issued and outstanding	159,741	180,209	255,000
Restricted stock units issued and outstanding	2,607,106	344,486	450,614
Convertible senior notes ⁽¹⁾⁽²⁾	5,625,073	987,149	1,022,941
Total	8,391,920	1,511,844	1,728,555

⁽¹⁾ As of December 31, 2022, subsequent to adopting ASU 2020-06 as of January 1, 2022, the Company used the if-converted method to calculate the dilutive impact of the 2026 Convertible Notes and 2028 Convertible Notes on diluted income per share, if applicable. The Company expected to settle the principal amount of these notes in cash and any excess in shares of the Company's Class A common stock. The diluted shares were calculated based on the initial conversion rate of 10.9857 and 5.5781 shares per \$0.001 of the aggregate principal amount for the 2026 Convertible Notes and 2028 Convertible Notes, respectively. See Note 2, "Summary of Significant Accounting Policies" to the consolidated financial statements, for additional details on the adoption of ASU 2020-06 and Note 8, "Debt" to the consolidated financial statements, for additional details on the Company's Convertible Notes.

⁽²⁾ As of December 31, 2021, the Company used the treasury stock method to calculate the dilutive impact of the 2026 Convertible Notes and the 2028 Convertible Notes because at that time the Company expected to settle the principal amount of these notes in cash and any excess in shares of the Company's Class A common stock. As of December 31, 2021, the conversion spread, calculated using the average market price of Class A common stock during the period consistent with the treasury stock method, had a dilutive impact for the 2026 Convertible Notes on diluted net income per share of Class A common stock when the average market price of the Company's Class A common stock for a given period exceeded the conversion price of \$91.03 per share. As of December 31, 2021, the conversion spread for the 2028 Convertible Notes was anti-dilutive as the average market price of the Company's Class A common stock for a given period did not exceed the conversion price of \$179.27 per share.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of disclosure controls and procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, have evaluated our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that, as of the end of the period covered by this Annual Report on Form 10-K, our disclosure controls and procedures are designed at a reasonable assurance level and are effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2022 based on the guidelines established in the Internal Control—Integrated Framework (2013 framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Our internal control over financial reporting includes policies and procedures that provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with GAAP. Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2022.

The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in its report which is included in Item 8 of this Annual Report on Form 10-K.

Changes in internal control over financial reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act during the quarter ended December 31, 2022, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent limitation on the effectiveness of internal control

The effectiveness of any system of internal control over financial reporting, including ours, is subject to inherent limitations, including the exercise of judgment in designing, implementing, operating, and evaluating the controls and procedures, and the inability to eliminate misconduct completely. Accordingly, any system of internal control over financial reporting, including ours, no matter how well designed and operated, can only provide reasonable, not absolute assurances. In addition, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. We intend to continue to monitor and upgrade our internal controls as necessary or appropriate for our business, but cannot assure you that such improvements will be sufficient to provide us with effective internal control over financial reporting.

Item 9B. Other Information.

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not Applicable.

PART III**Item 10. Directors, Executive Officers and Corporate Governance**

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2022.

Codes of Business Conduct and Ethics

Our board of directors has adopted a Code of Business Conduct and Ethics that applies to all officers, directors and employees, which is available on our website at (<https://investors.bandwidth.com/corporate-governance/governance-overview>) under “Governance Documents”. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding amendments to, or waiver from, a provision of our Code of Business Conduct and Ethics and by posting such information on the website address and location specified above.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2022.

Item 12. Security Ownership of Certain Beneficial Owners and Management Related Stockholder Matters

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2022.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2022.

Item 14. Principal Accountant Fees and Services

Our independent registered public accounting firm is Ernst & Young LLP, Raleigh, NC, Auditor Firm ID: 42.

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2023 Annual Meeting of Shareholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2022.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this report:

1. Financial Statements

See Index to Financial Statements at Item 8 herein.

2. Financial Statement Schedules

Schedules not listed above have been omitted because they are not required, not applicable, or the required information is otherwise included.

