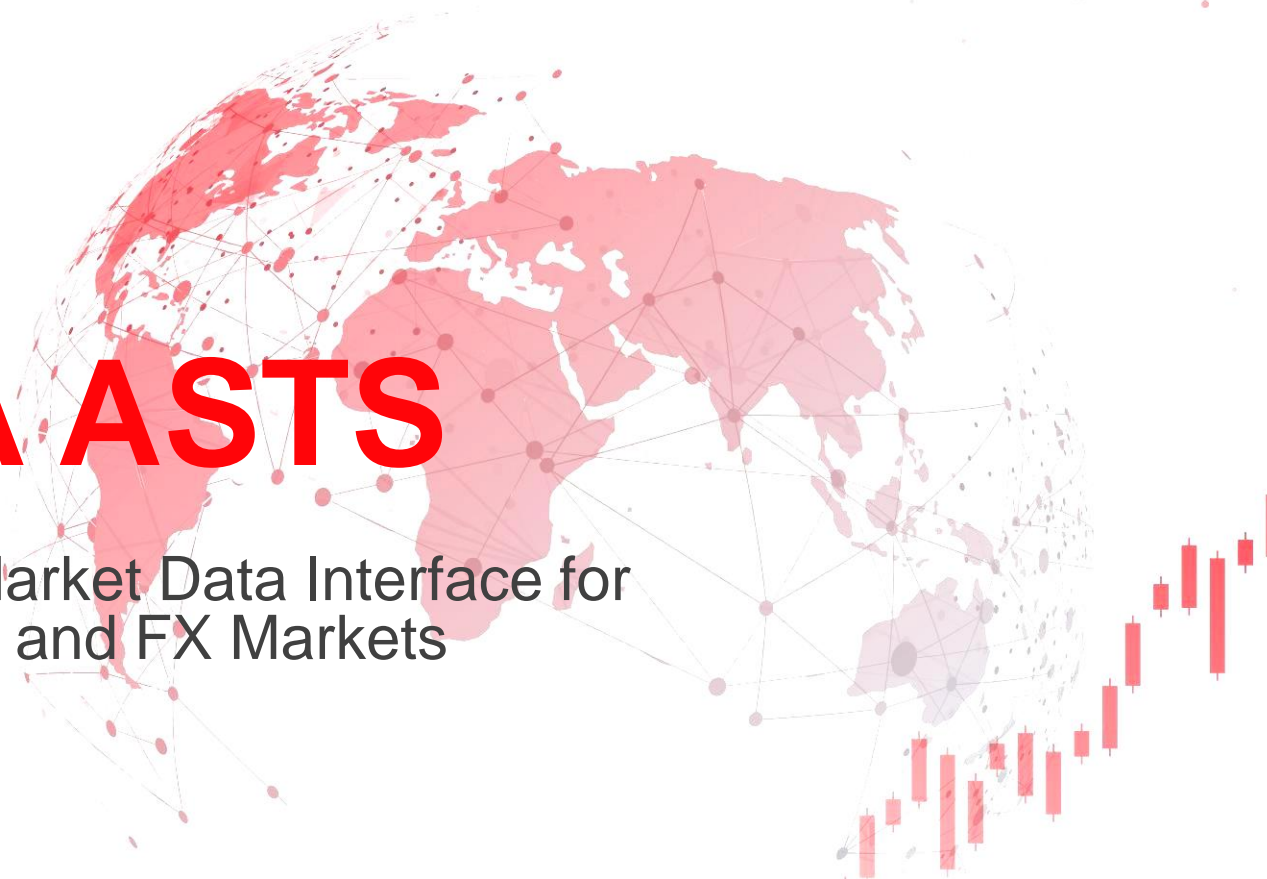


MOEX

МОСКОВСКАЯ
БИРЖА

SIMBA ASTS

High Speed Binary Market Data Interface for
Equity & Bond and FX Markets



SIMBA ASTS **The ultimate source of market data**



The fastest way
to reach market data from the
Equity & Bond and FX Markets

Faster than FAST UDP Multicast market
data and ASTS Bridge



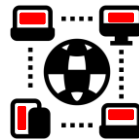
UDP multicast for all markets

Documentation and related info
> <ftp.moex.com> - /pub/SIMBA/ASTS/



More versatile solution for
all markets

Unified message schema format



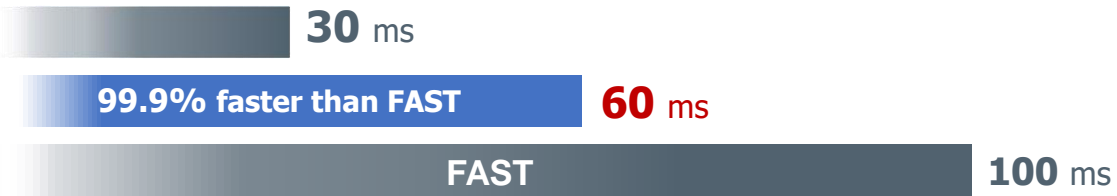
Dedicated high-speed network in
the colocation area

For market data service only
eliminating transactional load and maintenance
service traffic on the network

SIMBA ASTS Benefits

Reducing Latency

| event publication time



- Predictable publishing order
- Minimise technological arbitrage
- Trade data is published in messages Order Executed in a single order update channel
- Fields indicating the number of lots with the best prices are added to the Best Prices message.

THE BINARY PROTOCOL SBE SIMPLIFIES THE IMPLEMENTATION OF THE CODER:

- Publishing New Best Prices in a separate packet before publishing updates to orders
- Ability to quickly evaluate the movement of best prices

Fast 10G link
Direct connection to the trading system core

SIMBA ASTS



Data is published for each event that changes the list of active orders

Исключено:

Сообщения о массовых изменениях книги заявок имеют признаки начала и окончания данных о событии



FAST Market Data



Summary order book may be published for closely timed events

Features:



Short-term crossing of buy and sell prices during update processing

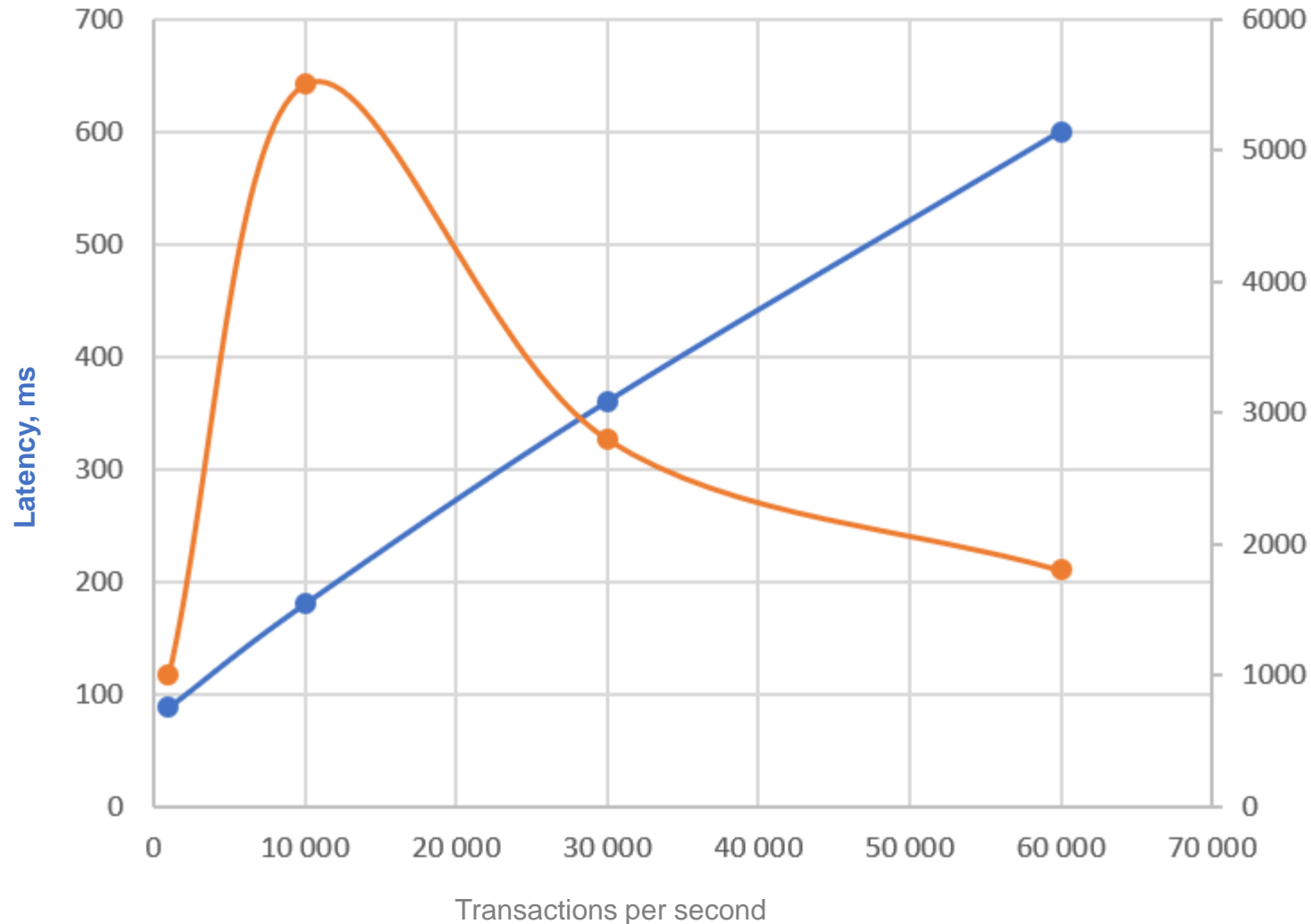
FAST Market Data vs SIMBA ASTS

FAST UDP multicast market data

SIMBA ASTS

	FAST UDP multicast market data	SIMBA ASTS
Coding	Fix Adapted for Streaming (FAST)	Simple Binary Encoding (SBE)
Messaging technology	UDP multicast	UDP multicast
Publication of data for each change in the book of active orders	No. Summary order book may be published for closely timed events	Yes. Any order book changes are published
Publication of best price changes	Yes. Within a separate broadcast group along with the trading statistics	In a single broadcast group, in a separate batch strictly until changes are published in the order book
Publication of trades		Yes, in the Order Executed message in the single broadcast group
Publication of instrument descriptions		
Publication of changes in instrument statuses	Yes. Within a separate broadcast group	Yes. Within a separate broadcast group
Order book status snapshot		
Trade list status snapshot		No
Trading statistics		

