

Before the U.S. Senate Committee on Banking, Housing, and Urban Affairs
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I. Introduction

Chairman Crapo, Ranking Member Brown and Senators of the Committee, thank you for the opportunity to testify before you today about the progress made on developing the Consolidated Audit Trail system (“CAT System” or “CAT”). As you are aware, the national securities exchanges and the Financial Industry Regulatory Authority (“FINRA”) (as the only national securities association) are developing and operating the CAT System as Participants¹ to the National Market System (“NMS”) Plan Governing the CAT (the “Plan”).² The Securities and Exchange Commission (“SEC” or “Commission”) mandated both the Plan and the CAT System through adoption of Rule 613 of Regulation NMS.³

Described broadly, the CAT requires Participants, and will require broker-dealers (“Industry Members”), to submit information to the CAT System related to the inception, routing, cancellation, modification, or execution of an order.⁴ When completely implemented, the CAT System will receive, validate, and process such data to create lifecycles of orders across the markets. The Participants and the SEC will use the CAT System solely for regulatory purposes, querying the CAT System to facilitate their oversight of the securities markets and to help them fulfill their obligations under the federal securities laws. As noted in Rule 613, the Commission expects the Participants and Industry Members to share in the costs of the CAT, and the Plan includes a funding model consistent with the cost-sharing requirement of Rule 613.⁵

There has been significant interest in the CAT. Understandably, much of this interest has centered around the extent to which the system will include personally identifiable information (“PII”), the security of the system more generally, as well as the cost of the system. Before discussing these issues, I’d like to provide a little background on the CAT, tell you a little about the structure of the project and my role, and give you an update on the progress of the CAT System.

¹ The twenty-four Participants are: BOX Exchange LLC; Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe C2 Exchange, Inc. and Cboe Exchange, Inc.; FINRA; Investors’ Exchange LLC IEX; Miami International Securities Exchange LLC, Long-Term Stock Exchange, Inc.; MIAX Emerald, LLC, MIAX PEARL, LLC; NASDAQ BX, Inc., Nasdaq GEMX, LLC, Nasdaq ISE, LLC, Nasdaq MRX, LLC, NASDAQ PHLX LLC, The NASDAQ Stock Market LLC; and New York Stock Exchange LLC, NYSE American LLC, NYSE Arca, Inc., NYSE Chicago, Inc. and NYSE National, Inc.

² National Market System Plan Governing the Consolidated Audit Trail, Section 1.1 *available at* [https://www.catnmsplan.com/wp-content/uploads/2019/09/CAT-2.0-Consolidated-Audit-Trail-LLC%20Plan-Executed_\(175745081\)_ \(1\).pdf](https://www.catnmsplan.com/wp-content/uploads/2019/09/CAT-2.0-Consolidated-Audit-Trail-LLC%20Plan-Executed_(175745081)_ (1).pdf) [hereinafter the “Plan”].

³ Consolidated Audit Trail Adopting Release, Exchange Act Release No. 67,457, 77 Fed. Reg. 45,722 (Aug. 1, 2012) [hereinafter “Rule 613 Adopting Release”].

⁴ See generally Plan, *supra* note 2 (outlining the requirements of the CAT System).

⁵ See Regulation NMS, 17 C.F.R. § 242.613(a)(1)(vii)(D) (2019).

a. Background on CAT

By way of background, the Commission conceived of and ultimately mandated the CAT System to more effectively and efficiently conduct cross-market supervision of trading activity.⁶ The Commission has explained that the regulatory data infrastructure the Commission, the exchanges and FINRA currently rely on is outdated, inconsistent, and inadequate to effectively oversee a complex, dispersed, and highly automated national market system.⁷ Upon complete implementation, the CAT system will provide a number of significant benefits, including: (i) consolidated trading information across all markets and (ii) the ability to identify the trading of specific end-customers.

