
Consolidated Audit Trail

Industry Member Connectivity Overview

Agenda

- Summary of CAT Interfaces and Connectivity Methods
- CAT Interface Methods
- CAT Connectivity Methods
- Connecting to the CAT System
- Availability & Support
- Q&A

FINRA CAT Connectivity Supplement for Industry Members posted at www.catnmsplan.com

Summary of CAT Interfaces and Connectivity Methods

Connectivity Methods	Interface Methods	
	CAT File Transfer	CAT Reporter Portal
Private Line provided by a MNSP	Yes	Yes
AWS PrivateLink	Yes	Yes
CAT Secure Reporting Gateway	No	Yes

CAT Interface Methods – CAT File Transfer

- **Automated, machine-to-machine interface utilizing the Secure File Transfer Protocol (“SFTP”) for file submissions, acknowledgements, rejections and corrections**
- **May be accessed via Private Line or AWS PrivateLink**
- **SFTP requirements include:**
 - SSH Key Exchange Algorithms
 - diffie-hellman-group-exchange-sha256
 - SSH Ciphers
 - aes128-ctr, aes192-ctr, aes256-ctr
 - SSH MAC Algorithms
 - hmac-sha256, hmac-sha256@ssh.com
 - A connection with bandwidth appropriate for the file sizes submitted
 - IP addresses provided to FINRA CAT to whitelist Industry Member(IM) and CAT Reporting Agent (CRA) server(s)

CAT Interface Methods – CAT Reporter Portal

- **Web interface utilizing secure encryption protocols (HTTPS/TLS) and multi-factor authentication (MFA) for submissions (by either direct entry or manually uploaded file), rejections, corrections, and compliance reports**
- **May be accessed via the Private Line, the AWS PrivateLink or the CAT Secure Reporting Gateway**
- **Supports a browser-based, manual upload of files (File size limit of 100,000 records)**
- **Reporter Portal requirements include:**
 - TLS 1.2 requiring at a minimum NIST compliant 128 bit ciphers
 - HTML5 Compatible browsers, including: Chrome, Firefox, and Safari
 - Multi-factor authentication setup
 - More details on the Multi-factor authentication setup and required software will be published in a future version of the FINRA CAT Industry Member Onboarding Guide

