FINANCIAL INFORMATION FORUM

5 Hanover Square
New York, New York 10004
212-422-8568

November 1, 2012

Electronic Delivery

Elizabeth Murphy
Secretary
Securities and Exchange Commission
100 F Street, NE,
Washington, DC 20549-1090

Re: Technology and Trading Roundtable [File No. 4-652]

Dear Ms. Murphy,

The Financial Information Forum (FIF) [1] would like to take this opportunity to offer member feedback on the Commission's Market Technology Roundtable that focused on discussing ways to promote stability and maintain integrity in the securities markets and the ways that market participants design, implement, and manage complex and interconnected trading technologies.

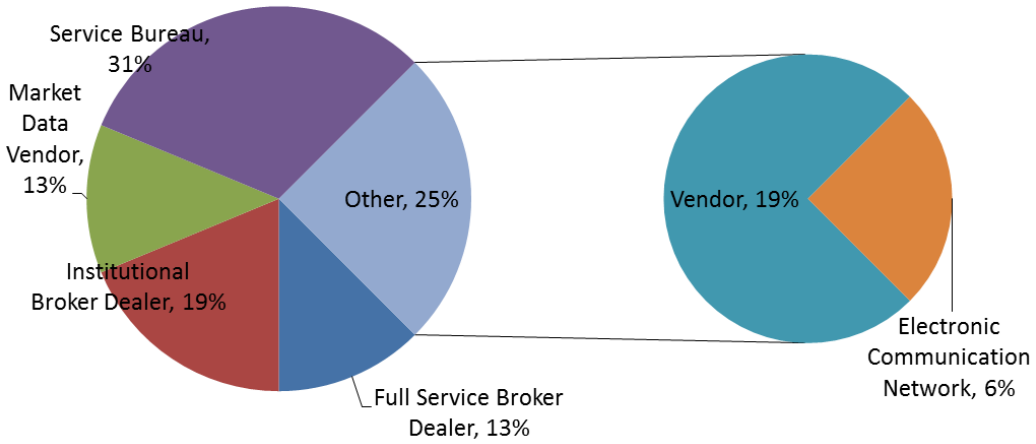
The FIF Market Stability Working Group was created following the August 8 SEC announcement[2] on the Roundtable and consists of participants from over fifty FIF member firms representing compliance, trading technology, operations and market data. The group designed a survey aimed at answering questions put forward by the Commission in the Roundtable agenda, highlighting market stability issues and identifying key SEC/SRO initiatives that could address them. Questions revolved around analyzing and measuring the impact of changes to the technology environment and real-time identification of issues along with their effective resolution were also included. Undivided attention from senior management is considered crucial during outages and questions were framed around who determines the different scenarios a robust system must be able to comply with and which personnel and their back-ups get involved during a crisis situation.

[1] FIF (www.fif.com) was formed in 1996 to provide a centralized source of information on the implementation issues that impact the financial technology industry across the order lifecycle. Our participants include trading and back office service bureaus, broker-dealers, market data vendors and exchanges. Through topic-oriented working groups, FIF participants focus on critical issues and productive solutions to technology developments, regulatory initiatives, and other industry changes.

[2] See http://www.sec.gov/news/press/2012/2012-153.htm

Seventeen firms representing broker dealers, service bureaus, market data vendors, an electronic communication network and other vendors completed the survey. Figure 1 shows the breakdown.

