ATHEX Networks Management Department

Market Data Feed Service (MDFS) Network Specifications

Version: 9

Contents

Revision History

Version	Date	Description
1.0	2023/09/15	Draft -1st review
2.0	2024/01/12	2nd review
3.0	2024/01/13	3rd review
4.0	2024/01/15	4th review
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7.0	2024/03/05	7th review
8.0	2024/07/10	8th review
9.0	2025/02/26	9th review

1. Introduction

This document refers to network specifications needed for Data Feed customers to use the new Market Data Feed Service (**MDFS**) through **multicast** (**M/MDFS**) and **unicast (TCP)** provided by Athens Exchange (ATHEX).

MDFS will provide the following environments for multicast & TCP service:

- Production (PRD)
- TEST (UAT)

From now on, MDFS refers to "Market Data Feed Service" wherever met in this document.

2. Customer Registration

The current form should be completed (whenever needed) and sent to ATHEX Networks Department (ATHEX NOC) at: noc@athexgroup.gr at word format file with name:

<customer_name>_MDFS.doc

The form needs to be completed for all communications between the Networks Management Department of ATHEX and customers.

The below table should be completed by customer's appropriate department:

Customer Company Name:	
Technical Contact for communication (name):	
Phone number:	
Email :	

Table A: Customer information

3. Points of Presence for MDFS supply

Multicast for Market Data Feed Service will be provided equally in terms of content from two points, for redundancy reasons:

- Main Site of ATHEX infrastructure
- Alternative Site of ATHEX infrastructure

A slight time-to-delivery offset may apply between content from the two data sources. Multicast Market Data Feed Service (M/MDFS) can also be provided to a customer through ATHEX's Points of Presence in London (through x-connections or Remote Member node):

- LD4
- LD8

These nodes receive the data feed from Main Site and Alternative Site and pass it to customers who will require it.

4. Means of MDFS supply

Multicast Market Data Feed Service (M/MDFS) will be provided to Data Feed customers via:

- Leased Lines (including x-connections) through Source-Specific Multicast (SSM),
- Colocation service through Any-Source Multicast (ASM)

To recover lost packets, a TCP service will be provided to Data Feed customers via:

- Leased Lines (including x-connections),
- Internet,
- Colocation service

4.1 Source-Specific Multicast (SSM) through leased lines and x-connections.

Multicast Sources and Groups for SSM implementation through Leased Lines are provided in Table 1. Data Feed customers should make sure that they can route ATHEX internal server source IPs and not have a conflict for the multicast IP groups. PIM (Protocol Independent Multicast) neighborship should be implemented between ATHEX and Data Feed customer equipment.

For access to PRD environment Data Feed customer's using leased lines, ATHEX suggest that Data Feed customers have:

- one (1) leased line connected to Main Site which is of bandwidth (at least) 6Mbps
- one (1) leased line connected to Alternative Site which is of bandwidth (at least) 6Mbps

Total bandwidth requirement: at least 12 Mbps

For access to UAT environment Data Feed customer's using leased lines, ATHEX suggest that Data Feed customers have:

- one (1) leased line connected to Main Site which is of bandwidth (at least) 6Mbps
- one (1) leased line connected to Alternative Site which is of bandwidth (at least) 6Mbps

Multicast groups for each leased line will be different and are provided in Table 1. For each customer, the appropriate multicast groups will be communicated during the implementation.

In case of ATHEX Trading Members located in Athens who already have own (1) leased line per ATHEX Data Center (Main and Alternative Site), the bandwidth required is 6 Mbps/leased line additional to the current trading operation bandwidth needs.

Leased Line	Main Site Source / Multicast IP	Alternative Site Source / Multicast IP
Production Environment	10.200.204.20 / 232.0.1.x x=[1..254]	10.200.206.20 / 232.0.2.x x=[1..254]
UAT Environment	10.200.204.101 / 232.1.1.y y=[1..254]	10.200.124.102 / 232.1.2.y y=[1..254]

Table 1: *Multicast server Source IPs and Multicast group IPs*

Important note:

In order to avoid any kind of RPF (Reverse Path Forwarding) check failure at customer's equipment they must route multicast source's IPs to the interface connected upon ATHEX network equipment.

Customer should configure "*pim neighborship*" for SSM multicast and include the below configuration at their side:

"ip pim sparse-mode"

In case of M/MDFS through London (LD4, LD8), if a customer has already a single or double x-connection, they will receive the M/MDFS from both Main and Alternative Site's servers through the primary x-connection. In case primary line is inactive/malfunctioned, they will receive the M/MDFS through the backup x-connection

In case of a Remote Member's node connected to London POPs via leased line, M/MDFS will be provided similarly.

Multicast source IPs and multicast group IP ranges are the ones mentioned in Table 1.

4.2 TCP through leased lines

For the TCP case, ATHEX suggest that Data Feed customers have at least:

- One (1) leased line connected to Main Site
- One (1) leased line connected to Alternative Site

Total bandwidth requirement: 2 Mbps per leased line (4Mbps total bandwidth)

In case of access to UAT environment, an additional bandwidth of 2 Mbps per leased line is required.

In table 2, the IPs are defined. Ports x,y will be defined for each customer during the implementations.