3. Exhibits

Exhibit Index

<u>Exhibit number</u>	<u>Description of Exhibit</u>	<u>Form</u>	<u>File No.</u>	<u>Exhibit</u>	<u>Filing Date</u>
<u>2.1</u>	Reorganization Agreement, dated as of November 30, 2016, by and between Bandwidth.com, Inc. and Republic Wireless, Inc.	S-1	333-220945	2.1	10/13/2017
<u>2.2</u>	Share Purchase Agreement, by and between Bandwidth Inc. and Voicebox S.à r.l, Mr Itay Rosenfeld, Mr Stefaan Konings, Mr Dirk Hermans, Mr Gaetan Bricet and Stichting Administratiekantoor Voice, dated October 12, 2020.	8-K	001-38285	2.1	10/13/2020
<u>3.1</u>	Second Amended and Restated Certificate of Incorporation.	10-Q	001-38285	3.1	12/14/2017
<u>3.2</u>	Second Amended and Restated Bylaws.	10-Q	001-38285	3.2	12/14/2017
<u>4.1</u>	Investors' Rights Agreement.	S-1	333-220945	4.2	10/13/2017
<u>4.2</u>	Form of Buy-Sell Agreement.	S-1	333-220945	4.3	10/13/2017
<u>4.3</u>	Description of Registrant's Securities.				Filed herewith
<u>4.4</u>	Indenture, dated February 28, 2020, between Bandwidth Inc. and Wilmington Trust, National Association	8-K	001-38285	4.1	3/2/2020
<u>4.5</u>	Form of 0.250% Convertible Senior Notes due March 1, 2026 (included as Exhibit A to Exhibit 4.1)	8-K	001-38285	4.2	3/2/2020
<u>4.6</u>	Indenture, dated March 16, 2021, between Bandwidth Inc. and Wilmington Trust, National Association.	8-K	001-38285	4.1	3/16/2021
<u>4.7</u>	Form of 0.50% Convertible Senior Notes due April 1, 2028 (included as Exhibit A to Exhibit 4.1).	8-K	001-38285	4.2	3/16/2021
<u>10.1</u>	Form of Indemnification and Advancement Agreement between Bandwidth Inc. and its directors and certain officers.	10-K	001-38285	10.1	2/25/2022
<u>10.2</u>	2010 Equity Compensation Plan and forms of awards thereunder.	S-1	333-220945	10.4	10/13/2017
<u>10.3</u>	Employment Agreement, dated as of January 1, 2015, as amended on March 9, 2017, by and between Bandwidth.com, Inc. and David A. Morken.	S-1	333-220945	10.8	10/13/2017
<u>10.4</u>	Office Lease, by and between Venture Center LLC and Bandwidth.com, Inc., dated January 22, 2013, as amended to date.	S-1	333-220945	10.11	10/13/2017

