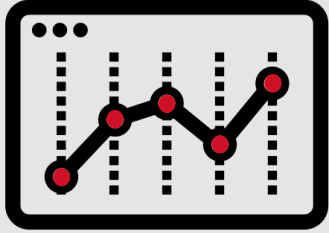




**MOSCOW
EXCHANGE**

▶ **SIMBA SPECTRA**

Ultra low latency
Derivatives market data feed



SIMBA SPECTRA

**ultimate market data source
for latency sensitive algorithms and HFT**

▶ Designed as **the fastest derivatives market data** service.

Faster than

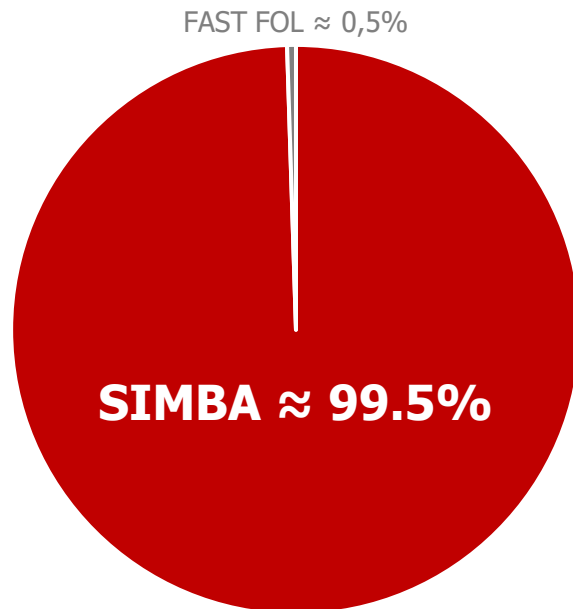
- ▶ CGate
- ▶ FAST
- ▶ FAST FOL
- ▶ TWIME execution reports

▶ **Optimal solution** for low latency trading and HFT **in a combination with TWIME.**

Possibility for deeper integration of client's order entry and information components

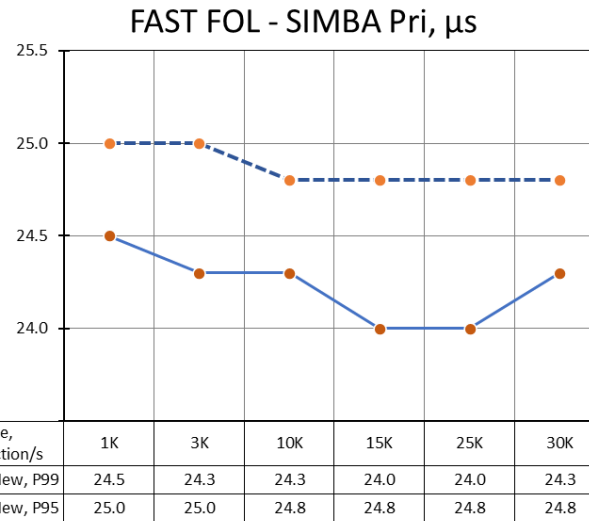
KEY BENEFITS

Faster than FAST FOL
in the vast majority of cases



(preliminary internal tests).

Reduced Latency

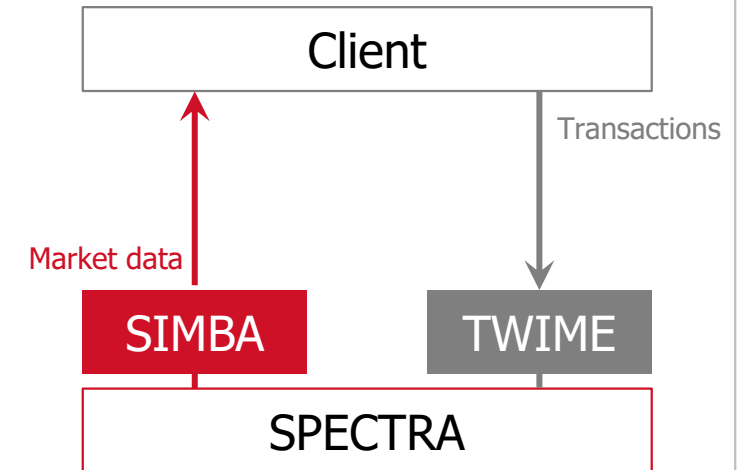


16.10.2021 testing results

- ▶ $\approx 10 \mu$ s due to direct connection of SIMBA Gate to the SPECTRA matching engine;
- ▶ $\approx 10 \mu$ s due to the new dedicated network infrastructure in Co-location.