One practical example of limitations of current regulatory data relates to regulators' ability to reconstruct and analyze market events.⁸ According to the Commission, the lack of direct access to audit trail data resulted in the Commission's inability to quickly and efficiently reconstruct market events during the financial crisis in 2008 and the "Flash Crash"⁹ in 2010.¹⁰ In proposing SEC Rule 613, the Commission noted that while the existing audit trail information assisted the staffs of the SEC and the self-regulatory organizations in their regulatory responsibility to surveil for compliance with self-regulatory organization rules and the federal securities laws and regulations, it believed that existing audit trails were limited in their scope and effectiveness in varying ways.¹¹

To address this need, in August, 2012, the Commission adopted Rule 613¹² requiring the Participants to submit an NMS plan to create, implement, and maintain a consolidated audit trail for orders in NMS Securities.¹³ The Commission mandated that the Plan address activity across all markets, from the time of order inception through routing, cancellation, modification,

⁶ See Rule 613 Adopting Release, *supra* note 3 at 45,723.

⁷ See *id.* at 45,723; Joint Industry Plan; Order Approving the National Market System Plan Governing the Consolidated Audit Trail, Exchange Act Release No. 79,318, 81 Fed. Reg. 84,696, at 84,697 (Nov. 23, 2016) [hereinafter "CAT NMS Plan Adopting Release"].

⁸ See Consolidated Audit Trail Proposing Release, Exchange Act Release No. 62,174, 75 Fed. Reg. 32,556, at 32,557 (June 8, 2010) [hereinafter "Rule 613 Proposing Release"].

⁹ On May 6, 2010, the prices of many U.S.-based equity products suddenly plummeted and recovered almost as quickly. This event is referred to as the "Flash Crash." The Commission, along with the Commodity Futures Trading Commission, undertook an analysis of the Flash Crash. The Commission has explained that the available data "hindered staff in determining what happened to liquidity before, during, and after the Flash Crash. Two major problems were the inability to identify and eliminate duplicate orders from the data and the inability to accurately sequence events across the multiple data sources." Rule 613 Adopting Release, *supra* note 3 at 45,732.

¹⁰ CAT NMS Plan Adopting Release, *supra* note 7 at 84,834 n.2246.

¹¹ See Rule 613 Proposing Release, *supra* note 8 at 32,563-568.

¹² See Rule 613 Adopting Release, *supra* note 3.

¹³ For purposes of the Plan, "NMS Securities" are defined as "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." See Plan, *supra* note 2 at Section 1.1.

execution, and allocation, in accordance with the requirements of Rule 613. In September, 2014, the Participants submitted an initial proposed NMS plan to the Commission.¹⁴ Over the course of more than two years, the Participants filed two amendments to the initial NMS plan; upon publication, the SEC received dozens of comment letters on the proposed NMS plan from across the industry,¹⁵ many of which focused on the security of the CAT System. In addition to NMS Securities mandated by Rule 613, the Participants also determined to include OTC Equity Securities (NMS Securities and OTC Equity Securities collectively are “Eligible Securities”) within the initial scope of the CAT.¹⁶ The Participants proposed this to allow for a more expanded audit trail and to facilitate an expedited retirement of OATS (which applies to OTC Equity Securities as well as NMS stocks) as duplicative to CAT. In November 2016, the Commission unanimously approved the amended Plan developed by the Participants in accordance with the requirements of Rule 613.¹⁷

When the CAT System is fully operational it will address the regulatory need the Commission identified and facilitate multiple Participants’ ability to conduct their own market surveillance. In particular, the more granular order attribution information that will be available via CAT will help Participants make their surveillance programs more efficient and effective. As Participants develop regulatory systems that interact with CAT data, they may use CAT data to supplement targeted queries of their own exchange data and/or to build new exchange-specific surveillance to bolster regulation of individual markets and across markets. For example, Participants will more easily identify exchange-specific manipulative activity, such as opening and closing cross manipulation, using CAT data because a market participant may be entering manipulative orders on one exchange that are otherwise not visible to another exchange’s surveillance systems.

