



FIX ANTENNA JAVA

FIX ANTENNA. ENGINE FEATURES

FIX Antenna is the highest performing FIX engine able to process over 60,000 messages per second on a single CPU to handle the most challenging market conditions

MESSAGING PROTOCOLS

- 100% FIX/FAST standard compliance (FIX 4.0 - 5.0 SP2, FAST 1.1)
- Customizable FIX protocol, user-defined tags and message types
- Message validation

SESSION MANAGEMENT

- Ability to manage multiple sessions
- Ability to configure each session separately

MESSAGE ROUTING

- Standard FIX routing based on DeliverTo and OnBehalfOf fields

HIGHLY CUSTOMIZABLE MESSAGE PROCESSING LOGIC

- Ability to create a custom handler for any type of message
- Ability to add custom pre-processing of messages before they are handled by FIX Antenna

DELIVERY MODELS

- *Guaranteed delivery*
 - Relies on the store and forward technique
 - Flat files used for persistence to achieve maximum performance
- *Later delivery mode* to store unsent messages and deliver them once connection is re-established
- *Rejecting mode* to reject messages not sent during some reasonable (customizable) time

SECURITY

- Standard FIX authorization (Username & Password tags in the FIX Logon message)
- Native built-in SSL support
- Auto-accept all incoming sessions or auto-decline non pre-configured sessions

BUILT-IN REMOTE MONITORING AND ADMINISTRATIVE INTERFACE

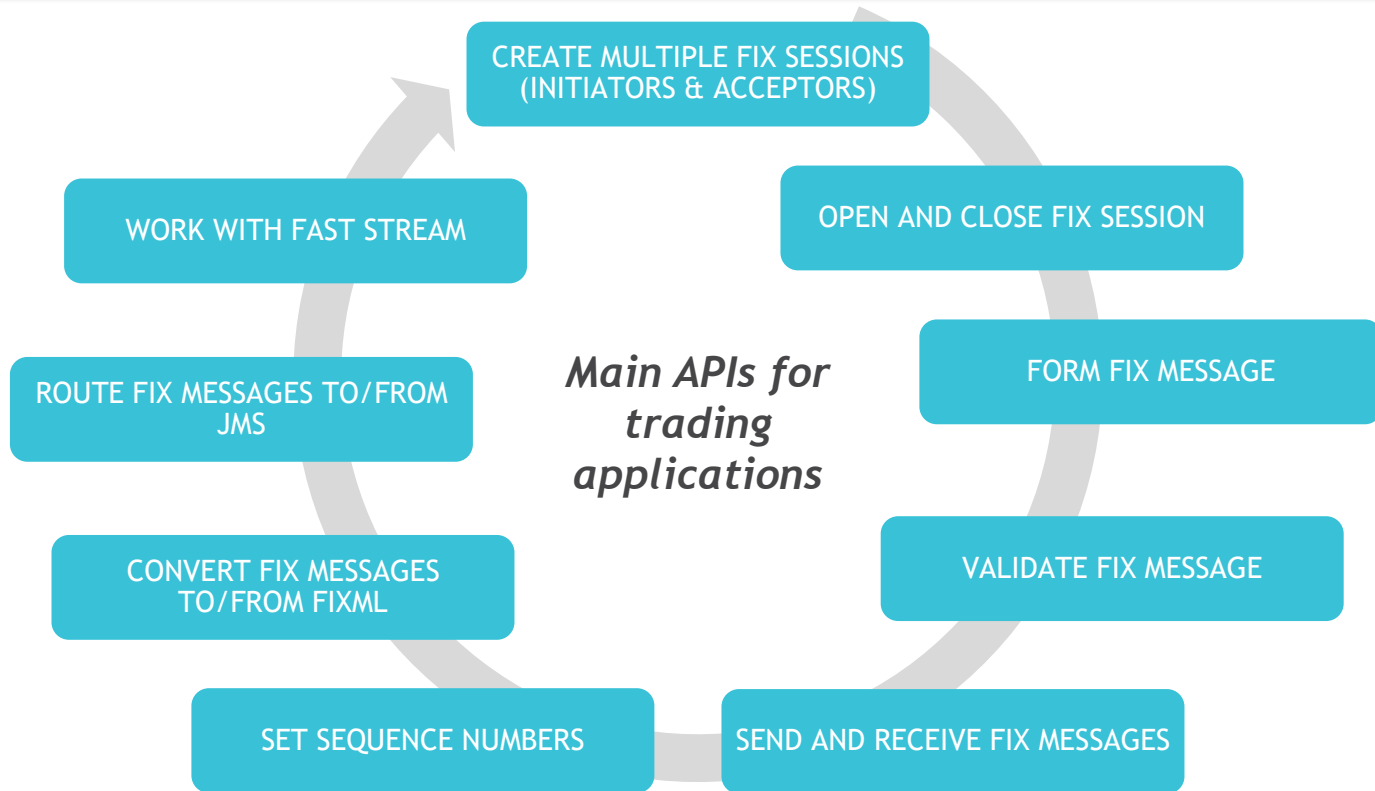
TRANSIENT SESSIONS. APPLICABLE WHEN RECOVERY IS NOT REQUIRED OR WHEN PERSISTENCE IS DONE BY THE APPLICATION

