



# NMS Network Customer FAQs

## **Copyright Information**

© Copyright 2019 Intercontinental Exchange, Inc. All rights reserved.

Except as permitted under the United States Copyright Act of 1976, no part of this document may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of Intercontinental Exchange, Inc.

## **Brand names and /or Trademarks**

Brand names or Products cited in this document may be trade names or trademarks. Where there may be proprietary claims to such trademarks or trade names, the name has been used with an initial capital. Regardless of the capitalization used, all such use has been in an editorial fashion without any intent to convey endorsement whatsoever of the product or trademark claimant. Intercontinental Exchange, Inc. expresses no judgment as to the validity or legal status of any such proprietary claims.

## **Network Architecture Services Disclaimer**

Information contained in this document is believed to be accurate. However ICE Exchange does not guarantee the completeness or accuracy of any of the published information. This work is published with the understanding that Intercontinental Exchange, Inc. is supplying information, but not attempting to render engineering or other professional services. If such services are required the assistance of the appropriate professional should be sought.

# NMS Network Customer FAQs

## Contents

- 1. WHAT IS THE REASON FOR THE NMS NETWORK CHANGE? .....3
- 2. WHAT IS CHANGING IN THE NEW NMS NETWORK? .....3
- 3. HOW WILL MULTICAST SERVICES BE DELIVERED? .....3
- 4. WHAT IP ADDRESSING CHANGES SHOULD I EXPECT? .....3
- 5. DOES THIS NEW NMS NETWORK REDUCE LATENCY? .....3
- 6. DO I HAVE TO CONNECT TO THE NEW NMS NETWORK TO CONTINUE TO RECEIVE THE NMS FEEDS? .....4
- 7. IF I CHOOSE TO DO SO, WHAT IS NEEDED TO TRANSITION TO THE NEW NMS NETWORK? .....4
- 8. WHAT CONNECTION TYPES ARE SUPPORTED ON THE NEW NMS NETWORK? .....4
- 9. WILL CUSTOMERS HAVE ACCESS TO DR (CERMAK) FROM THEIR MAHWAH NMS NETWORK PORT?.....4
- 10. WHAT PORT FEES IF ANY WILL BE APPLIED TO THE NEW NMS NETWORK?.....4
- 11. WILL MY NEW NMS CONNECTIONS BE POLICED (RATE LIMITED)?.....4
- 12. DOES NMS KNOW WHEN PACKET LOSS OCCURS?.....5

## 1. WHAT IS THE REASON FOR THE NMS NETWORK CHANGE?

The Consolidated Tape Association (CTA) and the Options Price Reporting Authority (OPRA) recently changed their requirements that the Secure Financial Transaction Infrastructure (SFTI) be used to access CTA and OPRA Multicast Feeds distributed by NMS (“CTA” and “OPRA”, and collectively, the “NMS Feeds”). Utilizing low-latency equipment and optimized network topology, the new NMS Network provides additional NMS-dedicated connectivity options, enabling access to the NMS Feeds in the Mahwah data center without using SFTI.

## 2. WHAT IS CHANGING IN THE NEW NMS NETWORK?

The NMS Network offers dedicated ports in the Mahwah data center to access either or both of the NMS Feeds via an independent infrastructure. Supported connectivity options are 10 or 40 Gigabit Ethernet client access ports.

## 3. HOW WILL MULTICAST SERVICES BE DELIVERED?

CTA and OPRA can be delivered to customer ports as either static or dynamically subscribed services, consistent with that used over other data center transports. Dynamic-subscribed customers will be required to run PIM, operate in Sparse-mode, and define the Rendezvous Point (RP) that will be used exclusively for the CTA and/or OPRA multicast groups. Static-subscribed customers will receive provisioned market data services unsolicited via flooding. The Feeds will be published as duplicate A and B streams and from separate source networks to ensure that they are delivered via diverse paths. Customers are encouraged to order a minimum of two ports to ensure physical resiliency.

