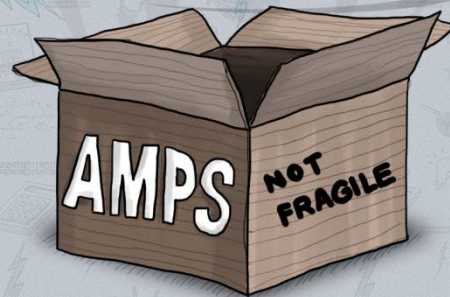
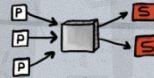


BEST OF EVERYTHING

ADVANCED MESSAGE PROCESSING SYSTEM

$$\frac{\Sigma P * Q}{\Sigma Q}$$



- ✓ FLEXIBLE MESSAGING
- ✓ SQL DATABASE
- ✓ ANALYTICS

www.crankuptheamps.com

Low Latency meets Large Scale
when you **CRANK UP THE AMPS**

Website:

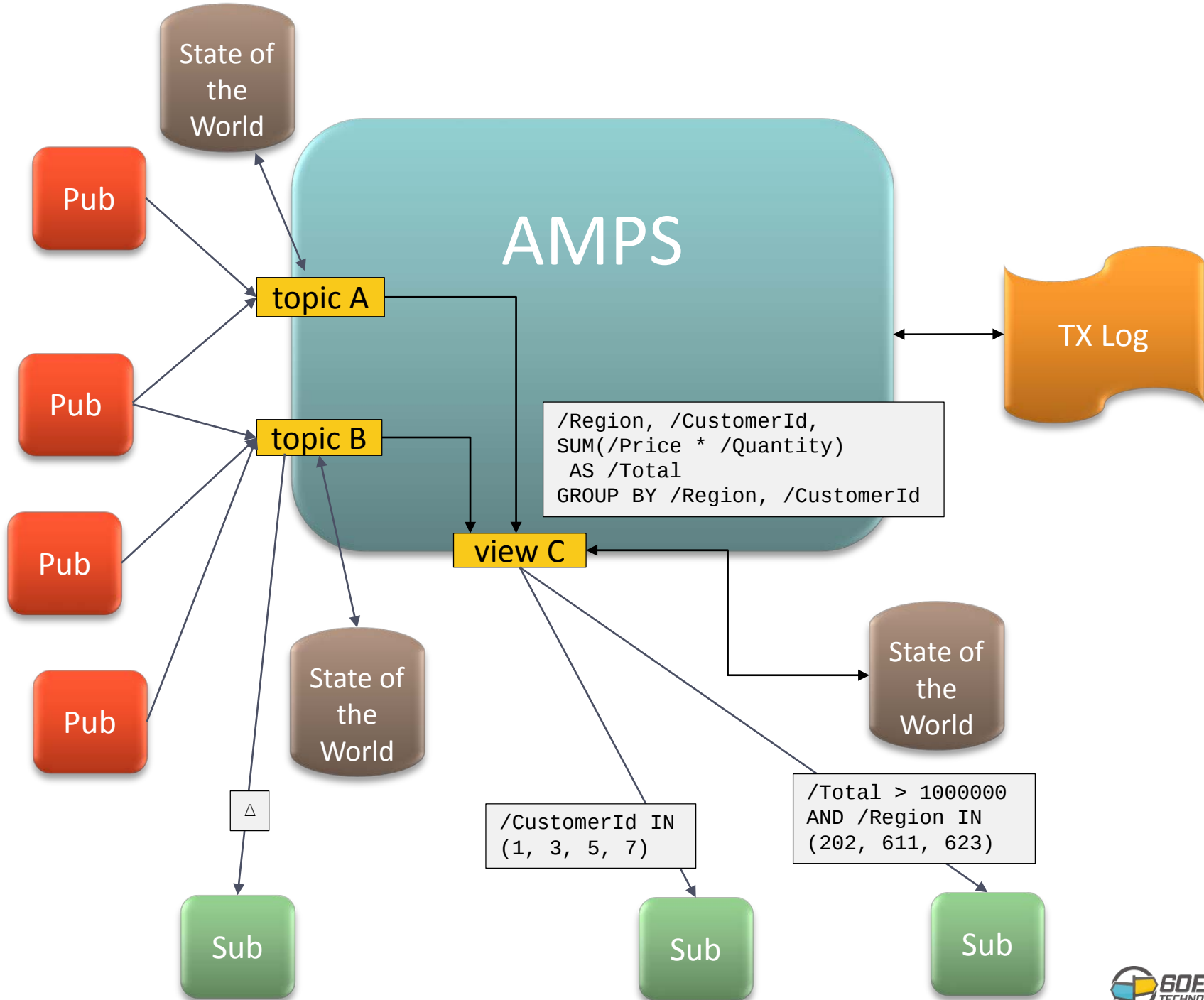
www.crankuptheamps.com

Low Latency Workshop

HIGH VOLUME LOW LATENCY MESSAGING DATABASE

Jeffrey M. Birnbaum jmb@crankuptheamps.com

Website <http://crankuptheamps.com/>



Fast Publish/Subscribe Solution

High Performance Content Filtering

- Filters resemble SQL-92 + Xpath
- Sub-microsecond processing latencies
- Capacity to do >1M messages/sec/core

Example subscription filters:

XML:

```
/FIXML/Order@Sym = "IBM" and  
/FIXML/Order/OrdQty@Qty >= 5000
```

FIX:

```
/55 = "IBM" and /35 in ('D', 'C')
```

Projects one topic into another

Think: Real-time materialized SQL-92 “View”

Example:

Project:

/11 as /customer

/55 as /symbol

sum(/14 * /99)/sum(/14) AS /vwap

GroupBy: /11, 55

New Topic Name: VWAP

This:

11=c01;55=INTC;14=1000;99=34.50;

11=c01;55=INTC;14=5000;99=34.75;

11=c01;55=INFA;14=100;99=18.75;

Becomes:

customer=c01;symbol=INTC;vwap=34.70833;

customer=c01;symbol=INFA;vwap=18.75;

State of the World (Database)

- Content filtered queries
- Atomic query + subscribe
- Message deltas (both in and out)
- Focus Tracking

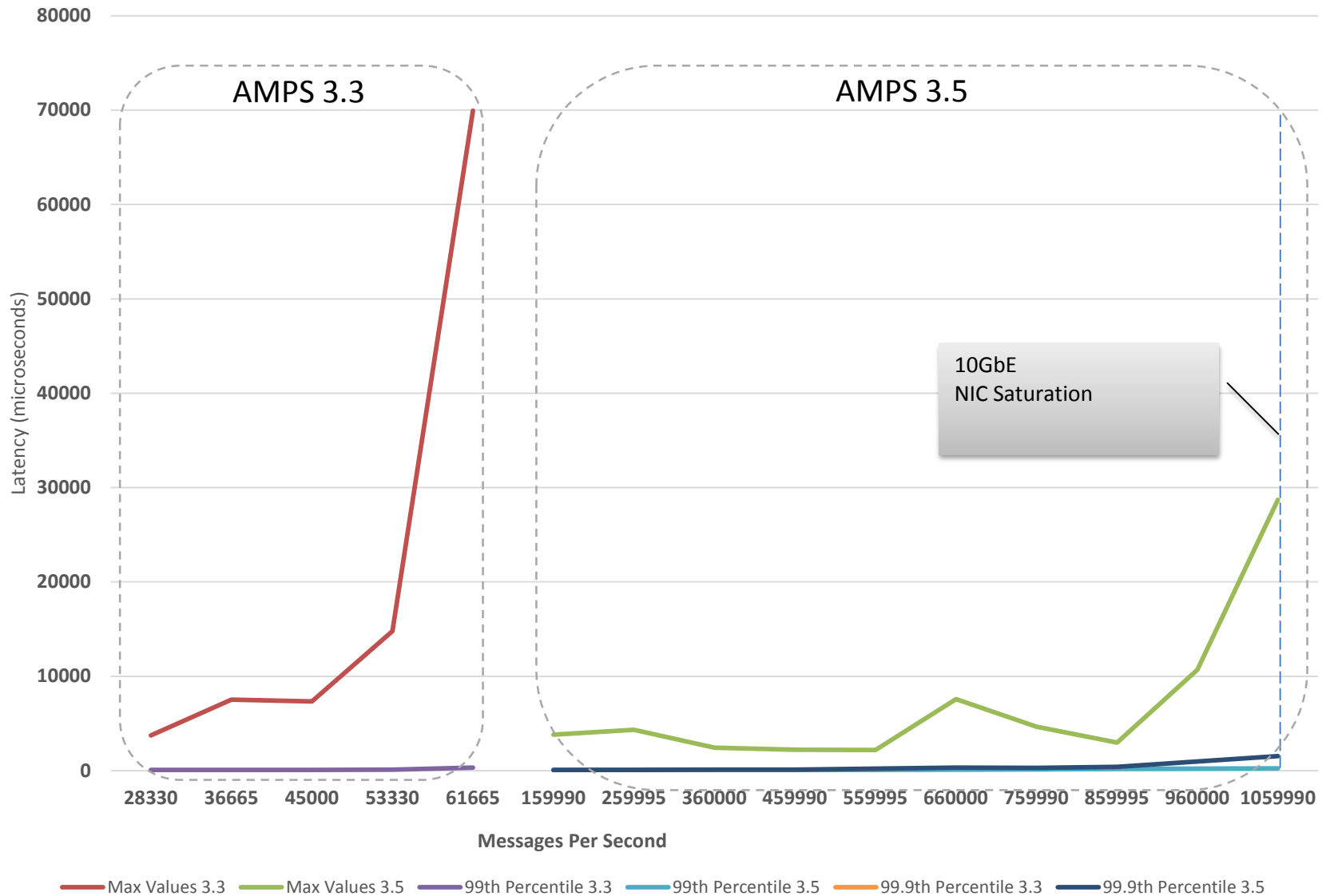
Analytics Engine (Real-time Aggregation)