Figure 1 - Firm Type

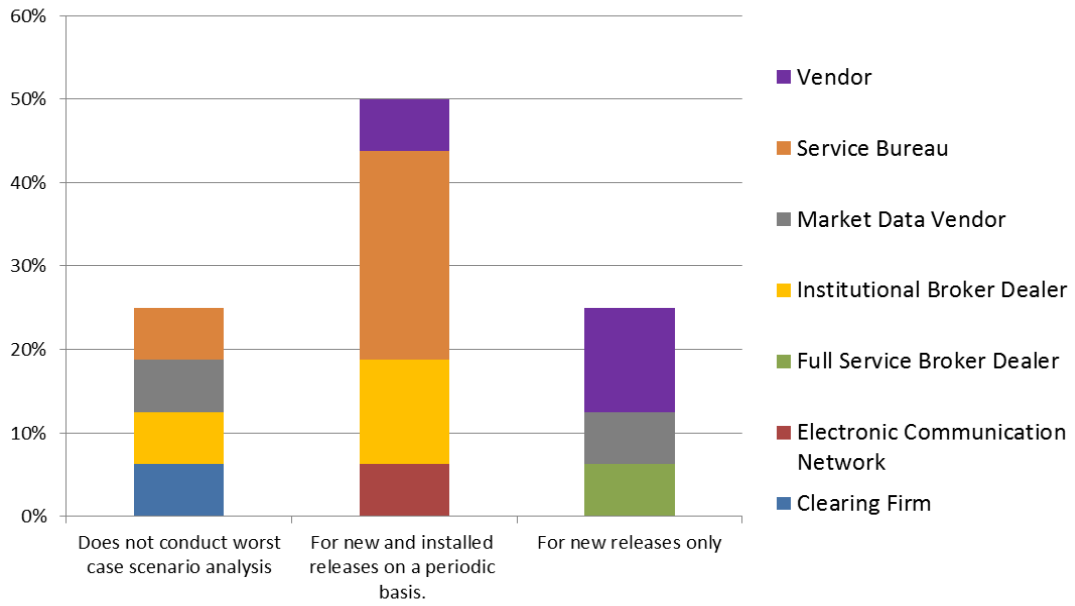


Survey questions concentrated on four key areas which are covered in the sections below.

Impact analysis of technology changes during design and development

Survey participants were asked how often they performed worst case scenario analysis to understand the impact of changes to their technology environment. 75% of participants confirmed this analysis for new releases while 25% do not conduct a worst case scenario analysis (see Figure 2).

Figure 2 - Worst Case Scenario Analysis



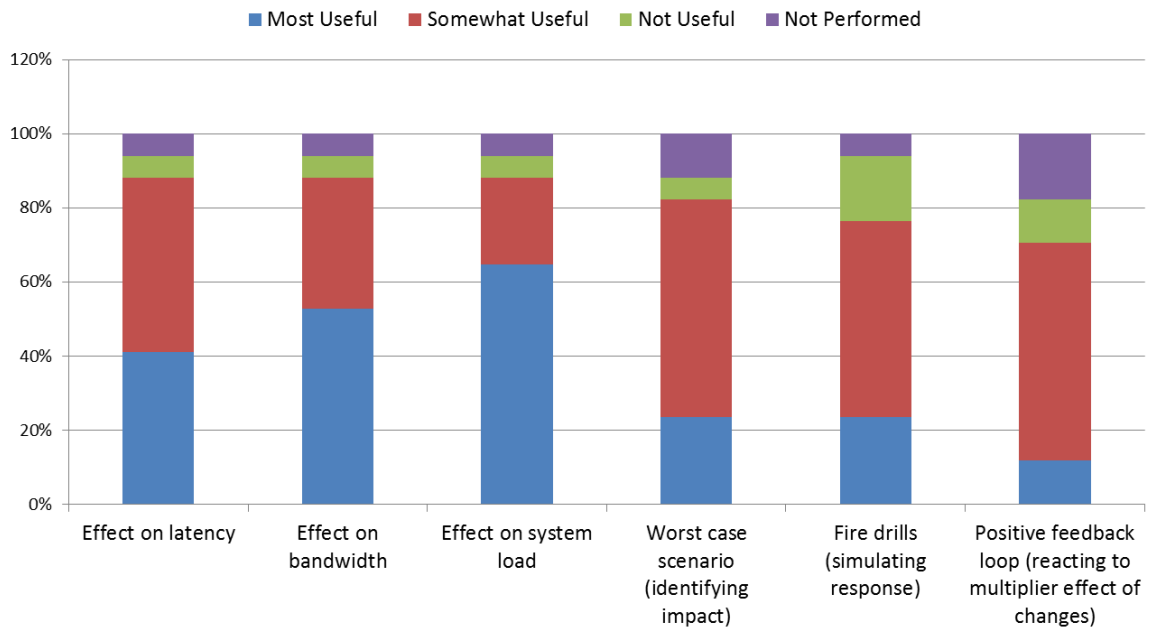
Those participants who indicated performing this analysis on a periodic basis provided frequencies in Table 1.

