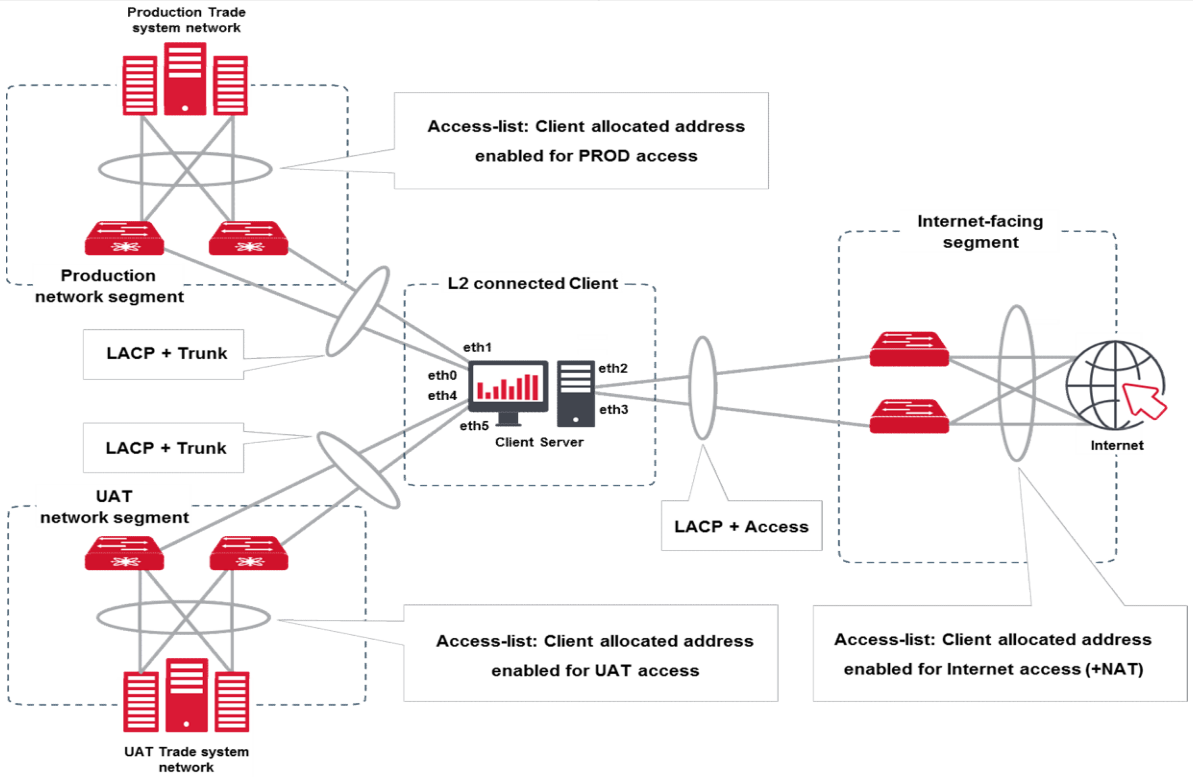
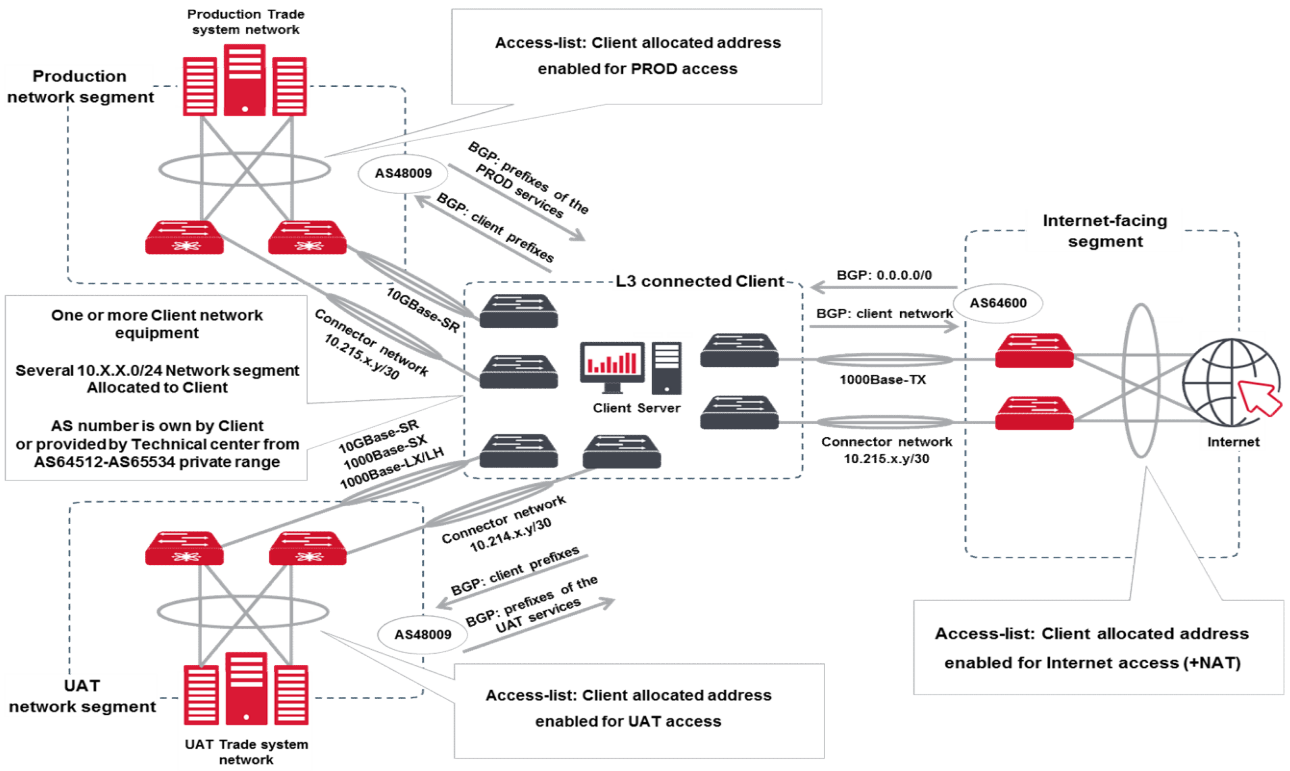
№	Схема	General setup conditions	Notes
1.		Within the MOEX Dataspace colocation facility, the client equipment can be connected as follows: 1. Client server equipment is connected directly to MOEX network equipment (hereinafter, L2 link) 2. Client server equipment is connected to MOEX through Client network equipment (hereinafter, L3 link).	The clients equipment requirements vary between links . This document contains references to link types for each condition.
2.	L2	Image 1. L2 link 	

3.	L3	Image 1. L3 link 	
4.	L2/L3	MOEX colocation facility in Dataspace contains 3 isolated network segments:	This architecture was created to ensure infrastructure stability and security
4.1	L2/L3	A. Production network segment	Used to access the production and gaming environments
4.2	L2/L3	B. UAT network segment	used to access UAT
4.3	L2/L3	C. Internet-facing segment	Internet access
5.	L2/L3	The client can connect to one (production) or more network segments, making as many links as needed	
6.	L2/L3	All connections to each network segment are done via 2 physical links to 2 different MOEX network devices.	Two links provide redundant connection. Internet, iLo, IPMI, UAT connections are not redundant.
7.	L2/L3	Redundant links facing client equipment can be connected as follows:	Different capabilites for L2/L3 connections.
7.1	L3	· to different Client network devices	Recommended.
7.2	L3	· to different network interfaces of a single Client network device	Lower level of redundancy, not recommended.

7.3	L2	· to different network interfaces of the Client server	The only possible solution for L2 connections.
8.	L3	Each Client link should be connected to L3 interfaces with BGP support.	
