

Open Day – Deutsche Börse IT conference 2011

Eurex Clearing interface roadmap

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Agenda

- n Eurex Clearing interfaces based on industry standards
- n Future “Eurex Clearing Interface World”
- n Clearing interface timelines
- n Modified clearing release process
- n About the Advanced Message Queuing Protocol (AMQP)
- n Reliable messaging
- n Disaster tolerant setting
- n Security concept
- n Migration of an outsourced back office

- n Exchange lab:
 - Live coding - connect to Eurex Clearing in one hour via AMQP

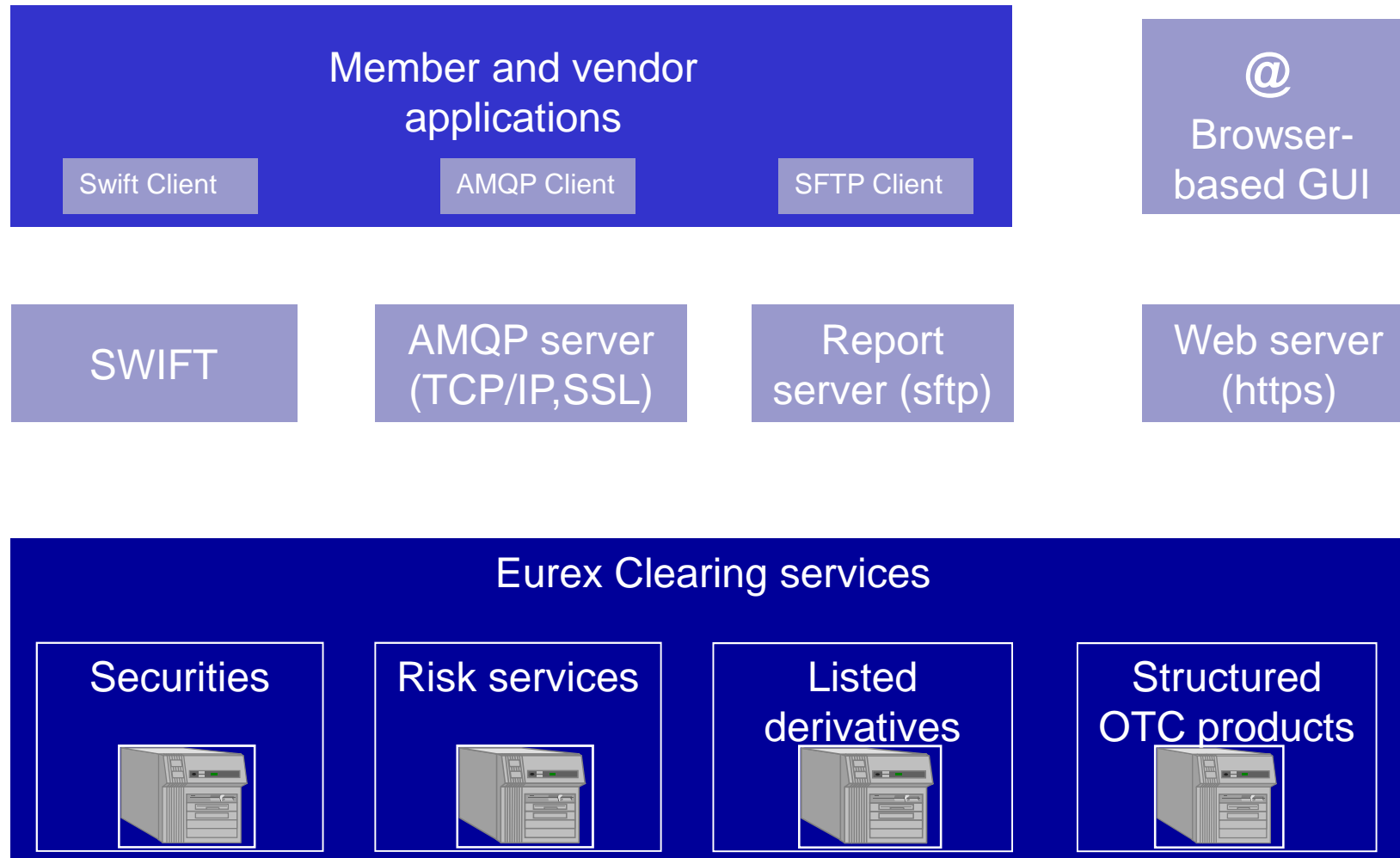
Eurex Clearing interfaces based on industry standards