CAT Data Submission and Feedback

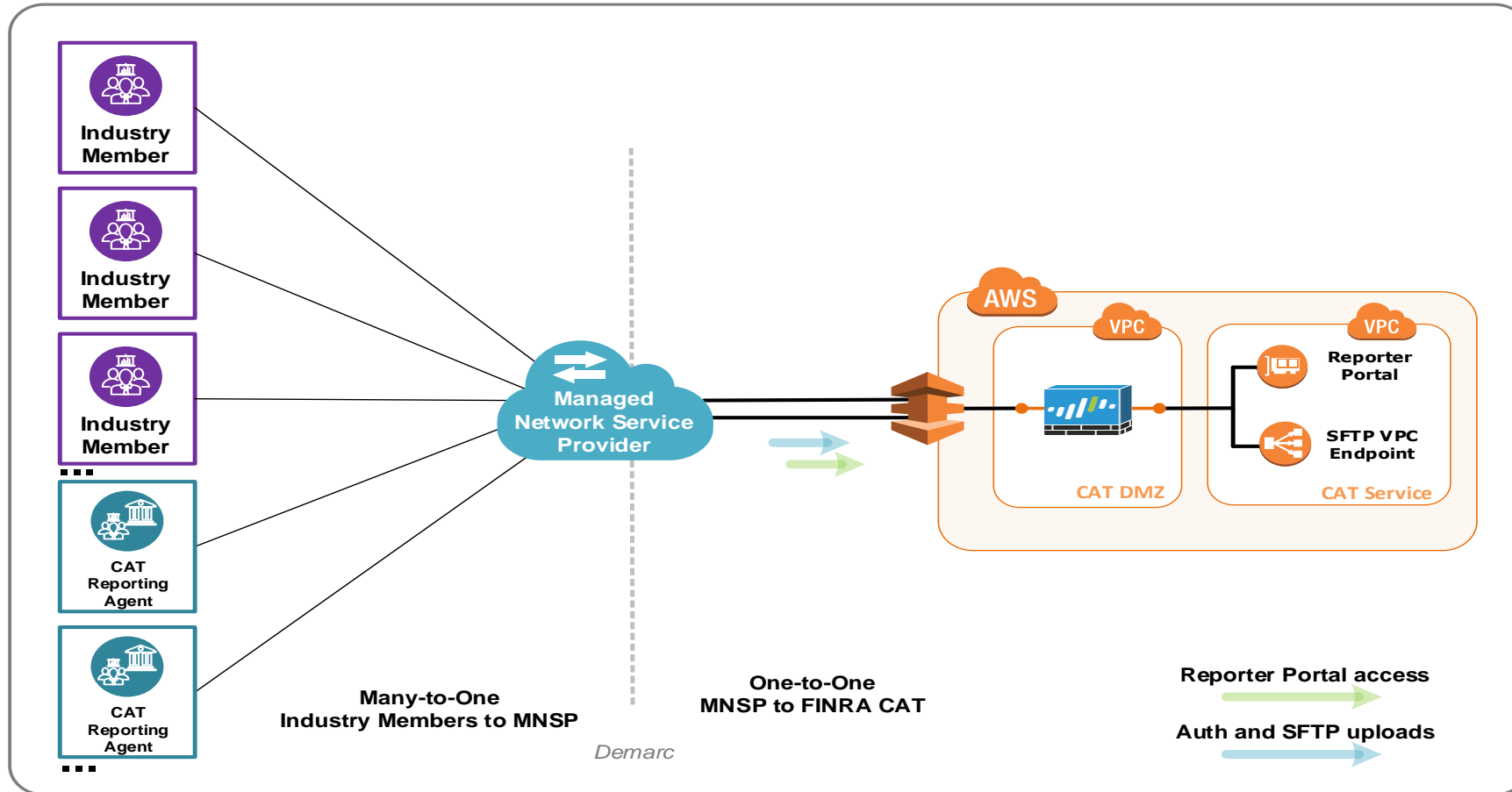
CAT Data Submission and Feedback	CAT File Transfer	CAT Reporter Portal
Submission of CAT Events and Resubmission of Rejected Files/Records, Corrections and Deletions	✓	✓
File Status Retrieval	✓	✓
Reporting Statistics		✓
Interactive CAT Reportable Event Entry		✓
Error Feedback	✓	✓
Corrections Feedback		✓
Account Maintenance		✓
Establishment of Reporting Relationships and ATS Order Types		✓

Connectivity Methods – Private Line

- **Private Lines provide connectivity to both CAT Interface Methods: CAT file Transfer (SFTP) and CAT Reporter Portal**
- **IMs and CRAs must engage a managed network service provider (MNSP) to establish private line connectivity into the FINRA CAT system**
- **CenturyLink is the MNSP that offers private line connectivity into CAT for a monthly fee**
 - Century Link provides bandwidths ranging between 10 MBps and 1 Gbps of throughput with redundant connectivity options
 - Circuit delivery times can range widely and depend on the provider's network status at any locations
 - CenturyLink will be able to process contracts once the final agreement between the Plan Processor and CenturyLink is executed in early September
 - The CATNMS and Plan Processor are considering adding a second private line vendor

Industry Members and CRAs should engage CenturyLink to begin the process of establishing private line connectivity through existing sales contacts or by contacting CenturyLink by emailing FINRA_CAT-Services@centurylink.com or by phone call to 888-870-8402

Connectivity Methods – Private Line



CenturyLink – Industry Member Pricing

FINRA CAT Industry Member Pricing - 1 year term

Final Price Port + Managed Router + AWS Access	Port	Committed Data Rate	CTL Router Kit (Cisco)	Customer Hand-off	Final Price Single Connection	Final Price Redundant Connections
	Fast Ethernet (100 Mb)	10 Mbps	C4321-ET-01	Copper	\$ 1,350.00	\$ 2,700.00
	Fast Ethernet (100 Mb)	100 Mbps	C4331-ET-01	Copper	\$ 1,550.00	\$ 3,100.00
	Gig-Ethernet (1000 Mb)	500 Mbps	C4431-ET-01	SMF	\$ 1,850.00	\$ 3,700.00
	Gig-Ethernet (1000 Mb)	1000 Mbps	C4451X-ET-02	SMF	\$ 2,200.00	\$ 4,400.00