The CAT presents new opportunities to increase both regulatory effectiveness and efficiencies, and the Participants are committed to using the CAT System to reduce regulatory inefficiencies, including reducing regulatory duplication, in a manner that promotes the safety of the markets and the quality and effectiveness of the Participants’ regulatory programs.

b. Structure of CAT Project

To understand my role on the CAT project, it may be helpful to review the various stakeholders and contributors to the project. Consolidated Audit Trail LLC (“CAT LLC”) is a consortium of national securities exchanges and national securities associations. The Operating Committee is comprised of representatives of each Participant, serves as the governing body for

¹⁴ See Initial National Market System Plan Governing the Consolidated Audit Trail *available at* <https://www.catnmsplan.com/wp-content/uploads/2018/02/p600989.pdf>. The Participants worked with the Development Advisory Group (“DAG”), which consisted of broker-dealer representatives, to solicit industry feedback when creating the Plan.

¹⁵ See Securities and Exchange Commission File No. 4-698 *available at* <https://www.sec.gov/comments/4-698/4-698.shtml>.

¹⁶ For purposes of the Plan, “OTC Equity Securities” are defined as “any equity security, other than an NMS Security, subject to prompt last sale reporting rules of a registered national securities association and reported to one of such association’s equity trade reporting facilities.” See Plan, *supra* note 2 at Section 1.1.

¹⁷ See CAT NMS Plan Adopting Release, *supra* note 7.

CAT LLC and provides review, guidance, oversight and decision-making authority for the overall operations of the CAT System. The Operating Committee selects the Plan Processor, which is responsible for implementing and operating the CAT System. As mandated by Rule 613 and the Plan, the Operating Committee receives industry perspective and guidance from the CAT LLC Advisory Committee, which is a diverse group of industry representatives (*e.g.*, small, medium and large broker-dealers, floor broker-dealers, proprietary trading firms clearing firms, service bureaus, buy-side traders, academicians). There also are numerous working groups with discreet responsibilities related to the CAT project.

I have been involved with the CAT since the adoption of Rule 613, first as an employee of a future Participant and, since 2017, as Chair of the Operating Committee while also serving as an Independent Senior Advisor to Deloitte. I can represent to you that the Participants have been working, and continue to work, diligently and in good faith to comply with their regulatory obligations to build and operate the CAT in compliance with SEC Rule 613 and the Plan. In doing so, the Participants are working closely with staff of the SEC to ensure the CAT is designed and implemented in a manner consistent with regulatory expectations and with the Advisory Committee to ensure that the CAT is designed and implemented in a manner that is efficient and will benefit the industry-at-large.

Throughout the process of creating and operating the CAT, the Participants have been deliberate about ensuring that the CAT System and the data within the system are secure. The Participants are committed to developing and implementing a fully functional and secure CAT System in accordance with the timeline developed by the Participants and FINRA CAT, which was shared with the SEC.

II. Process of Developing and Implementing the CAT

In addition to developing the Plan that governs the overall operation of the CAT System, the Participants went through a rigorous process to identify a Plan Processor to develop, implement, and operate the CAT System. Understanding that this would be a challenging effort, the Participants began this undertaking well before the Commission ultimately approved the Plan. Specifically, the Participants developed a request for proposal (“RFP”) process and published a Proposed RFP Concept Document for public comment to get feedback on the feasibility and costs of implementing the CAT reporting requirements contemplated by the Plan. Participants also published information on the anticipated content and structure of the RFP so that interested bidders had the opportunity to review the scope of information they would have to provide in an RFP response. The Participants ultimately published an RFP in February 2013.

In September 2013, the Participants filed a separate NMS plan with the Commission, entitled the Plan Governing the Process of Selecting a Plan Processor and Developing a Plan for the Consolidated Audit Trail (“Selection Plan”). The Selection Plan governed how the Participants would ultimately select the Plan Processor. The Commission approved the Selection Plan in February 2014.¹⁸ Following the process outlined in the Selection Plan, 10 entities submitted responses to the RFP. The Participants heard oral presentations from all 10 entities and identified three finalists. The majority of Participants ultimately selected Thesys Technologies LLC

¹⁸ The Selection Plan was later incorporated into the Plan approved by the Commission on November 15, 2016.

