

Consolidated Audit Trail National Market System Plan

Request for Proposal

March 3, 2014
Version 3.0

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1 Request for Proposal Overview

The objective of this request for proposal (RFP) document is to obtain detailed information on the Bidder's abilities and expected cost to build, operate, administer and maintain the consolidated audit trail (CAT), as described herein, and provide related services. This document contains the CAT technical, business and operational requirements, as well as the information that must be provided by Bidders in response to the CAT RFP. In addition, this document contains the key criteria on which Bidders may be evaluated. The content and information in this document are the property of the self-regulatory organizations (SROs¹) developing the National Market System (NMS) Plan (NMS Plan).

This document provides a roadmap of the technical, business and operational processes that must be put in place to comply with Securities Exchange Act Rule 613 (Rule 613), which was adopted by the Securities and Exchange Commission (SEC) in July 2012. The document is organized into three sections covering the following:

- RFP Overview: This section provides an overview of the RFP process, evaluation criteria and instructions for Bidders to respond to this RFP
- Description of CAT Requirements: This section provides an overview of the governance and oversight framework of the CAT and specifies the technical, business and ongoing operational requirements of the CAT. This section includes:
 - The functions performed by the SROs, in the governance of the CAT (known hereafter as the "NMS Plan Participants") and the selected Bidder
 - The functions to be performed by the selected Bidder
 - The key data elements (and associated data sources) that must be captured by the CAT
 - The processing and data repository requirements for the initial launch of the CAT, including the level of testing and quality assurance (QA) expected from the Bidder
 - The ongoing operational requirements of the CAT, including the operational and compliance reporting mechanisms for SRO regulatory staff and the SEC
- RFP Response: This section defines the specific items that a Bidder is required to provide related to its proposed solution to meet the requirements of the CAT

The SROs are seeking a stand-alone bid that addresses all of the technology, business and operational requirements included in this RFP. The SROs will consider bids that include subcontractors, provided that any such subcontractors are directly overseen by the Bidder. The Bidder will be solely responsible for the performance and oversight of any subcontractors and would assume liability for any actions of any subcontractors in its role as the CAT service provider. The Bidders must identify in the RFP response all subcontractors and their roles.

The SROs are committed to the transparency of the RFP process and to providing a fair environment for all potential Bidders. SROs are potential Bidders and some personnel of the potential SRO Bidders may be involved in both the SROs' joint efforts as a consortium implementing the CAT and the individual SRO's RFP response.

¹ As required by Rule 613, the SROs responsible for developing the CAT NMS Plan are the equities and options securities exchanges and FINRA. Currently this includes the following: BATS Exchange, Inc.; BATS Y-Exchange, Inc.; BOX Options Exchange LLC; C2 Options Exchange, Incorporated; Chicago Board Options Exchange, Incorporated; Chicago Stock Exchange, Inc.; EDGA Exchange, Inc.; EDGX Exchange, Inc.; Financial Industry Regulatory Authority, Inc.; International Securities Exchange, LLC; Miami International Securities Exchange, LLC; NASDAQ OMX BX, Inc.; NASDAQ OMX PHLX, Inc.; NASDAQ Stock Market LLC; National Stock Exchange, Inc.; New York Stock Exchange LLC; NYSE Arca, Inc.; NYSE MKT LLC; and Topaz Exchange, LLC.

1.1 CAT Background

Rule 613 requires the SROs to jointly file an NMS Plan with the SEC to govern the creation, implementation and maintenance of the CAT, including a central repository to receive and store CAT data for NMS securities, as well as the potential for non-NMS securities as the scope of the CAT expands. As described in more detail later in this document, the SROs must include in the NMS Plan a complete technology solution, as well as the business, administrative and operational infrastructure required to create and oversee the technology solution. Additionally, the NMS Plan must include a process to monitor compliance with Rule 613 by all entities required to submit data to the CAT (i.e., CAT Reporters).

Rule 613 requires that the NMS Plan filed with the SEC include a cost-benefit analysis describing all of the approaches considered by the SROs to create, implement and maintain the CAT. In order to effectively perform this cost-benefit analysis, the SROs believe it is necessary to solicit bids from interested parties to create, implement and maintain the CAT so that all possible technology alternatives can be identified and the costs and benefits of each alternative analyzed. While this RFP will contain the core requirements and include certain specifics, the SROs welcome responses that reflect ideas and innovations that may not be raised in this document or that deviate from suggested approaches, as long as they adhere to the requirements of Rule 613.

Bidders must be mindful that once an entity is selected as the CAT processor, pending approval by the SEC of the NMS Plan submitted by the SROs, the selected Bidder will be required to develop detailed reporting and interface specifications and submit them to the NMS Plan Participants for approval before implementation can begin.

1.2 Project Scope

Rule 613 tasks the NMS Plan Participants with the creation of a data repository that is capable of receiving, consolidating and retaining a complete record of all transactions relating to each order in an NMS security, from receipt or origination through execution and/or cancellation. This data repository will be used by SRO regulatory staff and the SEC for surveillance, investigations and other regulatory activities.

While Rule 613 identifies several potential uses of the data (e.g., market reconstruction and surveillance), it assigns such tasks to the SROs and the SEC and not to the CAT itself. Rule 613 describes these potential uses of the data to assist in identifying the scope and form of data to be captured, processed and stored in the repository, but does not state that these tasks must or will be performed by the CAT itself. Further, data captured and stored by the CAT will be used only for regulatory purposes by SRO regulatory staff and the SEC.

Bidders should note that some sections of Rule 613 will not be a function of the CAT service provider; therefore, there are topics found in Rule 613 that are not covered in this RFP. For example, Rule 613 discusses the synchronization of clocks throughout the industry. Although this aspect will apply to the CAT service provider, the full scope of this requirement will be covered in the NMS Plan that applies to the industry as a whole.

Per Rule 613, the NMS Plan must include a plan to eliminate existing systems (or components thereof) that will be rendered duplicative by the CAT. While it is anticipated that the CAT will have significant overlap with existing regulatory reporting systems, such as Electronic Blue Sheets (EBS) and FINRA's Order Audit Trail System (OATS), complete elimination of these systems cannot be achieved until all information and products captured by these systems are included in the CAT. The selected Bidder must work closely with the NMS Plan Participants and the industry to identify the information that needs to be captured by the CAT in order to eventually retire EBS, OATS or other

systems. The CAT architecture must be flexible and scalable to efficiently support future expansions to add new data sources and/or new data categories.

The NMS Plan Participants are seeking bids from potential CAT service providers not only to build the CAT functions described in this document, but also to perform business and technology operations, administration and maintenance activities for the CAT on an ongoing basis for at least the minimum period of time as described in this document.

1.3 General Conditions

This RFP is not an offer to contract. Acceptance of a proposal neither commits the SROs to award a contract to any Bidder (even if all requirements stated in this RFP are met), nor limits the SROs' right to negotiate in their best interest. The SROs reserve the right to contract with any Bidder for any reason.

The timelines provided herein are subject to change at the sole discretion of the SROs. The SROs also reserve the right to communicate with the respondents of this RFP formally and informally and to request additional information.

1.4 Right of Rejection

The SROs reserve the right to accept or reject any or all responses to this RFP, in part or in total, and to enter into discussions and/or negotiations with one or more qualified Bidders at the same time, if such action is in the best interest of the SROs.

1.5 Cost of Proposals

Expenses incurred in the preparation of responses to this RFP are the sole responsibility of the Bidder.

1.6 Business Knowledge

Bidders responding to this RFP must have knowledge of securities and market data, order routing, order events (e.g., cancellation and modification), the lifecycle of an order and the data elements associated with an order. Additionally, Bidders must be familiar with Rule 613 and understand the intent of Rule 613.

1.7 RFP Response Instructions

Bidders must respond to all of the questions contained in Section 3 of this document. Bidders must follow the section flow in their responses and copy each question, followed by an associated response. Note that some response sections may give specific instructions for the response (e.g., a diagram or flow chart). Bidders must use Arial Italic 10 pt. font for the question and Arial Normal 10pt. font for their responses.

The Bidder must indicate that all functionality and system characteristics listed in Section 2 are met in the RFP response. The Bidder must describe any deviation from the requirements in the RFP response. The Bidder must be specific and detailed when responding to each of the questions. When appropriate, the Bidder should reference its experience respective to the delivery of the requirements.

Bidders' responses must be prepared in electronic format in Adobe PDF. Diagrams and process flows may be presented in Microsoft PowerPoint, Microsoft Visio and/or Adobe PDF.

Bidders are to submit their response via email to CATRFP@deloitte.com by 5:00 P.M. Eastern Time on April 25, 2013. When submitting the electronic copy of the response, the Bidder must ensure that the size of any single submission does not exceed 20 MB (multiple submissions will be accepted). All supporting materials and documentation must be included with the response. Bidders will receive an acknowledgement that their bids have been successfully received.

1.8 RFP Timeline

In accordance with the NMS Plan, the NMS Plan Participants will select a Bidder to perform or oversee the functions described in this document. Formal selection of a Bidder is subject to SEC approval of the NMS Plan. The anticipated RFP timeline is as follows, but is subject to change as deemed necessary by the SROs:

RFP Milestone	Date
RFP publication	February 26, 2013
Intent to Bid submission	March 5, 2013
Bidders Conference	March 8, 2013
RFP response due	April 25, 2013
RFP selection process	April 26, 2013 through June 2013
Preliminary selection of Bidder	July 2013
NMS Plan filed	December 2013
Formal selection of Bidder	Within two months of SEC approval of NMS Plan

1.9 Evaluation Criteria

Bidders will be evaluated based on their experience, expertise, industry knowledge and financial strength, as well as the ability to deliver proven solutions. Key evaluation criteria may include the following:²

- Ability to clearly and effectively communicate CAT reporting requirements to business, regulatory and technology constituents
- Experience and expertise of key personnel used in the Bidder's solution
- Experience with, and knowledge of, securities markets, in addition to order and execution practices
- Experience with processing large volumes of complex data
- Ability to demonstrate proven and robust practices for maintaining data security
- Ability to identify information/data needed to support regulation of new trading practices, market structure changes and new SEC and SRO rules as they evolve
- Architecture, design and technical approach(es) that effectively address all stated CAT requirements and are adaptable to meet future demands of the CAT
- Expected system build, maintenance and operational costs
- Expected CAT business and administrative costs

² Unless otherwise stated, there is no relation in bulleted lists in this RFP between the order of items and their evaluation priority or weighting.

- Scalability of the solution to adapt to changes and growth of the CAT in a timely, efficient and cost-effective manner
- Development, integration and quality assurance practices and approaches that demonstrate the ability to implement a complete systems and software development lifecycle
- System and business contingency plans (e.g., comprehensive disaster recovery)
- Ability to expertly, efficiently and effectively establish and manage operational, technology, financial, human resource, compliance and legal business functions, among others
- Ability to mitigate/lessen the impact of the solution on the industry

1.10 Guiding Principles of the RFP

In creating the CAT pursuant to Rule 613, the SROs have developed the following Guiding Principles:

- The CAT must meet the specific requirements of Rule 613 and achieve the primary goal of creating a single, comprehensive audit trail to enhance regulators' ability to surveil the U.S. markets effectively and efficiently
- The reporting requirements and technology infrastructure developed must be adaptable to changing market structures and reflective of trading practices, as well as scalable to increasing market volumes
- The costs of developing, implementing and operating the CAT should be minimized to the extent possible. To this end, existing reporting structures and technology interfaces will be utilized where practical
- Industry input is a critical component in the creation of the CAT. The SROs will consider industry feedback before decisions are made with regard to reporting requirements and cost allocation models

Additional materials regarding CAT concepts presented in this document have been published on <http://www.catnmsplan.com>.

1.11 Proposal Process Administration

1.11.1 Intent to Bid

All Bidders must indicate their intent to bid by completing an Intent to Bid form and submitting it to the SROs. No Bidder will be allowed to participate in the bid process unless it submits this form. The form (found in Appendix I of this document) must be completed and sent via email no later than 5:00 P.M. Eastern Time on March 5, 2013 to CATRFP@deloitte.com.

For transparency purposes, all identified Bidders will be published on the <http://www.catnmsplan.com> website.

1.11.2 RFP Questions

Questions received through the CATRFP@deloitte.com mailbox will be responded to in writing within five business days. Questions submitted less than five days prior to the RFP response deadline may not be answered. Questions received and responses will be provided to all Bidders via the <http://www.catnmsplan.com> website, even if a Bidder has requested that its question(s) and corresponding response(s) not be disseminated. The Bidders that asked the questions will not be identified.

As deemed necessary, the SROs will host periodic calls throughout March and April so that Bidders may ask questions. Questions raised during such calls that have not been responded to previously by

the SROs in writing and that the SROs believe are essential in responding to the RFP will be disseminated to all Bidders in writing within two business days of each call.

It is the responsibility of the Bidder to seek clarification from the SROs on any matter it considers to be unclear. The SROs shall not be responsible for any misunderstanding on the part of the Bidder concerning the RFP or its process.

1.11.3 Bidders Communications

Except for the Bidders Conference, all communications between Bidders and the SROs will be facilitated through the CATRFP@deloitte.com mailbox.

1.11.4 Confidentiality of RFP Responses [New as of September 27, 2013]

The RFP responses or parts thereof will be subject to disclosure in the following circumstances:

1. The NMS Plan, and related SEC filings in connection with SEC approval of the NMS Plan, will include descriptions of the RFP responses, which may be made anonymous and, in some cases, may be specific and include or imply the identity of a Bidder.
2. To the extent a Bidder is concerned about maintaining the confidentiality of proprietary and other sensitive information (Proprietary Information) contained in the RFP response, the Bidder must:
 - a. As part of the RFP response, include an executed non-disclosure agreement (NDA) with the SROs in the form specified by the SROs. The NDA will include, among other things, provisions permitting disclosure of the full bids to the SEC on request (which will be submitted to the SEC pursuant to a Freedom of Information Act request, if appropriate). Bidders must submit signed NDAs to the CATRFP@deloitte.com mailbox no later than November 15, 2013 so that SROs can countersign and return to Bidders in advance of the submission of their bids. Bids will not be accepted without a fully executed NDA in place.
 - b. Identify clearly, using double square brackets, the Proprietary Information in a copy of the RFP response submitted along with the RFP response.
 - c. Limit the Proprietary Information to (a) specific phrases and words to the extent practicable, and (b) the following types of information:
 - (i) confidential personnel information;
 - (ii) details of information security architecture or other security-related matters;
 - (iii) information prohibited from public disclosure by law; and
 - (iv) information containing trade secrets or other confidential commercial or financial information.
 - d. For each instance of Proprietary Information identified by the Bidder, include a notation that identifies the category (as set forth in Section 2.c. above) to which such Proprietary Information corresponds. Upon request by the SROs, a Bidder shall also substantiate the specific basis(es) for its position that any information identified as Proprietary Information is properly classified.
3. The nature and extent to which Proprietary Information will have to be disclosed by Bidders will vary as the bidding process continues, and the need for disclosure is likely to increase at each stage in this process. The SROs may, at any time, request that a Bidder reconsider its characterization of certain information as Proprietary Information if the SROs conclude that the information must be disclosed in the NMS Plan or in associated filings. Bidders should be aware that a Bidder's unwillingness to disclose the information, to the extent the SROs deem necessary and appropriate pursuant to SEC Rule 613 and the NMS Plan, in the NMS Plan or in associated filings may impact the SROs' ability to select the Bidder as the CAT processor.