- n Eurex Clearing aims to support open standards of the financial industry on semantic as well as on technical transport level.

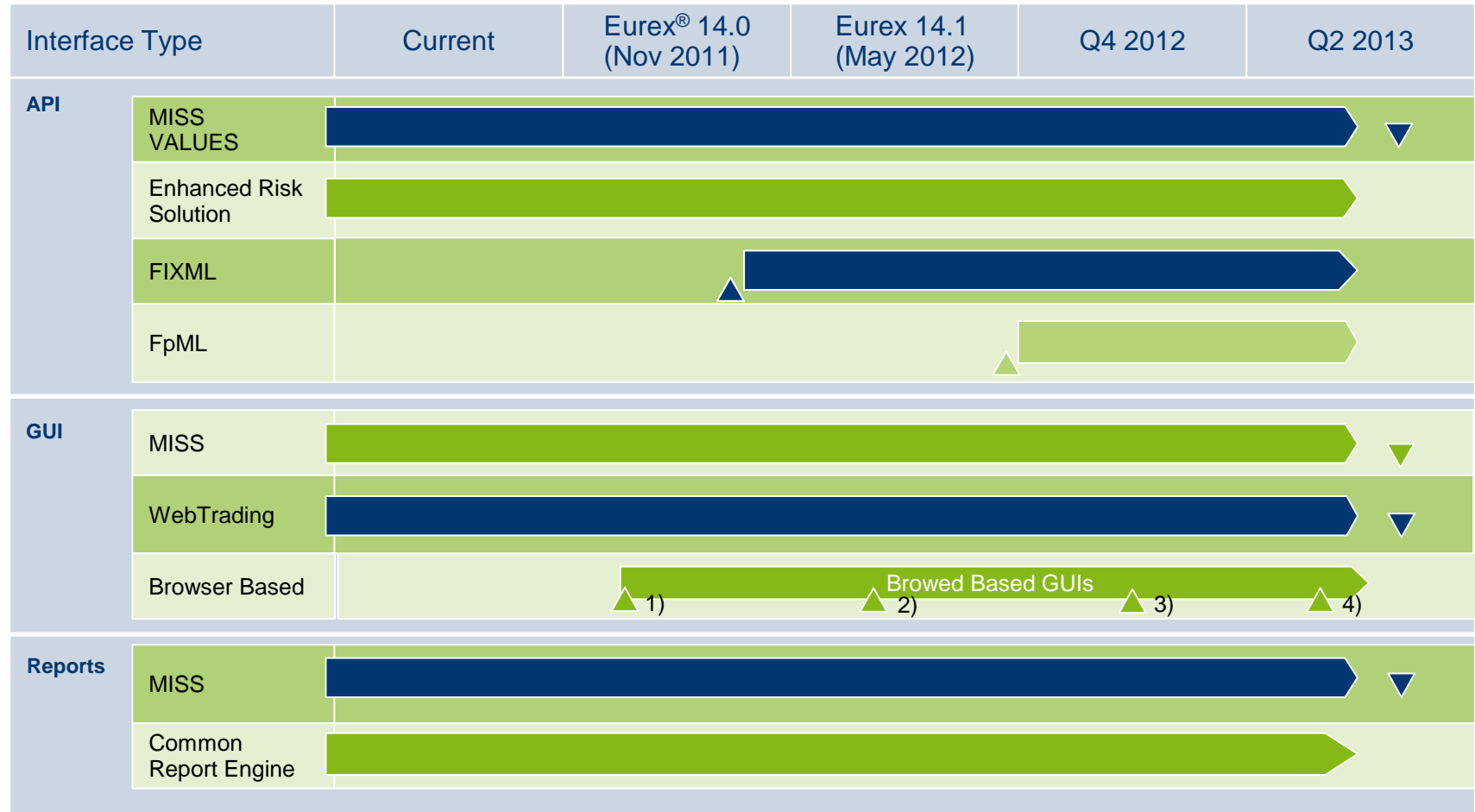
- n The development of existing and future interfaces is based on the common semantic messaging standards
 - n FIXML for listed derivatives business
 - n FpML for structured OTC products
 - n SWIFT for cash and delivery interfaces