MEMORY-MAPPED FILE STORAGE

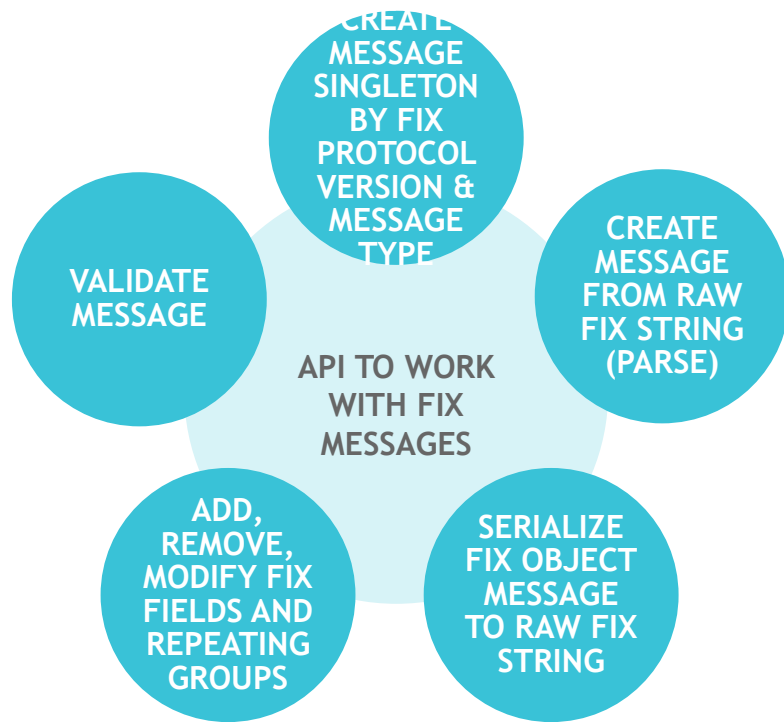
XML AND PROPERTIES FILE BASED CONFIGURATION

CUSTOMIZABLE ADAPTER FOR COMMUNICATING WITH JMS SERVERS

FIX ANTENNA JAVA. ENGINE API



FIX ANTENNA JAVA. ENGINE API WORKING WITH MESSAGES



FIX FLAT MESSAGE MODEL

- Generic model to work with the abstract FIXMessage class via fields and groups getters and setters
- Provides the highest performance

FIX OBJECT MODEL

- Each FIX message type is a class with FIX fields as members
- Use of intelligence to make work with FIX business object more pleasant