<u>10.5</u>	Sublease, by and between Allied Telesis Capital Corporation and Bandwidth.com, Inc., dated December 1, 2015.	S-1	333-220945	10.12	10/13/2017
<u>10.6</u>	Transition Services Agreement, by and between Bandwidth.com, Inc. and Republic Wireless, Inc., dated November 30, 2016.	S-1	333-220945	10.14	10/13/2017
<u>10.7</u>	Transition Services Agreement, by and between Republic Wireless, Inc. and Bandwidth.com, Inc., dated November 30, 2016.	S-1	333-220945	10.15	10/13/2017
<u>10.8</u>	Tax Sharing Agreement, by and between Bandwidth.com, Inc. and Republic Wireless, Inc., dated November 30, 2016.	S-1	333-220945	10.16	10/13/2017
<u>10.9</u>	Employee Matters Agreement, by and between Bandwidth.com, Inc. and Republic Wireless, Inc., dated November 30, 2016.	S-1	333-220945	10.17	10/13/2017
<u>10.10</u>	Master Services Agreement, by and between Bandwidth.com, Inc. and Republic Wireless, Inc., dated November 30, 2016.	S-1	333-220945	10.18	10/13/2017
<u>10.11</u>	Master Service Agreement, by and between Level 3 Communications, LLC and Bandwidth.com, Inc, dated March 14, 2008, as amended to date.	S-1	333-220945	10.19	10/13/2017
<u>10.12</u>	Form of Conversion Lock-up Agreement between Bandwidth Inc. and the Key Holders.	S-1A	333-220945	10.2	10/30/2017
<u>10.13</u>	2017 Incentive Award Plan, and forms of award agreements thereunder.	S-1A	333-220945	10.21	10/30/2017
<u>10.14</u>	Office Lease, by and between Keystone-Centennial II, LLC and Bandwidth.com, Inc., dated January 12, 2018.	10-K	001-38285	10.22	2/26/2018
<u>10.15</u>	Office Lease, by and between WP Propco III, LLC and Bandwidth Inc., dated January 1, 2019, Venture III amendment.	10-K	001-38285	10.23	2/15/2019
<u>10.16</u>	Office Lease, by and between WP Propco III, LLC and Bandwidth Inc., dated January 1, 2019, Venture I amendment.	10-K	001-38285	10.24	2/15/2019
<u>10.17</u>	Credit and Security Agreement, dated as of November 4, 2016 as amended and restated as of March 1, 2019, among Bandwidth Inc., KeyBank National Association, and KeyBanc Capital Markets Inc.	8-K	001-38285	10.1	3/04/2019
<u>10.18</u>	Bill of Sale, dated May 29, 2019.	8-K	001-38285	10.2	6/3/2019
<u>10.19</u>	Assignment and Acceptance Agreement, between KeyBank National Association and Pacific Western Bank, dated June 4, 2019.	10-Q	001-38285	10.4	8/2/2019
<u>10.20</u>	Revenue Commitment Schedule, by and between Bandwidth Inc. and Republic Wireless, Inc., dated July 1, 2019.	10-Q	001-38285	10.5	8/2/2019
<u>10.21</u>	Services Agreement, by and between Bandwidth Inc. and Republic Wireless, Inc. dated September 30, 2019.	10-Q	001-38285	10.1	11/7/2019
<u>10.22</u>	Employment Agreement, dated as of December 6, 2019, by and between Bandwidth.com, Inc. and Rebecca Bottorff.	10-K	001-38285	10.30	2/21/2020
<u>10.23</u>	Confirmation of Base Capped Call Transaction, dated February 25, 2020, between Bandwidth Inc. and Barclays Bank PLC.	8-K	001-38285	10.1	3/2/2020
<u>10.24</u>	Confirmation of Base Capped Call Transaction, dated February 25, 2020, between Bandwidth Inc. and JPMorgan Chase Bank, National Association, New York Branch.	8-K	001-38285	10.2	3/2/2020
<u>10.25</u>	Confirmation of Base Capped Call Transaction, dated February 25, 2020, between Bandwidth Inc. and Bank of Montreal.	8-K	001-38285	10.3	3/2/2020
<u>10.26</u>	Confirmation of Base Capped Call Transaction, dated February 25, 2020, between Bandwidth Inc. and Morgan Stanley & Co. LLC.	8-K	001-38285	10.4	3/2/2020