- Casts one topic into another
- Parallel and lock-free design

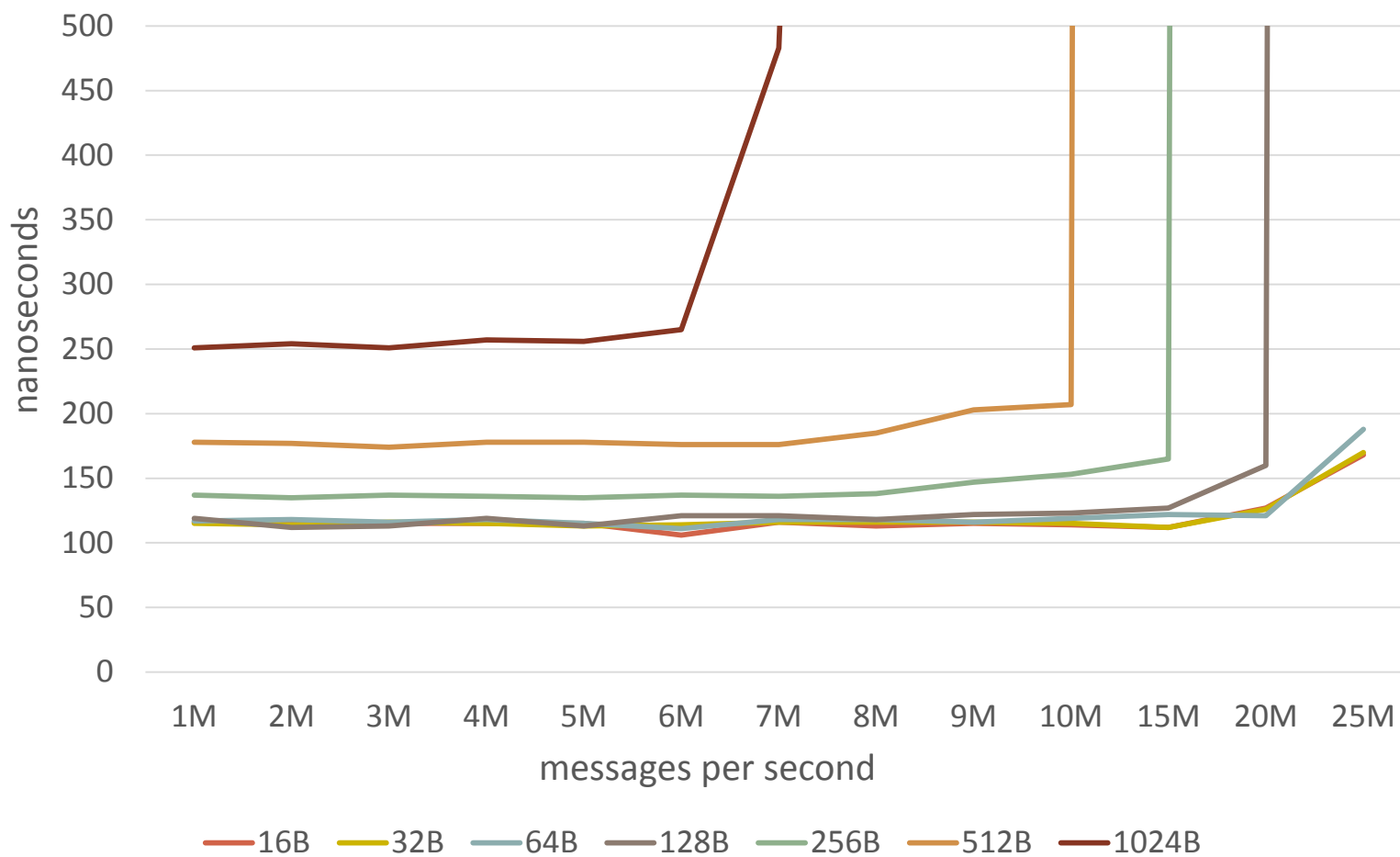
Transaction Log

- Full query support
- Solves late-joiner problem
- Replay of message streams
 - o Start at arbitrary point in time
 - o Transparent cutover to current messages