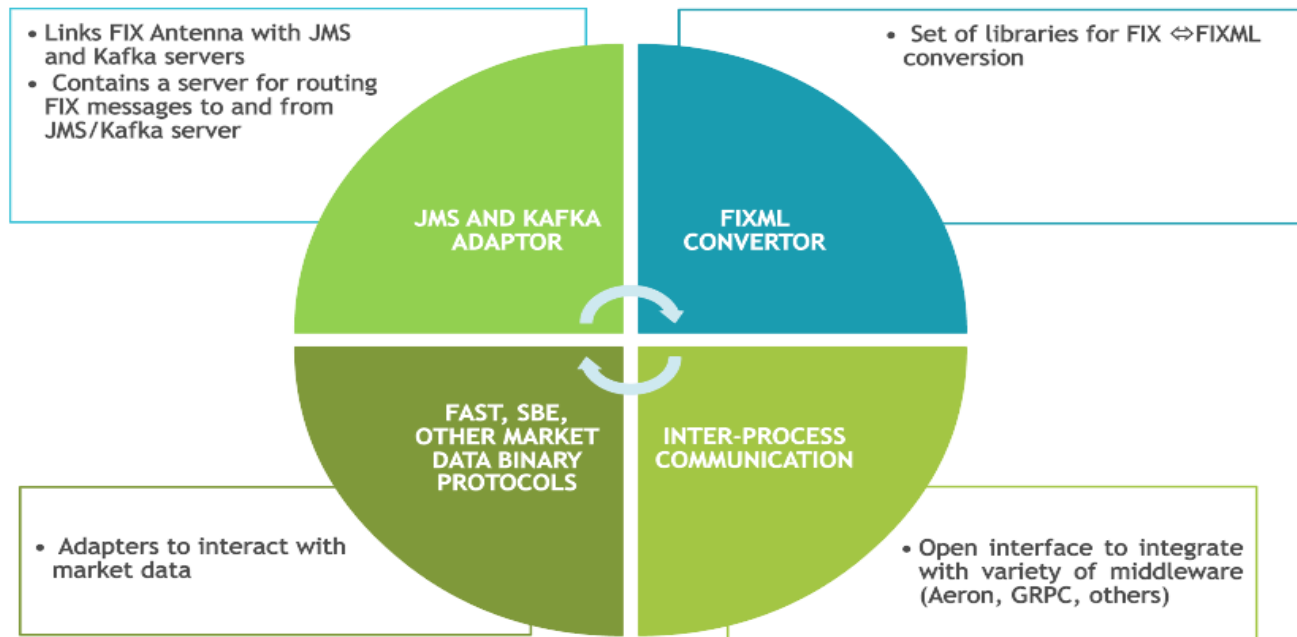
PREPARED MESSAGES

- Message template to increase speed of sending messages of the same structure but with different values

EFFICIENT GETTERS AND SETTERS

- Allows working with values as with primitive type to reduce garbage production

Set of adapters extending FIX Antenna Java functionality



EPAM FIX ECOSYSTEM. JAVA TECHNOLOGY STACK

LIBRARIES

FIX Antenna Java

REST adapter

Kafka adapter

JMS adapter

FIXML Convertor

AMQP adapter

FailOver FAJ storage extension

CME iLink adapter

jFAST (Bovespa)

CME MDP 3.0

SERVERS

FIX Edge Java Server

Order Routing / HA Solution

Load Balancer Cluster Solution

TOOLS

FIX Integrated Control Center (FIXICC)

Gherkin Testing Framework

FIX Automated Certification and Testing Service (FACTS)

FIX2DB

FIXOpaedia

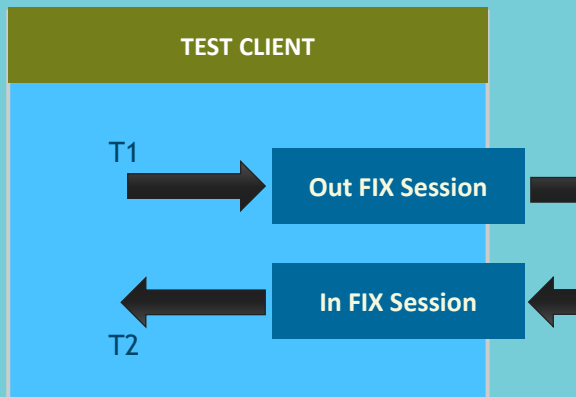
A world map rendered in various shades of blue and teal, showing the outlines of continents and countries. The map is centered on the Atlantic Ocean. Overlaid on the map is the word "PERFORMANCE" in a bold, white, sans-serif font, centered horizontally and vertically.