Table 1 - Frequency of Worst Case Scenario Analysis

We have monthly releases and we do extensive analysis and testing before anything is brought into production. We also have an annual disaster recovery test
Performance testing is done regularly and on an ad hoc basis
All releases are tested on a monthly basis, this includes positive, negative and regression testing
We look at worst case scenarios on a quarterly basis
Unavailability of core OMS is addressed by failover and back-up functionality. Some aspect of this fail over functionality is tested or analyzed monthly

The next question looked at various types of detailed analysis conducted during the development and design phase of a new enhancement to account for the increase in bandwidth or message traffic. Figure 3 shows analyzing the effect on system load and effect on bandwidth as the most popular practice among the participants. Worst case scenario (identifying impact), fire drills and positive feedback loop (reacting to multiplier effect of changes) were considered somewhat useful by firms.

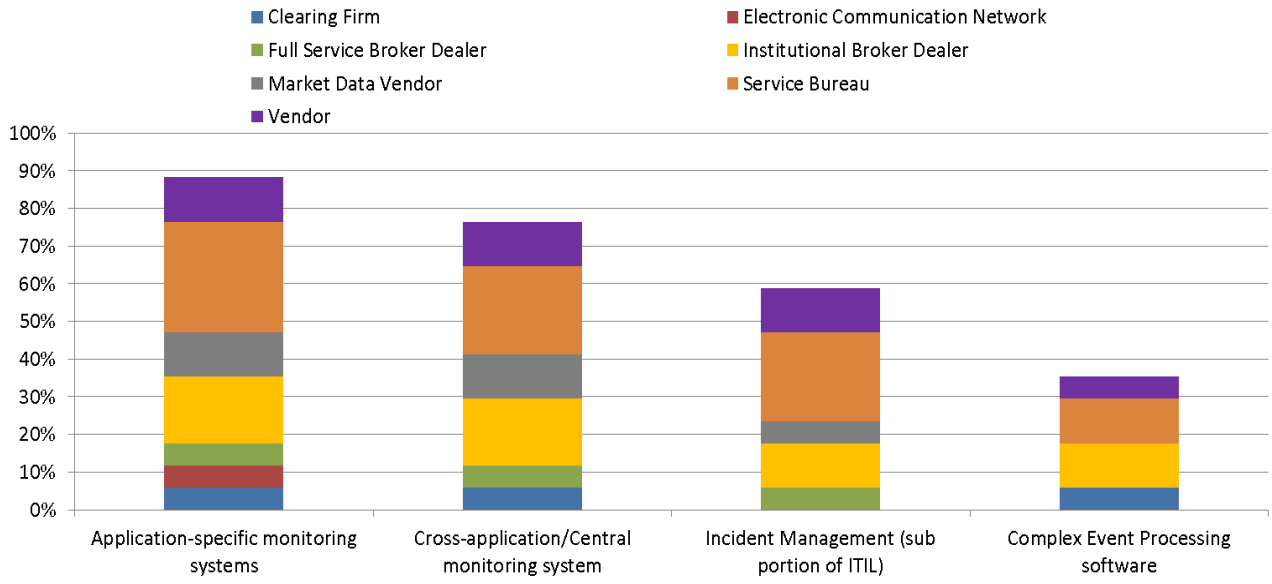
Figure 3 - Type of Analysis Conducted to Account for Change