(“Thesys”) in accordance with the voting procedures for the selection of the initial Plan Processor under the Selection Plan.

The relationship with Thesys did not progress in a satisfactory manner. After working closely with Thesys in an attempt to overcome what the Participants viewed as inadequacies in Thesys’ performance as Plan Processor, the Participants determined that Thesys could not remedy those inadequacies in a timely and cost-effective manner. Thereafter, the Participants determined to engage a new Plan Processor. Because the Participants understood and appreciated the urgent need to complete the CAT System, the Participants commenced an abbreviated selection process, contacting the two other finalists from the initial selection process. Earlier this year, the Participants selected FINRA, operating through a subsidiary (“FINRA CAT”), to serve as the successor Plan Processor. The Participants transitioned the project to FINRA CAT in order to facilitate the timely development and implementation of the CAT. Shortly thereafter, the Participants provided the Commission an updated plan outlining the phased timeline for implementing the CAT System.

III. Progress Update

Since transitioning the project to FINRA CAT, the Participants have made substantial progress toward meeting their obligations to build and operate the CAT. The Participants actually began submitting data to the CAT in November 2018, when Thesys was the Plan Processor, and have successfully submitted more than 13 trillion records to the CAT System since transitioning to FINRA CAT. Since commencing operations as Plan Processor, FINRA CAT has collected all data from the Participants, validated and linked all equity exchange data, and is on target to validate and link all options exchange data by February 2020. FINRA CAT also has completed various releases related to Participant reporting in a timely manner and has accelerated the delivery of multi-factor authentication—a key aspect of the security of the CAT System—by several months from the planned date of May 2020. Since selecting FINRA CAT as Plan Processor, there have been no production outages or major operational issues with the first technical release.

The Participants also have made substantial progress with regard to Industry Member CAT reporting (*i.e.*, CAT reporting by broker-dealers), which is scheduled to commence in April 2020. Industry Member onboarding is in progress, and the Participants have finalized the Technical Specifications for Industry Member reporting for the initial two reporting phases. Additionally, FINRA CAT has finalized Industry Member connectivity and completed Industry Member registration.

To place the progress made to date in perspective, it may be helpful to provide a sense of the scope and magnitude of the CAT project. The CAT System receives over 105 billion records per day on average and has processed a peak of 182 billion records from Participants alone on one day for options, Options Price Reporting Authority, options national best bid and offer, and equities exchange data. The Participants clearly have complied with the Commission’s charge to build a comprehensive system designed to be dependable, robust, and scalable.

Importantly, this progress has come about not only through the efforts of the Participants and the Plan Processor, but also due to the enhanced involvement of Advisory Committee members and Industry Members more broadly. The Participants and FINRA CAT have worked regularly and productively with the Advisory Committee and industry associations, such as the Securities

Industry and Financial Markets Association (“SIFMA”), Financial Information Forum, and the Securities Traders Association, to gather, assess, and answer numerous interpretive questions, publish Frequently Asked Questions (“FAQs”), assess timelines for Industry Member technical specifications and reporting, and otherwise develop a workable CAT. The Participants also met with the Investment Company Institute on topics related to the CAT System. The Commission staff, who regularly attend nearly all CAT meetings and calls, also have played an important role in discussions related to the development of the CAT. With the help of these various contributors, the Participants have been able to make significant progress in developing the CAT System and preparing the industry for a fully functional CAT System by publishing or providing 247 pages of technical specifications, 226 of FAQs, 10 workflow documents including a 367 page Industry Member Reporting Scenarios document and a 22 page on-boarding guide, and 24 webinars; and registering 1530 Industry Members.

