X-pand into the Future

eurex circular 089/12

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⚠ **High priority**

Eurex Exchange's new Trading Architecture: Connectivity Portfolio and Pricing

Related Eurex Circular: 021/12, 051/12

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Content may be most important for:	**Attachments:**
➲ All departments	none

Summary:

As previously announced in Eurex circular 021/12, Eurex will introduce its new trading architecture in **December 2012**. The substantially higher performance and throughput of the new trading architecture require higher bandwidths on participants' network connections. These changes will be addressed with a restructuring of the Eurex connectivity portfolio and pricing while the session concept will be continued with a similar approach and pricing as of today.

This circular gives information about the pricing for the connectivity to the new Eurex trading architecture. In order to support the migration of trading participants and vendors as well as to account for possible redundant infrastructure during the transition phase, there will be a fee holiday for the connectivity to the new Eurex trading architecture until March 31, 2013, the currently expected end of the migration phase.

Moreover, in order to further reduce connectivity costs for Eurex trading participants and vendors during the migration phase, the introductory price for 10 Gbit/s connections in Co-Location (Equinix) to the Eurex® system of EUR 3,000/month per line will be extended transitionally until **March 31, 2013**. From **April 1, 2013** the price for 10 Gbit/s connections will be EUR 4,500/month per line (instead of the current EUR 6,000/month per line).

Eurex Exchange's new Trading Architecture: Connectivity Portfolio and Pricing

1 Introduction

As previously announced in Eurex circular 021/12, Eurex will introduce its new trading architecture in December 2012. The substantially higher performance and throughput of the new trading architecture require higher bandwidths on participants' network connections. These changes will be addressed with a restructuring of the Eurex bandwidth portfolio and pricing while the session concept will be continued with a similar approach and pricing as of today.

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2 New connectivity concept

As the throughput of the new trading architecture is expected to increase significantly and the bandwidth requirements for participants' network connections will increase, Eurex Exchange has designed a new network connectivity concept that reflects the requirements for higher bandwidth. The concept includes:

- New version of the Multi-Interface-Channel (MIC) concept introduced in Eurex Release 14.0 in order to integrate the new interface landscape of Eurex Exchange's new trading architecture.
- Introduction of a new GUI-Channel for the new generation of GUI solutions.
- Replacement of the majority of participant lines with new high-bandwidth lines, based on Ethernet technology.

Please note that the new connectivity will replace the existing participants' network connections. Please visit Eurex circular 051/21 for a description of the network bandwidth upgrade process.

2.1 Multi-Interface-Channel

The new Eurex connectivity concept for Eurex Exchange's new trading architecture integrates two components: A new version of the Multi-Interface-Channel (MIC) for market and reference data, transaction interfaces and the Eurex Admin GUI, as well as a dedicated GUI-Channel for the new generation of GUI solutions (in particular the Eurex Trader GUI).

The newly-defined MIC is a modified version of the MIC introduced with Eurex Release 14.0 in 2011. The new MIC replaces the current MIC version used for low-bandwidth line/iAccess connections as well as the FIX channel used for consolidated bandwidth connections. Access to the following interfaces will be provided by the new MIC:

- New Eurex Enhanced Market Data Interface – Eurex EMDI (on high-bandwidth lines only)
- New Eurex Market Data Interface – Eurex MDI
- New Eurex Reference Data Interface – Eurex RDI
- New Eurex Admin GUI

- New Eurex Enhanced Trading Interface – Eurex ETI
- New Eurex FIX Gateway
- Eurex Clearing FIXML Interface

Other interfaces used for access to the current Eurex® system, such as MISS/VALUES, Enhanced Transaction Solution, Enhanced Broadcast Solution, Eurex Market Data Interface or the current Eurex FIX Gateway will not be integrated in the new MIC. Please note, during the product migration period, when some products can still be traded on the current Eurex® system, existing connectivity concepts for trading (MIC, FIX channel, etc.) will exist in parallel to the new configuration.

In order to avoid any interference of multicast and unicast data within a MIC, a traffic-shaping mechanism will be used to separate market/reference data from the transactional interfaces (from 5 Mbit/s MIC onwards). The bandwidth of the new MIC depends on the use of the Eurex EMDI (see chapter 2.3 for more details):

- If Eurex EMDI is necessary, three bandwidth options will be available for the MIC: 80 Mbit/s, 260 Mbit/s and 760 Mbit/s. The part used for transactional interfaces within the MIC will be configured to a bandwidth of 10 Mbit/s. Market/reference data interfaces will use the remaining bandwidth.
- Where no Eurex EMDI is used (if netted market data via Eurex MDI is sufficient), the bandwidth of the MIC will be limited to up to 5 Mbit/s. In this setup, the transactional interfaces will be assigned a bandwidth of 1 Mbit/s and market/reference data interfaces will use the remaining bandwidth.