FAST Market Data vs SIMBA ASTS



FAST - number of update publications per second

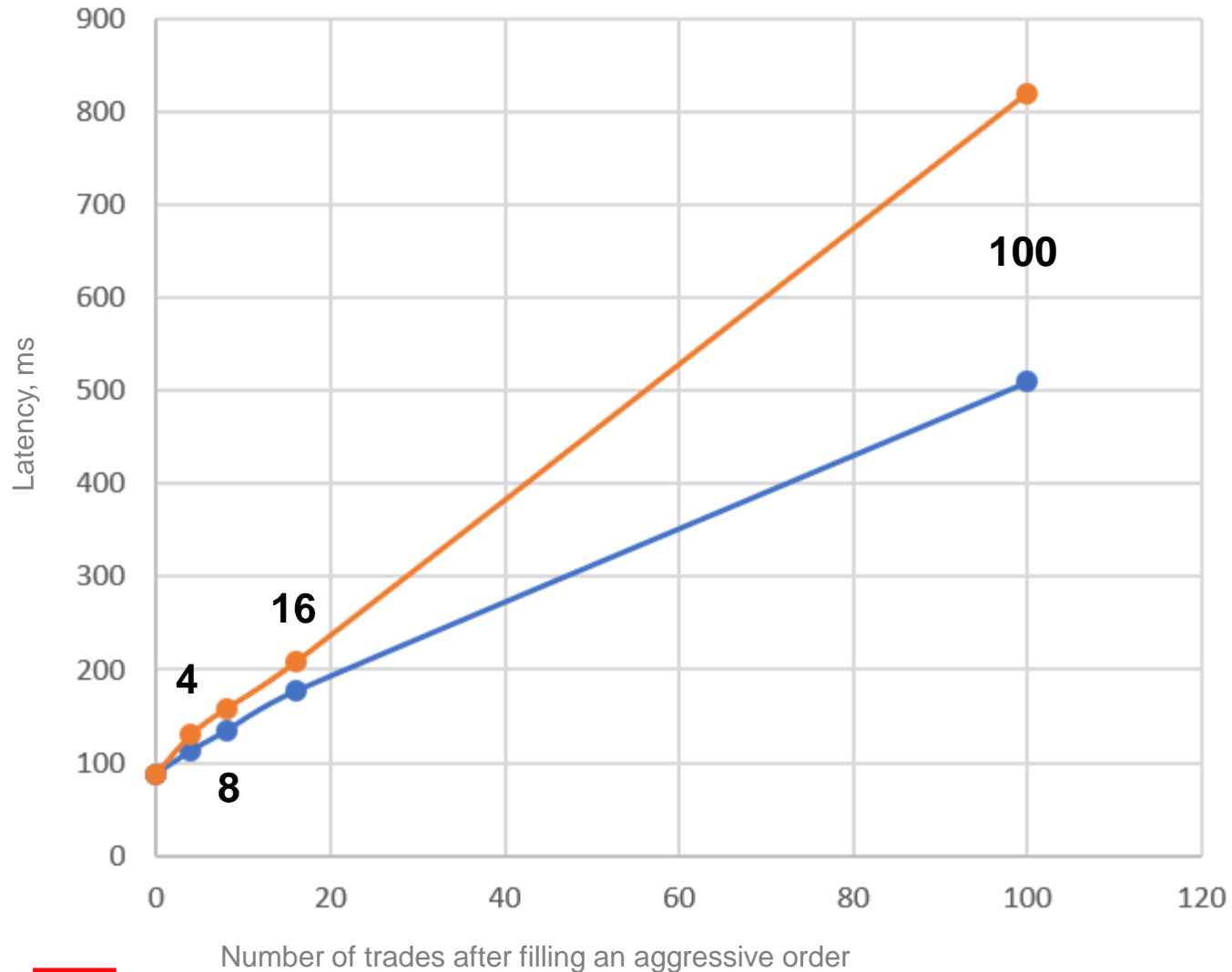
- FAST publication delay vs. SIMBA ASTS
- FAST number of updates / sec.

Delay of FAST updates compared to SIMBA ASTS, depending on transaction frequency

With FAST, the sampling of data from the trading system decreases as the frequency of events increases