Beginning next month, the Participants and the Plan Processor will work together, using a phased approach, to expeditiously achieve the following milestones: (i) large Industry Member testing (December 2019), (ii) large Industry Member reporting (April 2020), (ii) small Industry Member testing (December 2019), (iii) small Industry Member reporting (December 2021), and (iv) customer account and customer identifying information reporting by all firms (July 2022).¹⁹ The Participants are working to achieve all milestones, *i.e.*, achieve complete implementation of the CAT System, by July 2022.²⁰

IV. PII

I would like to discuss personally identifiable information. As noted earlier, the SEC has mandated that the CAT System be designed and developed to comply with the requirements of SEC Rule 613 and the Plan. Rule 613(c)(7)(i)(A) states that the Plan must require Participants and Industry Members to record and electronically report to the CAT System Customer-IDs for each order and each reportable event.²¹ Rule 613(j)(5) defines Customer-ID as “a code that uniquely and consistently identifies such customer for purposes of providing data” to the CAT System.²² Rule 613 does not define what qualifies as customer identifying information, but in proposing and adopting Rule 613, the SEC suggested that the CAT System “be responsible for assigning a unique customer identifier in response to an input by a [regulator] of a customer’s social security number or tax identification number”²³ and noted its expectation that the Participants “establish a process by which [the Customer-IDs] are reported to the [CAT System], and how this information is linked to the name and address of customers as stored in the [CAT System].”²⁴ Accordingly, the

¹⁹ Customer account and customer identifying information reporting may be impacted by the Participants' request for exemptive relief. *See infra* note 28 and accompanying text.

²⁰ The phased implementation involves a more detailed breakdown of the milestones, including milestones related to OATS reporting and non-OATS reporting small Industry Members.

²¹ Regulation NMS, 17 C.F.R. § 242.613(c)(7)(i)(A) (2019).

²² Regulation NMS, 17 C.F.R. § 242.613(c)(7)(i)(A) 613(j)(5) (2019).

²³ Rule 613 Proposing Release, *supra* note 8 at 32,573.

²⁴ Rule 613 Adopting Release, *supra* note 3 at 45,757.

Commission-approved Plan currently defines Customer Identifying Information as “information of sufficient detail to identify a Customer, including, but not limited to, (a) with respect to individuals: name, address, date of birth, individual tax payer identification number (‘ITIN’)/social security number (‘SSN’), individual’s role in the account (e.g., primary holder, joint holder, guardian, trustee, person with the power of attorney)....”²⁵

It is important to note that the inclusion of PII has been a point of contention since the inception of the CAT System. In fact, members of Congress, the SEC, Participants and others in the industry have raised security and privacy concerns related to the nature and volume of information to be included in the CAT System, with particular focus on the use and inclusion of customer identifying information. The Commission made clear, however, that the utility of the CAT System would be significantly degraded without a means to uniquely identify underlying customers.²⁶

The need to balance facilitating effective regulation using the CAT System against security concerns related to the breadth of sensitive information that will be in the CAT System remains paramount. Participants have been in discussions with the SEC and the industry on how best to balance these competing concerns. To that end, the Operating Committee formed a PII Working Group to research and recommend potential alternatives regarding the handling of PII in the CAT System.

After considering various alternatives over the course of 2018, the PII Working Group, in consultation with SIFMA, recommended an approach that would have avoided the need to have any PII in CAT. Industry Members would have retained such information as they have to date, and the SEC and Participants would have requested it from each broker-dealer firm, as necessary, through the creation of a separate PII request/response system. At the suggestion of the Commission staff—which did not favor the approach proposed by the PII Working Group—the PII Working Group had further discussions and ultimately recommended an alternative approach to the Operating Committee.

Specifically, the Participants worked together with SIFMA to develop what is now referred to as the CCID Alternative. Under this alternative, the Plan Processor would generate a unique identifier for a customer (the “CAT Customer ID” or “CCID”) using a two-phase transformation process that avoids the need to collect and maintain SSNs in the CAT. In the first transformation phase, Industry Member CAT Reporters would transform an SSN to an interim value.²⁷ Industry Members would submit this transformed value, and not the SSN, to the CCID Subsystem operated

²⁵ Plan, *supra* note 2 at Section 1.1.

