

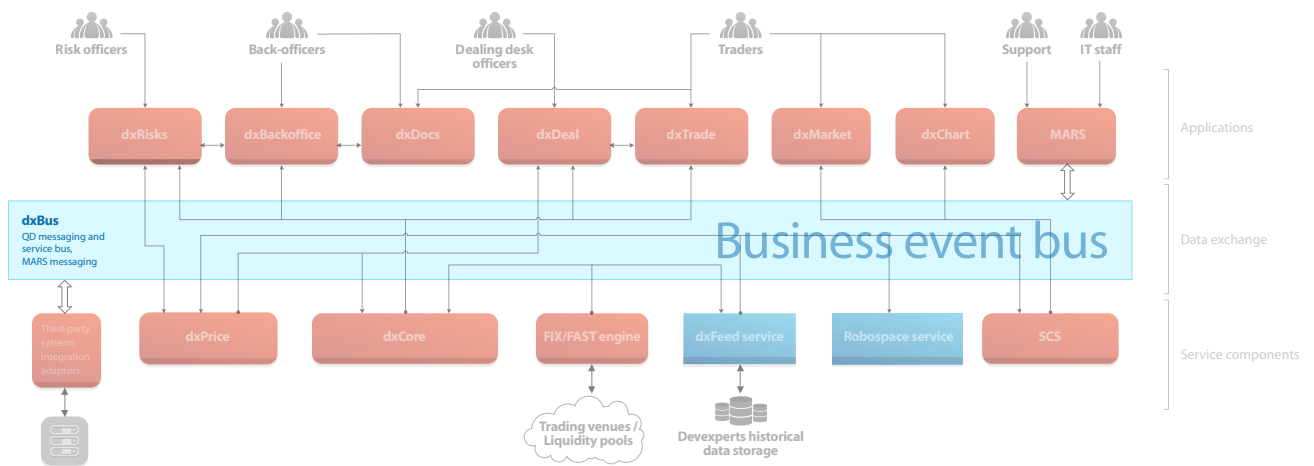


# DEVEXPERTS

Financial software development  
for brokerage and exchanges

## dxBus

The trading bus developed by Devexperts is designed to provide high-speed fault tolerant market and trade communication between client corporate information system and external information systems of stock exchanges and information agencies.



## Solution Architecture

### Trading bus consists of the following top level components:

- Meta data,
- Message processing servers,
- Protocol adapters ,
- Client libraries,
- Administration console.

**Meta data:** The trading bus allows enlarging and modifying the range and structure of messages the connected systems can exchange. Java or XSD format can be used as description languages. The bus is supplied with cross-compiler which allows changing the format. While implementation the developer shall provide the meta-data necessary for the current interactions.

**Message processing servers:** The trading bus core is a server cluster dealing with message routing and delivery control. The same servers allow the bus to control the components and transfer the information to the monitoring system. Access to servers is provided via open binary protocol.

**Protocol adapters:** In order to allow the systems with limited programming ability and third-party firm systems to access the bus the adapters can be used which change the binary protocol of the trading bus into any other protocol or API. Within this offer we provide the adapter for access to the trading bus based on the standard XML protocol.

**Client libraries (API):** In order to provide the easiest access to the trading bus services we supply the API with Java class library implementing all the abilities of the protocol. We also supply API to provide the access to the component control and collection of monitoring information. If necessary, we can develop API variants and meta-data compilers for other programming languages.

**Administration console:** The trading bus is supplied with user-interface for component control. The interface also allows to change the bus settings.



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## Functionality Review

**Delivery algorithm:** The bus has flexible setting for message delivery type.

- Subscription access in publish/subscribe mode;
- Access in request/reply mode;
- Guaranteed delivery confirmation to sender;
- Repeated request option for specified period;
- Special way to describe the market data for maximum efficiency.

**Component control:** The message routing setting tools are provided together with the trading bus. The trading bus is equipped with content-based routing mechanism as follows:

- <Receiver> and <Sender> field routing;
- Derived field based routing;
- XQuery-based policies or callouts to external services for message routing.

## Efficiency and Reliability

The possibility of server consolidation into a cluster is implemented to provide the system fault tolerance, as well as load distribution between the system instances.

In this case all the trading bus clients can connect to any server or all of them simultaneously. Server selection algorithm for connection can be different and shall be separately specified. In case of failure of any server the trading bus continues the operation and the load from the non-effective server is

distributed among the rest of the servers. The efficiency of the trading bus can be increased by adding new servers.

The trading bus provides the delay distribution specified in the specifications (max delay for 90% of messages, max delay for 99.9% of messages) depending on the delivery type, load amount and the equipment used.

