September 27, 2012

Elizabeth M. Murphy
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549-1090

RE: File No. 4-652; Market Technology Roundtable

Dear Ms. Murphy:

BATS Global Markets, Inc. ("BATS") appreciates the opportunity to comment on the above referenced market technology roundtable. Recent high profile technology failures provide the industry with an opportunity to examine the current state of automation and consider best practices designed to prevent, detect, and mitigate the impact of failures.

BATS deploys robust development and monitoring processes over its automated systems; however, from time to time technology problems occur. Even when technology problems are similar – e.g., "a single line of code" – their impact can differ dramatically. For example, as you are aware, BATS experienced a technology failure on March 23, 2012, in connection with the operation of new software designed to conduct an IPO auction in support of our corporate listings program. This "single line of code" programming bug caused the matching engine for ticker symbols in the range A to BFZZZ to enter into an infinite loop, which in turn made those symbols inaccessible on BATS.

The national market system demonstrated its resilience that day; the inability to access those symbols on BATS had little effect on the trading in these symbols elsewhere as members seamlessly redirected their trading to other venues.[*] But while this event was not impactful to the overall market, it was impactful to BATS, resulting in us agreeing to withdraw our IPO, which was to be BATS' first corporate listing. While those consequences are well known, the

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[*]   Rule 611(b) of Regulation NMS permits market participants to ignore better priced quotes at a trading center that is experiencing "a failure, material delay, or malfunction of its systems or equipment," and market participants are entitled under the concept of "self help" to determine for themselves when such a failure is occurring. As a result of several years of experience under Regulation NMS, the industry is accustomed to declaring self help on an exchange and rerouting orders to other trading centers. In fact, according to the New York Times, during 2011 there were 139 instances in which industry participants declared self help against an exchange. (Nathaniel Popper, *Stock Market Flaws Not So Rare, Data Shows*, N.Y. Times, March 28, 2012, at B1). Each of these instances represents some form of systems problem at an exchange, but given the resilience in the overall national market system, these events generally have no impact on the market.

effort that went into the development and testing of the code at issue is not. The IPO auction software at issue underwent more than a year of development and internal testing, as well as live testing in a certification environment with a broad set of our exchange members for months prior to March 23rd. Finally, test symbols were used in our live production environment for several weeks specifically testing multiple scenarios for the BATS IPO. Through this testing, errors in the code were identified and remediated. However, the actual combination of orders that triggered the bug at issue on March 23rd had not been encountered in this testing.

The fact that technology errors may be unavoidable, though, does not mean that the industry shouldn't do more to prevent them. BATS assumes that all industry participants conduct standard testing of new code; however, test cases that are developed to exercise code are subject to human error and omissions. BATS has several ideas for enhancements that could be made throughout the industry for the testing of new trading code and products:

1. Before a broker-dealer launches a new algorithm or a trading center introduces a new order type, the broker-dealer or trading center should ensure that there has been adequate user acceptance testing and experience with the new code or order type in a certification environment. The length of time for such testing could be variable based on the complexity of the code or the order type, but the broker-dealer or trading center should follow reasonable policies and procedures to determine the duration each new strategy or order type should operate in test and certification environments prior to production rollout.

2. Although user acceptance and certification testing are critical, they are not a substitute for real experience in a production environment. In this regard, several exchanges, including the exchanges operated by BATS, support test symbols in their production environments. BATS believes all exchanges should be required to support test symbols in their production environments, which would enable broker-dealers to gain invaluable, real-world experience with new algorithms or order types.

3. Complex trading algorithms and order types should be subject to staged rollouts into live symbols where possible. Staged rollouts can further assist in the identification of problems before they cause catastrophic impact.

4. BATS suggests that industry participants consider ways to develop additional internal tools to augment existing peer reviews and quality assurance processes. In particular, BATS believes compliance and other business units within a broker-dealer or trading center should have the ability to run tests on new and existing code to analyze the output against the business requirements associated with the code. The advantage of developing such tools would be to help bridge the knowledge gap between developers and compliance or other business units regarding the federal rules, exchange rules, or business requirements at issue with the trading algorithm or order type and assist in diagnosing problems before they occur.

Again, despite our best efforts to eliminate them, we must acknowledge that technology problems are inevitable within complex systems. We should always strive to ensure adequate safeguards to prevent and minimize their occurrence. Of equal importance, however, is being prepared to mitigate the impact of a technology problem when one occurs.

BATS regrets its technology failure on March 23rd; however, BATS believes that the manner in which it handled that failure minimized the broader market impact of this event and prevented investor harm. Since then, through multiple internal reviews, we have further enhanced our robust trading technology, policies and procedures, and have a few ideas for consideration related to the handling of a technology crisis:

1. Market participants should maintain policies and procedures regarding the handling of critical situations and then train against those policies and procedures in mock sessions on a regular basis. Proper training can eliminate time otherwise lost in assigning specific tasks and responsibilities during a crisis, and thus minimize the impact of the crisis.