<u>10.27</u>	Confirmation of Base Capped Call Transaction, dated February 25, 2020, between Bandwidth Inc. and Goldman Sachs & Co. LLC.	8-K	001-38285	10.5	3/2/2020
<u>10.28</u>	Confirmation of Additional Capped Call Transaction, dated February 26, 2020, between Bandwidth Inc. and Barclays Bank PLC.	8-K	001-38285	10.6	3/2/2020
<u>10.29</u>	Confirmation of Additional Capped Call Transaction, dated February 26, 2020, between Bandwidth Inc. and JPMorgan Chase Bank, National Association, New York Branch.	8-K	001-38285	10.7	3/2/2020
<u>10.30</u>	Confirmation of Additional Capped Call Transaction, dated February 26, 2020, between Bandwidth Inc. and Bank of Montreal.	8-K	001-38285	10.8	3/2/2020
<u>10.31</u>	Confirmation of Additional Capped Call Transaction, dated February 26, 2020, between Bandwidth Inc. and Morgan Stanley & Co. LLC.	8-K	001-38285	10.9	3/2/2020
<u>10.32</u>	Confirmation of Additional Capped Call Transaction, dated February 26, 2020, between Bandwidth Inc. and Goldman Sachs & Co. LLC.	8-K	001-38285	10.10	3/2/2020
<u>10.33</u>	Purchase and Sale Agreement with the State of North Carolina, dated June 15, 2020.	8-K	001-38285	10.1	6/17/2020
<u>10.34</u>	Management Warranty Deed, by and between Bandwidth Inc. and Mr Itay Rosenfeld, Mr Stefaan Konings, Mr Dirk Hermans and Mr Gaetan Bricet, dated October 12, 2020.	8-K	001-38285	10.1	10/13/2020
<u>10.35</u>	Registration Rights Agreement, by and between Bandwidth Inc. and Voicebox S.á r.l, dated October 12, 2020.	8-K	001-38285	10.2	10/13/2020
<u>10.36</u>	Confirmation of Base Capped Call Transaction, dated March 11, 2021, between Bandwidth Inc. and Bank of Montreal.	8-K	001-38285	10.1	3/16/2021
<u>10.37</u>	Confirmation of Base Capped Call Transaction, dated March 11, 2021, between Bandwidth Inc. and Citibank, N.A.	8-K	001-38285	10.2	3/16/2021
<u>10.38</u>	Confirmation of Base Capped Call Transaction, dated March 11, 2021, between Bandwidth Inc. and Goldman Sachs & Co. LLC.	8-K	001-38285	10.3	3/16/2021
<u>10.39</u>	Confirmation of Base Capped Call Transaction, dated March 11, 2021, between Bandwidth Inc. and Morgan Stanley & Co. LLC.	8-K	001-38285	10.4	3/16/2021
<u>10.40^</u>	Purchase and Sale Agreement dated May 27, 2021, between Bandwidth Inc. and USEF Edwards Mill Owner, LLC.	8-K	001-38285	10.1	5/28/2021
<u>10.41^</u>	Lease Agreement dated May 27, 2021, between Bandwidth Inc. and USEF Edwards Mill Owner, LLC.	8-K	001-38285	10.2	5/28/2021
<u>10.42</u>	Escrow Agreement dated May 27, 2021, between Bandwidth Inc., USEF Edwards Mill Owner, LLC and Chicago Title Insurance Company.	8-K	001-38285	10.3	5/28/2021
<u>10.43</u>	Employment Agreement, dated July 6, 2021, between the Company and Daryl Raiford.	8-K	001-38285	10.1	7/8/2021
<u>10.44</u>	Employment Agreement, dated February 22, 2022, between the Company and Anthony F. Bartolo.	8-K	001-38285	10.1	2/22/2022
<u>10.45</u>	Employment Agreement, dated February 24, 2022, between the Company and R. Brandon Asbill.	10-K	001-38285	10.52	2/25/2022
<u>10.46</u>	Amended and Restated 2017 Incentive Award Plan.	10-Q	001-38285	10.2	5/6/2022
<u>10.47</u>	First Amendment to Lease Agreement, dated April 21, 2022, between Bandwidth Inc. and USEF Edwards Mill Owner, LLC.	10-Q	001-38285	10.3	5/6/2022
<u>10.48</u>	First Amendment to Escrow Agreement, dated April 21, 2022, between Bandwidth Inc., USEF Edwards Mill Owner, LLC and Chicago Title Insurance Company.	10-Q	001-38285	10.4	5/6/2022

<u>10.49</u> [^]	Senior Secured Credit Facilities Credit Agreement, among Bandwidth Inc., the several lenders from time to time party thereto, and Silicon Valley Bank, dated as of June 6, 2022.	10-Q	001-38285	10.1 [^]	8/4/2022
<u>10.50</u>	Forms of Global Restricted Stock Unit Grant Notice and Global Restricted Stock Unit Agreement.				Filed herewith
<u>10.51</u>	First Amendment to Employment Agreement, dated March 24, 2022, between the Company and Anthony F. Bartolo.				Filed herewith
<u>10.52</u>	First Amendment to Employment Agreement, dated March 25, 2022, between the Company and Daryl E. Raiford.				Filed herewith
<u>21.1</u>	List of subsidiaries of Bandwidth Inc.				Filed herewith
<u>23.1</u>	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.				Filed herewith
<u>23.2</u>	Consent of KPMG LLP, Independent Registered Public Accounting Firm.	8-K/A	001-38285	23.1	1/14/2021
<u>31.1</u>	Certificate of the Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				Filed herewith
<u>31.2</u>	Certification of the Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				Filed herewith
<u>32.1</u> [*]	Certification of the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act 2002.				Furnished herewith
101.INS	XBRL Instance Document - the Instance Document does not appear in the interactive data file because its XBRL tags are embedded within the Inline XBRL Document.				Filed herewith
101.SCH	XBRL Taxonomy Schema Document.				Filed herewith
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.				Filed herewith
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.				Filed herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.				Filed herewith
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.				Filed herewith