4. The Bidder selected as the CAT processor will be subject to continuing disclosure obligations, and disclosure of Proprietary Information may be required, not only in connection with the NMS Plan and associated filings for approval of the NMS Plan, but also on an ongoing basis following selection and as part of the establishment and operation of the CAT. Bidders should consider this requirement in the preparation of the RFP response. In order to be eligible to be selected as the CAT processor, a Bidder must agree to such disclosure of its operations, including the disclosure of Proprietary Information that the SROs determine is necessary and appropriate pursuant to SEC Rule 613 and the NMS Plan.

1.12 Bidders Conference

A meeting will be scheduled for March 8, 2013 to conduct an open discussion and respond to questions related to the RFP. This meeting will only be open to Bidders who have submitted the Intent to Bid form.

1.13 Bidder Selection

The SROs reserve the right to request clarification of any Bidder's proposal as they see fit. Clarification may take the form of a written request or in-person meeting. Bidders must respond to these requests in a timely manner in order to not delay the selection process.

2 CAT Requirements

2.1 Description of the CAT Oversight and Management Structure

The NMS Plan Participants are seeking to contract with a CAT service provider concerning the overall operation and administration of the CAT, including all technology requirements. Figure 1 represents the proposed CAT oversight structure. The selected Bidder will operate under the direct oversight of the NMS Plan Participants, who are ultimately responsible for compliance with Rule 613. As part of the oversight structure, an Advisory Committee will be established by the NMS Plan Participants. The role of the Advisory Committee will be to advise the NMS Plan Participants on the implementation, operation and administration of the CAT.

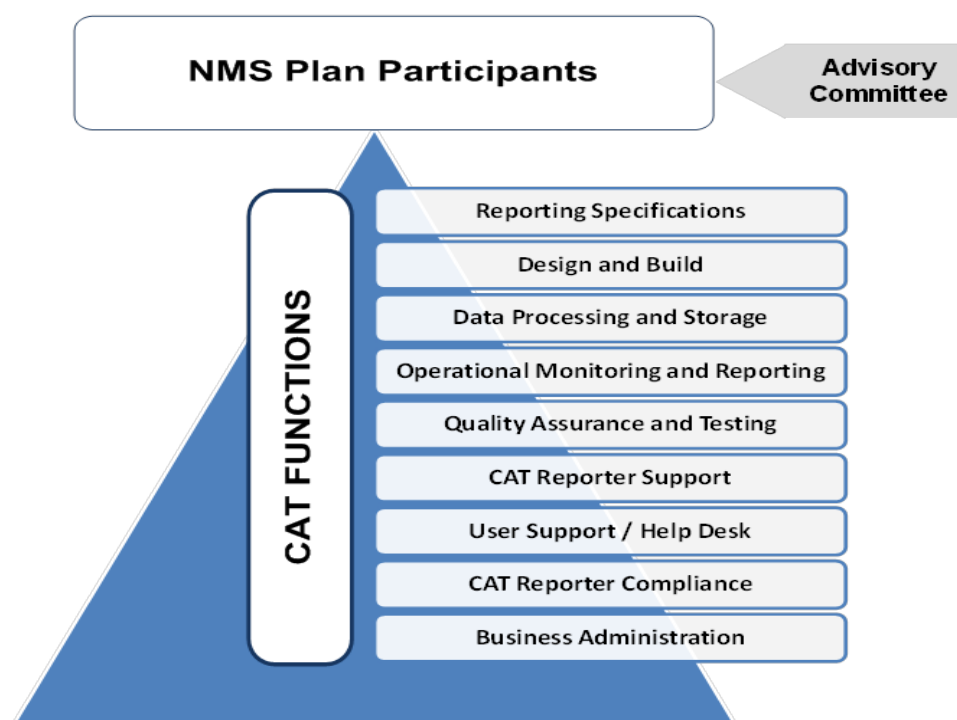


Figure 1: CAT oversight structure

The potential Bidder will have professional staff (CAT staff) that will be responsible, under the oversight of the NMS Plan Participants, for the overall administration and operation of the CAT. The staff will include a senior executive level chief compliance officer (CCO), as required under Rule 613, who will regularly review the operation of the CAT to assure its continued effectiveness in light of market and technological developments and make appropriate recommendations for enhancements to the nature of the information collected and the manner in which it is processed. CAT staff will routinely interface with a wide variety of internal and external constituencies and play a key role in the development of CAT reporting guidance and education of CAT Reporters on CAT reporting requirements. The responsibilities of the CAT staff will include, but not be limited to:

- Ensuring that the CAT operates as intended and meets the requirements of Rule 613
- Developing, obtaining NMS Plan Participants' approval of and implementing detailed supervisory and operational written policies and procedures for all CAT functions
- Reporting to and taking direction from the NMS Plan Participants that will oversee the CAT
- Providing reports and other information to the NMS Plan Participants to support their CAT oversight responsibility
- Working with SROs and the SEC to develop detailed reporting guidance that complies with Rule 613 and reflects current trading practices

- Monitoring SRO and SEC rule-making to identify changes that will affect CAT reporting requirements and developing new CAT reporting guidance as necessary
- Representing the CAT in relevant industry forums
- Authoring notices, frequently asked questions (FAQs), educational materials, technical materials and interpretive guidance to communicate reporting requirements to CAT Reporters
- Planning and coordinating industry events to educate CAT Reporters on CAT changes
- Soliciting industry feedback regarding ongoing CAT enhancements and changes
- Supporting CAT Reporters, SRO regulatory staff and the SEC with operational and technical issues
- Monitoring the data quality and performance of CAT Reporters
- Providing support as necessary to assist the NMS Plan Participants and SEC in overseeing the performance and compliance of CAT Reporters, including referring CAT Reporters exceeding maximum allowable errors to the relevant SRO for further review and possible enforcement action

2.2 Overview of Processing and Repository Data Flows

The objective of Rule 613 is to create a comprehensive central repository of order, quote and trade data that can be accessed and used by SRO regulatory staff and the SEC to oversee securities markets in the United States. This section describes how order, quote and trade data from broker-dealers, SROs and relevant industry utilities must be ingested, processed and stored to create the central repository to be used by SRO regulatory staff and the SEC. CAT Reporters will be required to submit data to the CAT in accordance with uniform interface and technical specifications designed by the selected Bidder. It is anticipated that there will be separate uniform specifications for exchanges, FINRA and broker-dealers.

The following diagram provides a high-level overview of how broker-dealer order events, customer/account information, exchange quote and order events, FINRA transaction data and other supplemental data (e.g., National Best Bids and Offers (NBBOs) and administrative messages) would flow through the CAT environment and be validated, enriched and stored for regulatory use by SRO regulatory staff and the SEC.

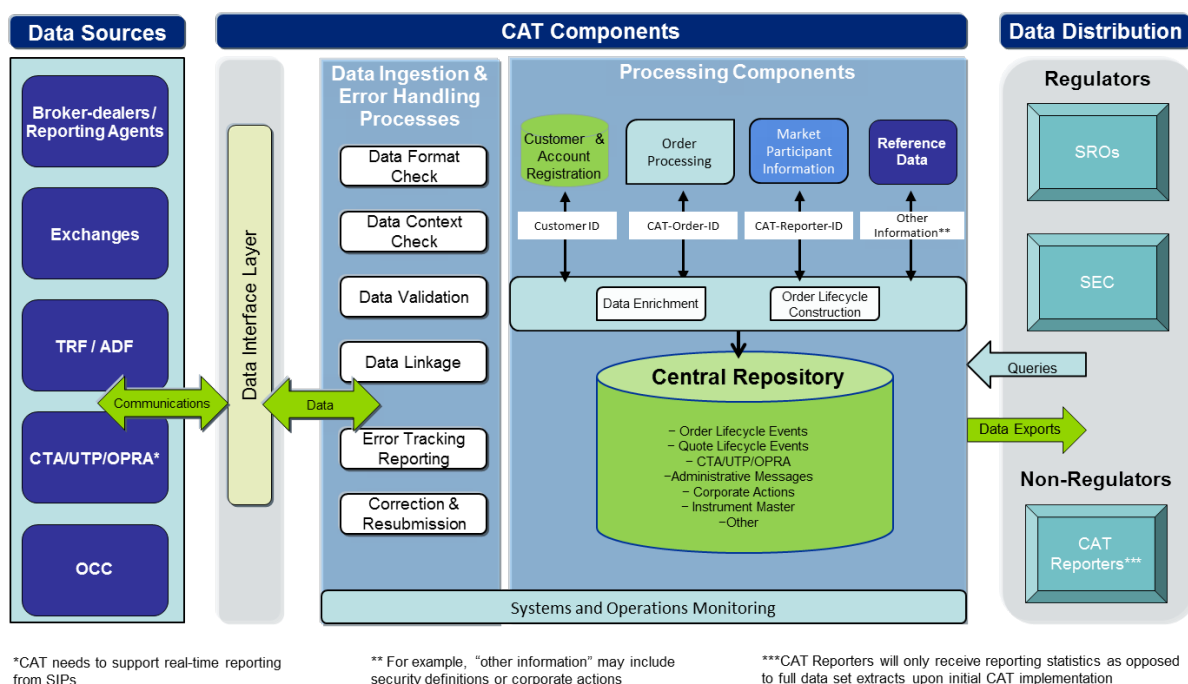


Figure 2: Overview of CAT data flows and processing components

2.2.1 Processing and Repository Requirements

Once data is ingested and validated, it must be processed to create the complete lifecycle of each order and be securely stored in a central repository in a manner that facilitates efficient and effective use of the data by SRO regulatory staff and the SEC. Required processing must be completed within established timeframes so that data is promptly available for regulatory use. This section contains the functional and technical requirements for the processing and storage of CAT data.

2.2.2 Customer and Account Information Management

2.2.2.1 Customer and Account Database

The CAT must capture and store customer and account information required by Rule 613. At a minimum, a database containing information of sufficient detail to identify each customer must be created and made available to enrich order data with customer and account information for use by SRO regulatory staff and the SEC in both targeted queries and comprehensive data scans. The SROs have proposed an approach that would require the CAT to process and store all accounts and associated customer information from all broker-dealers.³ Details of this approach are in the Proposed RFP Concepts Document available at <http://www.catnmsplan.com>. Bidders should assume that full account lists will be periodically submitted in addition to the daily updates to ensure the completeness and accuracy of the account database.

Broker-dealers will be required to include in the account and customer information submitted to the CAT sufficient detail for the CAT to uniquely and consistently identify each customer across all broker-dealers. This information will include, at a minimum for natural persons, social security number (SSN) or Individual Taxpayer Identification Number (ITIN), date of birth, name and address. For legal entities

³ Certain proposed approaches included in this RFP may require approval by the SEC before being implemented. Any alternative approaches proposed by Bidders will be considered, provided they fulfill the requirements of Rule 613.

this information will include, at a minimum, the Legal Entity Identifier (LEI) if available, tax identifier, full legal name and address. The exact data elements and formats that must be submitted for the required account and customer information will be developed by the Bidder and approved by the NMS Plan Participants. The Bidder will also be required to design and implement a robust data validation process for the submission of customer and account information. Basic customer information, such as name and address, will be available to the regulatory staff of SROs and the SEC for use in routine reviews and analysis. Personally identifiable information (PII), such as customer SSN, date of birth and tax identifier numbers, must have a separate set of permissions so that only the regulatory staff with entitlements to view PII is able to retrieve and/or view PII.

The CAT processor must have procedures in place to handle both minor and material inconsistencies in customer information. Minor data discrepancies such as variations in road name abbreviations would be resolved within the CAT processor. Material inconsistencies such as two different people with the same SSN must be communicated to the submitting CAT Reporters and resolved within the error correction timeframe described in Section 2.2.4 of this document.

2.2.2.2 Customer ID

Using the proposed approach described above, the Bidder must use the account and customer information submitted by all broker-dealer CAT Reporters to assign a unique Customer ID for each customer. The Customer ID assigned by the CAT must be unique for each customer but consistent across all broker-dealers that have an account associated with that customer. This unique CAT-assigned Customer ID will not be returned to CAT Reporters and will only be used internally by the CAT.

PII must be stored in a highly secure manner separately from the account and customer database that will be used for routine review and analysis by SRO regulatory staff and the SEC. If, during the course of a regulatory review or investigation, it is necessary for SRO regulatory staff or the SEC to obtain PII, it will be provided only to authorized users pursuant to a stringent review and approval process.

2.2.3 Order Lifecycle Assembly Requirements

All order, quote and trade data submitted by CAT Reporters must be processed by the CAT and assembled to create the complete lifecycle of each quote and order from receipt or origination through execution or cancellation. Rule 613 includes three key identifiers that are required to build the complete lifecycle of an order or quote.

- Customer ID
- CAT-Reporter-ID
- CAT-Order-ID

The requirements for the creation of a Customer ID are explained in Section 2.2.2.2. The lifecycle assembly requirements include obtaining the customer and account information associated with each CAT reportable order and storing this information such that it can be readily associated with each order lifecycle. Only the broker-dealer directly receiving an order from a customer is required to report the required customer and account information. Accordingly, assembly of a complete and accurate lifecycle across all CAT Reporters involved in an order is crucial to associating customer information with execution information.

In the definition of an order, Rule 613 includes any bid or offer. Accordingly, the original receipt or origination, modification, cancellation, routing and execution (in whole or in part) of a bid or offer must be reported to the CAT. All of the lifecycle assembly requirements described below apply equally to orders and quotes. Broker-dealers that originate quotes and transmit such quotes to an exchange or a quotation display facility (i.e., FINRA's Alternative Display Facility (ADF)) are required to report both

the origination and route of the quote. In addition, exchanges and SROs operating display facilities, in their role as CAT Reporters, will be required to report to the CAT all events related to any bid or offer received or originated.

The following sections contain the requirements for CAT-Reporter-ID and CAT-Order-ID that are necessary to assemble each lifecycle so that the associated Customer ID(s) can be obtained.

2.2.3.1 CAT-Reporter-ID

Rule 613 defines CAT-Reporter-ID as, with respect to each national securities exchange, national securities association and member of a national securities exchange or national securities association, a code that uniquely and consistently identifies such person for purposes of providing data to the central repository.