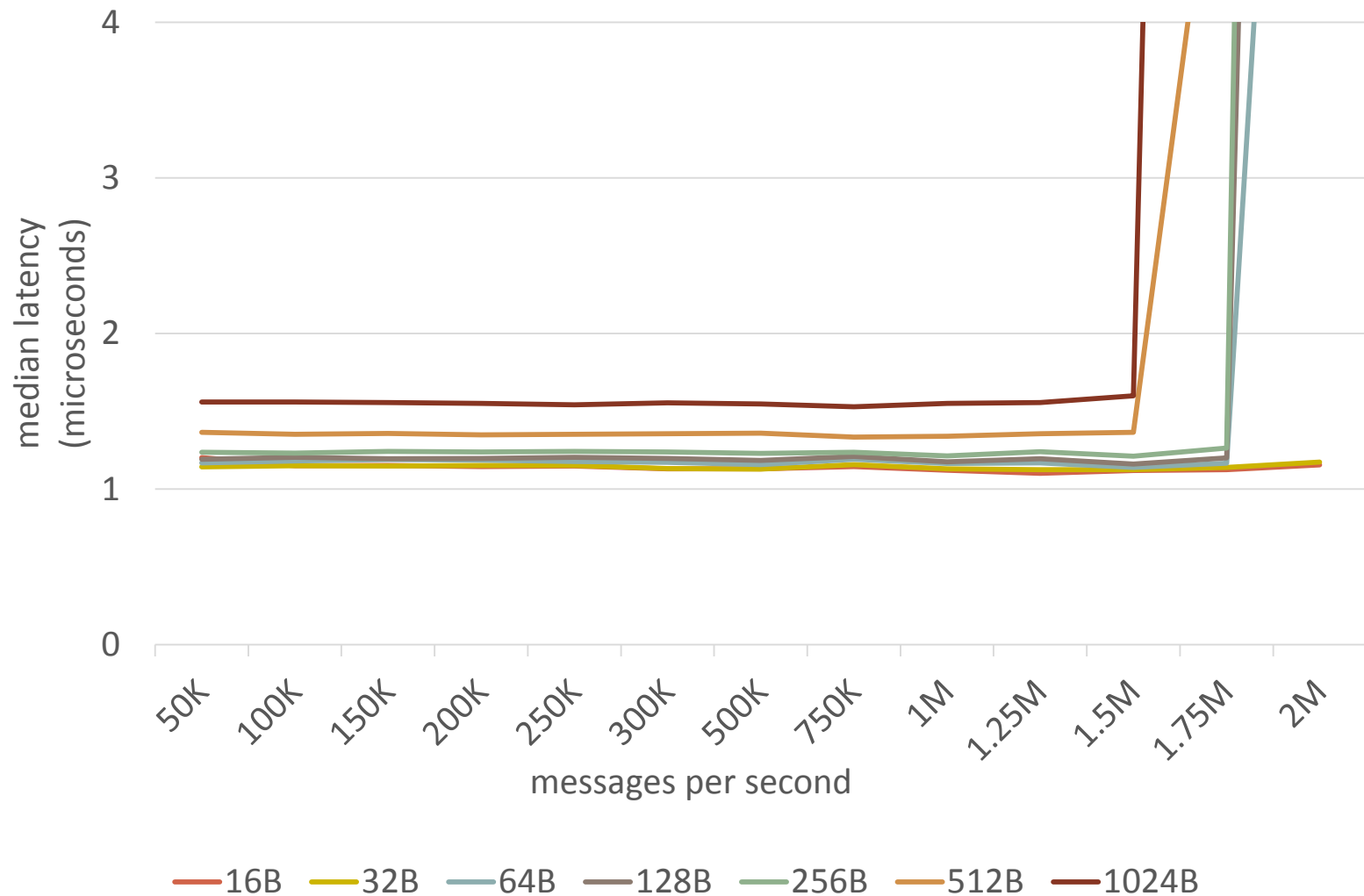
Performance Comparison