FINRA CAT Industry Member Pricing - 2 year term minimum

Final Price Port + Managed Router + AWS Access	Port	Committed Data Rate	CTL Router Kit (Cisco)	Customer Hand-off	Final Price Single Connection	Final Price Redundant Connections
	Fast Ethernet (100 Mb)	10 Mbps	C4321-ET-01	Copper	\$ 650.00	\$ 1,300.00
	Fast Ethernet (100 Mb)	100 Mbps	C4331-ET-01	Copper	\$ 850.00	\$ 1,700.00
	Gig-Ethernet (1000 Mb)	500 Mbps	C4431-ET-01	SMF	\$ 1,050.00	\$ 2,100.00
	Gig-Ethernet (1000 Mb)	1000 Mbps	C4451X-ET-02	SMF	\$ 1,250.00	\$ 2,500.00

*Monthly service rates include MPLS network access, managed router on the customer premises and connection to the AWS cloud and applies to both on net and off net locations within the continental US.

CenturyLink Installation Intervals

- ▶ The installation date is dependent on obtaining accurate complete data from Industry Members in a timely fashion
- ▶ Orders requiring demarc expansion to the building may incur an additional 30 to 65 business days' lead times
- ▶ Intervals are estimates and represent business days from customer signed date to install date

MPLS – Ethernet	Business Days
On-Net/Cross Connects	35
Off-Net	90

**On-Net – “Lit” facilities on CTLs network*

**Off-Net – Any site not on CTLs network requiring construction or third party access loop*

Connectivity Methods – AWS PrivateLink

- **IMs and CRAs with existing operations and data processing presence in the AWS cloud (VPC) may establish a cloud-to-cloud connection using the CAT using the AWS PrivateLink service for an associated AWS fee**
- **An AWS PrivateLink connection enables communication from an Industry Member’s AWS VPC to the FINRA CAT VPC without traversing the public Internet**
- **IMs and CRAs interested in AWS PrivateLink should contact the FINRA CAT Help Desk**
 - Establishing AWS PrivateLink connectivity from an Industry Member’s and CRA’s VPC in the US-East-1 region to the FINRA CAT VPC can be accomplished by executing an AWS CloudFormation template
 - Industry Members and CRAs will need to provide their AWS account numbers to FINRA CAT in order to facilitate PrivateLink access
 - FINRA CAT will publish additional details on October 11th
 - PrivateLink will be supported in the Industry Test environment starting on January 27th