FAST publication delay vs. SIMBA ASTS also increases

FAST Market Data vs SIMBA ASTS



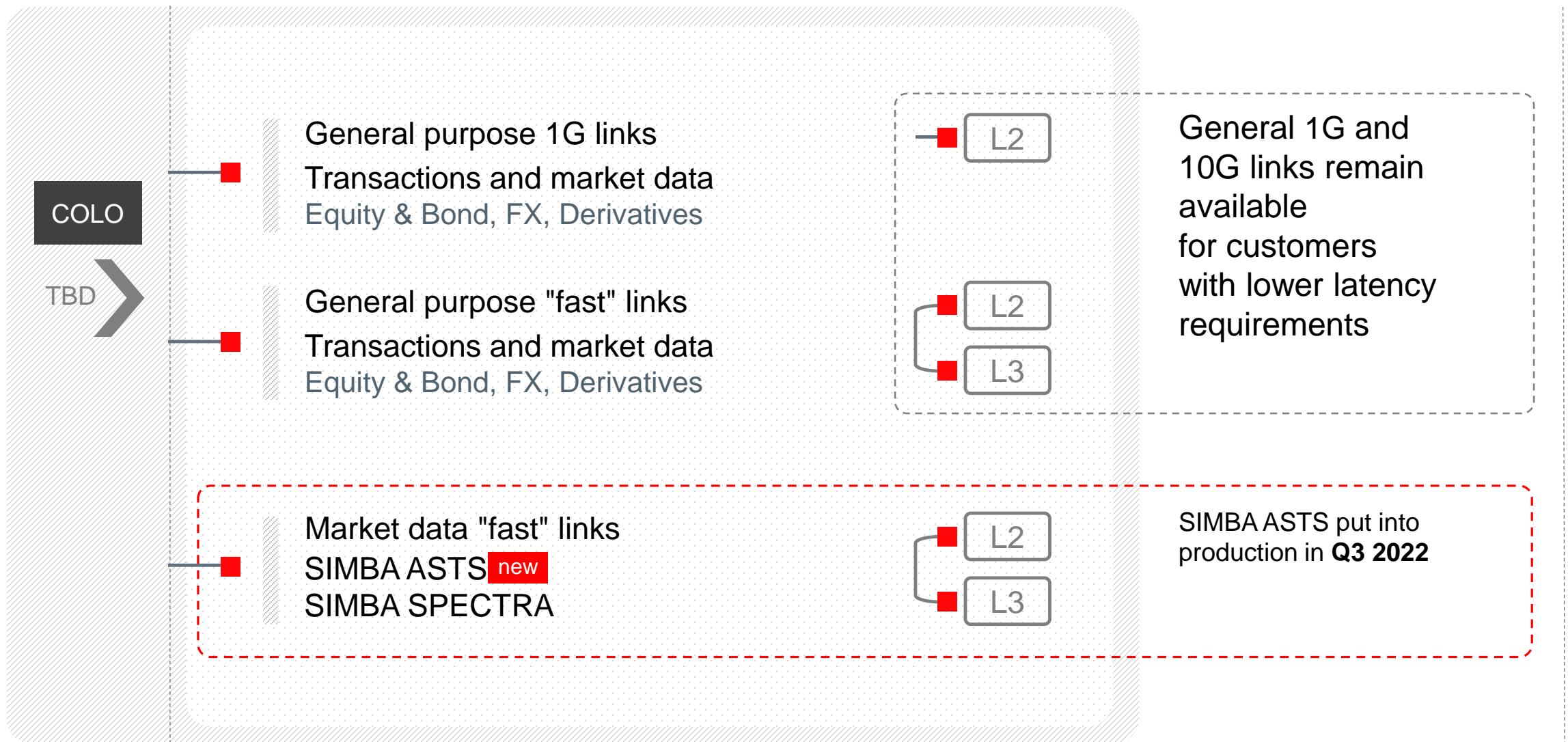
Advance of SIMBA ASTS broadcast vs. the FAST statistics thread

The graph shows by how many microseconds SIMBA ASTS updates are ahead of FAST updates

