

FIX is NOT slow...

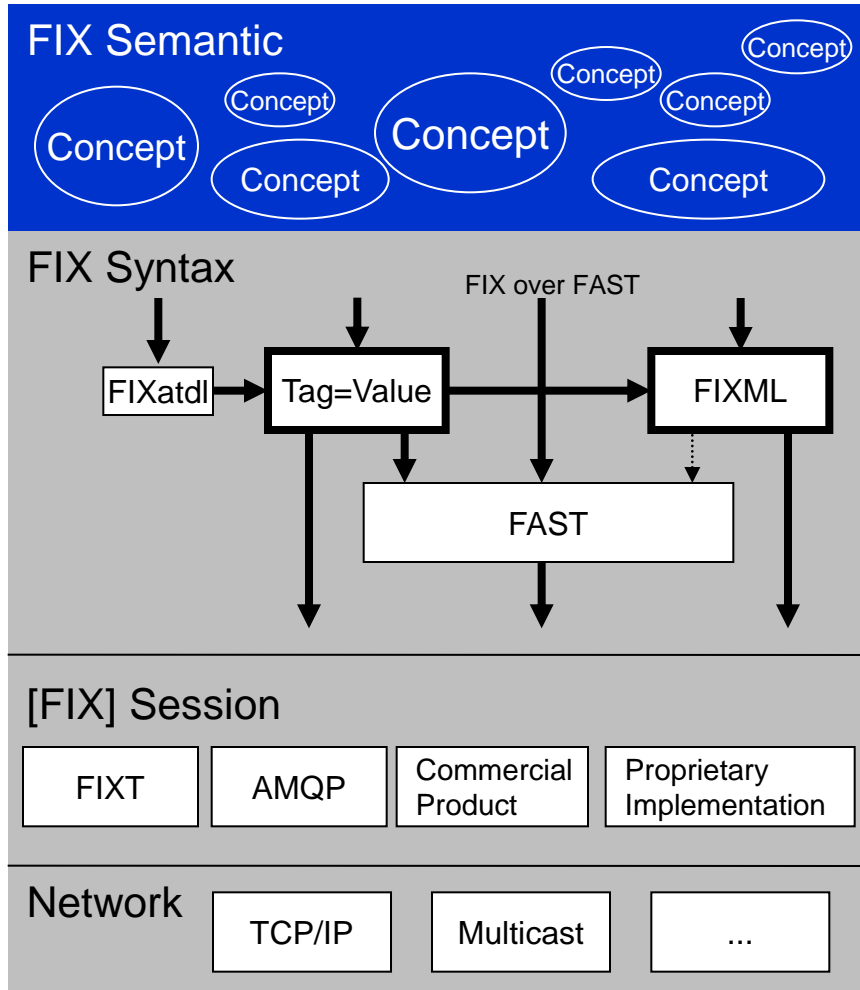
Hanno Klein

Senior Vice President, Deutsche Börse Group
Co-Chair FIX Global Technical Committee

Performance is impacted by...

- Network Infrastructure
 - Hardware
 - Software
 - Databases
 - Interfaces
 - Encoding / Syntax
 - Alignment of interfaces and applications
 - Semantic verbosity of interfaces
-

FIX Application and Transport Layer



- FIX semantics layer (application) consists of one or more concepts for each business functionality
- FIX syntax layer offers ASCII, XML and binary representations of the FIX semantics
- FAST is currently the only binary representation offered by FIX
- FIX session layer allows FIX and non-FIX transports as of FIX 5.0
- TCP/IP is used for transactions, multicast only for market data

Encoding / Syntax

- FIX tag=value
 - 8=FIX.4.2^9=92^35=A^49=BOFASEC0^...
- FIXML
 - <IOI IOIID="4711" TransTyp="N" Side="2" Qty="200"...
- FAST
 - FAST Templates describe message layouts
 - 81 84 41 4C CC 01 EA 91 82 E0 B1 FF 99 E0 B0
- FIX binary
 - to be defined...

Increase of wire level legibility decreases performance!