Leased Line	Main Site Source IP	Alternative Site Source IP
Production Environment	10.200.204.20 tcp/port x x: will be defined for each customer	10.200.206.20 tcp/port x x: will be defined for each customer
UAT Environment	10.200.204.101 tcp/port y y: will be defined for each customer	10.200.124.102 tcp/port y y: will be defined for each customer

Table 2: *Server Source IPs for TCP*

4.3 TCP through Internet

Data Feed will be provided over the Internet for customers who require it through TCP. Server sources will be of public IPs and are provided in Table 3 below.

Ports x,y will be defined for each customer during the implementations.

Internet option	Main Site Source IP	Alternative Site Source IP
Production Environment	193.242.243.134 tcp/port x x: will be defined for each customer	193.242.243.135 tcp/port x x: will be defined for each customer
UAT Environment	193.242.243.136 tcp/port y y: will be defined for each customer	193.242.243.137 tcp/port y y: will be defined for each customer

Table 3: *Server Source IPs for Internet option (through TCP)*

4.4 Any-Source Multicast (ASM) through colocation infrastructure

For collocated customers, ASM IPs and groups are provided in table 4 and further configurations will be provided during the implementations with ATHEX Networks Management Department.

Leased Lines	Main Site Source IP/ Multicast IP	Alternative Site Source IP/ Multicast IP
Production Environment	10.200.204.20/ 239.0.1.x x=[1..254]	10.200.206.20/ 239.0.2.x x=[1..254]
UAT Environment	10.200.204.101/ 239.1.1.y y=[1..254]	10.200.124.102/ 239.1.2.y y=[1..254]

***Table 4**: Multicast Source IPs/ Multicast IPs for ASM*

As we refer to LAN topology (Colocation zone) the minimum system's connectivity is 1GE. However, the bandwidth requirements are the same as described above for PRD and UAT environment (6Mbps for multicast per connection, per environment).

4.5 TCP through collocation service

For the case of TCP through collocation server, the server IPs will be the same as table 4.

As we refer to LAN topology (Colocation zone) the minimum system's connectivity is 1GE. The bandwidth requirements are the same as described above for PRD and UAT environment (2Mbps for multicast per connection, per environment).

5. Terms and Conditions

Customers are responsible for obtaining any and all approval(s) for importing and operating their equipment, as may be required by the respective local laws and regulations.
Both parties are responsible for securing their respective ends of the connection against unauthorized third-party access.

6. Appendixes

6.1 MDFS ATHEX DCs

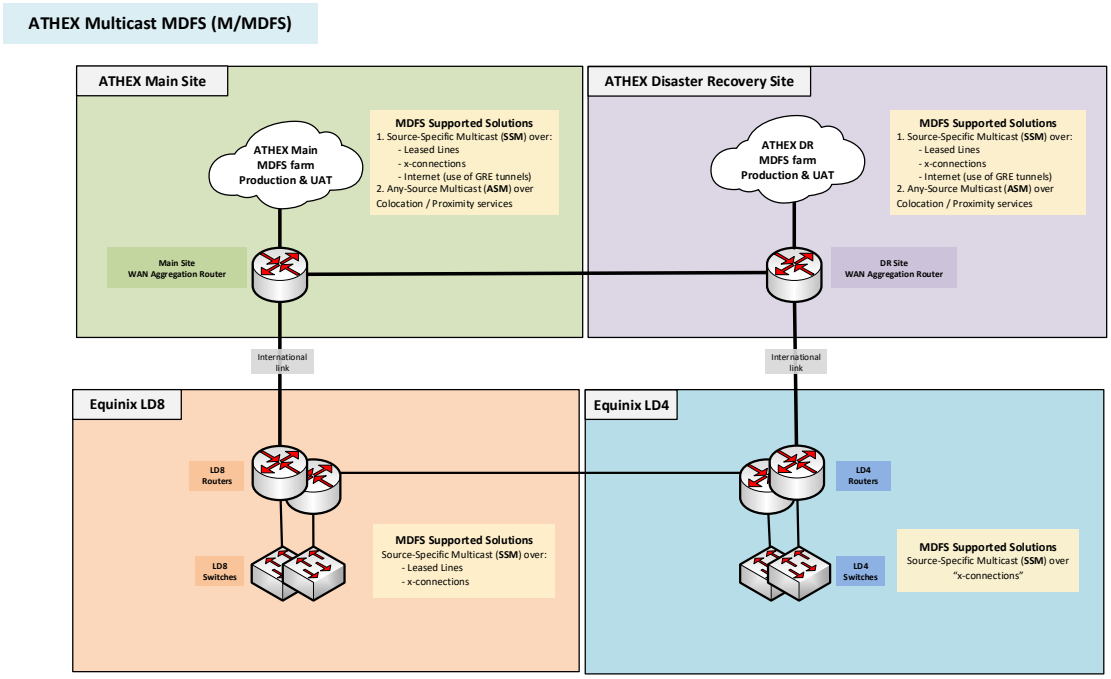

Figure 1: *MDFS in ATHEX Data Centers*

6.2 Multicast protocols per connectivity option

No	Data Center	Multicast protocol	Service Connectivity
1	ATHEX Main Site	SSM	Leased Line
		ASM	Colocation / Proximity
2	ATHEX Alternative Site	SSM	Leased Line
		ASM	Colocation / Proximity
3	ATHEX Equinix LD4	SSM	x-connection
4	ATHEX Equinix LD8	SSM	x-connection

Table 5*: M/MDFS - Multicast protocols per connectivity option*