[^] Certain of the exhibits to Exhibit 10.40, 10.41 and 10.49, as applicable, have been omitted in accordance with Regulation S-K Item 601. The Registrant agrees to furnish a copy of all omitted exhibits to the SEC upon its request.

^{*} The certifications furnished in Exhibit 32.1 hereto are deemed to accompany this Annual Report on Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the registrant specifically incorporates it by reference.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of the Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

BANDWIDTH INC.

Date:	February 23, 2023	By: <u>/s/ David A. Morken</u> David A. Morken Chief Executive Officer (Principal Executive Officer)
Date:	February 23, 2023	By: <u>/s/ Daryl E. Raiford</u> Daryl E. Raiford Chief Financial Officer (Principal Financial Officer)
Date:	February 23, 2023	By: <u>/s/ Devin M. Krupka</u> Devin M. Krupka Senior Vice President, Corporate Controller (Principal Accounting Officer)
Date:	February 23, 2023	By: <u>/s/ John C. Murdock</u> John C. Murdock Director
Date:	February 23, 2023	By: <u>/s/ Brian D. Bailey</u> Brian D. Bailey Director
Date:	February 23, 2023	By: <u>/s/ Lukas M. Roush</u> Lukas M. Roush Director
Date:	February 23, 2023	By: <u>/s/ Douglas A. Suriano</u> Douglas A. Suriano Director
Date:	February 23, 2023	By: <u>/s/ Rebecca Bottorff</u> Rebecca Bottorff Director

CORPORATE INFORMATION

Corporate Headquarters

900 Main Campus Drive, Suite 100
Raleigh, NC 27606

Stock Transfer Agent and Registrar

American Stock Transfer and Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219
www.astfinancial.com
+1 718-921-8300 +1 800-937-5449

Independent Registered Public Accounting Firm

Ernst & Young LLP
4130 Parklake Avenue, Suite 500
Raleigh, NC 27612

SEC Annual Report on Form 10-K

Additional copies of our fiscal 2022 Annual Report on Form 10-K, as filed with the Securities and Exchange Commission, including the financial statements and the financial statement schedules but not including the exhibits contained therein, are available without charge upon written request, directed to:

Investor Relations Department

Bandwidth Inc.
900 Main Campus Drive, Suite 100
Raleigh, NC 27606

LEADERSHIP

David A. Morken

Chief Executive Officer

Daryl E. Raiford

Chief Financial Officer

Anthony F. Bartolo

Chief Operating Officer

Rebecca G. Bottorff

Chief People Officer

R. Brandon Asbill

General Counsel

Kade B. Ross

Chief Information Officer

Devesh Agarwal

Chief Software Strategy Officer

John P. Bell II

Chief Product Officer

Amaya G. Lantero

Senior Vice President,
Business Strategy and Development

Scott T. Mullen

Chief Technology Officer

Karl A. Perkins

Chief Innovation Officer

Sandy U. Preizler

Chief Revenue Officer

Michelle L. Birch

Senior Vice President, Operations

BOARD OF DIRECTORS

David A. Morken

Chairman of the Board and Chief Executive Officer

Brian D. Bailey^{1,2}

Managing Partner, Carmichael Partners

Rebecca G. Bottorff

Chief People Officer

John C. Murdock^{1,2}

Former President, Bandwidth

Lukas M. Roush^{1*,2}

Managing Partner, Sovereign's Capital

Douglas A. Suriano^{1,2*}

Former Senior Vice President and General
Manager, Oracle Communications

¹Audit Committee ²Compensation Committee

*Committee Chairman



 bandwidth