- n Standard technical transport
 - n AMQP messaging middleware for broadcasts and request – response
 - n SWIFT network transport for cash and delivery processing
 - n SFTP for report distribution
 - n Https for browser based GUI access

Future “Eurex Clearing Interface World”



Clearing interface timelines



▲ Launch
▼ Decommissioning
■ Potential Scope

- 1) Interest Rate Swaps
- 2) CCP
- 3) Post-trade for listed derivatives
- 4) Other (e.g. Risk)

Modified clearing release process

- n The new interface design opens opportunities for a light release approach:
 - software installation on member site only for new functions
 - interfaces are inherent backward compatible
 - first functional components can be provided earlier
 - earlier feedback loops and improved responsiveness expected

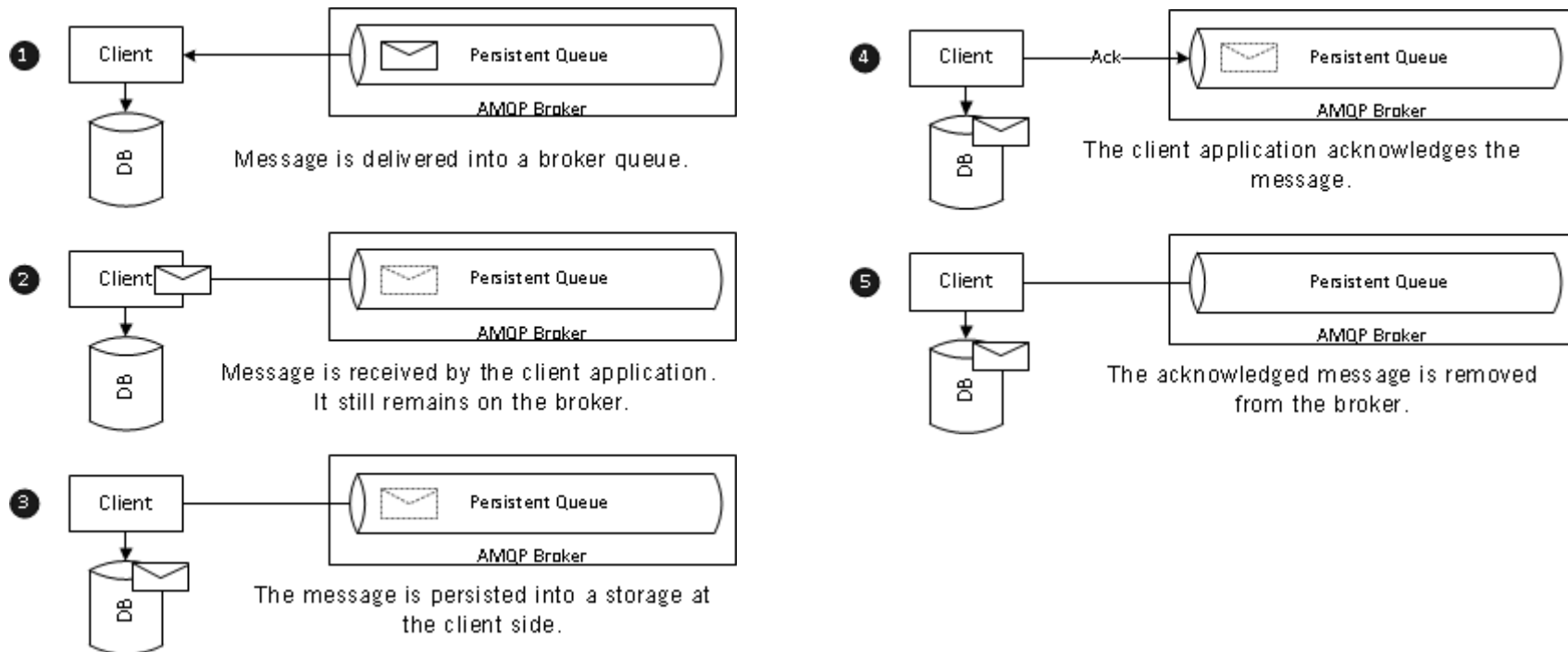
- n The FIXML interface will be rolled out in parallel to the existing functionality in several drops:
 - trade reporting package addressing core middle-office needs
 - trade registration package addressing core front-office needs
 - final package addressing all middle- and back-office needs