2. Not every type of problem can be anticipated, but it is possible to monitor in real time for indications of those that are likely to cause the greatest disruption or harm. For example, monitoring can be built into automated systems to alert operations personnel at the first indication of an unresponsive, or "looping," process to ensure a timely response. Similarly, with respect to orders routed into the marketplace, firms should take drop copies directly from the market into a process independent from the order routing process to conduct real time reconciliation of a firm's known trading activity against what a trading center believes was traded with the firm.

3. As a securities exchange operator we have overriding regulatory obligations to maintain fair and orderly markets. As such, we need to measure our actions in recovering from a technology crisis against potential negative impacts to our customers and the broader national market system. If there is a chance that recovery during the trading day may contribute to greater market disruption, we need to be prepared to make a difficult decision to stay out of the market, ask members to route away, and minimize the potential for broader downstream effects.

4. Know who your key stakeholders are and be prepared as part of your crisis planning to reach out to them and keep them informed in as near real time as possible – at a minimum this means your customers and your regulators, but could also include other participants in the national market system, including issuers and investors. In the case of the exchanges, we maintain an open line of communication with each other throughout the trading day, which can and should be used to communicate during a significant technology crisis.

There has been much discussion in the industry in recent weeks of so-called "kill switches" being implemented at the exchanges that would enable the exchanges to terminate a broker-dealer's trading activity in an automated fashion if pre-defined thresholds are met, such as

security volume-based measurements or calculations of a broker-dealer's maximum net notional value traded, that may be indicative of a technology problem or other error. The advantage of such an approach is obvious in so much as a kill switch could add an independent and redundant check on each broker-dealer's own system safeguards.

BATS generally supports the implementation of kill switches at the exchanges and has separately joined an industry comment letter that addresses the issue in some detail. However, BATS would like to note some concerns it has with kill switches that should be considered by the industry in the context of any rule-making in connection with their potential implementation. Specifically, although BATS would support independent kill switches implemented at each of the exchanges, BATS is concerned about the additional complexity and associated potential unintended consequences of independent and uncoordinated controls at each exchange. With independent kill switches, each exchange would be limited to monitoring and acting upon the trading on its exchange only. The effect of this limitation could be the inappropriate invocation of a kill switch in response to legitimate trading activity migrating from one exchange to another, possibly when another exchange is experiencing a technology problem. BATS is concerned that the invocation of a kill switch in such a scenario could be disruptive to legitimate trading activity and could have a negative follow-on effect on the broader market. Alternatively, to avoid such a false positive, the thresholds for invoking a kill switch might be so high that they fail to adequately shut down trading under the circumstances for which they were intended.

BATS believes that a more appropriate long term safeguard would involve market-wide position limits monitored in real time by the DTCC, and enforced by the exchanges and FINRA. The advantage to such an approach would be to centralize the monitoring of the thresholds to a single point that has all relevant information on each clearing broker-dealer and which can then instruct the exchanges and FINRA, in a coordinated manner, to simultaneously halt a broker-dealer's trading activity. BATS understands that the DTCC could not monitor position limits in real time today because it does not currently receive trade reports in real time from all clearing firms. BATS also understands that the DTCC has previously proposed rules to increase the incidences of real time reporting, and BATS believes the Commission and the industry should examine what steps it would take to achieve 100% real time trade reporting to DTCC and take steps to achieve this goal.

Regardless of whether exchanges implement independent kill switches or a centralized kill switch based on DTCC monitoring of position limits, broker-dealers are best positioned to assume responsibility over their trading systems and order routing. From a regulatory standpoint, exchange kill switches should be considered solely as an additional safeguard and not as a substitute for a broker-dealer's own required risk management policies and procedures. Moreover, because of the potential liability associated with the decision to invoke or not invoke a kill switch, the kill switch thresholds must be objective and the exchanges must be protected from claims of losses.

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       BATS appreciates the opportunity to comment on the Commission's Market Technology Roundtable. Please feel free to contact me if you have any questions in connection with matter.

Sincerely,

Eric Swanson
General Counsel and Secretary

Cc: The Hon. Mary L. Schapiro, Chairman
       The Hon. Elisse B. Walter, Commissioner
       The Hon. Luis A. Aguilar, Commissioner
       The Hon. Troy A. Paredes, Commissioner
       The Hon. Daniel Gallagher, Commissioner
       Robert W. Cook, Director, Division of Trading and Markets
       James Burns, Deputy Director, Division of Trading and Markets
       David Shillman, Associate Director, Division of Trading and Markets