## 4. WHAT IP ADDRESSING CHANGES SHOULD I EXPECT?

Each customer will be assigned a new network port and IP address used for peering. Additionally, there will be changes to the IP addresses for the RPs that will be used to receive the NMS Feeds; configurations will need to be modified on customers’ network devices to support the new RP to Multicast Group Mappings. Change details can be downloaded via the web:

- [Consolidated Tape Association \(CTA\) Technical Specification](#)
- [Option Price Reporting Authority \(OPRA\) Technical Specification](#)

## 5. DOES THIS NEW NMS NETWORK REDUCE LATENCY?

The NMS Network uses low-latency network switches and optimized topology to minimize latency, which NMS expects will result in one-way latency, across all network hops, of approximately 5us, including fiber latency. This is a substantial improvement over the current inbound one-way latency of approximately 144us over SFTI.

*Note: latency comparisons may differ dependent on customer connectivity choices.*

## **6. DO I HAVE TO CONNECT TO THE NEW NMS NETWORK TO CONTINUE TO RECEIVE THE NMS FEEDS?**

No. The NMS Feeds will also continue to be distributed over SFTI as they are today. Subscribers are not required to make any changes if they do not want to change their current network access configurations.

## **7. IF I CHOOSE TO DO SO, WHAT IS NEEDED TO TRANSITION TO THE NEW NMS NETWORK?**

Customers co-located in the Mahwah data center will need to request connectivity to the new NMS Network, in accordance with their service and bandwidth requirements (e.g., 10Gb or 40Gb ports, and how many), as well as provision cross-connects to such new assigned NMS Network ports and IP addresses for peering.

Customers that are located outside of the datacenter who want to connect to NMS Network ports would first need to procure their own telecommunications circuits into the Mahwah data center, which could then be provisioned and cross-connected via local fiber into NMS Network ports.

All connectivity requests should be coordinated through [ICE Data Services Connectivity Sales](#).

## **8. WHAT CONNECTION TYPES ARE SUPPORTED ON THE NEW NMS NETWORK?**

Native 10 and 40 Gigabit Ethernet Access ports will be supported on the NMS Network. Physical network connections (Cross-Connects) between customer network devices and the NMS Network ports will be provided over structured fiber infrastructure and dependent on access method: Multi-Mode (MMF) using an MTP/MPO connection for Local COLO connections and Single-Mode (SMF) using an LC connection for third-party Carrier Circuits. A list of approved Carrier Providers is available from [ICE Data Services Connectivity Sales](#). Customers are responsible to supply the appropriate optical transceivers (SFP+/QSFP).

## **9. WILL CUSTOMERS HAVE ACCESS TO DR (CERMAK) FROM THEIR MAHWAH NMS NETWORK PORT?**

Yes, customers will have access to NMS Feeds (CTA/OPRA) running out of the Disaster Recovery location from their NMS Network port/s in Mahwah.

## **10. WHAT PORT FEES IF ANY WILL BE APPLIED TO THE NEW NMS NETWORK?**

Customer port and cross connect fees will be provided in a separate Customer FAQ.

## **11. WILL MY NEW NMS CONNECTIONS BE POLICED (RATE LIMITED)?**

ALL NMS Network ports are policed (bandwidth limited) as per customer entitlements. Policing means that the amount of bandwidth a customer can use over any physical connection is limited to the rate at which the customer contracts. For example, a customer may contract for 100Mb, 200Mb, 500Mb, or 1Gb. If a customer

tries to send/receive more data than the committed rate enforced by the policer, data will be able to burst for a very short period of time. However, packets will be dropped if the burst limit is exceeded.

Dropped packets may not be visible to clients depending on how long the “overuse” is sustained. Over a short duration, TCP may recover discarded packets through retransmissions. More significant overuse, however, may increase latency and/or result in application disconnects where the packet loss is significant enough.

## **12. DOES NMS KNOW WHEN PACKET LOSS OCCURS?**

If packet loss occurs, reports are generated that will be provided to Sales and Presales so they may address any potential capacity issue with the client.