MIAX Futures

MIAX Futures Clearing Platform Network Connectivity Guide

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Executive Summary

MIAX Futures provides clearing members with network connectivity to the MIAX Futures clearing systems in two redundant and geographically diverse data centers and the cloud based test facilities through the MIAX Futures Network Interconnect. The MIAX Futures Network Interconnect, referred to as MCNI, is an infrastructure comprised of 1G Colocation Cross Connect access, IPSec VPN access and web based Internet access to the targeted MIAX Futures clearing platform. Access to the MIAX Futures Clearing platform is offered in the two data center facilities collocated with Equinix at NY4 in Secaucus, New Jersey, and the other collocated with Equinix at CH4 in Chicago, Illinois. Runtime production processing of MIAX Futures Clearing will alternate between the data center sites on a periodic rotational basis. With regard to disaster recovery, the distance between the two data center locations provides geographical insolation from potential local disasters.

1. Overview

1.1 MIAX Futures Clearing Platform Network Interconnect (MCNI)

The MCNI network infrastructure is based on an architecture comprised of complementary industry leading solutions selected for the highest levels of performance, reliability and resiliency.

The MCNI offers the following methods of connectivity to establish network layer connectivity to the MIAX Futures Clearing platform's network infrastructure.

1. 1G fiber Cross Connects
2. IPSEC VPN connectivity
3. Internet based access – provides access to the MIAX Futures Clearing Platform web-based portal/UI and to inbound/outbound SFTP services

1.2 MIAX Futures Clearing Platform Network Interconnect Handoff and Redundancy

The MIAX Futures Clearing Platform Network Interconnect located within each data center provides access to the MIAX Futures clearing platform. Methods of connectivity and redundancy are as follows:

1. Colocation Fiber Cross Connects
    a. Fiber Cross Connects can be obtained to MCNI in NY4 and CH4 Equinix IBX data centers. Cross Connects in both Data Centers can be used to access clearing platforms in both NY4 and CH4 data centers. For redundancy and DR requirements, a cross connect is recommended for each location.
2. IPSec VPN
    a. VPN tunnels can be established to NY4 and CH4 VPN head ends.
    b. NY4 and CH4 MIAX Futures platforms will be accessible from tunnels in NY4 and CH4. IPSec VPN tunnels to both sites are recommended for redundancy requirements.
3. Web/SFTP access from Internet
    a. Available via NY4 and CH4 infrastructure

1.2.1 NY4 and CH4 Data Centers

The MIAX Futures clearing platforms are collocated in the Equinix NY4 IBX Data Center Facility located in Secaucus, NJ and in the Equinix CH4 IBX Data Center in Chicago, IL. Runtime production processing of MIAX Futures clearing will alternate between the data center sites on a periodic rotational basis.

The following table details the various connectivity options provided in the Equinix NY4 and CH4 IBX Data:

MIAX Futures Clearing			
NY4 and CH4 – Connectivity Options	**MIAX Futures Clearing Platform – NY4**	**MIAX Futures Clearing Platform – CH4**	**Recommendations**
1 Gb	Available	Available	Recommended method.
IPSec VPN	Available	Available	Less reliable
Access via Internet	Available	Available	Less reliable

MIAX Futures highly recommends members establish redundant, diverse connections in each MCNI Data Center facility to maintain network availability in case of an unforeseen service-affecting issue.

2. MCNI Cross Connects and Provider Circuits

Members need to select the appropriate access method(s) and are in complete control of coordinating connectivity with their chosen provider to the MIAX Futures Data Centers. Members may choose any of the following access methods for establishing MCNI connectivity:

- Colocation Cross Connect
- Extranet Provider – may need a Cross Connect from Equinix Meetme room

2.1 Colocation Cross Connect

The MCNI Data Center locations support the following interface speeds, optical signals, and fiber types for Cross Connects:

Location	Port Option	Optical Signal	Fiber Type	Core/Cladding	Exchange
NY4	1 Gigabit	1000BASE-LX/LH	Single Mode Fiber (SMF)	9/125 µm	MIAX Futures Clearing
CH4	1 Gigabit	1000BASE-LX/LH	Single Mode Fiber (SMF)	9/125 µm	MIAX Futures Clearing

2.2 Extranet Service Provider

Members may connect to MCNI via an Extranet Service Provider when an alternative solution to colocation or dedicated circuits is required. This option may provide a simpler means of connectivity and less complexity when a fully managed "*turnkey*" approach is more appropriate. MIAX Futures is provider neutral and will consider Extranet Provider requests to establish connectivity initiated by and on the member's behalf.

3. Network Specifications

3.1 MCNI Protocol Support

MCNI supports standardization of internet working technologies to foster and promote interoperability. To ensure seamless connectivity, routing and failover, following protocols will be used:

- Transmission Control Protocol (TCP) – MIAX Futures Clearing host systems and applications will administer TCP as the transport layer protocol for unicast data.
- Border Gateway Protocol Version 4 (BGP4) – MCNI Cross Connect and leased/extranet circuit interfaces will use BGP as the dynamic exterior gateway routing protocol to exchange network reachability information with peer routers of the Member's Autonomous System.
- Internet Control Message Protocol Version 4 (ICMP) - MIAX reserves usage of ICMP for diagnostic analysis of connectivity and to confirm network reachability during the provisioning process of establishing Member connectivity.
- IP address for network inter connectivity, BGP and routing details, IP and Port numbers for clearing access will be provided during provisioning.

4. Obtaining More Information

Information such as (but not limited to) membership, rules, fees, support, connectivity and provisioning can be obtained by sending an email to MIAX Futures Clearing Operations (MIAXFuturesClearingOperations@miaxglobal.com) or by visiting the MIAX Futures website at: https://www.miaxglobal.com/markets/futures/miax-futures

Appendix A: Revision History

Revision Date	Version	Description
May 2022	1.0	Initial 1.0 version.
November 2024	1.1	MIAX Futures rebrand. No functional changes.

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