For the initial implementation of the CAT, the SROs propose that the CAT-Reporter-ID be a single identifier used by each CAT Reporter to identify itself to the CAT. Individual CAT reportable events, however, could be reported to the CAT using existing market participant identifiers (e.g., FINRA MPID, NASDAQ MPID, NYSE Mnemonic, CBOE User Acronym and CHX Acronym), but such identifiers would have to be provided to the CAT prior to the submission of any CAT reportable order events containing those identifiers so that the CAT could associate the identifier with the CAT Reporter's CAT-Reporter-ID. The SROs propose that the CRD number be the foundation for CAT-Reporter-ID, but if a broker-dealer has an LEI, it could be used as long as it is provided to the CAT such that it could be associated with the broker-dealer's CRD number.

The SROs understand that the possibility for duplication exists with identifiers assigned to a broker-dealer by individual SROs (e.g., two different SROs assign the same identifier to different broker-dealers). The Bidder must design a mechanism that will allow identifiers to be associated with a particular SRO within the CAT.

Bidders should reference page 20 of the Proposed RFP Concepts document, published on the <http://www.catnmsplan.com> website on December 5, 2012, for a detailed description of the CAT-Reporter-ID framework described above.

2.2.3.2 CAT-Order-ID

Rule 613 defines CAT-Order-ID as a unique order identifier or a series of unique order identifiers that allows the central repository to efficiently and accurately link all reportable events for an order and all orders that result from the aggregation or disaggregation of such order. The SROs presented two solutions to the CAT-Order-ID framework in the Proposed RFP Concepts document published on the <http://www.catnmsplan.com> website on December 5, 2012. Based on industry feedback and analysis conducted by the SROs, the SROs are recommending the daisy chain approach for the CAT-Order-ID framework. However, any alternative solutions proposed by Bidders will be considered so long as they fulfill the requirements of Rule 613 for all order handling scenarios.

The Bidder must develop detailed reporting specifications and guidance that address all order handling scenarios known to the CAT, as well as any additional scenarios presented to the CAT by CAT Reporters as order handling and execution practices evolve.

The CAT-Order-ID framework must:

- Allow for the accurate and efficient linkage of related order events within a single firm and between CAT Reporters
- Guarantee a unique link between all related order events without relying on any form of "fuzzy" matching

- Prevent information leakage and reduce the possibility of “reverse engineering” to identify large orders or other similar material market information
- Allow for the accurate and efficient time sequencing of all order events
- Accurately link order events for all order handling scenarios that are currently or may potentially be used by CAT Reporters

As noted, the SROs are recommending a daisy chain approach to CAT-Order-ID. In the daisy chain approach, a series of unique order identifiers assigned by CAT Reporters to individual order events are linked together by the CAT and assigned a single CAT-generated CAT-Order-ID that is associated with each individual order event and used to create the complete lifecycle of an order. Each CAT Reporter would generate its own unique Order ID but could pass a different identifier as the order is routed and the CAT would link related order events from all CAT Reporters involved in the life of the order. A detailed example of the application of the daisy chain approach to an order routed to an exchange on an agency basis can be found on page 26 of the Proposed RFP Concepts document published on the <http://www.catnmsplan.com> website.

The SROs believe, based on their analysis to date, the daisy chain approach could handle most common order handling scenarios, including aggregation and disaggregation. Most common order handling scenarios generally apply to both equities and options. Examples of order handling scenarios that must be addressed include, in addition to the agency scenario referenced above: orders handled on a riskless principal basis, orders routed out of a national securities exchange through a broker-dealer router to another national securities exchange, orders executed on an average price basis and orders aggregated for further routing and execution. Detailed examples of these scenarios can be found on pages 27 through 30 of the Proposed RFP Concepts document published on the <http://www.catnmsplan.com> website.

The SROs are also considering additional order event types that could facilitate representative orders using the daisy chain approach. The SROs recently published a document with proposed representative order reporting scenarios. These scenarios and how the daisy chain approach could be applied, can be found in the Representative Order Proposal document published on the <http://www.catnmsplan.com> website. Further, there are order handling scenarios sometimes referred to as “complex orders” that are specific to options and may include an equity component and multiple option components (e.g., buy-write, straddle, strangle, ratio spread, butterfly and qualified contingent transactions). Typically, these orders are referenced by exchange systems on a net credit/debit basis, which can cover between two and twelve different components. Such “complex orders” must also be handled and referenced within the CAT. The Bidder must develop, in close consultation with industry participants, a linking mechanism that will allow the CAT to link the option leg(s) to the related equity leg or the individual options components to each other in a multi-leg strategy scenario.

Rule 613 also requires that certain sub-account allocations be reported to the CAT. The SROs understand that this requirement presents significant challenges to broker-dealers and are currently analyzing alternatives based on industry feedback. The SROs do not anticipate that the capture and linkage of sub-account allocations will be materially different to a potential Bidder than other types of linkages to order lifecycle events. As such, the SROs have determined that detailed descriptions of sub-account allocation reporting scenarios are not necessary for the purposes of the RFP and, therefore, are not including such descriptions in it.

Once a lifecycle is assembled by the CAT, individual lifecycle events must be stored so that each unique event (e.g., route, execution and modification) can be quickly and easily associated with the originating customer(s) for both targeted queries and comprehensive data scans. For example, an execution on an exchange must be linked to the originating customer(s) regardless of how the order may have been aggregated, disaggregated or routed through multiple broker-dealers before being sent to the exchange for execution.

2.2.4 Processing Timeframes Requirements

CAT order events must be processed within established timeframes to ensure data can be made available to SRO regulatory staff and the SEC in a timely manner. The processing timelines start on the day the order event is received by the CAT for processing. Most events must be reported to the CAT by 8:00 A.M. Eastern Time the trading day after the order event occurred (referred to as transaction date). The processing timeframes below are presented in this context. However, if an order event was submitted late, the CAT must process that event within these timeframes based on the date the event was received by the CAT. Similarly, order events that are not required to be submitted until 8:00 A.M. Eastern Time on the trading day after the information is received by the broker-dealer (e.g., sub-account allocations) must also be processed within these timeframes based on the date the event was received by the CAT.

The SROs anticipate the following timeframes (Figure 3) for the identification, communication and correction of errors from the time an order event is received by the processor:

- 12:00 P.M. Eastern Time T+1 (transaction date + one day) – Initial data validation, lifecycle linkages and communication of errors to CAT Reporters
- 8:00 A.M. Eastern Time T+3 (transaction date + three days) – Resubmission of corrected data
- 8:00 A.M. Eastern Time T+5 (transaction date + five days) – Corrected data available to SRO regulatory staff and the SEC

It is expected that at any point after data is received by the CAT and passes basic format validations, it will be available to SRO regulatory staff and the SEC, which may be before 12:00 P.M. Eastern Time T+1.

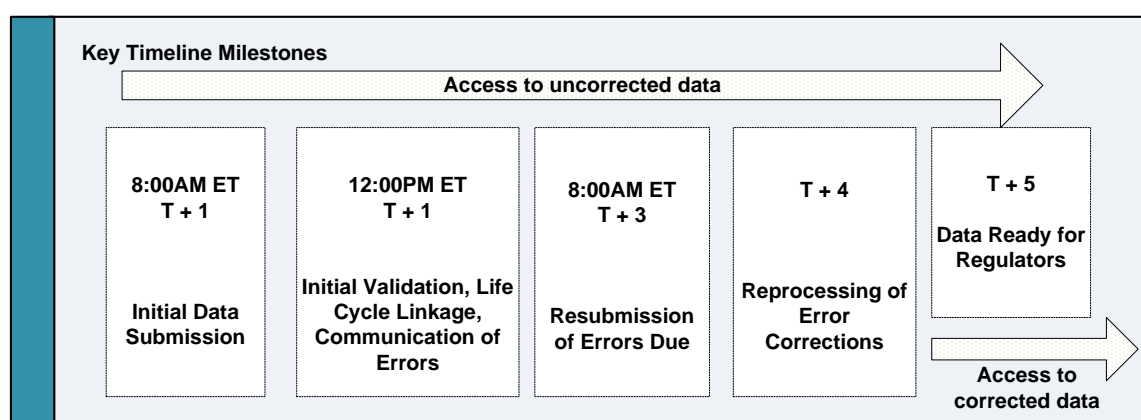


Figure 3: Anticipated timeframes for data error handling and data resubmission

The Bidder must provide a detailed description of how the timeframes described above will be met using the data validation and error correction approach. To illustrate this, a process flow chart must be provided that reflects the timeframe that each aspect of the Bidder's data validation and error correction process will be completed.

2.3 System and Interface Specifications Requirements

The Bidder must perform a detailed analysis of current industry system and interface specifications in order to propose and develop its own format. The specifications must be submitted for review and approval by the NMS Plan Participants. The proposed specifications must address all respective data types collected from the data sources (CAT Reporters) and address all of the requirements outlined in other sections of this RFP. The Bidder must consider the CAT Reporters' adaptability to the proposed

specifications, as well as their ability to design, develop, test and integrate with the CAT system in a timely manner.

2.3.1 Communication and Message Protocols

The Bidder must identify the communication and message protocols used for transporting the data. The Bidder may consider the use of known and widely accepted industry protocols. If common industry protocols are inefficient in processing large volumes of data or satisfying other CAT requirements, the Bidder may recommend an alternative protocol implementation. The Bidder must demonstrate advantages of certain message and/or communication protocols in its recommendations. Such protocols must provide reliable data transmission, facilitate recoverability and ensure basic session management. The CAT must support batch submissions furnished via uploaded files. The Bidder must provide facilities for accepting such files as well as provide a reliable feedback mechanism for notification of failures. The Bidder must support manual data entry and correction tools via a secure website.

2.4 Data Validation Requirements

The CAT must ensure data is accurate, timely and complete. The validations required include checking to ensure that data is submitted in the required formats and that lifecycle events can be accurately linked within the established timeframes outlined in Section 2.2.4. Once errors are identified, they must be efficiently and effectively communicated to CAT Reporters. CAT Reporters will be required to correct and resubmit identified errors within the established timeframes.

The initial data checks required to be performed by the CAT include, but are not limited to:

- Data format validation and syntax check
- Data context check
- Identification of unlinked lifecycle events
- Identification of unregistered accounts
- Identification of unregistered market participant identifiers

Specific data validations must be developed by the selected Bidder in conjunction with development of the interface and technical specifications. The objective of the data validation process is to ensure that data is accurate and complete at the time of submission, rather than to identify submission errors at a later time after data has been processed and provided to regulators. To achieve this objective, a comprehensive set of data validations must be developed that addresses both data quality and completeness.

The Bidder will be required to handle data correction and resubmission of the corrected data within the established timeframes outlined in Section 2.2.4 both in a batch process format and via manual Web-based entry.

2.5 Central Repository Requirements

Rule 613 requires the creation and maintenance of a central repository for historical retention and consolidation of all data reported to and any data derived by the system. Rule 613 requires that SRO regulatory staff and the SEC have the ability to access all data, which includes both processed and unprocessed data.

The central repository will store data and make it available to regulators in a convenient and usable standard electronic format that is directly available and searchable electronically without any manual intervention for a period of not less than five years. The data in the central repository will include the original data submitted by the CAT Reporters, data rejected by the system and the rejection reasons,

corrected (and resubmitted) data, data accepted by the system and any derivations, summaries (as scheduled or requested by SROs or the SEC) and metadata generated by system.

The solution must allow timely and accurate retrieval of the information by SRO regulatory staff and the SEC.

The data stored in the central repository will be used for market reconstruction analysis, surveillance and regulatory purposes by SRO regulatory staff and the SEC.

2.5.1 Data Types and Sources

This section provides a description of the data that will be captured by the CAT and includes sources and data types to be ingested, validated and processed by the CAT. The selected Bidder will be responsible for developing the detailed data and interface specifications for the CAT data submissions that will be presented to the NMS Plan Participants for approval. The data and interface specifications must be designed to capture all of the data elements required by Rule 613, as well as other information the NMS Plan Participants determine necessary to fully satisfy the objectives of Rule 613, including the potential elimination of reporting systems that the CAT may cause to be unnecessary, such as EBS and OATS.

The SROs anticipate that data will be submitted by all CAT Reporters in a uniform electronic data format that will be defined by the CAT. It is possible that more than one format (within practical limits) will be defined to support the various senders throughout the industry.

The following table represents the number of data sources identified by the SROs that are anticipated to submit data to the CAT:

Data Source	Number of Sources	
	Equities	Options
Exchanges	14	11
TRF	2	0
ADF	1	0
SIPs/OPRA	2	1
OCC	0	1
Broker-dealers	2,000	

Note: While there are approximately 5,000 broker-dealers, the anticipated number of broker-dealers that will be engaging in CAT-reportable activity (i.e., trading in NMS securities) is approximately 2,000. The SROs anticipate that some broker-dealers will not directly report to the CAT but will rely on other organizations to report on their behalf. However, the CAT will need to have the flexibility to adapt on a timely basis to changes in the number of entities that report information.

The following tables are representative of the data types, the respective sources and expected data counts that are anticipated to be submitted to the CAT.