Real-time identification, correction of issues and post resolution evaluation

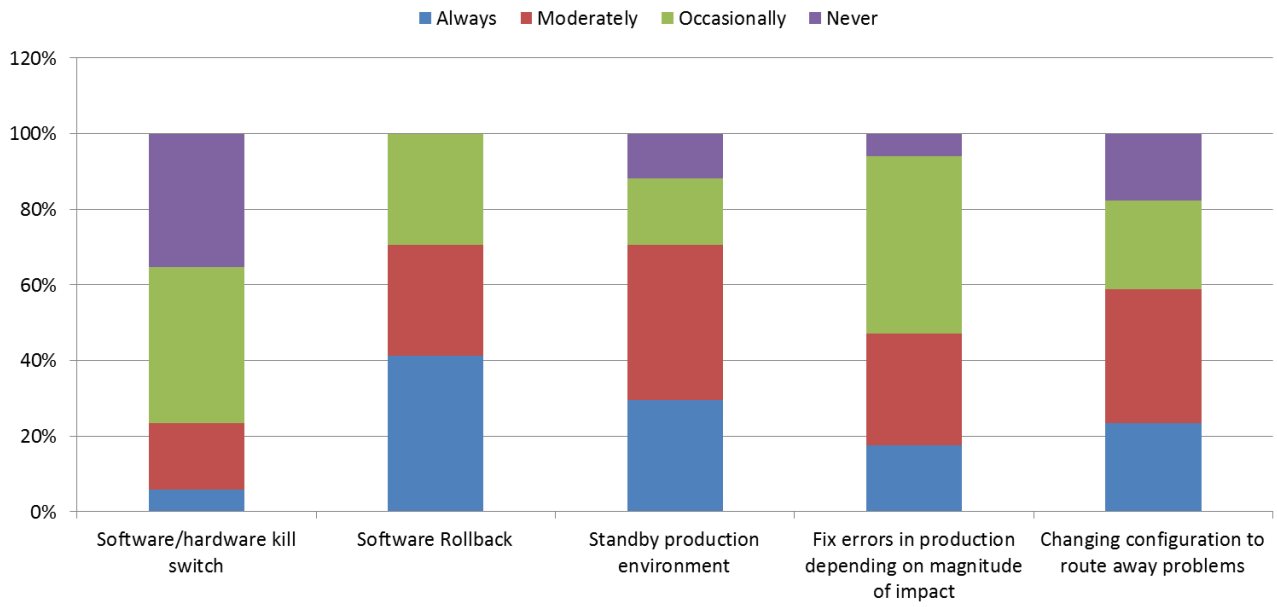
The survey gathered feedback on technologies and processes being deployed by firms today to identify issues and evaluate and correct errors identified in production. Figure 4 shows how firms are using technology and best practices to identify issues in real-time. Application-specific monitoring systems, selected by 88% of the firms were the most popular followed by 75% of firms utilizing cross-application/central monitoring systems. Network monitoring software and dedicated war rooms to identify trading issues were additional tools cited by survey participants.

Figure 4 - Technologies and Processes for Identifying Real-Time Issues



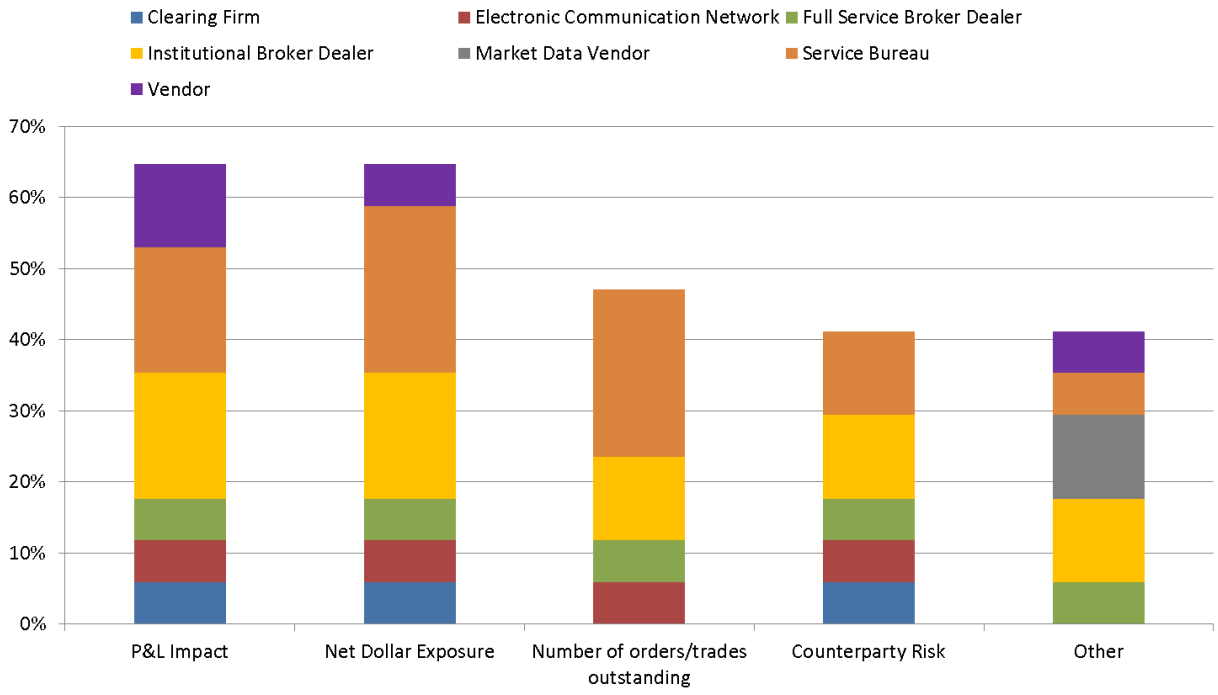
Once the issue has been identified, firms use varying methodologies to resolve these depending on the criticality of the issue. Firms were asked to indicate the methodologies that were used to correct errors identified in production. The choices were software/hardware kill switches, software rollback, standby production environment, fixing errors in production or changing configuration to route away problems. Figure 5 shows over 40% indicating always using a software rollback if an error was identified in production. Only 6% of respondents have always used a kill switch in production and 41% have occasionally used a kill switch. 41% of survey participants pointed out moderately using a standby production environment to correct errors in production and almost 50% occasionally fix errors in production depending on magnitude of impact.