9.	L2	Two physical interfaces of each Client equipment connection should have LACP enabled.	The interfaces should have trunking enabled (IEEE 802.1q) in redundant mode (LACP, IEEE 802.3ad)
10.	L2/L3	Physical connections parameters:	Different capabilites for L2/L3 connections.
10.1	L3	· 10G port, 10GBase-SR type (MM fibre)	All 3 network segments are supported
10.2	L3	· 10G port with 1G Speed, 1000Base-SX type (MM fibre) or 1000Base-LX type (MM fibre)	Only for UAT network segment
10.3	L3	· 1G port, 1000Base-TX type (UTP)	Only for Internet connections
10.4	L2	· 10G port, 10GBase-SR type (MM fibre) or 1G port, 1000Base-TX type (UTP)	
11.	L3	Connections to different network segments on the Client side can be connected to:	
11.1	L3	· different network devices	Recommended.
11.2	L3	· same network device	Lower level of redundancy, not recommended.
12.	L3	Within client networks (including endpoint client equipment) access to the services located in different network segments could be organized as follows:	
12.1	L3	· from physically different equipment	Recommended.
12.2	L3	· from different network interfaces of a single piece of equipment	Lower level of redundancy, not recommended.
12.3	L3	· from same network interface of a single piece of equipment	Lower level of redundancy, not recommended.
13.	L3	Link redundancy on logical level is provided by BGP on each physical link:	
13.1	L3	· transit networks (/30) are provided by the Technical center from private address space (RFC 1918)	
13.2	L3	· Technical center AS number for Exchange engines-facing connection is AS48009	
13.3	L3	· Technical center AS number for Internet-facing connection is AS64600	
13.4	L3	· Technical center AS number for UAT network-facing connection is AS64700	
13.5	L3	· Client-side AS number is provided by the Technical center from AS64512-AS65534 private range (Client own AS number could also be accepted).	