Equities

Data Type	Data Source	Product	Description	Approximate Average Daily Record Count	Approximate Peak Daily Record Count
Customer/ Account	BDs	Equities/ Options	Full submission of customer and account information (full submission will occur at initial CAT ingestion and weekly on non-peak hours)	111,000,000	111,000,000
Customer/ Account	BDs	Equities/ Options	Changes/updates of customer and account information	600,000	600,000
Market Maker Quotes	BDs	Equities	Market maker quotes submitted to exchanges or the FINRA ADF	800,000,000	2,400,000,000
Market Participant Information	BDs	Equities/ Options	Market participant identifiers and any associated information	50,000	50,000
Order Data	BDs	Equities	CAT reportable orders and all related order events received or generated by the BD	2,400,000,000	4,800,000,000
Self-help	BDs	Equities	Self-help declarations	100	100
Sponsored Access	BDs	Equities/ Options	Sponsored and direct market access (DMA) relationships and applicable market participant identifiers	30,000	30,000
PBBO	CAT Derived	Equities	Protected NBBO derived by CAT using SIP quote data	800,000,000	1,600,000,000
Self-help	Exchanges	Equities	Self-help declarations	100	100
Trade Data	Exchanges	Equities	All trade executions	20,000,000	60,000,000
Order Data	Exchanges	Equities	CAT reportable orders received by an exchange and all related order events	2,000,000,000	5,400,000,000
Trade Data	FINRA	Equities	All transactions reported to a FINRA trade reporting facility	12,000,000	17,000,000
Corporate Actions	Listing Market	Equities	Corporate events that affect the underlying instrument	500	500
Security Definitions	Listing Market	Equities	Definitions of all products, including complex orders with stock	8,000	8,000
Trade Data	NASDAQ	Equities	Transactions reported to an exchange clearing facility	1,000	4,000
Quotes	SIPs	Equities	All CQS and UQDF data, including all quotes, appended NBBOs and admin messages (e.g., indications of market open/close, halts/resumes and circuit breakers)	850,000,000	1,700,000,000
Trade Data	SIPs	Equities	All CTS and UTDF data, including all sales and administrative messages	24,000,000	96,000,000
Market Maker Quotes	SROs	Equities	Market maker quote sides received and/or generated by an exchange or the FINRA ADF	400,000,000	1,100,000,000
Quotes	SROs	Equities	Top of book exchange quotes sent to the SIP	850,000,000	1,700,000,000
Market Participant Information	SROs	Equities/ Options	Market participant identifiers and any associated information	20,000	20,000
Trade Data	SROs	Equities	All exchange trades sent to the SIP	24,000,000	1,100,000,000
Sponsored Access	SROs	Equities/ Options	DMA relationships	20,000	20,000
Approximate Total				8,500,000,000	20,500,000,000

Options

Data Type	Data Source	Product	Description	Approximate Average Daily Record Count	Approximate Peak Daily Record Count
Security Definitions	All Options Exchanges	Options	Definitions of all products, including complex orders with stock	280,000	280,000
Market Maker Quotes	BDs	Options	Market maker quotes submitted to exchanges	18,000,000,000	44,000,000,000
Order Data	BDs	Options	CAT reportable orders and all related order events received or generated by the BD	1,500,000,000	4,500,000,000
Self-help	BDs	Options	Self-help declarations	100	100
PBBO	CAT Derived	Options	Protected NBBO derived by CAT using SIP quote data	6,300,000,000	12,600,000,000
Self-help	Exchanges	Options	Self-help declarations	100	100
Trade Data	Exchanges	Options	All trade executions	1,000,000	1,800,000
Order Data	Exchanges	Options	CAT reportable orders received by an exchange and all related order events	365,000,000	915,000,000
OCC Exercise/Assignments, Adjustments and CMTA Transfers	OCC	Options	All exercises, assignments, adjustments and CMTA transfers for options	6,100,000	9,700,000
Quotes	SIPs	Options	All quotes published by the SIPs, including appended NBBOs	7,000,000,000	14,000,000,000
Trade Data	SIPs	Options	All trades published by the SIPs (OPRA)	1,000,000	1,800,000
Market Maker Quotes	SROs	Options	Market maker quote sides received and/or generated by an exchange	9,000,000,000	22,000,000,000
Quotes	SROs	Options	Top of book exchange quotes sent to the SIP	7,000,000,000	15,000,000,000
Trade Data	SROs	Options	All exchange trades sent to the SIP	1,000,000	1,800,000
Approximate Total				49,500,000,000	113,500,000,000

Notes concerning data types:

- Certain data sources, most notably those received from the SIPs and OCC will be received in pre-existing formats defined by those sources. The CAT will need to update its data ingestion processes, and possibly data storage layouts, when these providers update their specifications. The Bidder is encouraged to research the websites of the SIPs for records layouts for their quote and trade transmissions and the website of the OCC for its transmission of exercise/assignments, adjustments and CMTA transfers. These websites will also contain valuable information concerning the maximum message transmission rates possible:
 - QQS and CTS: <http://www.nyxdata.com/CTA>
 - UQDF and UTDF: <http://www.utpplan.com/>

- OPRA: <http://www.opradata.com/specs>
- OCC: <http://www.optionsclearing.com/>

The Bidder should realize that the rates have historically increased with some degree of regularity.

- NBBO versus PBBO: Each of the SIPs provides an NBBO as part of its quote feed. In calculating this NBBO, the SIPs include manual (or unprotected) as well as automatic (or protected) quotes. Manual quotes are not protected for the purposes of Regulation NMS's Order Protection Rule (NMS Rule 611); consequently, exchanges also calculate a version of the NBBO (the PBBO, or Protected NBBO) that excludes manual quotes. The CAT processor will need to calculate and store the PBBO using data contained in the CQS, UQDF and OPRA feeds
- There is currently no standard for the transmission of self-help messages. Typically, these are communicated via email. The number of self-help messages transmitted will be negligible over time; however, some effort will be required to come up with a standard for capturing these messages in the CAT
- The Bidder should be aware that there will be some fields in order data used to define various order types that will be specific to each SRO. The Bidder must consider how to define this data in standard data transmission layouts. Identification of the specifics of these fields and the values they contain will be a component of the requirements definition phase to occur later in the project

2.5.1.1 Data Feed Management

The CAT must monitor incoming and outgoing feeds and be capable of performing the following functions:

- Managing connectivity of data feeds (e.g., SIPs, broker-dealers and regulators)
- Controlling specific feeds (e.g., start, stop, recovery, retransmission and resynchronization)
- Managing the security of data feeds
- Identifying data transmission failures or errors
- Monitoring capacity utilization and performance optimization
- Identifying latency and communicating latency warnings

2.5.1.2 Issue Symbology

CAT Reporters must submit data to the CAT using the listing exchange symbology format. The CAT must use the listing exchange symbology format in the display of linked data. Issue symbol validation must be included in the processing of data submitted by CAT Reporters.

The CAT must be able to link issue data across any time period so that data can be properly displayed and linked regardless of changes to issue symbols and/or market class. Symbol changes may occur intraday. The Bidder is required to create and maintain a symbol history and mapping table, as well as to provide a tool that will display a complete issue symbol history that will be accessible to CAT Reporters, NMS Plan Participants and the SEC.

2.5.2 Capacity Performance Requirements

When all CAT Reporters are required to submit data to the CAT, the system should be sized to receive, process and load more than 58 billion records or approximately 13 terabytes of data per day. These numbers represent the data table in Section 2.5.1 as well as expected organic growth during the period between Bidder selection and the date of CAT implementation. The number of records is expected to grow approximately 25% annually. It is expected that the central repository will be

required to retain data for a period of no less than five years resulting in a central repository growing to more than 21 petabytes of data required for the five years of retention. The system must be designed such that additional capacity can be quickly and seamlessly integrated while maintaining system access and availability requirements. The system must be able to efficiently and effectively handle data ingestion on days with peak data submissions.

	Year 1	Year 2*	Year 3	Year 4	Year 5
Estimated daily data size (TB)	5	13	16	20	24
Accumulated total size of central repository (PB)	2	6	10	15	21

* Note that the large increase in year two reflects the introduction of broker-dealer data submissions.

In order to manage the data volume, operational capacity planning must be conducted on a periodic basis.

2.5.3 Data Retention Requirements

The CAT processor will be required to keep all the data in the central repository online for a rolling five year period. This includes both corrected and uncorrected (or rejected) data. Some of the information, such as stock and options series symbols, used by the market participants may be reused over a period of time. Therefore, the system should store the data received from CAT Reporters and should not overwrite it with new information, creating a five year historical audit trail. Data must be directly available and searchable electronically without any manual intervention.

At a minimum, the system must accommodate an additional two years of data to be archived. It is expected that, on occasion, additional retention of archived data may be requested to support investigations and legal holds.

The overall data archive and storage solutions must meet both the fixed and variable data retention requirements.

2.6 Technical Architecture Requirements

The CAT must be designed and sized to ingest, process and store large volumes of data. The CAT technical infrastructure needs to be scalable, adaptable to new requirements and operable within a rigorous processing and control environment. As a result, the technical infrastructure will require an environment with significant throughput capabilities, advanced data management services and robust processing architecture.

The CAT technology environment must be periodically assessed to evaluate opportunities to accommodate new processing capabilities, lower the cost of operation and improve performance. The technology refresh will need to support established processes, data submission standards and other industry dependencies. The architecture must be scalable to accommodate increases in data volumes, users and SRO workload affecting the system(s).

The solution must provide all necessary infrastructure, network, hardware, components and software required to meet the requirements outlined in the RFP. The Bidder must provide all technology and hosting services including any vendor provided products, internally developed, open source, leveraged, licensed or shared with existing solutions.

This includes, but is not limited to, the following:

- Operating systems
- Hardware

- Storage, database management systems (DBMS) and in-memory databases
- Application/Web server technology
- Programming language(s)
- Hosting/firewall architecture
- Middleware, message queues and the use of clustering or high-availability features
- Other system resources requirements, such as job scheduler and system and security monitoring tools
- Identifying third-party products that will be used in the build and operation of the CAT and providing descriptions and details on how they will be used in the solution

Technical architecture must accommodate and be optimal for supporting the following key system lifecycle elements:

- Scalability to increase capacity to handle a significant increase in the data volume beyond the baseline capacity
- Adaptability to support future technology developments and new requirements
- Maintainability to ensure that technology is kept current, supported and operational

The architecture must address the following requirements:

- Support the necessary system interfaces, including data submission, data access and user interfaces
- Support the necessary throughput, processing timeline and resubmissions requirements
- Complete processing and respond to user queries and data requests as described in this RFP
- Include the necessary redundancy and fault tolerance to protect against soft application or operating system failure (e.g., operational with downgraded response)
- Provide redundancy to support disaster recovery and business continuity requirements as defined in this RFP
- Include necessary solution(s) and clear integration points for CAT Reporters to submit data to the CAT processor
- Support 24x6 hours of operation including any planned system downtime or maintenance windows and start-up time requirements

The architecture will need to accommodate several environments. The build and introduction of the environments may be phased in to align with the implementation milestones:

- Development: build, develop and maintain enhancements and new requirements
- Quality assurance: testing and QA for new software releases, including, but not limited to:
 - Application releases
 - Fixes or patches
 - Operating system upgrades
 - Introductions of new hardware or software components

QA will need to support unit testing, system integration testing and testing against a production simulated environment

- Production: fully operational environment that supports all CAT receipt, ingestion, processing and storage of CAT data
- Industry testing: an environment to support individual CAT Reporter testing or industry-wide testing against a replica of production data

The architecture and design must be capable of being expanded and modified to accommodate similar types of market and transaction data for other securities. Future products may include non-NMS securities and fixed income.

2.7 Security Requirements

Rule 613 requires that the CAT processor ensure the security and confidentiality of all information reported to and maintained by the CAT in accordance with the policies, procedures and standards in the NMS Plan.

The CAT processor must have appropriate solutions and controls in place to ensure data confidentiality and security during all communication between CAT Reporters and the CAT processor, data extraction, manipulation and transformation, loading to and from the central repository and data maintenance by the system. The solution must also address secure controls for data retrieval and query reports by SRO regulatory staff and the SEC. The solution must provide appropriate tools, logging, auditing and access controls for different components of the system, such as access to the central repository, access for CAT Reporters, access to rejected data, processing status and CAT Reporter calculated error rates.

It is expected that access to PII associated with customers and accounts will have a much lower number of registered users, and access to this data will be limited to SRO regulatory staff and SEC working locations. PII such as customer SSN and tax identifier numbers should not be made available in the query tools, reports or bulk data extraction. Instead, the Bidder must provide for a separate limited access query capability that allows this information to be retrieved only when required by specific SRO regulatory staff and the SEC, including additional security requirements for this sensitive data.

The Bidder must provide a solution addressing physical security controls for corporate, data center and any leased facilities where any of the above data is transmitted or stored.

- The solution should anticipate protection of data during transmission, processing and at rest (stored in the central repository)
- Access to the data must be controlled and system(s) must have a mechanism to confirm the identity of persons (e.g., username/password) who are permitted to access the data; every instance of user access must be logged for auditing purposes
- The system controls should allow for users to be granted different levels of access and capabilities depending on their role or function
- The solution must propose an additional level of security for populating, storing and retrieving sensitive data, such as PII

2.8 Data Access Requirements

The CAT processor must provide and maintain a suite of tools that will allow SRO regulatory staff and the SEC to query the data in the central repository and extract targeted segments of data. In addition, the CAT processor must provide the ability for bulk data extractions and downloading of data to SROs and the SEC so that they may use their own tools for analysis.

The Bidder must provide details of the tools and the interfaces they will provide to SRO regulatory staff and the SEC. The following sub-section outlines the tools the NMS Plan Participants expect to see included in any qualifying bid. For basic search criteria, minimum acceptable response times would be measured in time increments of less than one minute. Complex queries against large sets of data would be expected to take longer, but must generally be available within 24 hours of making the request. The Bidder must describe how it will accommodate multiple simultaneous queries from SRO regulatory staff and the SEC.

It is not anticipated that a standard interface will be built and maintained to access uncorrected data at this time, but uncorrected data must be maintained and be made available to SRO regulatory staff and the SEC upon request.

2.8.1 Online Query Tool Requirements

The solutions provided must allow for targeted queries against data in the central repository across equities and options, both separately and together. All data fields may be included in the result set from targeted queries. Online queries will require a minimum set of criteria, including date and/or time range as well as one or more of the following:

- Symbol(s)
- CAT-Reporter-ID(s)
- Customer ID(s)
- CAT-Order-ID(s)
- Product type (equities or options)
- All orders, quotes, BBOs or trades above or below a certain size within a date and/or time range
- All orders, quotes, BBOs or trades within a range of prices within a date and/or time range
- All orders and/or trades canceled within a specified time range
- All CAT Reporters exceeding specified volume or percentage of volume thresholds in a single symbol or market-wide during a specified period of time

It is anticipated that the solution must support approximately 3,000 registered users, including SRO regulatory staff and SEC staff, authorized to access data representing market activity (excluding the PII associated with customers and accounts). It is anticipated that the solution must be capable of providing access to the data from SRO regulatory staff and SEC working locations and other non-office locations.

2.8.2 Bulk Data Extraction Requirements

The CAT solution must provide for the bulk extraction and download of data, based on a specified date/time range, market, security, Customer ID and the size of the resulting data set. In addition, the CAT processor is required to generate data sets based on market event date to the SROs and the SEC. The solution must provide capabilities to define the logic, frequency, format and distribution method. The CAT must be built with operational controls to control access to make requests and to track all data requests to oversee the bulk usage environment.

The solution must have the capability and capacity to provide bulk data necessary for the SROs and the SEC to run and operate their surveillance processing.

2.9 System Availability, Disaster Recovery and Business Continuity Plans

The Bidder must develop and implement disaster recovery and business continuity plans (BCP) that will meet the specific requirements of the CAT environment. The plan should address the protection of data, service for the data submissions, processing, data access, support functions and operations.

To support the data availability requirements and anticipated volumes, the CAT will require efficient and cost-effective backup and disaster recovery capability that will ensure no loss of data. The Bidder's BCP will need to be inclusive of the technical and business activities of the CAT as outlined in this document. A secondary processing site will need to be capable of recovery and restoration of services at the secondary site within 48 hours of a disaster event. The separate processing sites for disaster recovery and business continuity must adhere to the "Interagency Paper on Sound Practices to Strengthen the Resilience of the U. S. Financial System."⁴

⁴ SEC Release No. 34-47638; File No. S7-32-02; <http://www.sec.gov/news/studies/34-47638.htm>

The Bidder must provide a comprehensive disaster recovery and backup plan.

The system must be available, at a minimum, during the period between 12:00 A.M. Eastern Time Monday and 12:00 A.M. Eastern Time Sunday to accept data submissions, corrections, service queries and data requests. The Bidder will describe the expected availability for each of these functions during the hours of operation and, based on the described architecture, indicate the expected reliability of the system.