Figure 5 - Error Correction Methodologies



When evaluating errors, survey participants chose P&L Impact and Net Dollar Exposure as the top two metrics, see Figure 6.

Figure 6 - Metrics Used When Evaluating Errors



Almost 50% of participants also specified using reputational risk and level of customer impact as additional error evaluation metrics.

Key personnel contribution

The survey covered questions concerning senior personnel involvement when implementing changes to systems and the assigned decision maker when a serious issue arises. Majority of the participants indicated the involvement of multiple areas spanning IT, Risk and operations groups. See Table 3 for detailed participant input.

Table 2 - Who Determines the Types of Operational Risk Scenarios for System Changes

Consultation between IT, Product Managers, and Operational Risk teams
This is done at the corporate level. We have a Corporate Information Security group that provides guidelines and mandates to ensure the security/safety of the system. We also adhere to the SSAE 16 standards (formerly SAS 70).
It is the collective responsibility of our Business Risk, IT and operations groups
The technology vendors determine this.
Operation Risk Scenarios are determined by a committee of members from the electronic trading division, compliance, and reviewed by senior management.
Change Advisory Board
Technology and the business.
Combination of Product Development and Risk Control
Product Management, infrastructure, development, quality assurance and support work together to make this determination.

When asked who the assigned decision maker and their back-up is when a serious issue occurs, over 75% of participants identified senior personnel responsible. Table 4 shows additional comments from participants.

Table 3 - Assigned Decision Maker to Address Serious Issues

Generally the MD in charge of a business area will make decisions regarding mitigation of major issues. Back-ups would be direct reports (MD/ED level) to that business head or business COO.
We have escalation procedures for issues, but a senior management team that includes the General Manager and representatives from, Operations, Development, SQA and Client Services get involved and make decisions when serious issue arise.
When a serious issue arises, our Brokerage Technology group assigns a Crisis Manager. The level of the assigned crisis manager varies according to the severity of the issue

Operations Manager; typically with escalation chain defined to top management if immediate fix is not obvious and/or consequences of decision are expensive
Primary Decision Makers: Operations Quotes Team Lead, Market Data Services Manager, Quote Systems Engineering Manager. Back-Up: Product Managers Market Data Analysts
Business head, Compliance, Technology
It is a team decision working across technical operations, development, customer service center and relationship management.
CTO, Risk Officer

Market stability issues and concerns

Participants of the FIF Market Stability Working Group tailored questions highlighting the complexities of the securities markets today by looking at issues for market stability and which actions are appropriate for addressing them. Survey participants were asked to rank issues they believed were most important for market stability. As shown in Table 5, there was consensus among firms on lack of robust exchange testing environment being the top issue with 94% ranking it high and medium. Inability to test in production and time permitted to implement market changes also ranked high and medium for almost 90% of firms.