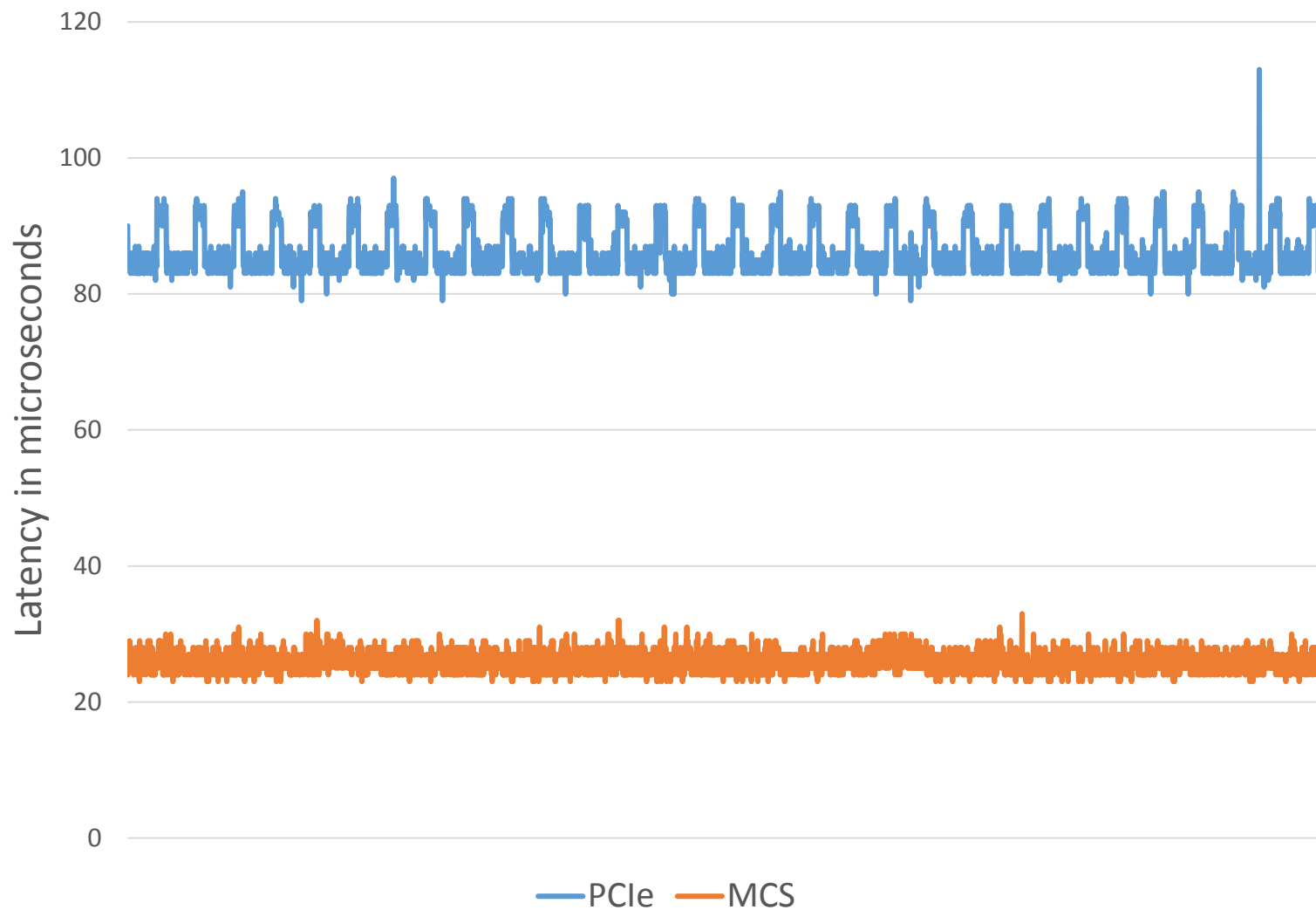
Message Transport Latency



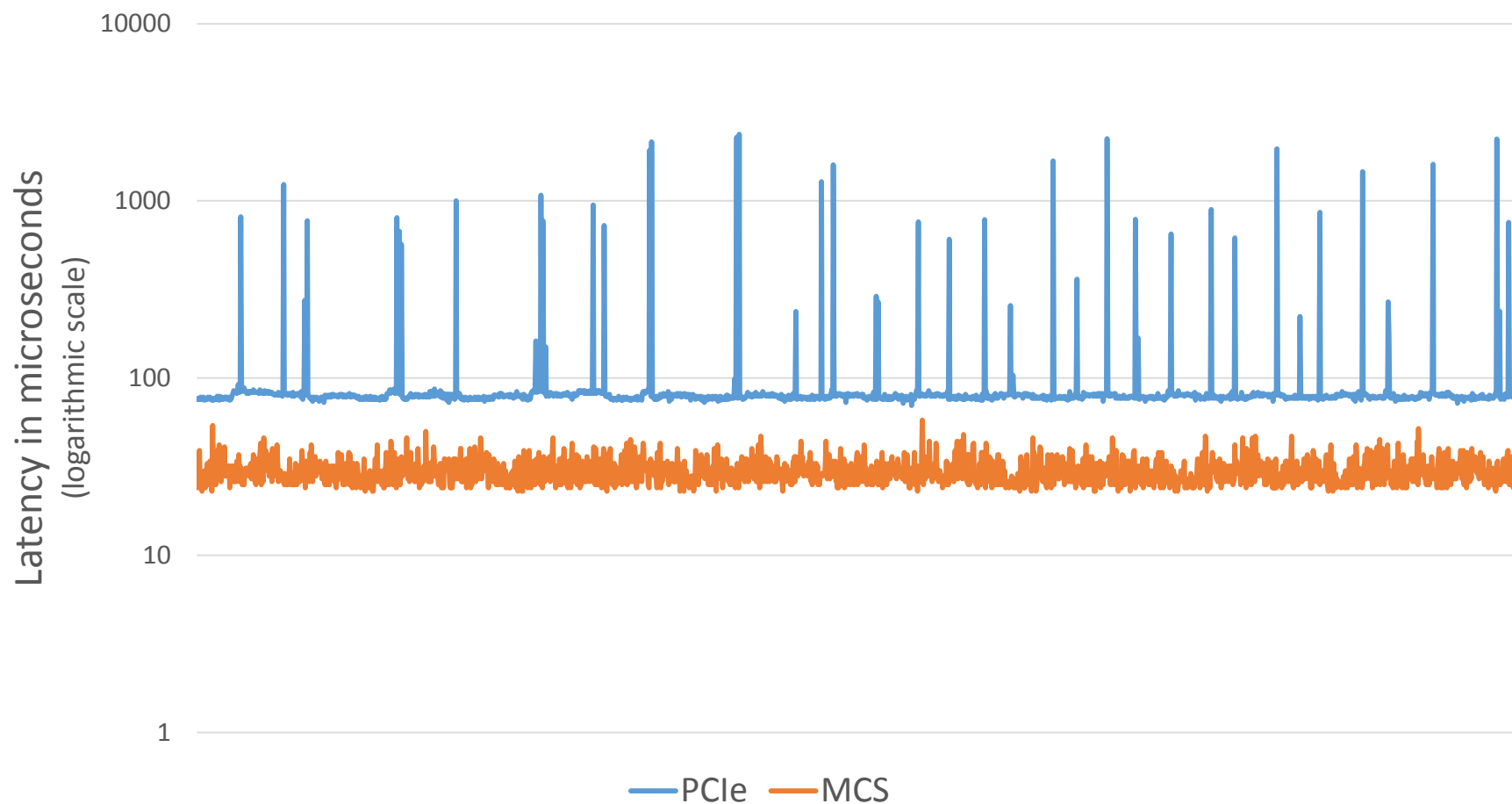