PERFORMANCE

FIX ANTENNA JAVA 2.26.0. PERFORMANCE (environment)

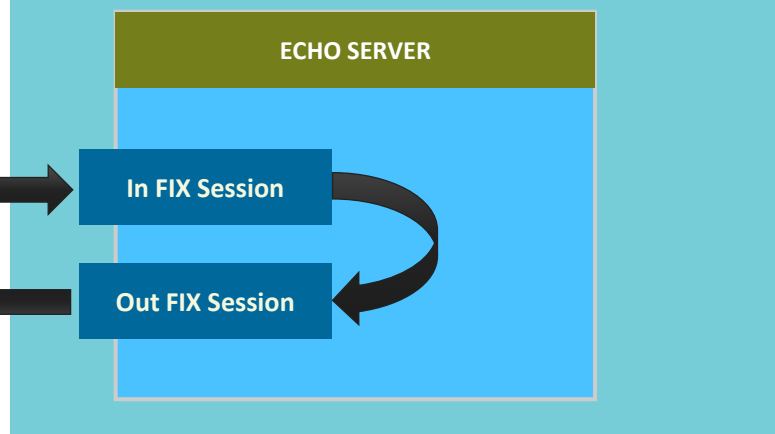
CLIENT HOST

- Intel(R) Xeon(R) CPU E5-2643 v3 @ 3.40GHz (2 CPU Hyper-Trading Enabled, 24 Cores)
- RAM 128 GB, 2133 MHz
- NIC Solarflare Communications SFC9120 (Firmware-version: 4.2.2.1003 rx1 tx1)
- Linux (CentOS 7.0.1406 kernel 3.10.0-123.el7.x86_64)
- SolarFlare driver version: 4.1.0.6734a



SERVER HOST

- Intel(R) Xeon(R) CPU E5-2687W v3 @ 3.10GHz (2 CPU Hyper-Trading Enabled, 20 Cores)
- RAM 128 GB, 2133 MHz
- NIC Solarflare Communications SFC9120 (Firmware-version: 4.2.2.1003 rx1 tx1)
- Linux (CentOS 7.0.1406 kernel 3.10.0-123.el7.x86_64)
- SolarFlare driver version: 4.1.0.6734a



FIX Antenna Java 2.26.0 Benchmarks

Single Session Echo Scenario

- One acceptor session is configured on the FIX Antenna Java side.
- One initiator session is configured on the client application side.

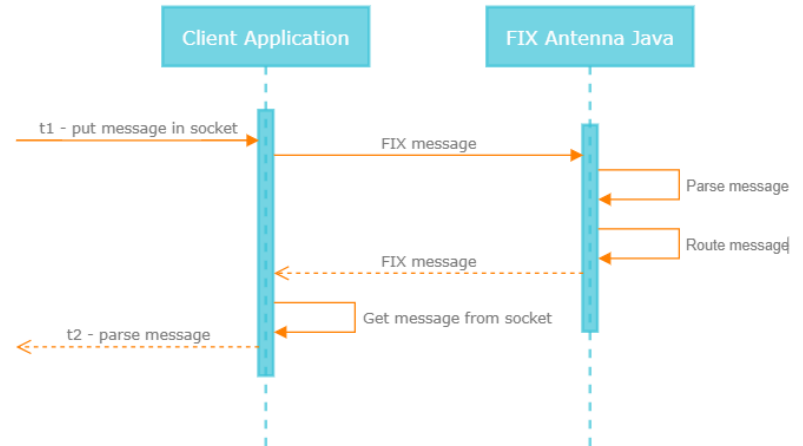
The process:

- The client application connects to the FIX Antenna Java and sends 200000 FIX 4.2 messages at a rate of 50000 messages per second.
- FIX Antenna Java receives the messages and responds to the client application with the same message via the same TCP/IP connection (the same session).
- The client application collects the response time histogram.
- The process is repeated 5 times for each FIX Antenna Java version.

The response time measured by the client application is the difference between timestamps:

- t1 - timestamp is taken right before sending a message to the socket
- t2 - timestamp is taken right after receiving the same message from the socket (from the FIX Antenna Java)

So the round-trip time formula is: $RTT = t2 - t1$ and the measurement unit is microseconds.



Single Session Echo Scenario

	FIXAJ 2.26.0, usec
Median	14.015
Average	14.5232
50%	14.015
75%	14.303
90%	14.767
95%	16.495
99%	17.599
99.9%	118.527
99.99%	199.295