2.2 GUI-Channel

With Eurex Exchange's new trading architecture access to the new generation of GUI solutions, particularly the new Eurex Trader GUI will be available via a dedicated GUI-Channel on leased lines or via internet.

A GUI-Channel can be ordered with various bandwidth options. Eurex offers 1 Mbit/s, 3 Mbit/s, 10 Mbit/s and 40 Mbit/s GUI-Channels. The maximum bandwidth requirement per open Eurex Trader GUI is estimated to be approximately 300 Kbit/s. Based on this assumption a minimum of three concurrently open Eurex Trader GUIs can be used per 1 Mbit/s GUI-Channel.

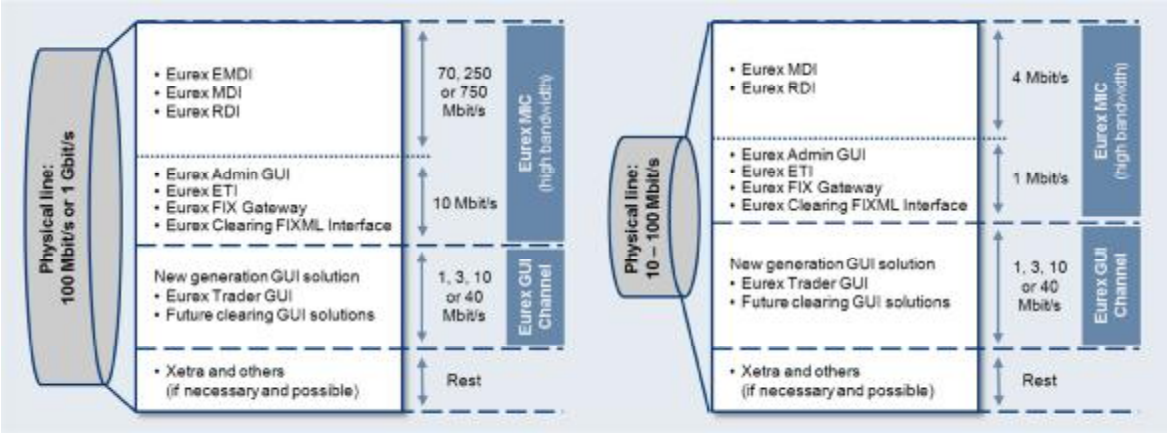
In addition to the GUI-Channel, access to the Eurex Trader GUI is also possible via internet. Eurex does not limit the number of open Eurex Trader GUIs that can be used via the internet. However, the number of Eurex Trader GUIs is limited by the bandwidth of the participant's internet access.

Please note that the GUI-Channel allows access exclusively for the Eurex Trader GUI (and potential future clearing GUI solutions). It does not support access to the Eurex Admin GUI. For the Eurex Admin GUI a MIC or access via the internet is required.

2.3 Channels on physical lines

Bandwidth upgrades of the participants' connectivity are required to fulfil the bandwidth requirements for the new MIC and GUI-Channel. Existing participant lines will be upgraded and/or replaced and new configurations will be applied accordingly. Please note that certain locations cannot be equipped with high-bandwidth connections. Such locations will be provided with lower-bandwidth connections or existing connectivity will be modified to use the full bandwidth available (please visit Eurex circular 051/12 for more details).

Assignment of services and bandwidth separation within leased lines/iAccess is shown in the following figure:



The required bandwidth of the MIC particularly depends on the market and reference data interface used for the new trading architecture:

- **760 Mbit/s** – the highest bandwidth option for a MIC is recommended if the Eurex EMDI will be used to provide un-netted market data for a broad set of options and futures products.
- **260 Mbit/s** – this option should be chosen if un-netted market data via the Eurex EMDI is required for a subset of options and futures products.
- **80 Mbit/s** – the lowest available bandwidth for Eurex EMDI is suitable if un-netted market data exclusively for futures products and only a small subset of options products is required (e.g. for users in the United States) and if some queuing latency is acceptable.
- **5 Mbit/s** (2 or 1.5 Mbit/s in some regions) – this option is suggested if netted market data via the Eurex MDI is sufficient. Un-netted market data using Eurex EMDI cannot be received via this connectivity option.

In addition to the MIC-based connectivity, Eurex will offer 10 Gbit/s connections in Co-Location. Please note that this connectivity will be offered separately for either market data (Eurex EMDI) or transactions (e.g. via Eurex ETI or the new Eurex FIX Gateway). Simulation access to the new trading architecture will also be available on 10 Gbit/s connections.

3 Pricing

3.1 Pricing for new connectivity

As outlined in chapter 1, Eurex will offer various bandwidth options for the new MIC and the new GUI-Channel. The following tables provide a detailed description of the pricing for the new connectivity and availability of the options by location.