14.	L2/L3	For each client the Technical center provides /24 networks from private range (as per RFC 1918) for each isolated network segment and for specific services within one network segment.	

15.	L2/L3	Specific addresses within allocated address space are enabled by the Technical center and added into ACLs as per the Client requests	
16.	L2/L3	Client connections to specific services of a certain network perimeter are only possible from IP addresses enabled by the Technical center from the range of Client-allocated address space for this service/network segment.	
17.	L2	For L2 connections specific services are available within separate VLANs facing separate network segments.	VLANs should be configured over the pair of links in redundant mode (LACP, IEEE 802.3ad) with IEEE 802.1q trunk for each network segment interface.
17.1	L2	Internet-facing connections are made in a different way: - Internet transit network is available in the access mode in the redundant mode (LACP, IEEE 802.3ad) - Internet transit netwotk (management interfaces) is available in the access mode	Trunking configuration (IEEE 802.1q) and VLANs are not required
18.	L3	The following services are announced over BGP:	
18.1	L3	· default route (for internet-facing connections),	
18.2	L3	· specific prefixes of the PROD or UAT services (located within PROD and UAT network segments).	
19.	L3	Announces trading system prefixes include public network (i.e. 91.203.x.x), private networks (i.e. 10.63.x.x) and non-internet advertized networks (i.e. 196.x.x.x).	
20.	L3	Within PROD network segment announced and real route lengths to trading servers for both physical links are equal.	
21.	L3	The Client can announce over BGP network prefixes allocated to Client	
22.	L3	In case the Client has multiple L3 links to the same network segment, the Technical center can accept Client network prefixes for each L3 link.	Used to ensure connection redundancy.
23.	L3	If necessary, the best route among different Client connections can be set on the Client side by changing AS Path length for specific prefix.	
24.	L3	Accepted prefix size: max - /24, min - /32.	
25.	L2/L3	FAST feeds are divided to several groups and are available, including TCP Recovery, from different address spaces and VLANs (for L2), separately for Feed A and Feed B.	
26.	L2	FAST feeds subscription is done using IGMP protocol.	
27.	L3	FAST feeds subscription is done using PIM protocol.	Between the Client network equipment and the Technical center network equipment.
27.1	L3	Feed A data is provided through one physical link and Feed B – through another.	

28.	L2/L3	Address space and VLANs list for PROD network segment:	
28.1	L2/L3	IP:10.224.0.0/16 VLAN:224	Transactional network
28.1	L2/L3	IP:10.231.0.0/16 VLAN:231	FAST (Equities) - Feed A
28.2	L2/L3	IP:10.241.0.0/16 VLAN:241	FAST (Equities) - Feed B
28.3	L2/L3	IP:10.232.0.0/16 VLAN:232	FAST (FX) - Feed A
28.4	L2/L3	IP:10.242.0.0/16 VLAN:242	FAST (FX) - Feed B
28.5	L2/L3	IP:10.233.0.0/16 VLAN:233	FAST (Derivatives) - Feed A
28.6	L2/L3	IP:10.243.0.0/16 VLAN:243	FAST (Derivatives) - Feed B
28.7	L2/L3	IP:10.234.0.0/16 VLAN:234	FAST (Full Order Log for Derivatives) - Feed A
28.8	L2/L3	IP:10.244.0.0/16 VLAN:244	FAST (Full Order Log for Derivatives) - Feed B
29.	L2/L3	Address space and VLANs list for UAT network segment:	
29.1	L2/L3	IP:10.223.0.0/16 VLAN:223	UAT system transactional network
29.2	L2/L3	IP:10.221.0.0/16 VLAN:221	FAST UAT - Feed A
29.3	L2/L3	IP:10.222.0.0/16 VLAN:222	FAST UAT - Feed B
30.	L2/L3	Address space and VLANs list for Internet connections:	
30.1	L2/L3	IP:10.218.0.0/16 VLAN:218	Internet transit network
30.2	L2/L3	IP:10.219.0.0/16 VLAN:219	Internet transit network (mgmt interfaces only)
31.	L2	All address spaces include gateways 10.x.0.1 which should be used for building routes to the VLAN services. The ping utility is used to check the connectivity of gateways 10.x.0.1.	
31.1	L2	Gateways 10.218.0.1 and 10.219.0.1 can be used as default gateways in the Internet conncetion segment	
32.	L2/L3	In the Internet connection segment, all incoming and outgoing connections are restricted by default, except: - connection to public DNS (8.8.8.8, 8.8.4.4) and internal DNS (85.118.176.17, 85.118.176.19), - outgoing ping from Internet connection network (10.218.0.0/16).	Further connections are allowed at the request.
32.1	L2/L3	Addresses 8.8.8.8, 8.8.4.4 (or internal 85.118.176.17, 85.118.176.19) can be used as DNS servers to configure interfaces in the Internet transit network segment.	Other DNS servers can be enabled at the request.