Table 4 - Ranking of Market Stability Issues

	High	Medium	Low
Lack of robust exchange testing environment	53%	41%	6%
Complexity of installed software base	53%	24%	18%
Lack of transparency in case of major market outages	53%	24%	12%
Lack of mechanisms to minimize the impact of technology errors	47%	35%	12%
Inability to test in production	41%	47%	0%
Time permitted to implement market changes	41%	47%	12%
Enforcement of existing regulations	24%	41%	24%

Table 6 shows additional comments from survey participants regarding market stability issues.

Table 5 - Additional Issues for Market Stability

Ultimately pre-trade risk checks at the broker-dealer are the most important, followed by drop copy reconciliation and then venue-level shut-off mechanisms as the backup to the broker mechanisms.

Given overall systems complexity (e.g. varying degrees of participant sophistication) there are clearly risks and opportunities for unforeseen behavior because it is not feasible to test all scenarios or completely model possible behavior.
The test environment and the ability to test in production for anything other than NASDAQ test symbols is severely lacking. This needs to be improved. A robust test environment which mirrors as closely as possible the normal activities in the market should be provided by the exchanges and FINRA.
There is a need to identify potential weak points and drill recovery for those potential outages.

The last question of the survey looked for input surrounding actions that are appropriate to address market stability concerns.

Table 6 - Which Actions are Appropriate to Address Market Stability Concerns

	High	Medium	Low
Improve dissemination of market status from exchanges as problems are developing	65%	29%	6%
Exchanges should work with their members to develop better feedback loops with kill switch functionality at the exchange level	59%	35%	6%
Exchange SROs and FINRA should offer more robust testing to allow for worst case scenario test cases	59%	24%	18%
Single Stock Circuit Breakers/LULD functionality should apply at the market open as soon as possible	47%	29%	18%
Clearly erroneous rules should be reevaluated	35%	35%	29%
Market volatility dampening measures based on price and volume should be explored	24%	41%	35%
SEC's Automation Review Policy (ARP) should be extended to include major broker dealers and service providers	24%	24%	35%

More than 90% of firms indicated better SRO and FINRA participation is needed in status dissemination, feedback loops and kill switches. Extensive testing is always welcome and over 80% agreed on the need for robust testing to allow for worst case scenario test cases.

The FIF Market Stability survey, based on questions put forward by the Commission in the Roundtable agenda, aggregated member feedback and ideas that were also discussed by participants at the October 2nd SEC Technology and Trading Roundtable. To summarize the survey results, members provided input on:

- How firms analyzed technology changes in advance of a change with a majority of them performing worst case scenario analysis for new releases and on a periodic basis. Detailed analysis included analyzing the effect on system load and effect on bandwidth as the most popular practice among the participants.
- Identified various technologies and processes for identifying real-time issues and how firms identify, resolve and evaluate production issues. Firms today identify issues using a variety of application-specific and cross-application/central monitoring systems and evaluated errors using various methodologies ranging from P&L Impact and Net Dollar Exposure to reputational risk and customer impact.
- Identified key personnel contribution in reviewing risk scenarios for system changes and who the assigned decision makers are during a production issue. Senior personnel from multiple areas including IT, Risk and operations groups actively determine operational risk scenarios and act as the decision maker when a serious issue occurs.
- Ranked market stability issues and which actions are appropriate to address these concerns. Lack of robust exchange testing environment was the top concern for firms and increased SRO and FINRA participation in status dissemination, feedback loops and kill switches was the most popular action for addressing market stability.

We appreciate the opportunity to provide feedback to the Commission and look forward to participating in future discussions with the SEC on this important and timely topic. Please contact me at 212-652-4491 with any questions.

Regards,

Arsalan Shahid
Program Director, Financial Information Forum
On behalf of FIF Market Stability Working Group

Appendix 1: FIF Market Stability Survey

FIF Market Stability Survey

The Financial Information Forum (FIF) addresses the implementation issues that impact the financial information industry across the order lifecycle. FIF provides a collaborative environment for subscribers to benefit from technology, regulatory, and market innovations.

The purpose of the FIF Market Stability survey is to provide feedback to the SEC Market Technology Roundtable questions aimed at identifying the relationships between operational stability and the ways that market participants design, implement and manage complex and interconnected trading technologies.