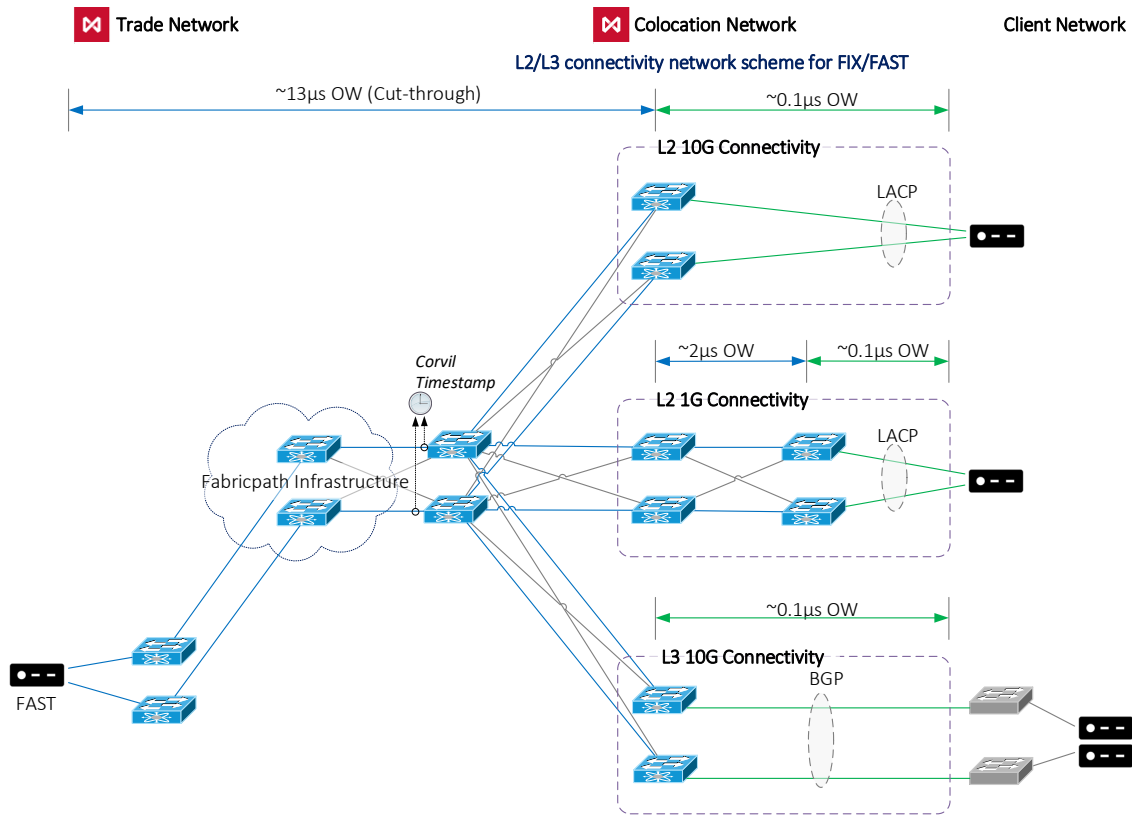
- FAST MSR publication delays compared to the last SIMBA ASTS OrderExecution data message
- FAST MSR publication delays vs. SIMBA ASTS BestPrices message

The SIMBA ASTS gateway broadcasts New Best Prices and Order List changes, similar to the OLR channel of the service FAST UDP multicast marketdata

SIMBA ASTS Configuration

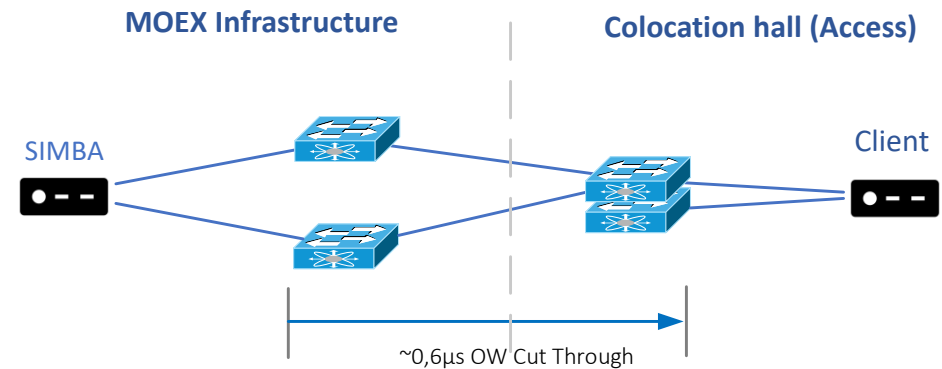


SIMBA ASTS Network Infrastructure



DEDICATED network environment for fast market data services

SBE service network schematic diagram



The UDP Multicast data transfer protocol is applied. The service is available only in the colocation area in separate "fast" 10G market data links

SIMBA ASTS Fees

1

Access to **SIMBA ASTS** software

FEE:

RUB 30,000 **one-time installation fee**

RUB 30,000 monthly fee

2

Connection to a fast 10G market data network

FEE:

RUB 200,000 **one-time installation fee**

RUB 200,000 monthly fee

Existing link for SIMBA SPECTRA can be used



Contacts

Market data and IT services team

T.: +7 (495) 363-3232, ext. 5656

E.: itsales@moex.com