International points of presence

UAT CONNECTIVITY

valid since 01 January 2021

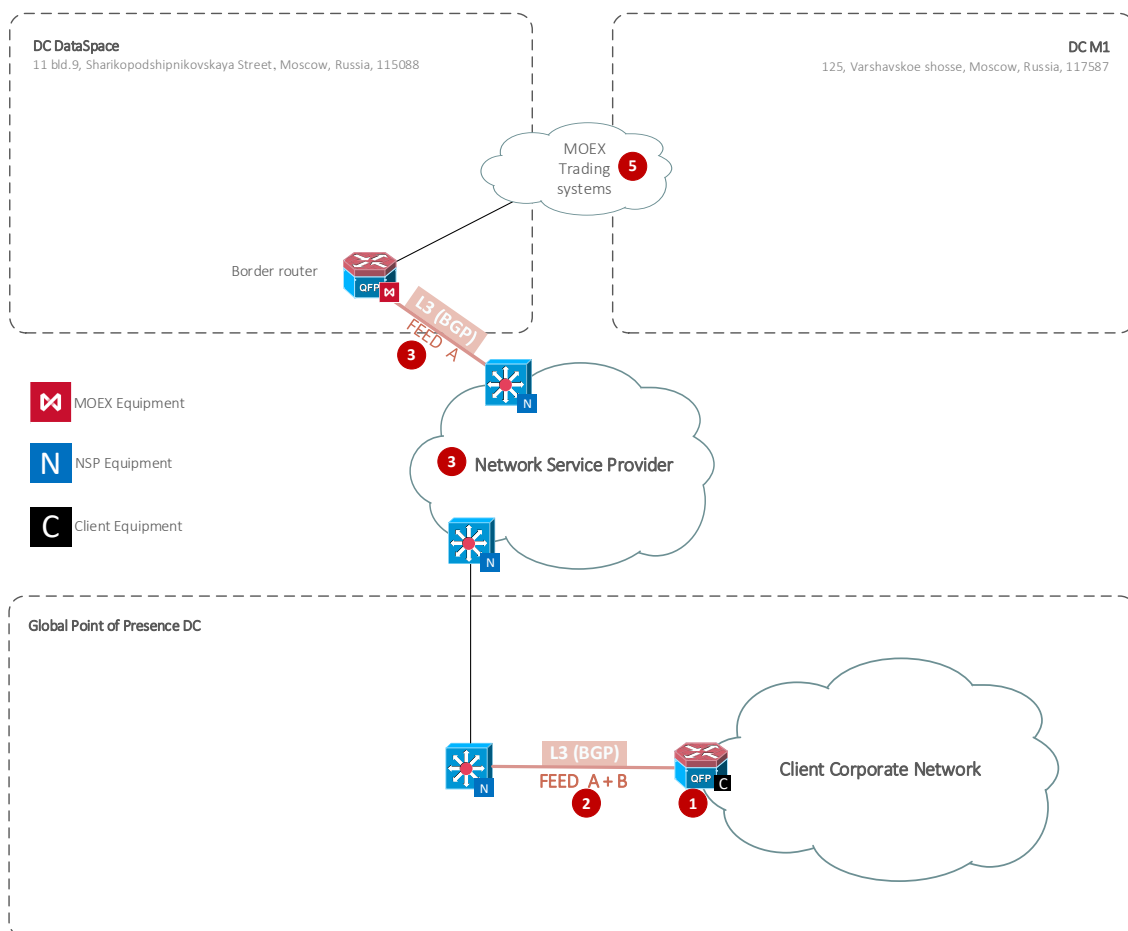## DOCUMENT SERIES

NAVIGATION

OVERVIEW

International Points of Presence (POP) is one of the options to get a network connectivity to the Moscow Exchange services outside the Russian Federation. The authorized Network Service Providers (NSP) organize connectivity through the special aggregated channels. The service includes cross-connecs to NSP equipment in the chosen location (not included into the service charge and billed separately), NSP carrier channels and cross-connects between the NSP and MOEX DSP (primary) data center. Detailed information can be found in the section Technical diagram.

Full list of available MOEX POP locations is available at https://www.moex.com/s655.

Service is provided according to the Rules of network connectivity to Moscow Exchange in global Points of Presence (http://fs.moex.com/files/18471/).

TECHNICAL DIAGRAM

DC DataSpace
11 bld.9, Sharikopodshipnikovskaya Street, Moscow, Russia, 115088

DC M1
125, Varshavskoe shosse, Moscow, Russia, 117587

MOEX Trading systems — 5

Border router — QFP

L3 (BGP) FEED A — 3

MOEX Equipment
N — NSP Equipment
C — Client Equipment

Network Service Provider — 3

Global Point of Presence DC

L3 (BGP) FEED A + B — 2

QFP C — 1

Client Corporate Network

1 – Client equipment
2 – Client cross-connect to NSP
3 – NSP transit network
4 – MOEX cross-connect to NSP
5 – MOEX services

Client infrastructure (#1 on the diagram above) can be **connected to NSP** using copper(1000Base-TX) or fiber optic cross-connects. Fiber connections use following standards: single-mode (1000BASE-LX/LH) or multi-mode (1000BASE-SX).