²⁶ See Rule 613 Adopting Release, *supra* note 3 at 45,756-758.

²⁷ Industry Members would continue to store individual customer SSNs outside the CAT, as they do today. If a Participant’s regulatory staff or the SEC staff needs to obtain a customer SSN during an investigation, the regulator would need to request that information from the CAT Reporter. If, however, a Participant’s regulatory staff or the SEC staff has an SSN through other means, the regulator will have the ability to use that SSN to query the CAT. Similar to the process just described, the SSN would be transformed into the CCID, which, in turn, may be used by the regulator in queries and analyses of CAT data. Under this alternative, Industry Members would not maintain the generated CCID.

by the CAT separate and apart from other customer and account information. The CCID Subsystem would use the transformed value to create a unique CCID for each customer. The regulatory staffs of the Participants and the SEC would then use the CCID in queries and analysis of CAT data.

The use of CCIDs would enhance the security of the CAT System while preserving the regulatory benefits of the system. The CAT would not collect or store any SSNs. Because the CAT System would only store CCIDs, rather than SSNs, this alternative would eliminate the risk of having a comprehensive aggregated source for all individual customer SSNs. Instead, only Industry Members would continue to collect individual customer SSNs, as they do currently. Moreover, the process to create CCIDs using, in part, SSNs would be secure. The Participants believe this will significantly reduce the risk that information in CAT could be used to facilitate identity theft and do so in a manner that does not compromise the regulatory benefits of the CAT.

The Participants recognize that eliminating the collection of SSNs by the CAT for initial processing by the Plan Processor would cause CAT Reporters to assume a critical role in the accurate generation of CCIDs. This creates a risk to the integrity of the CCID values ultimately assigned to customer records in the CAT that is beyond the full control of the Plan Processor. The Plan Processor will consider methods for detecting errors in the transformed values submitted by CAT Reporters, some of which may be identified by functionality supporting the error resolution for customer data requirement of the Plan. Nevertheless, the Participants and the working group of Participant and Industry Members that developed the CCID Alternative jointly believe that the value of eliminating the need for CAT Reporters to transmit SSNs to the CAT exceeds the potential increased risk to the integrity of CCID assignments.

The Participants also have developed what is now referred to as the Modified PII Approach that would eliminate dates of birth and account numbers for natural persons in the CAT System (although year of birth for customers would be collected and maintained in the CAT). Similar to SSNs, the Participants believe that dates of birth and account numbers are particularly sensitive from a security perspective and should not be included in the CAT. The Participants believe that eliminating dates of birth and account numbers from the CAT would further reduce the risk profile of data collected and stored in the CAT by eliminating the PII data elements that would support attempted identity theft without compromising the regulatory benefits of the CAT.

To implement the CCID Alternative and the Modified PII Approach, the Participants have requested exemptive relief from the Commission from relevant aspects of the Plan.²⁸

V. Security

Since conceptualizing the Plan, the Participants have been mindful of security concerns related to the CAT. Excluding SSNs, dates of birth and account numbers from the CAT System will result in the CAT System being a much less attractive target for cyber criminals. Nevertheless,

²⁸ See Letter from Michael Simon, CAT NMS Plan Operating Committee Chair, to Vanessa Countryman, SEC, Request for Exemptive Relief from Certain Provisions of the CAT NMS Plan related to Social Security Numbers, Dates of Birth and Account Numbers (Oct. 16, 2019) available at <https://www.catnmsplan.com/wp-content/uploads/2019/10/CCID-and-PII-Exemptive-Request-Oct-16-2019.pdf>.

the security of the CAT System will remain a top priority. The Participants have taken, and will continue to take, all appropriate precautions to safeguard all data within the CAT System.