2.10 Build Project Management

The Bidder will be responsible for providing project management services to manage the initial implementation of the system, including the planning, execution, monitoring and controlling of the analysis, specifications, requirements, infrastructure, testing, change management and solution implementation activities. To ensure the success of the project to build and deploy the system, the Bidder must describe its project management practices, disciplines and deliverables. The Bidder must provide the services and functions outlined in Sections 2.11.1 that are applicable to the build and initial deployment. The Bidder will be required to provide progress reports to the NMS Plan Participants on a regular basis throughout the implementation phase to ensure the CAT service provider is on schedule and on target for providing the required system.

The build project management services will be responsible for the following:

- Documentation of functional and technical requirements
- Prioritization and management of technical and non-technical requirements, modification requests and defect correction
- Development and maintenance of a project plan, project status report and risk and issue logs
- Maintenance and execution of a communication plan with all stakeholders
- Management of scheduled changes
- Identification of teams and resources that will be involved in the various stages of the project
- Capturing and tracking of issues, problems and defects identified during testing
- The initial population of any data (e.g., reference data, customers and accounts)
- The initial coordination and testing of CAT Reporters

The Bidders must provide the following:

- Information on the tools and systems that will be used for managing the project
- Project milestones and completion times relevant to a start date
- Description of project management practices and processes
- Description of the system development methodology and approach that will be used

2.11 Operational Requirements

The Bidder must demonstrate operational capabilities to run the CAT that encompass the requirements in the following sub-sections:

2.11.1 Program Management

The Bidder will be responsible for providing program management services to manage ongoing operation and maintenance of the CAT and any enhancement projects to the CAT.

The program management responsibilities will include the following:

- Managing and coordinating tasks between various projects run by the technical and administrative functions, in addition to the resources responsible for maintaining and enhancing the system
- Identifying, managing and tracking of business requirements for new or changed functionalities of the CAT
- Communicating and coordinating priorities and implementation activities for identified changes in requirements
- Managing future changes to business, administrative and technical functions as a result of changes in the requirements of Rule 613
- Seeking approval of changes

2.11.1.1 Project Management

The Bidder will be responsible for providing project management services to manage the CAT processor solution(s) and support the ongoing enhancement, operations and support functions.

Project management responsibilities will include the following:

- Documenting changes to functional and technical requirements
- Prioritizing and managing technical and non-technical requirements, modification requests and defect correction
- Developing and maintaining a project plan, project status report and risk and issue logs
- Maintaining and executing a communication plan with all stakeholders
- Developing and implementing a full incident management program
- Managing scheduled changes
- Identifying, managing and tracking functional requirements for new or changed functionalities of the CAT
- Coordinating change management and program management priorities for the CAT administrative functions and the CAT processor for system upgrades, system testing, integration testing and industry testing
- Producing status reports and performance metrics of project management activities
- Capturing and tracking issues, problems and defects identified during tests
- Assuring continuous process improvements, including root cause analysis and resulting benefits

2.11.1.2 Change Management

The Bidder will be responsible for providing change management services. Changes may include regulatory changes and/or changes initiated by new industry practices and trends that may affect the CAT.

Change management responsibilities will include the following:

- Managing future changes to business, administrative and technical functions as a result of changes in the requirements of Rule 613
- Managing the process to recognize changes in regulatory and business requirements
- Coordinating with project resources
- Communicating and coordinating priorities and implementation activities for identified changes in requirements
- Seeking approval for change management initiatives
- Facilitating appropriate training and education for CAT Reporters and other internal functions to efficiently implement changes
- Coordinating, facilitating and communicating testing events with CAT Reporters and users

2.11.1.3 Industry Testing

The Bidder must conduct industry-wide testing for CAT Reporters, both at initial implementation and on an ongoing basis when there are CAT-related changes or other industry changes that directly affect data and/or reporting. In addition, the CAT must participate in other applicable industry-wide tests conducted by other parties that are relevant to the CAT, such as industry-wide disaster recovery testing.

2.11.1.4 Quality Assurance

QA is a critical part of the CAT solution. Comprehensive QA, risk management and testing practices and standards are key requirements. QA procedures should be applied to all components of the CAT processor and external interfaces and changes.

The Bidder's response should include both the functional and non-functional testing that includes, but is not limited to, the following:

- System testing
- Integration testing
- Regression testing
- Software performance testing
- System performance testing
- Application programming interface (API) testing
- User acceptance testing
- Industry testing
- Interoperability
- Security
- Load and performance testing
- CAT Reporter testing

2.12 Operational Monitoring and Reporting

The Bidder must have a robust operational monitoring program to ensure that the CAT processor and central repository are functioning as intended, system outages and delays are identified and escalated and necessary upgrades and enhancements are promptly identified and implemented.

The Bidder will produce, at a minimum, the following operational and status reports:

- System status reports on a real-time basis
- Processing run times
- Data load status updates
- Daily and historical processing volumes
- Storage utilization and available space
- Processor and memory utilization
- Data access connections and query response times

2.13 CAT Support Functions

The CAT will be required to provide support tools and services to CAT Reporters, SRO regulatory staff and SEC staff. The following sections outline the specific tools and support functions that will be required.

2.13.1 CAT Reporter Support

The Bidder will provide operational and business support to CAT Reporters for all aspects of CAT reporting. A suite of tools must be developed to allow each CAT Reporter to monitor data submissions, identify and correct errors, manage reporting relationships and monitor its compliance with CAT reporting requirements. In addition, communication protocols must be developed to notify CAT Reporters of the CAT system status, outages and other issues that would affect CAT Reporters' ability to submit data.

At a minimum, the following operational and business support tools for CAT Reporters will be required:

- Secure website containing daily reporting statistics for all CAT Reporters, CAT system status, system notifications, system maintenance and system outages reporting relationship management tools and a Web entry mechanism for submitting CAT data and correcting and resubmitting rejections or inaccurate data
- Public website containing comprehensive CAT reporting information, including, but not limited to:
 - Technical specifications
 - Reporting guidance
 - Pending rule changes affecting CAT reporting
 - Software/hardware updates
 - Upgrades and CAT contact information
- Communication mechanisms, such as email messaging and Web announcements, to notify CAT Reporters of system outages, delays and other relevant information that would affect CAT Reporters' ability to submit data and track notifications
- Mechanism for assigning CAT-Reporter-IDs and managing changes to CAT-Reporter-IDs
- CAT Reporter Compliance Report Cards to be created and published on a periodic basis to assist CAT Reporters in monitoring overall compliance with CAT reporting requirements

It is not envisioned that non-SRO CAT Reporters will have access to their data submissions through bulk data exports with the initial implementation of CAT. Only SROs and the SEC will have access to full lifecycle corrected bulk data exports.

2.13.2 CAT User Support

The Bidder will provide operational and business support to CAT users (including SRO regulatory staff and the SEC). A suite of tools must be developed to allow each CAT user to monitor data requests and extractions. In addition, communication protocols must be developed to notify users of the CAT system status, outages and other issues that would affect SRO regulatory staff and the SEC's ability to access, extract and use CAT data. At a minimum, SRO regulatory staff and the SEC should each have access to a secure website where they can monitor data requests and CAT system status, receive and track system notifications and submit data requests.

2.13.3 CAT Help Desk

In addition to the suite of tools described above, the NMS Plan Participants will require that a CAT Help Desk be provided to support both broker-dealers and SRO CAT Reporters. The CAT Help Desk must be able to address business questions and issues, as well as technical questions and issues. The CAT Help Desk must also be able to assist SRO regulatory staff and the SEC with questions and issues regarding obtaining and using CAT data for regulatory purposes.

The SROs will require that the CAT Help Desk be available on a 24x7 basis. The CAT Help Desk must manage large volumes of incoming calls and be able to handle at minimum, 2,500 calls per

month. The Bidder must create and maintain a robust electronic tracking system for the CAT Help Desk that must include call logs, incident tracking, issue resolution and volume escalation.

CAT Help Desk support functions must include:

- Setting up new CAT Reporters, including the assignment of CAT-Reporter-IDs, management of CAT entitlements and testing prior to submitting data to CAT
- Managing CAT Reporter authentication and entitlements
- Managing SRO regulatory staff and SEC authentication and entitlements to obtain data for regulatory purposes
- Supporting CAT Reporters with data submissions and data corrections, including submission of customer and account information
- Coordinating and supporting system testing for CAT Reporters to perform individual system tests based on changes to their respective systems
- Responding to questions from CAT Reporters about all aspects of CAT reporting, including reporting requirements, technical data transmission questions, potential changes to Rule 613 that may affect the CAT, software/hardware updates and upgrades, entitlements, reporting relationships and questions about the secure and public websites
- Responding to questions from SRO regulatory staff and the SEC about obtaining and using CAT data for regulatory purposes

2.14 CAT Reporter Compliance

The CAT must include a comprehensive compliance program to monitor CAT Reporters' adherence to Rule 613. This compliance program must be overseen by the CCO, who will have responsibility for reporting on compliance by CAT Reporters to the NMS Plan Participants. The compliance program must cover both broker-dealer and SRO CAT Reporters.

A fundamental component of this program is the requirement to identify on a daily basis all CAT Reporters exceeding the maximum allowable error rate established by the NMS Plan Participants. Once identified, all CAT Reporters exceeding this threshold must be notified that they have exceeded the maximum allowable error rate and be informed of the specific reporting requirements that they did not fully meet (e.g., timeliness, rejections and matching). In addition to daily notification, CAT Reporters must also be notified of ongoing issues that may constitute a pattern and practice of CAT reporting violations over a period of time via periodic CAT Reporter Compliance Report Cards.

The CAT Reporter compliance program must also include reviews to identify CAT Reporters that may have failed to submit order events to CAT, as well as to ensure CAT Reporters correct all identified errors even if such errors do not exceed the maximum allowable error rate.

The CAT will be required to analyze reporting statistics and recommend proposed changes to the maximum allowable error rate established by the NMS Plan Participants. It is expected the maximum allowable error rate will decrease over time as overall compliance rates improve after initial implementation.

The CAT will be required to produce and provide reports and metrics to each SRO on its members' CAT reporting compliance rates so that SROs can monitor their members' compliance with CAT reporting requirements and initiate disciplinary action when appropriate. Further, the CAT must produce and provide reports and metrics to the NMS Plan Participants and potentially the SEC on each SRO CAT Reporter's compliance rates so that the NMS Plan Participants or the SEC may take appropriate action if an SRO fails to comply with its CAT reporting obligations.

The CAT Reporter compliance program must also include:

- Reporting to and interfacing with the NMS Plan Participants
- Providing periodic reports, including relevant metrics, to the NMS Plan Participants that allow them to oversee the quality and integrity of the reporting to the CAT
- Providing ad-hoc customized reports to NMS Plan Participants as requested
- Providing information to the NMS Plan Participants on the performance of individual or multiple CAT Reporters
- Working with the SEC and the NMS Plan Participants to address CAT Reporter deficiencies

2.15 Business Administration Requirements

This section describes the business administration functions that the NMS Plan Participants believe will be necessary to operate the CAT. These functions include the oversight and performance of day-to-day business operations of the CAT, which include ensuring all aspects of the CAT related to processing data or CAT administration operate in a coordinated fashion to ensure the overall cohesiveness and efficiency of the CAT. NMS Plan Participants anticipate that the CAT will be administered by senior professional staff of the selected Bidder under the oversight and guidance of the NMS Plan Participants. The activities of the selected Bidder will also be subject to the involvement and approval of NMS Plan Participants concerning, for example, contracts of a certain dollar amount or of a certain type, personnel decisions regarding senior staff and parameters for engaging offshore vendors.

As a general matter, the Bidder will be responsible for ensuring that the following business administration functions are performed (either by the Bidder itself or by a subcontractor overseen by the Bidder) under the direction and oversight of the NMS Plan Participants:

- Setup, performance and management of the following functions for the CAT:
 - Reporting and oversight
 - Finance
 - Legal
 - General support

High-level overviews of the CAT's business administration functions are provided in the following sub-sections. All of these functions performed will be subject to the general oversight of the NMS Plan Participants, and the Bidder must be prepared to report on these functions to the NMS Plan Participants as requested. Bidders are also invited to identify any additional functional requirements not listed that it believes may be pertinent to the administration or operation of the CAT.

2.15.1 Reporting and Oversight Requirements

The NMS Plan Participants anticipate that they will hold regular meetings as participants in the CAT NMS Plan ultimately approved by the SEC. The selected Bidder will attend these meetings as requested and provide regular reports on the operation and maintenance of the CAT for review by the NMS Plan Participants and the SEC. These reports may include, for example, board-level operational and performance management information on issues such as financial performance and the risk management process of the CAT.

2.15.2 Finance Requirements

The operations of the CAT will require the establishment and maintenance of a finance function for the CAT itself. The SROs are currently considering forming a limited liability company, although this structure is still being explored. The finance functions will include setting up and maintaining the following:

- Accounting (maintaining separate books and records on behalf of the CAT)

- Billing, invoicing, accounts receivable and collections
- Accounts payable (vendor invoice processing and payment and management of vendor activities through coordination with legal and procurement teams)
- Periodic budgeting and forecasting
- Cost allocation among the CAT Reporters and other possible CAT users
- Financial reporting and analysis
- Tax preparation and compliance

2.15.2.1 Billing and Collections Requirements

A process must be established that will allow for the allocation of CAT costs. Further, these costs will need to be billed and collected once allocated. It is anticipated that the SROs will solicit industry feedback on a cost recovery allocation model prior to the filing of the NMS Plan, once more visibility into CAT costs and drivers is obtained from the Bidder in its RFP response.

Related activities may include the following:

- Establish policies and procedures needed to support invoicing, billing, accounts receivable and collections
- Implement related systems and tools with the ability to scale as needed
- Receive and deposit payments and apply remittances to accounts
- Prepare receivables aging and other relevant reports
- Follow up and resolve billing issues
- Collaborate with the NMS Plan Participants on cost allocation methodologies, maintaining agreed upon allocation models and providing related reporting

2.15.2.2 Budgeting and Forecasting Requirements

As part of the finance activities, the CAT will require the development and management of annual operating budgets and periodic forecasts, as well as the achievement of cost containment objectives. Budgets will need to be prepared for review and approval by the NMS Plan Participants.

The Bidder will be required to:

- Implement a budgeting methodology and create processes and allocation models needed to develop annual operating budgets and periodic forecasts
- Provide variance reporting, cost/benefit analyses and financial analytics needed to support decision making and reporting to stakeholders
- Provide recommendations to support ongoing cost containment objectives
- Implement tools and systems to carry out budgeting and forecasting activities
- Document analysis and allocation of costs
- Proactively report to the NMS Plan Participants any anticipated budget shortfalls or other issues

2.15.2.3 Financial Reporting and Accounting Requirements

Financial statements will be a requirement of the CAT NMS Plan to ensure transparency to the costs, revenues and operations of the CAT. Finance will be required to develop, generate and prepare financial statements and reports for the NMS Plan Participants.