Client chooses IP subnets from the options below and must advertise them to MOEX via **BGP protocol**:

- Private IP range assigned by MOEX with a prefix from 24 to 32.
- Dedicated Public IP range owned and provided by the Client.

There are two options for the **multicast** feed subscriptions:

- Static IGMP Joins configured by the NSP on Client ports. It suits when there is no technical possibility for the SSM. However, Client will receive data from all the multicast groups in spite of whether they are needed or not,
- PIM configured in SSM mode. If your setup meets the requirements, it is the best way to receive multicast feeds.

Full list of available MOEX **Global Points of Presence** can be found at https://www.moex.com/s655.

MOEX services are in 91.203.252.0/22 IP range.

SUPPORTED HARDWARE

There are no restrictions from MOEX on the equipment choice used for connection at global points of presence.

NETWORK CONNECTION REQUIREMENTS

Depending on the number of services and the set of multicasts streams subscriptions (FAST UDP multicast technology), the recommended bandwidth is calculated as the sum of the values:

- 4 Mbit/s per terminal
- 15-50 Mbit/s for each FeedA and FeedB stream at the Securities Market
- 15-50 Mbit/s for each FeedA and FeedB stream at the FX Market
- 6-15 Mbit/s for each FeedA and FeedB stream at the Derivatives Market

For more details, please refer to the Load Test Report (https://fs.moex.com/f/11254/load-test-report-30-03-2019.pdf).

ADDRESSING PLAN

Type	Network address	Prefix	Network mask
Private range for the Client`s source range	10.174.X.0	/24	255.255.255.0
Private range for the transit network	10.195.26.0	/30	255.255.255.252
Client`s public range	Any public network with any prefix provided by the client for both source and transit networks (please notice that this range have to be allocated to the Client)		

Private IP range is provided by MOEX during the service configuration. Client determines on its own end IP addresses for its systems, no further notice is needed. The IP addresses shall be specified in the login requests and other connectivity service requests. If needed, all addresses can be allocated from Client's public IP address space.

MOEX's services addresses are available at https://www.moex.com/s745, and via a request to the Technical Support Service.

EQUIPMENT SETUP

For the route advertisement Moscow Exchange uses the BGP (Border Gateway Protocol), therefore it should be configured in chosen platform's syntax. Once the POP order is processed, client will receive technical details with IP addressing and AS number (if client's public IP range and public AS number are not going to be used for the transit network).

There are two options for the multicast subscriptions:

- Static IGMP Joins configured by NSP on Client ports. It suits when there is no technical possibility for the SSM. However, Client will receive data from all the multicast groups in spite of whether they are needed or not.
- PIM configured in SSM mode. If your setup meets the requirements, it is the best way to receive multicast feeds.

There are no restrictions from MOEX on Client's infrastructure and network architecture thus all other settings in the Client's area of responsibility.

HOW TO GET STARTED

To get started, client must perform the following steps:

- Consult a manager from the technology service sales team by phone on +7 (495) 363-3232, ext. 5656 or email at itsales@moex.com to make sure that the chosen solution best suits client needs, find out what paperwork is required and which next steps should be taken.
- Fill in the order form (https://fs.moex.com/files/18472/).
- Arrange cross-connect to POP equipment in the chosen location. Note, that this cross-connect is not included into the service charge and charged separately.
- **(Optional)** Pass the Software certification procedure in order to connect to MOEX's trading systems (required, if non-standard trading software is used).

HOW TO GET TECHNICAL SUPPORT

In case of any issues with the service please immediately contact Avelacom and MOEX technical support using the following contact details:

- E support@avelacom.ru and connect@moex.com (please ensure both emails are specified in your email)
- P +7(499)947-0959
- **Subject**: Client ID: XXX *(ID Provided by Avelacom after the service installation)*

For best support we highly recommend you to provide the following details in your original email:

- Connection type: MOEX PointOfPresence UAT;
- Primary and secondary Cross-connect IDs
- Brief problem description
- Problem start time
- **(Optional)** User test result

In case of any other issues, please contact us at:
- E help@moex.com
- P +7(495) 733-9508

AUTHORIZED NETWORK SERVICE PROVIDERS

AVELACOM

"Avelacom Business" LTD

P: +7 (495) 777-03-01,
sales@avelacom.com

FAQ

Is the IP address space of the Moscow Exchange registered?

Yes, the Moscow Exchange addresses are from the registered range 91.203.252.0/22.

Do you provide separate cross connects for multicast and unicast data?

Each connection (port) can carry multicast feeds and have full access to FIX servers. Client can use only one type of service if needed.

Which multicast mode is used, sparse or dense mode?

Multicast data is delivered with the "source specific multicasting" (sparse mode, no RP's needed).

Where are your servers located?

- "DataSpace" Data Center: 11 bld.9, Sharikopodshipnikovskaya Street, Moscow, Russia, 115088
- "M1" Data Center: 125, Varshavskoe shosse, Moscow, Russia, 117587

UAT connection is done via DataSpace datacenter only.