Service	Bandwidth (Mbit/s)	Prices of Connections (EUR/month)								
		Co-Location (Equinix)	Access Point (London)	Leased Line in Tier A1	Leased Line in Tier A2	Leased Line in Tier B1	Leased Line in Tier B2	Leased Line in Tier C	Leased Line in Tier D	iAccess
Eurex Multi-Interface Channel (MIC)	1.5 (U.S.)	-	-	-	750	-	750	-	-	500[X1]
	2	-	-	-	-	-	-	-	750	500[X1]
	5	750	750	750	-	750	-	750	-	500[X1]
	80	3,000	3,600	4,500	4,500	8,100	8,100	9,200	-	-
	260	4,000	4,600	5,800	-	9,900	-	11,000	-	-
	760	5,000	5,600	7,000	-	11,600	-	12,800	-	-

Co-Location Mkt. Data Eurex EMDI	**10,000**	4,500	-	-	-	-	-	-	-	-
Co-Location Transaction Eurex ETI	**10,000**	4,500	-	-	-	-	-	-	-	-
Eurex GUI-Channel	**1**	40	50	60	R	100	R	110	-	-
	3	110	140	170	R	300	R	340	-	
	10	380	480	600	R	1,000	R	1,100	-	
	40	1,500	1,840	2,300	R	4,000	R	4,600	-	
Eurex GUI via Internet	**n/a**	300[X2]								

Legend	
Tier A1	Metro areas of London, Frankfurt, Paris, Amsterdam and Zurich
Tier A2	Metro areas of Chicago and New York
Tier B1	UK, Germany, France, The Netherlands, Switzerland
Tier B2	U.S.
Tier C	Belgium, Luxembourg, Sweden, Ireland, Italy, Austria, Spain
Tier D	Finland, Singapore, Greece, Australia, Hong Kong, Gibraltar
R and other Locations	Availability of high-bandwidth MIC (80 Mbit/s, 260 Mbit/s and 760 Mbit/s) and Eurex Trader GUI in other locations on request.
X1	• For Combined Access, the bandwidth of the iAccess connection will be aligned with bandwidth of the associated leased line.
X2	• GUI connection via internet is free of charge for participants with a MIC, a 10 Gbit/s connection in Co-Location or if a connection via a service provider is used, otherwise the monthly charge of EUR 300/month applies (per participant, number of open Eurex Trader GUIs not limited)
Remarks	• For the purpose of fault tolerance, leased line based connections must be ordered in pairs, except for participant's disaster recovery locations. • Tier prices are reference prices only and may vary depending on specific participant locations and technical feasibility. Prices for other locations on request. • Eurex GUI-Channel prices are valid in combination with a MIC or a 10 Gbit/s connection. GUI-Channel-only prices (without MIC or 10 Gbit/s connection) on request. • Currently available Access Point connection is London Telehouse only. Other locations on request. • The former surcharge from third line onwards does no longer apply for the new connectivity options. • 10 Gbit/s is available in Co-Location (Equinix) only, not available in Colt proximity.

3.2 Session pricing for Eurex ETI and Eurex FIX Gateway

Eurex will offer a similar session concept in the new trading architecture as today in the current Eurex® system.

- Eurex ETI will support high frequency and low frequency sessions, similar to the sessions (standard and light) used in the Enhanced Transaction Solution.
- The new Eurex FIX Gateway will support trading and back-office sessions, as supported today by the Eurex FIX Gateway.

The prices for both Eurex ETI and Eurex FIX Gateway sessions will remain the same as for the current Enhanced Transaction Solution and Eurex FIX Gateway sessions. For the different session types the following monthly charges apply:

Eurex ETI sessions:

- Eurex ETI High frequency session (150 transactions/second): EUR 500
- Eurex ETI High or low frequency session (50 transactions/second): EUR 250

Eurex FIX Gateway sessions:

- Eurex FIX trading session: EUR 250
- Eurex FIX back-office session EUR 100

Participants will receive a monthly rebate of up to a maximum of EUR 1,000 on the total number of sessions purchased.

4 Next Steps

The new connectivity is required to access Eurex Exchange's new trading architecture. Therefore, all participants are required to order new connections (and if required new sessions) to trade products migrated to the new trading architecture currently scheduled to launch on December 3, 2012.

The new connectivity options can already be ordered via the Requests & Configuration service in the Member Section on the Eurex website www.eurexchange.com under the path:

Member Section > Technical Connection > Requests & Configuration

Due to carrier infrastructure upgrades required by the high bandwidth connections and the Summer Olympics 2012 in London, we expect significantly longer line delivery times than experienced in the past. Therefore, we strongly recommend all participants to order the new connectivity latest by end of May 2012.

We will prioritize the connections ordered prior to the end of May deadline to allow for the timely delivery of the new connection prior to the production launch.

5 Contacts

For any questions you may have about the connectivity and session pricing please contact the Markets Services team at tel. +49-69-211-1 31 18 or e-mail: technology.roadmap@eurexchange.com.

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