The finance activities will include the following:

- Accounting, including establishing and maintaining a general ledger and other subsidiary ledgers as deemed necessary to maintain separate books and records on behalf of the CAT

- Managing the month-end closing process, journal entries and account reconciliations
- Creating and disseminating financial statements and reports on a periodic basis, including a balance sheet, income statement and statement of cash flows, among others
- Providing resources, tools and systems to carry on these functions
- Establishing related financial policies and procedures in order to ensure compliance with accounting principles generally accepted in the United States of America and other statutory reporting requirements
- Establishing internal controls as needed to provide assurance regarding the reliability of financial reporting
- Providing support to external auditors
- Providing reports and financial analyses to the NMS Plan Participants as warranted

2.15.2.4 Tax Filings and other Financial Information Requirements

The CAT will likely be subject to federal, state and local taxation and/or filing requirements. The Bidder will be required to support tax reporting and compliance functions on behalf of the CAT. The NMS Plan Participants reserve the right to hire additional outside tax advisers for the CAT as deemed necessary.

As part of the finance activities, these requirements include:

- Preparing tax returns and maintaining supplemental support as required
- Understanding and documenting tax law requirements by jurisdiction
- Establishing policies and procedures needed to ensure compliance with all applicable tax laws
- Submitting timely filings and payments to tax authorities
- Providing support for and managing tax audits
- Supporting tax planning
- Providing relevant reports to the NMS Plan Participants as warranted

2.15.3 Legal Requirements

From time to time, the CAT may be required to perform legal activities related to the management and operation of the CAT. These activities may include the following:

- Drafting and reviewing of non-disclosure agreements, non-compete agreements and other contracts
- Advising and managing licensing and maintenance agreements (e.g., software and vendor), which includes initiating and drafting the contracts, coordinating with various constituencies and escalating as needed, and working closely with procurement services
- Modifying service level agreements (SLAs) as necessary
- At the direction of the NMS Plan Participants, interacting with the SEC and providing analysis on interpretive issues concerning the CAT

2.15.4 General Support Requirements

2.15.4.1 Procurement Requirements

The CAT may require the acquisition of supplies and professional services in order to operate it in an effective manner. Examples of such procurement activities that may be required of the CAT include:

- Identifying and justifying the need to establish a vendor, supplier or professional services relationship to satisfy the requirements of the CAT
- Gathering information about, interviewing and selecting entities who can potentially satisfy the CAT's requirements for a product or service

- Conducting background reviews and reference checks concerning the quality of the particular product or service and identifying any requirements for follow-up products or services, including installation, maintenance and warranty needs
- Negotiating the price, the availability of customization possibilities and delivery requirements, and executing contracts on that basis, subject to the approval of NMS Plan Participants
- Ensuring contract fulfillment and that the preparation, shipment, delivery and payment of the applicable product or service are completed based on contract terms; installing and training with respect to the use of procured products or services may also be required and performed
- Evaluating the performance of products or services based on the usage, maintenance and any accompanying service support as they are consumed
- Renewing contracts as they expire or when the product or service is to be re-ordered; additional consideration should be given to continuing or changing the existing contractual relationship based on performance or other relevant considerations
- Producing reports for the procurement function such as purchase orders, supplier reports and asset management reports

2.15.4.2 Facilities Management Requirements

The selected Bidder will provide facility management services to support the operation of the CAT, including, for example, the management of office space for the CCO and CAT staff.

2.15.4.3 Audit and Examination Support Requirements

The selected Bidder will be required to support internal and external audits of the operation of the CAT, as well as oversight examinations by the SROs and the SEC. For example, it is anticipated that the CAT will come under the oversight of the SEC's Automation Review Policy (ARP) program. Additionally, the CAT may be subject to a controls review (e.g., Statement on Standards for Attestation Engagements No.16, *Reporting on Controls at a Service Organization*). It is also possible that an external auditor may be hired by the NMS Plan Participants to conduct periodic audits of the CAT, with which the selected Bidder must fully cooperate.

The Bidder may also be asked to conduct full or partial internal audits of its performance of the functions necessary to operate the CAT.

In support of these audits and examinations, the Bidder's responsibilities could include:

- Drafting responses to questionnaires and participating in interviews and discussions with auditors, SRO staff and SEC staff
- Generating specialized reports and preparing written material for auditors, SRO staff and SEC staff
- Producing data and documents to auditors, SRO staff and SEC staff

3 RFP Response

This section describes the information that must be supplied by the Bidder in response to the CAT RFP. The Bidder must provide a written response to all information and questions that are listed in Section 3. The Bidder must provide requested technical materials, diagrams, customer references and other supporting material as a part of the response. The Bidder must highlight specific experiences and cite examples where applicable, throughout the sections below.

3.1 Executive Summary

In this section of the response, the Bidder must provide a summary of the key aspects of the proposed solution as listed below:

- Short overview of the qualifications of the Bidder
- Solution overview that addresses the technology, business and operational requirements of the CAT
- Overview of the team qualifications
- Identification of subcontractors (if applicable)

3.2 Customer and Account Information Management

3.2.1 Customer and Account Database

The Bidder must address the following with respect to customer information requirements:

(Refer to Section 2.2.2.1 “Customer and Account Database” and Section 2.2.2.2 “Customer ID” for the associated requirements)

1. Describe how customer/account information will be captured, updated and stored with associated detail sufficient to identify each customer
2. Describe how a unique Customer ID across all broker-dealers would be generated and stored for each unique customer captured in the account information database
3. Describe how the solution will support different types of customer and account structures
4. Describe how minor and material customer/account data information inconsistencies across broker-dealers will be handled
5. Describe how PII will be stored
6. Describe how PII access will be controlled and tracked

3.3 Order Lifecycle Assembly

The Bidder must address the following with respect to the order lifecycle assembly requirements:

(Refer to Section 2.2.3 “Order Lifecycle Assembly Requirements” for the associated requirements)

7. Describe how the Bidder will capture a single CAT-Reporter-ID for each CAT Reporter using a CRD number as the key identifier with the option of using LEI. The description should include an explanation of how the Bidder would associate the optional LEI with the required CRD number
8. Describe how the Bidder will capture existing market participant identifiers and associate those with the single CAT-Reporter-ID (i.e., CRD or LEI) for each CAT Reporter. The description should include how the Bidder will validate identifiers during the data ingestion process and incorporate CAT-Reporter-ID and existing market participant identifiers in the lifecycle linkage process
9. Describe how using the daisy chain approach will link all events in the lifecycle of each order and store the linkages so that targeted queries and comprehensive data scans can be run starting with executed trades and be quickly and efficiently summarized by Customer ID or account

number, and alternatively can be run starting with the initial receipt or origination of an order and be quickly linked to the ultimate execution, allocation or cancellation

10. Describe how a single CAT-Order-ID will be created and associated with each individual order event, regardless of the number of CAT Reporters involved in the lifecycle of the order or the number of different order identifiers assigned to individual events by each CAT Reporter involved in the order during its lifecycle. If the Bidder has an alternative to the daisy chain approach, the same detailed description describing how a single CAT-Order-ID will be created must be provided in addition to the daisy chain description so that the SROs may evaluate the merits of the alternative approach
11. Describe how a CAT-Order-ID will be assigned, using either the daisy chain approach or an alternative approach recommended by the Bidder and stored in each of the following scenarios for both equities and options:
 - Agency route to another broker-dealer or exchange
 - Riskless principal route to another broker-dealer or exchange capturing within the lifecycle both the customer leg and the street side principal leg
 - Order routed from one exchange through a routing broker-dealer to a second exchange
 - Order worked through an average price account capturing both the individual street side executions and the average price fill to the customer
 - Order aggregated with other orders for further routing and execution capturing both the street side executions for the aggregated order and the fills to each individual customer order
 - Complex order involving one or more options legs and an equity leg, with a linkage between the option and equity legs.
 - Complex order containing more legs than an exchange's order management system can accept, causing the original order to be broken into multiple ordersIf a particular scenario does not apply to either equities or options, provide an explanation. The Bidder should identify and describe examples of any other scenarios the Bidder is aware of, but are not listed above.
12. If an alternative approach to the daisy chain is recommended by the Bidder, address how the approach guarantees a unique link between all related order events without relying on any form of "fuzzy" matching and prevents information leakage
13. Describe how the Bidder will ensure the accurate and efficient time sequencing of all order events within a single CAT Reporter and/or between multiple CAT Reporters

3.4 Data Validation

The Bidder must address the following with respect to the data validation and error handling requirements:

(Refer to Section 2.4 "Data Validation Requirements" for the associated requirements)

14. Describe how data format and context validations for order and quote events submitted by CAT Reporters will be performed and how rejections or errors will be communicated to CAT Reporters
15. Provide a system flow diagram reflecting the overall data format, syntax and context validation process that includes when each type of validation will be completed and errors communicated to CAT Reporters, highlighting any dependencies between the different validations and impacts of such dependencies on providing errors back to CAT Reporters
16. Describe how related order lifecycle events submitted by separate CAT Reporters will be linked and how unlinked events will be identified and communicated to CAT Reporters for correction and resubmission. Include a description of how unlinked records will be provided to CAT Reporters for correction (e.g., specific transmission methods and/or Web-based downloads)
17. Describe how account and customer information submitted by broker-dealers will be validated and how rejections or errors will be communicated to CAT Reporters

18. Describe the mechanisms that will be provided to CAT Reporters for the correction of both market data (i.e., order, quotes and trades) errors, and account and customer data errors. Include a separate description for batch resubmissions and manual Web-based submissions

3.5 Central Repository

The Bidder must address the following with respect to the following central repository requirements:

(Refer to Section 2.5 “Central Repository Requirements” for the associated requirements)

19. Describe the strategy for managing five years of data that must be accessible to SRO regulatory staff and the SEC in a timely and accurate manner. The strategy must provide for the accessibility of both processed and unprocessed data
20. Describe the strategy for archiving an additional two years of data once it is removed from the central repository (after five years). Indicate the estimated annual cost to maintain the archive for each year of archived data. Describe the process for retrieving, storing and accessing archived data
21. Describe the methods for data protection to ensure no data loss, such as backup/recovery and/or replication adequate to protect the repository from both physical and logical loss of data. Include time estimates for the recovery of data, should loss in the primary data store occur
22. Describe how the central repository can be scaled for growth in the following areas:
 - The number of issues accepted by the CAT
 - The types of messages accepted by the CAT
 - The addition of fields stored on individual data records
 - Increases in any data type due to market growth
23. Describe technical interfaces that will enable timely and accurate retrieval of information by SRO regulatory staff and the SEC

3.5.1 Data Feed Management

The Bidder must address the following to meet data feed management requirements:

(Refer to Section 2.5.1.1 “Data Feed Management” for the associated requirements)

24. Describe a capacity management approach for peak periods
25. Describe manual data entry method(s)
26. Describe how the data ingestion infrastructure will support changes to data structures, including the addition of new data types, new data fields, data elements and field values, as well as other technology changes required to support changing market structures and new regulatory requirements on an ongoing basis
27. Describe the methods of managing connectivity covering the following feed types:
 - Exchange and FINRA CAT Reporters
 - Broker-dealers
 - SIPs
 - OCC
 - SRO Regulatory staff and the SEC
28. Describe the procedure for the identification issues, escalation process, corrective action and reporting paradigm
29. Describe whether feed management is part of Help Desk case management. If so, describe how it is integrated. If not, describe how feed monitoring would be accomplished
30. Describe severity levels and expected behavior given those severity levels
31. Describe a method to manage health of batch jobs and real time feeds

3.5.2 Issue Symbolology

The Bidder must address the following to meet issue symbology requirements:

(Refer to Section 2.5.1.2 “Issue Symbolology” for the associated requirements)

32. Describe how issue symbol validations and error corrections will be performed
33. Describe the strategy for tracking and maintaining an accurate history of issue symbol and/or market class changes
34. Provide a description of an issue symbol history tool and how users will access the tool
35. Describe how complex orders at different exchanges using different symbology conventions will be standardized

3.5.3 Capacity Performance

The Bidder must address the strategy and approach for scaling the system for increases in data volumes or data access and provide capacity details of the proposed CAT solution:

(Refer to Section 2.5.2 “Capacity Performance Requirements” for the associated requirements)

36. Describe how the system was sized and the expected processing times
37. Describe the strategy to support the expected increase in data volumes, including what hardware changes or upgrades are anticipated to support the increases in data volumes
38. Describe the expected processing performance of the system, including processing times and the peak volume the system can handle within the processing timeline
39. Describe the performance of the system during simultaneous access
40. Describe the scalability range (describe increments and maximum possible). Include how the system can be scaled up for peak periods and scaled down as needed. Include any applicable lead times to scale the systems
41. Provide estimated costs to add capacity and scale the system
42. Describe the data access response times for various example queries and data requests and how the system will handle concurrent user requests, including any limits of the system. Include details of how the system will respond if any of the limits are exceeded

3.6 System Overview Description

In the following questions, the Bidder will be asked to provide a high-level description of the proposed solution that fulfills the current CAT requirements and addresses the details of the hardware, software, system and data flows.