Individual responses will not be attributed. Firm names will only be listed as survey participants unless they choose to remain anonymous. The final report of this survey will be available to all FIF members and survey respondents.

***1. Please enter your contact details. The following information will be used for tracking purposes only.**

Name:	
Organization:	
Title:	
Dept/Area:	
Email Address:	
Phone Number:	

***2. Please indicate your firm type**

- ○ Institutional Broker Dealer
- ○ Retail Broker Dealer
- ○ Full Service Broker Dealer
- ○ Broker Dealer (Other)
- ○ Market Data Vendor
- ○ Service Bureau
- ○ Exchange
- ○ Other

Other (please specify)

***3. Are you willing to be listed as a survey participant? (There will be no attribution of individual results)**

FIF Market Stability Survey

4. Which of the following do you believe are issues for market stability? What do you find most important?

	High	Medium	Low	Not an Issue
Lack of robust exchange testing environment	○	○	○	○
Inability to test in production	○	○	○	○
Complexity of installed software base	○	○	○	○
Time permitted to implement market changes	○	○	○	○
Enforcement of existing regulations	○	○	○	○
Lack of mechanisms to minimize the impact of technology errors	○	○	○	○
Lack of transparency in case of major market outages	○	○	○	○

Other (please discuss)

5. How often does your firm conduct worst case scenario analysis/testing to understand the impact of internal/external changes on your technology environment?

- ○ Does not conduct worst case scenario analysis
- ○ For new releases only
- ○ For new and installed releases on a periodic basis. Please provide frequency of analysis in comments section

Comments

FIF Market Stability Survey

6. What type of analysis do you conduct during the development and design phase of a new enhancement/capability to account for increased bandwidth or message traffic increase? What do you find most useful?

	Most Useful	Somewhat Useful	Not Useful	Not Performed
Effect on latency	○	○	○	○
Effect on bandwidth	○	○	○	○
Effect on system load	○	○	○	○
Worst case scenario (identifying impact)	○	○	○	○
Fire drills (simulating response)	○	○	○	○
Positive feedback loop (reacting to multiplier effect of changes)	○	○	○	○

Other (please discuss)

7. Who determines what types of operational risk scenarios a system must be able to withstand and what level of robustness?

FIF Market Stability Survey

8. What types of technologies or processes are you using today for real-time identification of issues/erroneous activity? Select all that apply.

- ☐ Incident Management (sub portion of ITIL)
- ☐ Complex Event Processing software
- ☐ Application-specific monitoring systems
- ☐ Cross-application/Central monitoring system

Other (please discuss)

9. What metrics do you consider when evaluating errors? Select all that apply.

- ☐ P&L Impact
- ☐ Net Dollar Exposure
- ☐ Counterparty Risk
- ☐ Number of orders/trades outstanding
- ☐ Other

Other (please discuss)

FIF Market Stability Survey

10. What methodologies have you used for correcting errors that were identified in production?

	Never	Occasionally	Moderately	Always
Software/hardware kill switch	○	○	○	○
Software Rollback	○	○	○	○
Standby production environment	○	○	○	○
Fix errors in production depending on magnitude of impact	○	○	○	○
Changing configuration to route away problems	○	○	○	○

Other (please discuss)

11. Who is the assigned decision maker (e.g. titles / departments) when a serious issue arises? Who is the back-up?

FIF Market Stability Survey

12. Which of the following actions do you think are appropriate to address market stability concerns? Specify their importance.

	High	Medium	Low	Not worth exploring
Exchanges should work with their members to develop better feedback loops with kill switch functionality at the exchange level	○	○	○	○
Single Stock Circuit Breakers/LULD functionality should apply at the market open as soon as possible	○	○	○	○
Exchange SROs and FINRA should offer more robust testing to allow for worst case scenario test cases	○	○	○	○
Market volatility dampening measures based on price and volume should be explored	○	○	○	○
Clearly erroneous rules should be reevaluated	○	○	○	○
SEC's Automation Review Policy (ARP) should be extended to include major broker dealers and service providers	○	○	○	○
Improve dissemination of market status from exchanges as problems are developing	○	○	○	○

Other (please discuss)