Understanding the importance of information security generally, CAT LLC itself is structured in a manner to appropriately emphasize the security of the CAT. For example, CAT LLC has both a Chief Information Security Officer (“CISO”) and Chief Compliance Officer, both of whom are fiduciaries of CAT LLC, and are responsible for ensuring compliance with Plan requirements.²⁹ Specifically, the CAT CISO is responsible for creating and enforcing appropriate policies, procedures, and control structures to monitor and address data security issues for the Plan Processor and the CAT System.³⁰ The CISO also is obligated to review the Participants’ information security policies and procedures that are related to the CAT System to evaluate if the Participants that access CAT data have an information security program comparable to the Plan Processor’s program.³¹ Additionally, the Operating Committee established a Security Working Group, which is comprised of the CAT LLC CISO as well as CISOs and security experts from each Participant. Members of the working group collectively represent hundreds of years of experience in the information security space. The SEC staff also has served as an active observer to Security Working Group meetings.

In addition to structuring the oversight and responsibility of the CAT System in a manner that focuses on security, the Participants have designed the CAT System to meet stringent security standards.³² The system is subject to the robust controls framework set forth in National Institute of Standards and Technology (“NIST”) Special Publication (“SP”) 800-53 including, among other things the establishment of a System Security Plan and annual third-party independent verification and validation.³³ This is the same standard required for federal information systems under the Federal Information Security Management Act. The Participants designed and built the CAT System with both architectural-level and program-level controls. The SEC and Participants can only query the CAT System via dedicated private circuits between them and the CAT System, mitigating the risk of an attack via the Internet. The CAT system further requires multi-factor authentication for regulatory use of the query tools, mitigating insider risk at the regulators, as well as for access to the Industry Member reporter portal.³⁴ Additionally, the CAT System and relevant personnel continuously monitor regulatory access and use of the system. The CAT System logs every instance of access to the CAT central repository and will maintain a full audit trail of access to customer data. Additionally, the Operating Committee, the SEC, and Participants will periodically receive and review a list of authorized users and their most recent access; each user

²⁹ See Plan, *supra* note 2 at Section 4.6.

³⁰ See *id.* at Section 6.2.

³¹ See *id.* at Section 6.2.

³² See *id.* at Appendix D Section 4.2.

³³ The application of NIST SP800-53 to the CAT is further informed by ISO 27002, NIST Cybersecurity Framework.

³⁴ See Plan, *supra* note 2 at Appendix D Section 4.1.4.

organization will regularly verify that its list of authorized users and the roles they are assigned remain accurate.³⁵

The Participants have integrated security processes into the design and development of the CAT System. Threat analysis drives security requirements and design. Continuous automated testing along with rigorous security assessment by an expert team of security engineers is brought to bear during the design and build of the system. A highly qualified third-party cybersecurity testing organization regularly performs further security testing, including penetration testing and code security assessment.

The overall CAT security program also is subject to regular third-party review to verify that the program is operating in accordance with its System Security Plan and with applicable standards. The Plan Processor will continue to subject the CAT System to annual NIST SP 800-53 Independent Validation and Verification (“IV&V”). FINRA CAT delivered Release 1 (June) on time and with no major security defects, as confirmed by both internal and third-party security testing, as well as the third-party security controls assessment, *i.e.*, IV&V. FINRA CAT is on schedule to deploy Release 2 in November with no major defects as well; internal security testing is complete, third-party security testing is nearly complete, and a new IV&V is in progress.

Finally, to keep Industry Members and other interested persons apprised of CAT security efforts, in August, CAT LLC and FINRA CAT hosted an industry webinar focusing on the security of CAT data. During the webinar the Participants shared information about how the data reported to the CAT System will be safeguarded to ensure the security and confidentiality of the data.

VI. Costs

Developing and operating the CAT System in accordance with SEC Rule 613 and the Plan requires a significant commitment of capital—both human and financial. In terms of human capital, all Participants have contributed the time and expertise of numerous senior-level personnel from their respective organizations.³⁶ These individuals provide expertise on technology and systems engineering, legal, regulatory and compliance, data, and security issues. To date, the entirety of the financial commitment to develop and operate the CAT System has been borne by the Participants, notwithstanding that Rule 613 and the Plan specifically contemplate the CAT being funded jointly by the Participants and Industry Members.