Public Data First

Minimized latency arbitrage between public and private market data channels. No practical need to discover price movements through TWIME execution reports.



MAIN FEATURES



Available for MOEX
Derivatives market

Similar services are planned for launch on Equities&Bonds and FX markets in the future



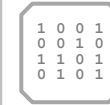
Disseminates the **full order log**, except:
▶ off-book clearing trades
▶ IOC order misses

Dataset specially designed to meet ultra-low latency and HFT clients' needs



New best prices are published **in the very beginning of a transaction**

There is no need to process all the order book events one by one to find the new final order book state

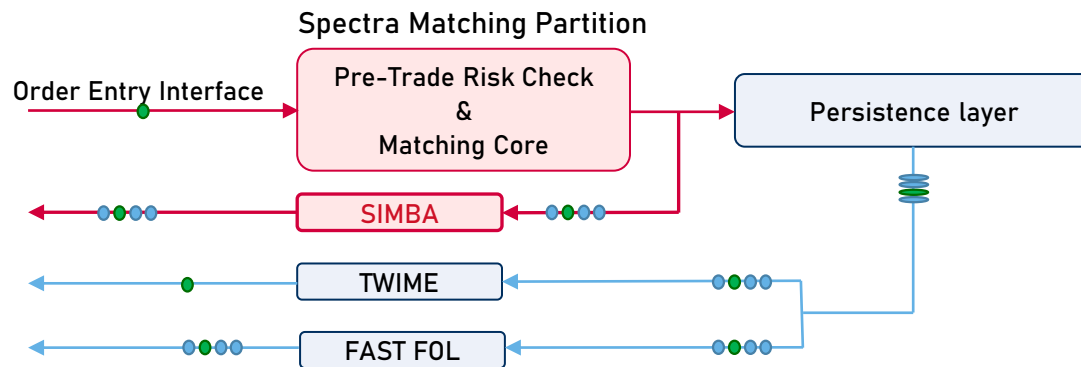


Protocol is based on **FIX Simple Binary Encoding**

Decoding friendly data representation for faster reaction to market signals. Especially valuable for FPGA-based systems

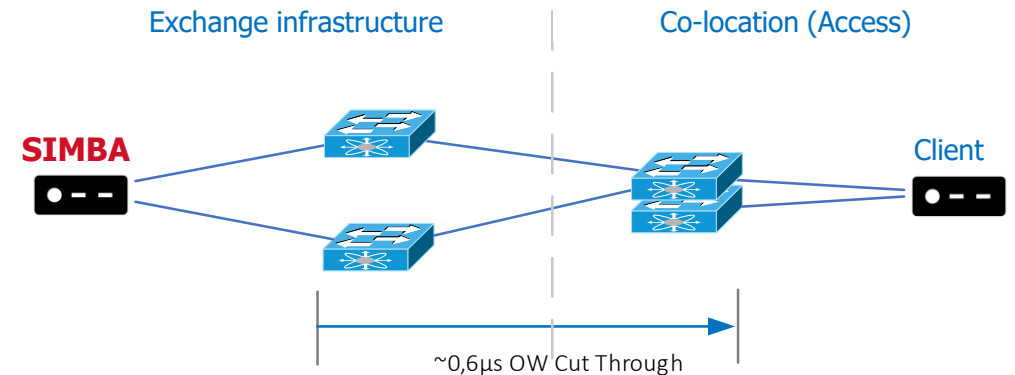
IMPLEMENTATION DETAILS

Direct connection of SIMBA Gate to the SPECTRA matching engine



SIMBA processes transactions earlier than all other gates as it is connected directly to the Matching Core - no additional latency is caused by Persistence layer