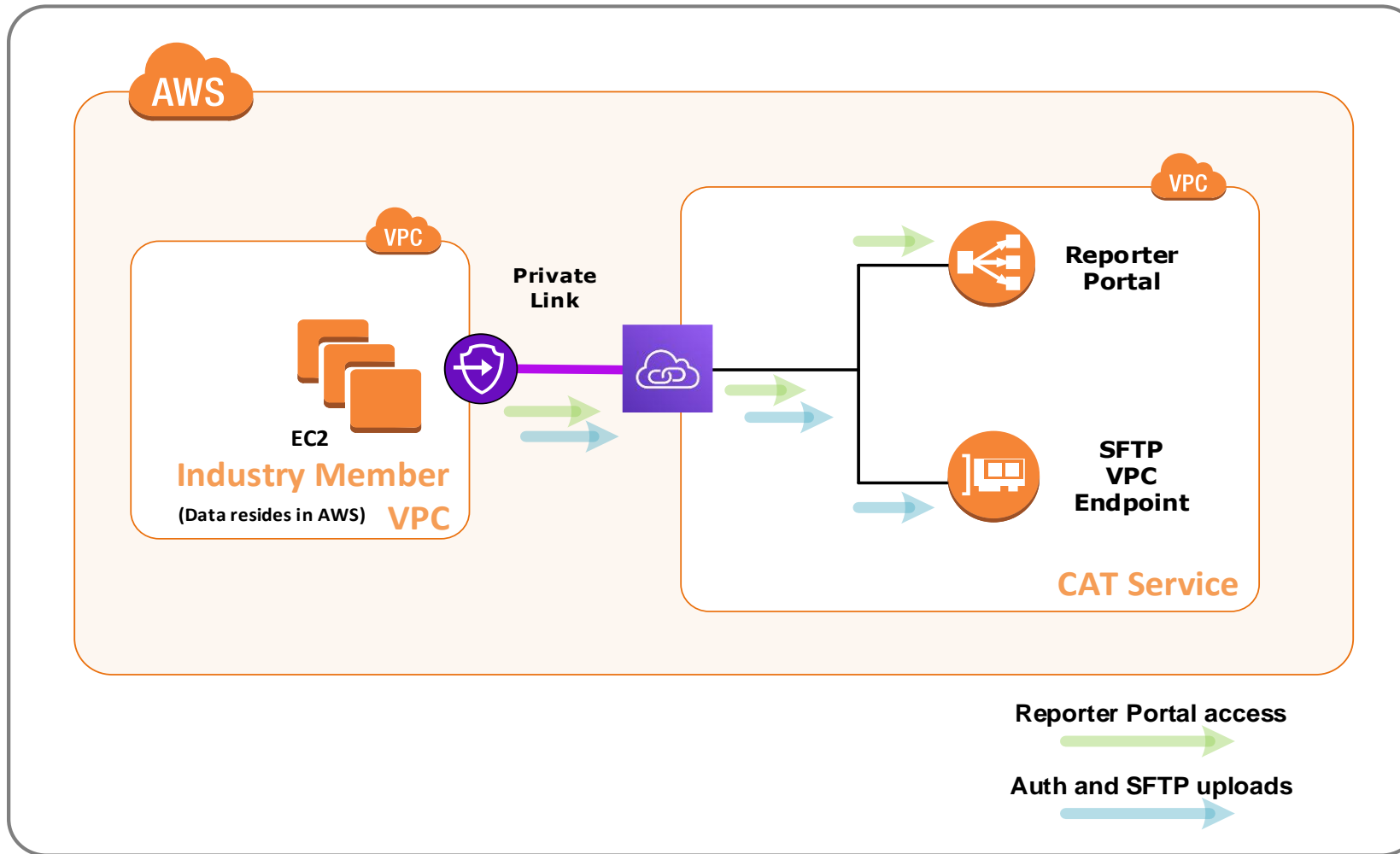
AWS PrivateLink pricing information is available at:

<https://aws.amazon.com/privatelink/pricing/>

More information on the AWS Cloud Formation service can be found at:

<https://aws.amazon.com/cloudformation>

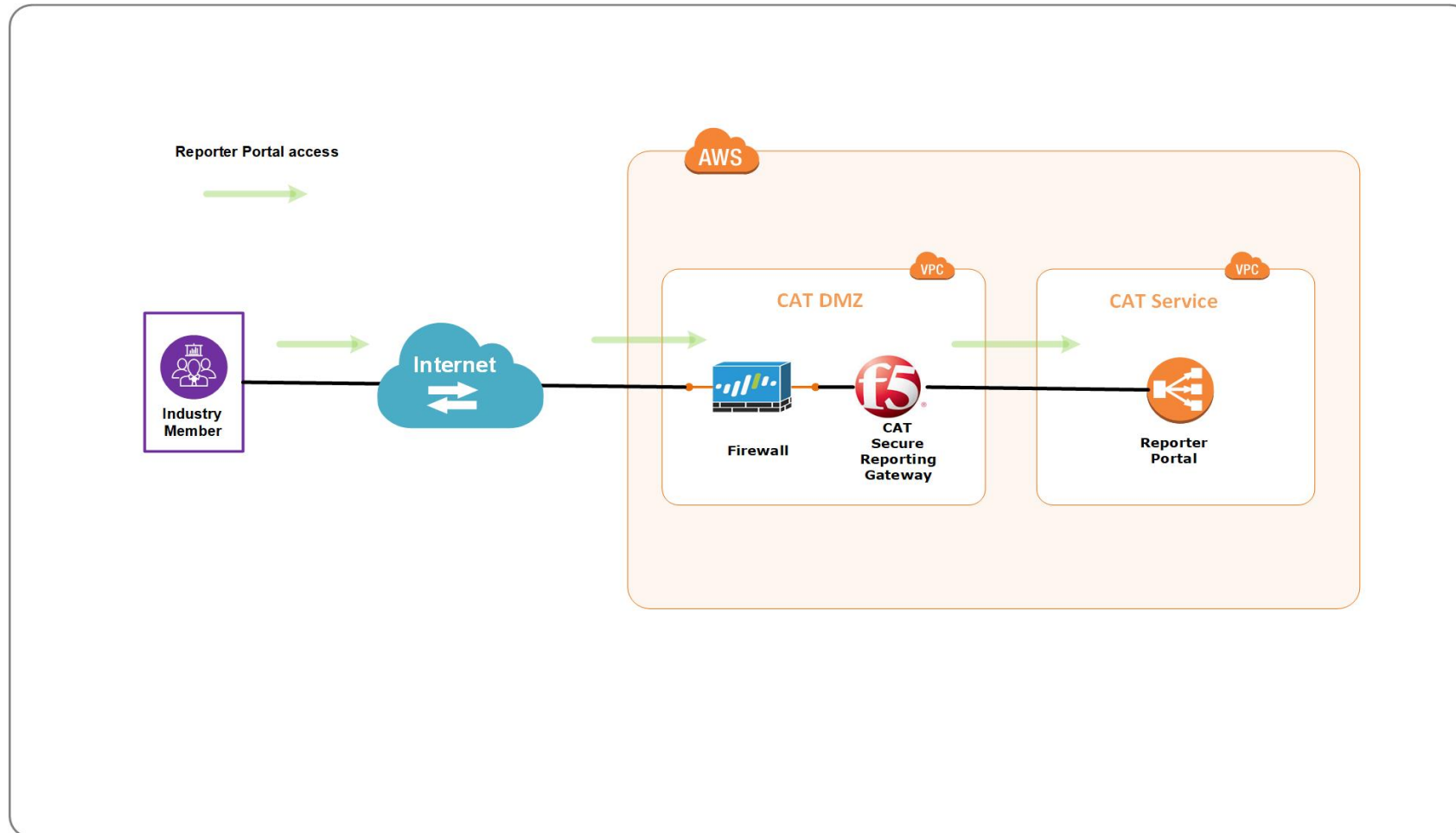
Connectivity Methods – AWS PrivateLink



Connectivity Methods – CAT Secure Reporting Gateway

- **IMs and CRAs using public lines will only be able to access the CAT Reporter Portal by establishing an authenticated, encrypted connection (SSL VPN) through the CAT Secure Reporting Gateway (SRG)**
- **The SRG requires multi-factor authentication (MFA) to establish a secure, encrypted session before accessing the CAT Reporter Portal**
- **Meets all Plan requirements for data connectivity and encryption, specifically**
 - Network isolation limiting access to only authorized endpoints
 - Strong authentication using MFA
 - Encryption of the data in transit.
- **No limit in choice of Internet Service Providers and no specialized client software is required to be installed other than a modern web browser**
- **Provides refined control over the web applications through the use of policy manager controls and content inspection of the application data**
- **Using the SRG the client computer never communicates directly with the CAT web application**

Connectivity Methods – CAT Secure Reporting Gateway



Testing Timeline for Production Readiness

Date	Event
October 15, 2019	Private Line available for network testing
November 4, 2019	CAT Secure Reporting Gateway available for network testing
November 18, 2019	CAT Reporter Portal Opens for CAT Reporting Relationships and ATS Order Type Registration
December 16, 2019	CAT Industry Test Environment opens for 2a/2b machine-to-machine testing of file submission and data integrity validations
January 27, 2020	AWS PrivateLink available for 2a/2b machine-to-machine file submission and CAT Reporter Portal
February 24, 2020	CAT Reporter Portal Industry Test Environment opens for manual file upload/submission, error correction and feedback
April 6, 2020	Industry Members and CAT Reporting Agents must complete production readiness testing for 2a reporting
April 20, 2020	Production Go-Live for Equities 2a file submission and data integrity validations
May 3, 2020	Industry Members and CAT Reporting Agents must complete production readiness testing for 2b reporting
May 18, 2020	Production Go-Live for Options 2b file submission and data integrity validations

How to Ask a Question during Today's Call

- **For participants using computer audio:**
 - Click the “Participants” button at the bottom of the app window, then the “Raise Hand” button at the bottom of the participants window.
 - A visual prompt will indicate that your line has been unmuted.
- **For participants using phone audio:**
 - Enter *9 on your phone keypad.
 - An audio prompt will indicate that your line has been unmuted.

FINRA CAT Helpdesk

Questions may be directed to the FINRA CAT Helpdesk at 888-696-3348 or help@finracat.com