3.6.1 Technical Architecture

The Bidder must address the following in its response:

(Refer to Section 2.6 “Technical Architecture Requirements” for the associated requirements)

43. Describe the solution’s overall technical architecture, which should address:
 - System architecture
 - Application(s)
 - Logical and physical data architecture
44. Describe hardware and software requirements for the proposed solution including the following:
 - Operating systems
 - Hardware
 - Storage, DBMS and in-memory databases

- Application/Web server technology
 - Programming language(s)
 - Hosting/firewall architecture
 - Middleware, message queues and use of clustering or high-availability features
45. Describe details of where the technology is sourced, including vendors, internally developed, open source, leveraged, licensed or shared with existing solutions
 46. Describe other system resources requirements, such as job scheduler, system and security monitoring tools
 47. Identify third-party products that will be used in the build and operation and provide descriptions and details of how they will be used in the solution
 48. Describe the initial hardware requirements and how the hardware architecture and design address:
 - Scalability to increase capacity to handle a significant increase in the data volume beyond the baseline capacity
 - Adaptability to support future technology developments and new requirements
 - Maintainability to ensure that technology is kept current, supported and operational
 49. Describe the system interfaces, including data submission, data access and user interfaces
 50. Describe the network architecture and describe how the solution will handle the necessary throughput, processing timeline and resubmissions
 51. Describe how the architecture and various components will be used to meet the processing, retention and access requirements and how it can be enhanced and expanded for future capacity and functional capabilities
 52. Describe the availability of the solution, that addresses the ability of the system to complete processing and respond to user queries and data requests
 53. Describe any planned system downtime or maintenance windows and start-up time requirements
 54. Describe the different environments required to support the different system development lifecycles (e.g., development, production, testing and disaster recovery) and sizes and how they are used
 55. Describe expected response time for a query, concurrency and supported user load
 56. Identify any existing technical architectures or solutions used in the response and any licensing arrangements needed
 57. Describe any system redundancy and fault tolerance the proposed architecture includes that protects against soft application or operating system failure (e.g., operational with downgraded response)
 58. Describe any hardware, software or network requirements for CAT Reporters to submit data to the CAT processor. If multiple methodologies are supported provide the details for each methodology
 59. Describe the proposed messaging and communication protocols used in data submission and retrieval
 60. Describe the advantages of the proposed messaging and communication protocols over existing industry standards and how it addresses the following points:
 - Bandwidth and latency
 - Efficient serialization and parsing
 - Messaging protocol's extensibility and backward compatibility
 - Communication protocol's reliability, recoverability and session management
 61. Describe the plan for development of the interfaces for the proposed messaging protocols
 62. Describe the process and associated protocols for accepting batch submissions and delivering batch retrievals
 63. Describe the process and any associated protocols for supporting manual data submissions
 64. Provide architecture diagrams to illustrate the Bidder's platform design

3.6.2 Security

To ensure that proper security and controls are built into the system, the Bidder is required to:

(Refer to Section 2.7 “Security Requirements” for the associated requirements)

65. Describe how the solution protects data during transmission, processing and at rest (i.e., when stored in the central repository)
66. Describe, in detail, the specific security governance/compliance methodologies utilized in the proposed solution
67. Describe how access to the data is controlled and how the system(s) confirms the identity of persons (e.g., username/password), monitors who is permitted to access the data and logs every instance of user access
68. Describe what system controls for users are in place to grant different levels of access depending on their role or function
69. Describe the strategy, tools and techniques and operational and management practices that will be used to maintain security of the system
70. Provide a description of the proposed system controls and operational practices
71. Provide information regarding the organization’s security auditing practices, including internal audit, external audit, third-party independent penetration testing and all other forms of audit and testing
72. Describe how security practices may differ across system development lifecycles and environments that support them (e.g., development, testing and production)
73. Describe in detail the data loss prevention program (DLP). Include information pertaining to strategy, tools and techniques and operational and management practices that will be used
74. Describe the process of data classification and how it relates to the DLP architecture and strategy
75. Describe experiences in developing policies and procedures for a robust security environment, including the protection of PII data
76. Describe the use of monitoring and incident handling tools to log and manage the incident handling lifecycle
77. Describe the approach(es) to secure user access, including security features that will prevent unauthorized users from accessing the system. This should include necessary protection on both unauthorized submission of data and access to data
78. Describe the processes/procedures followed if security is breached
79. Describe the infrastructure security architecture, including network, firewalls, authentication, encryption and protocols
80. Describe the physical security controls for corporate, data center and leased data center locations

3.6.3 Data Access

The Bidder must address data access tools in the proposed CAT solution:

Online Query Tools:

(Refer to Section 2.8.1 “Online Query Tool Requirements” for the associated requirements)

81. Describe the tools and reports that would be provided to allow for the extraction of data search criteria outlined in Section 2.8.1
82. Describe how the solution will accommodate simultaneous users from SRO regulatory staff and the SEC submitting queries
83. Describe the expected response times for query results, the manner in which simultaneous queries will be managed and the maximum number of concurrent queries and users that can be supported by the system within the described minimum response times

84. Describe the format in which the results of targeted queries will be provided to users (e.g., online, spreadsheet files, .txt files, .csv files and zip files)

Bulk Data Extraction:

(Refer to Section 2.8.2 “Bulk Data Extraction Requirements” for the associated requirements)

85. Describe the methods of data delivery that would be made available to SRO regulatory staff and the SEC
86. Describe any limitations on the size of data that can be delivered at onetime, such as number of days or number of terabytes in a single transmission
87. Describe how simultaneous bulk data requests will be managed to ensure fair and equal access to CAT data by SRO regulatory staff and the SEC

3.7 System Availability, Disaster Recovery and Business Continuity Plans

The Bidder is required to provide system availability, disaster recovery and BCP for the proposed CAT solution. The Bidder must address the following:

(Refer to Section 2.9 “System Availability, Disaster Recovery and Business Continuity Plans” for the associated requirements)

88. Describe a solution for routing the data submission processes and the data retrieval requests to the secondary data processing site
89. Describe how the secondary data processing site will be synchronized
90. Describe its redundant components and interfaces. Indicate how redundancy is achieved and how redundant components and interfaces will be managed
91. Describe its failure detection, operational monitoring and failover processes for an entire site or for individual components
92. Describe the Bidder’s BCP for both staff and technology
93. Describe the Bidder’s experience and capabilities to develop a robust BCP
94. Provide description of the geographic location(s) of the disaster recovery site

3.8 Build Project Management

The Bidder must address the following to meet the build project management requirements:

(Refer to Section 2.10 “Build Project Management” for the associated requirements)

95. Describe the tools and systems that will be used for managing the project
96. Describe project milestones and completion times relevant to a start date
97. Describe the project check point process
98. Describe project management practices and processes
99. Describe the system development methodology and approach that will be used
100. Describe project milestones and the associated deliverables and provide a high level Gantt chart (monthly) identifying project work streams, work breakdown structures (WBS), dependencies and effort
101. Describe the expected resources that would be applied to the project management function

3.9 Operations

3.9.1 Program Management

The Bidder must provide details of program management practices in the proposed CAT solution:

(Refer to Section 2.11.1 “Program Management” for the associated requirements)

102. Describe the program management strategy and methodology

3.9.1.1 Project Management

The Bidder must provide project management support that will maximize the successful accomplishment of all contract requirements. The Bidder must address project management practices in the proposed CAT solution:

(Refer to Section 2.11.1.1 “Project Management” for the associated requirements)

103. Describe the project management methodology

104. Describe information on the tools and systems that will be used for managing the projects

105. Describe project management capability with special reference to large scale software and hardware projects, which may include new facilities, new companies, new personnel, numerous competitive customers and stakeholders including government agencies

3.9.1.2 Change Management

The Bidder must address change management practices in the proposed CAT solution:

(Refer to Section 2.11.1.2 “Change Management” for the associated requirements)

106. Describe the change management strategy

107. Describe the experiences in change management processes and methodologies used

108. Describe information on change management tools and include samples if available

3.9.1.3 Industry Testing

The Bidder must address industry testing practices in the proposed CAT solution:

(Refer to Section 2.11.1.3 “Industry Testing” for the associated requirements)

109. Describe how the Bidder will coordinate industry-wide tests, including the technology environment where the testing will be conducted, the scope of CAT Reporters to be included in the testing (e.g., all CAT Reporters or subsets of CAT Reporters based on profile information), other data providers that need to participate (e.g., SIPs and OCC) and how the industry-wide test will be communicated to testing participants

110. Describe how testing results will be identified and communicated to testing participants. The description should address how errors identified during testing will be communicated to CAT Reporters (e.g., whether errors identified during testing will be communicated to CAT Reporters in the same manner as in a regular production environment)

3.9.1.4 Quality Assurance

The Bidder must address the QA and testing measures of the proposed CAT solution:

(Refer to Section 2.11.1.4 “Quality Assurance” for the associated requirements)

111. Provide an overview of the QA approach for the CAT

112. Describe QA methods with respect to the following test categories:

- System testing
- Integration testing
- Regression testing
- Software performance testing
- System performance testing
- Application programming interface (API) testing
- User acceptance testing
- Interoperability
- Security

- Load and performance testing
 - CAT Reporter testing
113. Describe the firm's experience with QA
 114. Describe how many QA resources would be assigned to the CAT
 115. Describe the labs and facilities that will be used by QA group(s), if applicable
 116. Describe how load testing will be accomplished
 117. If there is an intention to benchmark QA, describe how this benchmarking would occur
 118. Describe whether QA is responsible for source code review and control
 119. Describe how QA is involved in the rollout of new hardware and software
 120. Describe the metrics that will be used to evaluate the effectiveness of the QA role
 121. Describe the resources assigned to QA in terms of people (e.g., numbers of people and skill sets)
 122. Provide examples of sample test plans and test scripts

3.9.2 CAT Support Functions

The Bidder must address details of the CAT support functions:

(Refer to Section 2.13 "CAT Support Functions" for the associated requirements)

123. Describe the functions of operations staff that will be in place to monitor CAT operations and technical support on a 24x6 basis
124. Describe the ongoing monitoring of the CAT, including monitoring capacity, thresholds, errors, security access, network infrastructure and other conditions
125. Describe the automation strategy and tools that will be used to analyze the monitoring data to provide meaningful alerts to operations staff
126. Describe procedures that will cover testing and maintaining a disaster recovery plan

3.9.2.1 CAT Reporters and Users Support

The Bidder must address the support functions for CAT Reporters and CAT users in the proposed CAT solution:

(Refer to Sections 2.13.1 "CAT Reporter Support" and 2.13.2 "CAT User Support" for the associated requirements)

127. Describe the design and content of the secure website, including functionality available for both broker-dealers and SROs with respect to daily monitoring of data submissions and reporting and correcting data. The description should include who within the Bidder's organization would be responsible for the development and ongoing maintenance of the website
128. Describe the design and content of the public website, including who within the Bidder's organization would be responsible for the development and ongoing maintenance of the website
129. Describe how the Bidder will communicate with CAT Reporters for all aspects of CAT reporting, including, but not limited to: system outages, delays, software/hardware updates and upgrades, pending rule changes, technical specifications, testing and other issues affecting CAT Reporters' ability to submit data to the CAT
130. Describe how information about CAT Reporters, including contact information, would be managed
131. Describe how CAT Reporter entitlements and reporting relationships would be managed
132. Describe the design and content of the CAT Compliance Report Cards, including the frequency of publication

3.9.2.2 CAT Help Desk

The Bidder must address the CAT Help Desk function in the proposed CAT solution:

(Refer to Section 2.13.3 "CAT Help Desk" for the associated requirements)

133. Describe how the Bidder will staff the CAT Help Desk, including its planned management structure and how many full-time equivalents (FTEs) will be devoted to the Help Desk as well as the skill level of the FTEs and their locations
134. Describe the telecommunications technology that will be used to manage a minimum of 2,500 calls per month on a 24x7 basis
135. Describe how Help Desk staff will be trained to ensure they can efficiently and effectively respond to all inquiries
136. Describe the tools that will be available to Help Desk staff to respond to inquiries from CAT Reporters, SRO regulatory staff and the SEC
137. Provide escalation timetables and escalation procedures for unsolved problems
138. Describe the process for setting up new CAT Reporters, including the assignment of CAT-Reporter-IDs, CAT entitlements and testing prior to submitting data to the CAT
139. Describe the management of CAT Reporter authentication and entitlements
140. Describe the management of SRO regulatory staff and SEC authentication and entitlements to obtain data for regulatory purposes

3.9.3 CAT Compliance Function

The Bidder must address the following with respect to the CAT Reporter compliance requirements:

(Refer to Section 2.14 “CAT Reporter Compliance” for the associated requirements)

141. Describe the approach and methodology that the Bidder will use to monitor the maximum allowable error rate defined in the NMS Plan and to identify and recommend potential future adjustments
142. Describe the process that will be used to calculate the daily error rate, including all of the individual components that will be included in the error rate calculation (e.g., timeliness, rejections and matching)
143. Describe the internal tools and reports that will be developed and used to monitor daily error rates and identify all CAT Reporters exceeding the maximum allowable error rates both daily and for specified periods of time (e.g., monthly or quarterly)
144. Describe the tools and mechanisms that will be used to notify CAT Reporters they have exceeded the maximum allowable error rate both on a daily basis and over a specified period of time
145. Describe the tools and reports that will be provided to CAT Reporters to monitor daily error rates and aggregate error rates over periods of time, including CAT Reporter Compliance Report Cards
146. Describe the tools and mechanisms that will be developed and used to identify CAT Reporters that fail to submit all CAT reportable events
147. Describe the tools and mechanisms that will be developed and used to identify CAT Reporters that fail to correct errors within the established timeframes
148. Describe the tools and reports that will be provided to SROs to monitor their members' compliance with CAT reporting requirements
149. Describe the tools and reports that will be provided to the NMS Plan Participants to monitor the quality and integrity of CAT reporting by all CAT Reporters

3.10 Business Administration

The Bidder must address the administrative practices in the proposed CAT solution:

(Refer to Section 2.15 “Business Administration Requirements” for the associated requirements)

150. Describe the methodologies for setting up, performing and managing the following administrative functions:
 - Reporting and oversight

- Finance
- Legal
- General support

3.10.1 Reporting and Oversight

The Bidder must address the following reporting and oversight activities:

(Refer to Section 2.15.1 “Reporting and Oversight Requirements” for the associated requirements)

151. Describe the methodologies for providing and producing reports on the operation and maintenance of the CAT solution. Reports may include items such as board-level operational and performance management information on issues such as financial performance and risk management

3.10.2 Finance

The Bidder must address the following with respect to the finance requirements:

(Refer to Section 2.15.2 “Finance Requirements” and sub-sections under Section 2.15.2 for the associated requirements)

152. Describe how the solution meets the CAT requirements, which should include a minimum of the following:

- Overall design of finance functions to support the CAT
- Systems and tools to be utilized
- Staffing and qualifications of key personnel that will be responsible for this function
- Key policies and procedures expected to be implemented
- Internal financial controls strategy
- Prior firm experience managing this function
- Reporting capabilities
- Expected service levels
- Scalability of proposed solution
- How tax compliance will be assured

3.10.3 Legal

The Bidder must address details of the legal framework of the CAT:

(Refer to Section 2.15.3 “Legal Requirements” for the associated requirements)

153. Describe which legal agreement/framework is recommended. This includes the identification of legal work that will be conducted in-house and legal work for which outside counsel will be brought in

Contracts and legal agreements with CAT Reporters and others:

154. Describe the Bidder’s experience advising and managing licensing and maintenance agreements

155. Provide a sample contract/agreement if possible. If different agreements would be used for different types of participants, provide an example of each type. Agreements include, but are not limited to:

- Non-disclosure agreements
- Non-compete agreements
- Intellectual property (IP) agreements
- Software licensing agreements
- SLAs

156. Describe the provisions that will be included in such agreements to ensure to the satisfaction of users of the CAT that transaction data will only be capable of being accessed or used by employees of the CAT itself (as distinct from any parent company or affiliate), NMS Plan Participants and the SEC, and that under no circumstances may any transaction data be sold to another party by either the CAT itself or any affiliate of the CAT operator
157. Describe the proposed information barrier that would exist for the CAT transaction data to ensure that CAT data would not be improperly shared with any party not entitled to receive such data

Experience reporting and responding to legal, regulatory and interpretative issues involving regulatory requirements to regulatory oversight boards and the SEC:

158. Describe the Bidder's experience reporting to regulatory oversight bodies, including regulatory oversight boards (the Bidder will be required to regularly report to oversight bodies, including the NMS Plan Participants)
159. Describe the Bidder's experience regarding interactions with the SEC in addressing interpretive and regulatory issues

3.10.4 General Support Functions

3.10.4.1 Procurement

The Bidder is required to address the following details with respect to procurement requirements:

(Refer to Section 2.15.4.1 "Procurement Requirements" for the associated requirements)

160. Describe the methods for conducting background reviews and reference checks concerning the quality of the particular product or service
161. Describe the methodologies for price negotiation, delivery requirements and contract execution (subject to approval from the NMS Plan Participants)
162. Describe the methodologies for ensuring contract fulfillment
163. Describe the process to renew contracts as they expire or when the product or service is to be re-ordered

3.10.4.2 Facilities Management

The Bidder is required to address the following to meet the facilities management requirements:

(Refer to Section 2.15.4.2 "Facilities Management Requirements" for the associated requirements)

164. Describe the methodologies to maintain the facilities to support the operation of the CAT solution

3.10.4.3 Audit and Examination Support

The Bidder is required to address the following details to meet the audit and examination support requirements:

(Refer to Section 2.15.4.3 "Audit and Examination Support Requirements" for the associated requirements)

165. Describe the methods for responding to questionnaires and participating in interviews and discussions with auditors, SRO staff and SEC staff
166. Describe the preparation process for providing written material to auditors, SRO staff and SEC staff

3.11 Company Information

This section provides an overview of the Bidder information that the SROs will consider when evaluating the RFP responses. The company information will be broken into several sections to provide specific areas of focus. The Bidder will be required to supply information about its areas of

focus, industry expertise, hiring and management of talent and the processes and methodologies used to deliver services.