End-To-End Latency



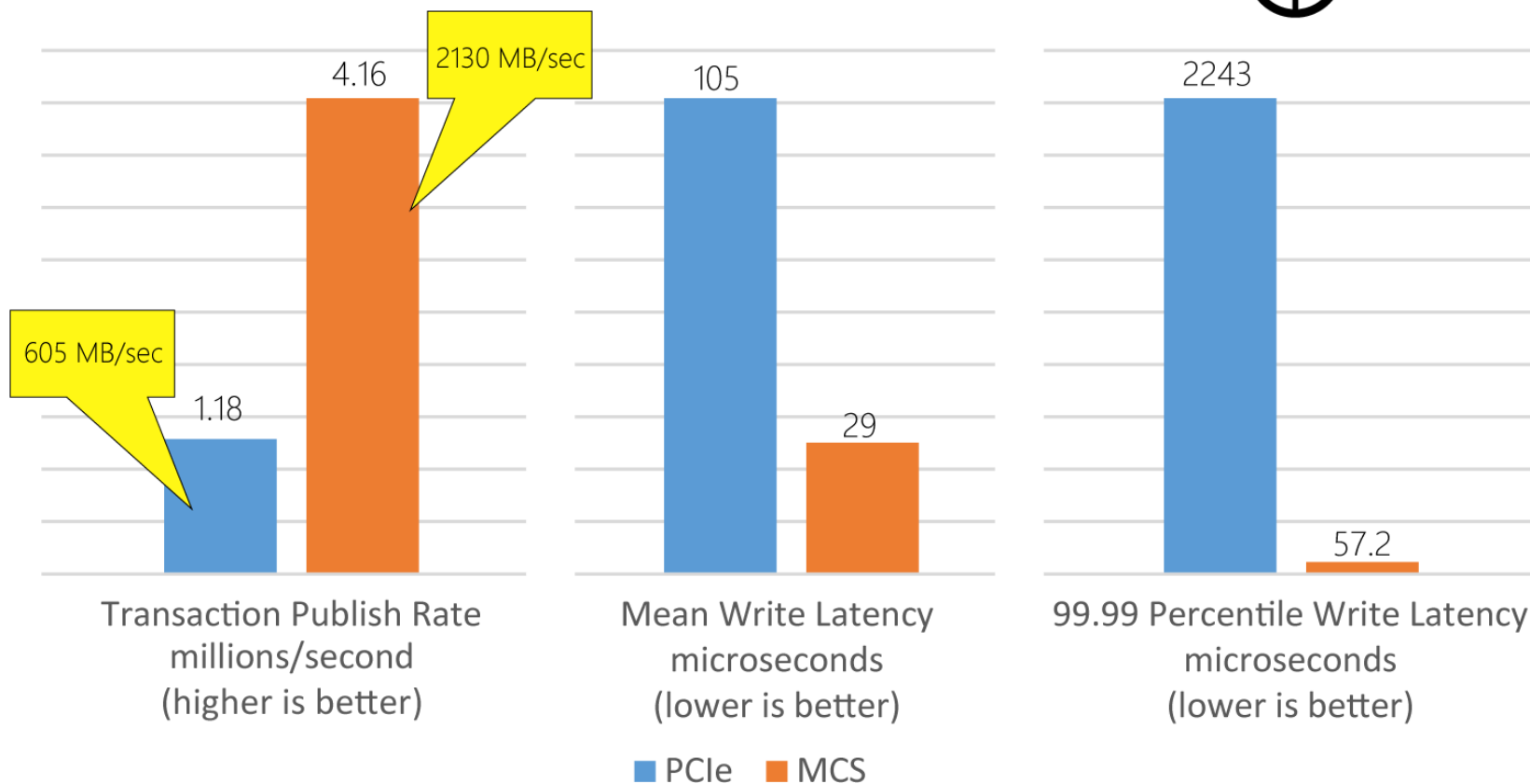
Write-Only Comparison



15% Read Mix



15% Read/Write Ratio Overview





DEMO