About the Advanced Message Queuing Protocol (AMQP)

- n AMQP is an open standard for business messaging.
- n AMQP was designed with the following main characteristics as goals
 - security
 - reliability
 - interoperability
 - open standard
- n AMQP is vendor-neutral and platform-agnostic
- n On July 28th, the Advanced Message Queuing Protocol (AMQP) Working Group has been finally established as a member section within OASIS Open, the international open standards consortium for the global information society.
- n And: It is easy to use. Follow our exchange lab !
- n We will build an application purely based on open source components that connects to Eurex Clearing and receives trade confirmation broadcasts.

Reliable messaging

- n On the FIXML AMQP server each account has an own set of persistent queues.
- n Reliable message delivery works in five steps:



- n Acknowledgement can be configured automatically or manually.
- n Automatic acknowledgement requires precise transaction handling.

Disaster-tolerant setting

- n Due to reliable messaging no messages should be lost between server and client.
- n Nevertheless data may get lost due to hardware failure on either side.

- n Incident on Eurex[®] system:
 - The Eurex AMQP server is clustered and spread via two locations.
 - If one Eurex site goes down, client applications must switch to the backup location, i.e. connect to backup IP address and port number.

- n Incident on member system:
 - Member can register two accounts, e.g. one primary and one backup.
 - Via the primary account, data is fetched and consumed from the queues.
 - The backup account holds an independent and complete set of all messages which can be browsed without being acknowledged.
 - This leaves the data on the backup queues during the entire day.

Security concept

- n All new clearing interfaces use a state of the art public / private key infrastructure to ensure a secure, authenticated and encrypted communication.
- n Only the public key is passed via the SAP portal to Deutsche Börse.
- n Members are requested to keep their private keys absolutely confidential.

- n AMQP connections:
 - n X.509v3 standard certificates
- n Common Report Engine:
 - n Keys must be OpenSSH compliant
 - n X.509 certificates are not supported
- n Web based GUI:
 - n X.509v3 standard certificates

Migration of an outsourced back-office

- n Outsourcing comprises an arrangement between a Eurex Clearing member (outsourcer) and a service provider (insourcing firm) to perform back office functions.

- n For the migration of an outsourced back-office the following technical actions need to be done:
 - the outsourcer creates a public / private key pair.
 - the outsourcer passes the public key via the SAP portal to Eurex®.
 - the outsourcer passes the private key to the insourcing firm.
 - the outsourcer provides a back office user ID to the insourcing firm.
 - the insourcing firm connects using the outsourcers private key.
 - the insourcing firm provides the assigned user ID in each FIXML message within the SenderSubID field (FIX tag 50).

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Thank you for your attention!