To provide context, the cost associated with the CAT System include: (i) fixed and variable costs for the Plan Processor to build and operate the CAT; (ii) legal fees; (iii) consulting fees; (iv) insurance; and (v) costs associated with engaging other vendors, like financial administrators and auditors. Going forward, we estimate the annual budget to operate the CAT System to be upwards of \$75 million. Note, this figure only reflects CAT LLC’s direct costs. It does not include the cost of compliance for Participants or Industry Members nor the individual costs of the Participants, and CAT LLC is not in a position to collect or estimate those costs.

Although the Participants have continued to independently fund the CAT, they have attempted to implement fees applicable to both Participants and Industry Members to fund the cost of the CAT as contemplated by Rule 613 and the Plan. In 2017, the Participants filed proposed

³⁵ See *id.* at Appendix D Section 4.1.4.

³⁶ See *id.* at Section 6.2(b)(vii).

rule changes and a Plan amendment to adopt a schedule to establish fees for Participants and Industry Members, which would have resulted in Industry Members helping fund the CAT.³⁷ After receiving comments to the proposed rule changes and the Participants responding to the comments and filing amendments to the proposed rule changes, the Participants withdrew their rule changes when it became clear that the SEC was going to disapprove those fees, given it summarily abrogated the Plan amendment that would have established Participant and Industry Member fees.³⁸

There is still no fee structure in place and the Participants alone continue to fund the CAT. It remains of critical importance that the industry contributes to funding the development and implementation of the CAT System. Not only is this a reasonable approach to financing such a massive project, it is consistent with Rule 613 and the Plan that the Commission approved. Accordingly, the Participants are working on an amended fee proposal that they will submit to the Commission for its review and approval.

Relatedly, the Commission recently issued proposed amendments to the Plan that would add new sections to the Plan to govern the recovery of any fees, costs and expenses incurred by CAT LLC in connection with the development, implementation and operation of the CAT System from the effective date of the amendment until the Participants complete implementation of the Plan.³⁹ Specifically, Proposed Section 11.6 would require the Participants to meet four critical CAT implementation milestones by certain dates to collect the full amount of any related post amendment Industry Member fees established by the Operating Committee or implemented by the Participants. If the Participants fail to meet the target deadlines set forth in Proposed Section 11.6, they would only be entitled to collect a portion of the relevant amount, as determined by the amount of time by which the Participants have missed the target deadlines.

The Participants understand the Commission's concerns and ultimate goal of providing financial incentives to complete the CAT in a timely manner. The Participants are reviewing the details of the proposed amendment and intend to provide a comment letter with considerations for the SEC. These comments will be based on the Participants' experience in designing and building the CAT System and will be aimed at helping achieve the SEC's goals in an efficient manner.

VII. Conclusion

The Participants remain committed to meeting their obligation to build and operate the CAT System and are making significant progress in this regard. The Participants will continue to take all necessary precautions to safeguard the data within the CAT System and to promote the security of the system more generally. Thank you for the opportunity to provide testimony on this matter.

³⁷ See, e.g., Notice of Filing and Immediate Effectiveness of a Proposed Rule Change Related to Fees for Use on Bats EDGX Exchange, Inc., Exchange Act Release No. 80,821, 82 Fed. Reg. 26,177 (June 6, 2017).

³⁸ See Notice of Withdrawal of Proposed Rule Changes, as Modified by Amendments, To Establish Fees for Industry Members To Fund the Consolidated Audit Trail, Exchange Act Release No. 82,505, 83 Fed. Reg. 3,043 (Jan. 22, 2018).

³⁹ See Proposed Amendments to the National Market System Plan Governing the Consolidated Audit Trail, Exchange Act Release No. 86,901, 84 Fed. Reg. 48,458 (Sept.13, 2019).