The new network infrastructure in Co-location serving low-latency market data traffic exclusively



The data is transmitted over UDP Multicast. The service is available in co-location only using separate low-latency 10G market data link (new service)

SERVICE PARAMETES

▶ The service is available in **MOEX co-location exclusively**

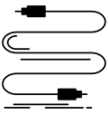
▶ Available for clients co-located in both **dedicated and shared racks**

▶ Both **L2 and L3** links are available

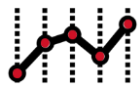
Minimized paperwork



Access to SIMBA software
**under Information
Technology Services Terms**
of PJSC Moscow Exchange



New 10G market data link in Co-lo
**under Telecommunication
Services Rules** of MOEX
Information Security LLC



SIMBA SPECTRA

▶ **ITsales@moex.com**
**Please contact us
to order the service**



TARIFFS

At service launch

Access to SIMBA SPECTRA software:

Marketing period: 18 October 2021 – 31 March 2022:

- One-off charge: **\$215 / €177,5**
- Monthly: **\$215 / €177,5**



Full price: starting from 1 April 2022:

- One-off charge: **\$430 / €355**
- Monthly: **\$430 / €355**

10G connectivity to low-latency market data network in Co-location:

- One-off charge: **\$1 450 / €1 200**
- Monthly: **\$1 450 / €1 200**

Target configuration

(access to ASTS market data to be added to the new network)

Access to SIMBA software:

- One-off charge: **\$430 / €355**
- Monthly: **\$430 / €355**

10G connectivity to low-latency market data network in Co-location:

Full price

- One-off charge: **\$2 900 / €2 400 ***
- Monthly: **\$2 900 / €2 400 ***

** After ASTS markets will be added to the new network
Preliminary planned to July 2022*

Market data service evolution towards SBE

	18 October 2021	1 April 2022	July 2022 (preliminary)
	SIMBA and new network links launch Derivatives market only	Marketing period for SIMBA software end	Adding Equities&Bonds and FX market data to the network link
Access to SIMBA software	One-off charge: \$215 / €177,5 Monthly: \$215 / €177,5		One-off charge: \$430 / €355 Monthly: \$430 / €355
10G market data link in MOEX Co-location		One-off charge: \$1 450 / €1 200 Monthly: \$1 450 / €1 200	One-off charge: \$2 900 / €2 400 Monthly: \$2 900 / €2 400



TESTING

- The service is available on T1 test environment.
- Test SIMBA SPECTRA is accessible either from colocation or via test VPN.
- Request for test access:
<https://www.moex.com/en/forms/poll/questionnaire.aspx?id=03>



RELATED TECHNICAL INFORMATION

Please find documentation, connection parameters and all the related technical information at <https://www.moex.com/msn/en-simba>.



help@moex.com

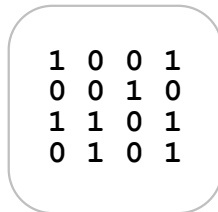
▶ **Please contact us in case of any technical questions on SIMBA SPECTRA**

MOEX IT SERVICES

FURTHER DEVELOPMENT PLANS



**Dedicated low latency
10G networks**



Binary encoding



**Minimized
latency arbitrage**



for the fastest transactional and market data services

**Unified low-latency design
across the product range**



Reduced Latency and Jitter
for latency sensitive protocols



Independent links for
- Native APIs,
- Low latency market data,
- Low latency transactional services,
to eliminate traffic interference



**Clear and consistent
services portfolio**

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perception of market services offered by the Company and its subsidiaries;

volatility (a) of the Russian economy and the securities market and (b) sectors with a high level of competition that the Company and its subsidiaries operate;

changes in (a) domestic and international legislation and tax regulation and (b) state policies related to financial markets and securities markets;

competition increase from new players on the Russian market;

the ability to keep pace with rapid changes in science and technology environment, including the ability to use advanced features that are popular with the Company's and its subsidiaries' customers;

the ability to maintain continuity of the process of introduction of new competitive products and services, while keeping the competitiveness;

the ability to attract new customers on the domestic market and in foreign jurisdictions;

the ability to increase the offer of products in foreign jurisdictions.

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