3.11.1 Company Profile

The Bidder must include details of current and past experiences of the company, including an overview of the operating structure, years in operation, experience within the securities industry and with projects similar to the scope and scale of the CAT solution and the typical services and clients to which the company has provided its services.

The Bidder must include additional relevant information that supports the company's previous and present day experiences:

- 167. Describe the legal entity or entities that will be providing the services, including details of relevant jurisdictions of incorporation
- 168. Describe the company's ownership structure (privately held or publicly owned)
- 169. Describe the total years of business operations and when the entity was established. If the Bidder intends to establish a separate entity to operate the CAT, indicate the equivalent information for the parent company or companies
- 170. Provide a summary of the parent company's ownership structures, including affiliates and details of relevant jurisdictions of incorporation, etc.
- 171. Describe the business purpose of the company and the organization responding to the RFP

3.11.2 Experience and Skills

The Bidder must provide a summary of the company's experience and skills in the securities industry. The following details should be addressed, in addition to any other relevant information that will highlight past experience and skills:

- 172. Describe details regarding the company's past experience within the securities industry, including relevant projects and/or engagements. Identify any such projects that are similar in the size and scope of the CAT
- 173. Describe any other experience the Bidder believes is relevant to its response
- 174. Describe examples of the Bidder's existing technologies and capabilities on such projects

3.11.3 Company Financial Information

The Bidder must provide details of the company's financials that demonstrates the viability and stability of the company to build and operate the CAT technical infrastructure and operations. Relevant information that supports the financial viability of the company must be provided.

- 175. Provide two years of audited financials, including, but not limited to, balance sheets, cash flows and income statements
- 176. Provide the credit rating of the company over the last two fiscal years
- 177. Describe any extraordinary financial obligations that the company is committed to over the next three years that might affect its ability to perform
- 178. List any anticipated regulatory or business changes that may positively or negatively affect the financial condition of the company

3.11.4 Client Overview

Provide an overview of the Bidder's clients and market focus, as well as any other relevant information as described below:

- 179. Identify high profile clients
- 180. Describe types of clients and the typical sizes of engagements

181. Describe typical services provided to the clients
182. Provide three client references for the services provided

3.11.5 Staffing

This section highlights the company's approach to hiring, training and retention, as well as to staffing the CAT activities.

3.11.5.1 Onboarding and Training

The Bidder must address the policies and processes to hire, onboard and train company staff.

183. Provide details regarding the various criteria considered while recruiting/hiring professionals. The details must include the following information, in addition to any other relevant points:
 - Procedures and criteria for background checks of employees
 - Details of drug testing the company performs
 - Details of current process for fingerprinting employees
 - The approximate timeframe involved in hiring and onboarding of professionals
184. Provide detailed descriptions of the training program to ensure employees maintain current technical and industry knowledge

3.11.5.2 Staffing Organizational Chart

The Bidder must provide an overview of the staffing model, skill sets and an organizational chart that describes the team structure, roles and responsibilities in the execution of the build, operations and administration. In addition, the Bidder must provide detailed biographies of the anticipated key staff of the engagement.

3.11.5.3 Staffing

185. Specify the resources, including job title, job description and number of FTEs, that are being proposed to staff the CAT by completing the table below. This should include all staff required by the Bidder to meet the requirements for providing all CAT-related services. For example, this should include operations, support, development, engineering, project management and process support staff
186. Provide a job description for each job title. The job description should include principal job responsibilities, skills, job experience and education required for the job

Job Title	Job Description	No. of FTEs	Location

3.11.6 Subcontractors

Address details of all vendor relationships that the Bidder will directly or indirectly use to deliver the functions contained in the RFP.

187. Provide a list of third-party products and subcontractors that are material to the delivery of the functions contained in the RFP
188. Describe the relationship with each subcontractor, including a description of the role of the subcontractor
189. Describe how the company will manage the subcontractors

3.11.7 Offshoring

The Bidder must provide details of the proposed offshoring operating models and capabilities. The Bidder must also provide details and supporting evidence to illustrate the processes and controls that the company has taken to remain in compliance with applicable SEC and other regulatory requirements. Information must include the following details and all other relevant information to describe the current and future state of offshoring models:

190. Describe any affiliates or subsidiaries the Bidder intends to leverage to deliver the functions contained in the RFP
191. Describe any offshore services the Bidder intends to use to deliver the functions contained in the RFP, including process and communication protocols between the onshore and offshore staff. Describe the measures that will be taken to ensure the safety of IP and data

3.12 Contracts and Terms

This section provides an overview of contractual and commercial terms for which the Bidder must provide information, as well as an overview of service level terms on which the Bidder must provide information. The information will be broken into several sections to provide specific areas of focus.

3.12.1 Contractual Proposal

The Bidder must provide information regarding the contractual arrangement proposed for the provision of CAT services. The Bidder must consider an initial contract term of five years, followed by renewal options of three years. The Bidder must be as specific as possible and include all contractual terms that are material for the Bidder, including clauses that contemplate the partial or full termination of the contractual relationship with the CAT. The Bidder must:

192. Provide a draft contract with the material terms and conditions that the organization proposes to use if selected as the CAT service provider
193. Specify the scenarios and financial terms that the Bidder will include in the contract relating to partial and full termination of services (e.g., negligence or no payment)
194. Provide a description of the financial terms of the proposed penalty clause

Contractual arrangements are subject to negotiations. Further guidance will be issued during the selection process, (e.g., penalty clauses that the Bidder will be subjected to in the event that system, operational and/or administration SLAs are not met).

The SROs expect to retain ownership of all IP contributed by them to the CAT processor in connection with CAT services and to own all IP developed on behalf of the CAT or otherwise in connection with the provision of CAT services. The SROs also expect to receive a royalty-free license to use, modify and sublicense (in connection with the CAT) any pre-existing IP that the CAT processor uses to provide the services. Alternative IP ownership and licensing proposals may be considered, with consideration given to costs, benefits and risks of such alternate proposals.

195. Where relevant, the Bidder must provide details of any alternative IP ownership and licensing proposals, as well as the Bidder's assessment of such cost, benefit and risk considerations.

3.12.2 Commercial Terms

As part of the response to this RFP, the Bidder must provide a schedule of the anticipated total cost of ownership of building, operating and maintaining the CAT that will be passed through to the CAT. The Bidder must complete the Cost Schedule provided in Appendix II and provide cost information for the five year period following the award of the contract.

The Bidder estimates must be broken down by the technical, operational and administration costs it anticipates to incur to develop, deploy, operate and maintain the CAT services described in this document. The Bidder must provide as much transparency as possible for the one-time cost for the build and deployment period, populating the items listed in the schedule. The Bidder must provide total technology, operations and administration costs for the operation and maintenance efforts, as appropriate.

Where further transparency is required, the Bidder must provide additional information on its cost estimates and underlying assumptions as part of the CAT selection process.

All costs should be quoted in U.S. dollars. Note that the Bidder must:

196. Provide a description of the pricing methodology used to price the CAT
197. Provide any onetime startup costs required by the Bidder to set up, develop and/or deploy the necessary technical, operational or business administration capabilities to provide CAT services, if any
198. Provide the annual recurring costs associated with providing CAT services for each line item in the Cost Schedule provided in Appendix II. For each line item, the Bidder must estimate the following:
 - Number of FTEs
 - FTE costs
 - Hardware/infrastructure costs
 - Software costs
 - Other costs (e.g., real estate costs) not included above
199. Specify any additional material costs that will be passed through to the CAT under Section 4, "Other Material Costs," of the Cost Schedule
200. Specify key assumptions used to drive the Bidder's Cost Schedule to provide further insights into the solution, if not included elsewhere as part of the response
201. As requested, provide additional cost information as part of the CAT selection process in order to compare the costs associated with enhancement work that might be required to address future functionality requirements of the CAT

3.12.3 Conflict of Interest

The Bidder must disclose any interest or relationship that it has with any broker-dealer, entity, person or SRO that may be an apparent or actual a conflict of interest to the Bidder's ability to fulfill its obligations as CAT processor. For each such interest or relationship, the Bidder shall provide a written statement indicating the steps it has taken, or will take, to mitigate this apparent or actual conflict, prior to assuming the role of CAT processor.

Definitions

Alternative Display Facility (ADF): An SRO display-only facility operated by FINRA, the ADF provides members with a facility for the display of quotations, the reporting of trades and the comparison of trades

BD: Broker-dealer

CAT Reportable Event: CAT reportable events include, but are not limited to, new orders, quotes, modifications, cancels, order transmittals and executions

CAT Reporter: A national securities exchange, national securities association or a member of a national securities exchange or a national securities association

CAT-Order-ID: A unique order identifier or series of unique order identifiers that allows the central repository to efficiently and accurately link all reportable events for an order and all orders that result from the aggregation or disaggregation of such an order

CAT-Reporter-ID: With respect to each national securities exchange, national securities association and member of a national securities exchange or national securities association, a code that uniquely and consistently identifies such person for purposes of providing data to the central repository

CMTA: Clearing Member Trade Agreement

CQS: Consolidated Quote System

CRD: FINRA operates the Central Registration Depository, the central licensing and registration system for the U.S. securities industry and its regulators

CTS: Consolidated Trade System

Customer: The account holder(s) of the account at a registered broker-dealer originating the order and any person from whom the broker-dealer is authorized to accept trading instructions for such an account, if different from the account holder(s); for purposes of compliance with Rule 613, a customer is not a broker-dealer

Customer Account Information: Customer account information shall include, but not be limited to, account number, account type, customer type, date account opened and large trader identifier (if applicable)

Customer ID: A code that uniquely and consistently identifies such customers for purposes of providing data to the central repository

Error Rate: The percentage of reportable events collected by the central repository for which the data reported does not fully and accurately reflect the order event that occurred in the market

NMS Securities: Any security or class of securities for which transaction reports are collected, processed and made available pursuant to an effective transaction reporting plan, or an effective national market system plan for reporting transactions in listed options

OCC: The Options Clearing Corporation

OPRA: The Options Price Reporting Authority provides last sale information and current options quotations from a committee of participants

SIP: Securities Information Processor

Trade Reporting Facility (TRF): Transactions in exchange-listed securities effected by FINRA members otherwise than on an exchange are reported to a FINRA TRF. While each FINRA TRF is affiliated with a registered national securities exchange, each FINRA TRF is a FINRA facility and is subject to FINRA's registration as a national securities association

UQDF: UTP Quotation Data Feed

UTDF: UTP Trade Data Feed

Appendix I – Intent to Bid



02-26-13_CAT RFP
Intent to Bid Form v1

Appendix II – Cost Schedule



02-26-13_CAT RFP
Cost Schedule v1.0.x

Supplement I – Over-the-Counter (OTC) Equities [New as of January 30, 2014]

The SROs have considered the potential benefits of including OTC equities in the CAT and recommend that they be included in the initial phase of the CAT implementation.

The SROs believe that the inclusion of OTC equities will have minimal impact on the CAT implementation timeline, infrastructure and functionality. The inclusion of OTC equities may potentially reduce the amount of resources and costs to CAT Reporters. The SROs believe that including OTC equities could have several potential benefits, including:

- Many firms utilize the same order management and execution systems for both NMS listed securities and OTC equities, as the order and trading data formats for these security types are similar. The inclusion of OTC equities will eliminate the need for firms to filter out OTC equities data when submitting order and execution information to the CAT.
- As previously stated in Section 1.2 of this RFP, it is anticipated that the CAT will have significant overlap with existing regulatory reporting systems, such as EBS and OATS. The inclusion of OTC equities will provide a broader coverage of securities information submitted to the CAT; hence it provides the opportunity to more readily retire OATS and other systems upon full implementation of the CAT. The SROs believe that including OTC equities in the initial phase of the CAT implementation, as well as the regulatory information that such systems require in order to address their respective regulatory needs, will more quickly allow regulators and the securities industry to consider retiring redundant systems.

The inclusion of OTC equities in the CAT is expected to have minimal impact on the data storage requirements that are included in Section 2.5 of this document. The average daily number of transactions in OTC equities is approximately 100,000, while the average daily number of reports submitted to OATS for orders in OTC equities is approximately 3 million. These numbers are very small when compared to the estimated average of 58 billion records that will be submitted to the CAT on a daily basis.

The inclusion of OTC equities should cause minimal changes to Bidders' responses to the RFP, as the data format and order management systems used for OTC equities are similar to NMS stocks. An additional data source will need to be considered, however, as the OTC Reporting Facility (ORF) will provide OTC equities transaction data to the CAT similar to how the FINRA Trade Reporting Facilities do for NMS stocks. The questions in Section 3 of the RFP apply to both NMS stocks and OTC equities – the new requirement to include OTC equities in the first phase of CAT implementation does not affect the information requested from Bidders.

Supplement II – Options Market Maker Quotes [New as of March 3, 2014]

The SROs are considering the potential costs and benefits of the requirement for broker-dealers to report options market maker quotes. As such, the SROs are considering the specific cost impact of eliminating the requirement for broker-dealers to report options market maker quotes. In this scenario, exchanges would submit to the CAT the options market maker quotes sent to them by broker-dealer market makers. The elimination of this requirement may also necessitate the addition of a data field for broker-dealers to report the time market maker quotes were sent to an exchange.

As noted in the “Options” table in Section 2.5.1 of this document, the approximate average daily record count of options market maker quotes submitted by broker-dealers is 18 billion. If the requirement to report such information were eliminated, those records would not need to be collected or stored in the central repository.

The SROs are requesting that the Bidder provide in its RFP response, if possible, two alternative cost models: one that includes the assumption that broker-dealers must report options market maker quotes to the CAT and another that does not. The Bidder is also encouraged to include in its response a discussion of any other impacts elimination of the broker-dealer reporting requirement for options market maker quotes could have.