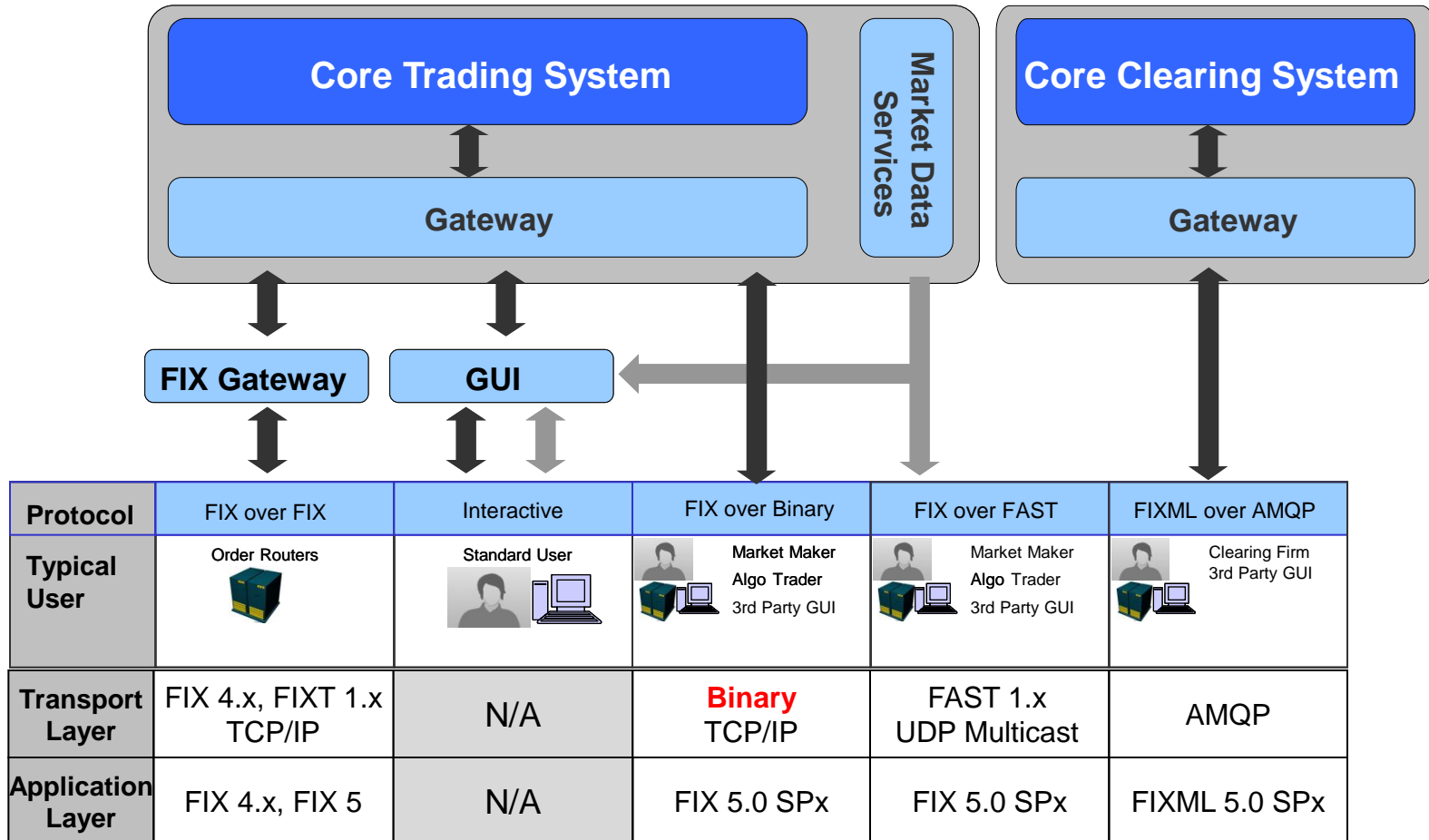
Alignment of Interfaces and Applications

- Data Types
 - ASCII versus binary
 - Timestamp, MultipleCharValue, MultipleStringValue
 - Entity Identification
 - IDs for Order, quotes, trades may be assigned by sender or receiver
 - Transaction Models
 - 1:n translation (replication)
 - n:1 translation (bundling)
 - Recovery Models
 - FIX Session Layer
 - FIX Application Sequencing
-

Semantic Verbosity of Interfaces

- **Mandatory versus optional fields**
 - AvgPx is optional as of FIX 5.0
 - Order Cancel Request requires not only an order identifier and an instrument but also the side and order quantity
 - **Explicit versus implicit information**
 - Single Execution Report for IOC/FOK orders
 - FIX 5.0 SP1 Specification Volume 7: Exchanges and Markets
 - **Message bundling**
 - Multiple fills of the same order in a single Execution Report (SP1)
 - Mass action messages that can be optimized by receiver
 - **Echo of input from requests**
 - Order submitter does not need attributes that do not change
-

Interface Architecture Framework



Conclusion

- FIX is a universal language for the financial industry, not just a technology.
 - FIX can be used for many different interface types in combination with the appropriate transport.
 - High performance can be achieved with FIX by integrating FIX semantics into the core system and using a binary transport.
 - Gateways conveying FIX messages between internal and external applications can then be designed to be stateless.
-