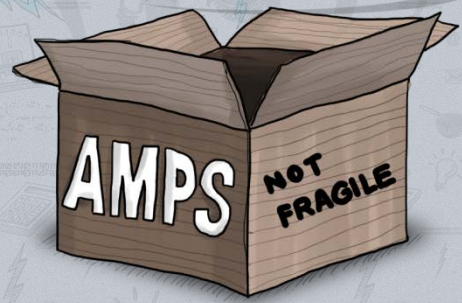
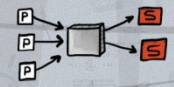


# BEST OF EVERYTHING

ADVANCED MESSAGE PROCESSING SYSTEM

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



- ✓ FLEXIBLE MESSAGING
- ✓ SQL DATABASE
- ✓ ANALYTICS

[www.crankuptheamps.com](http://www.crankuptheamps.com)

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

Website: [www.crankuptheamps.com](http://www.crankuptheamps.com)



# Achieving HPC Performance With Storage, Networking and Computing

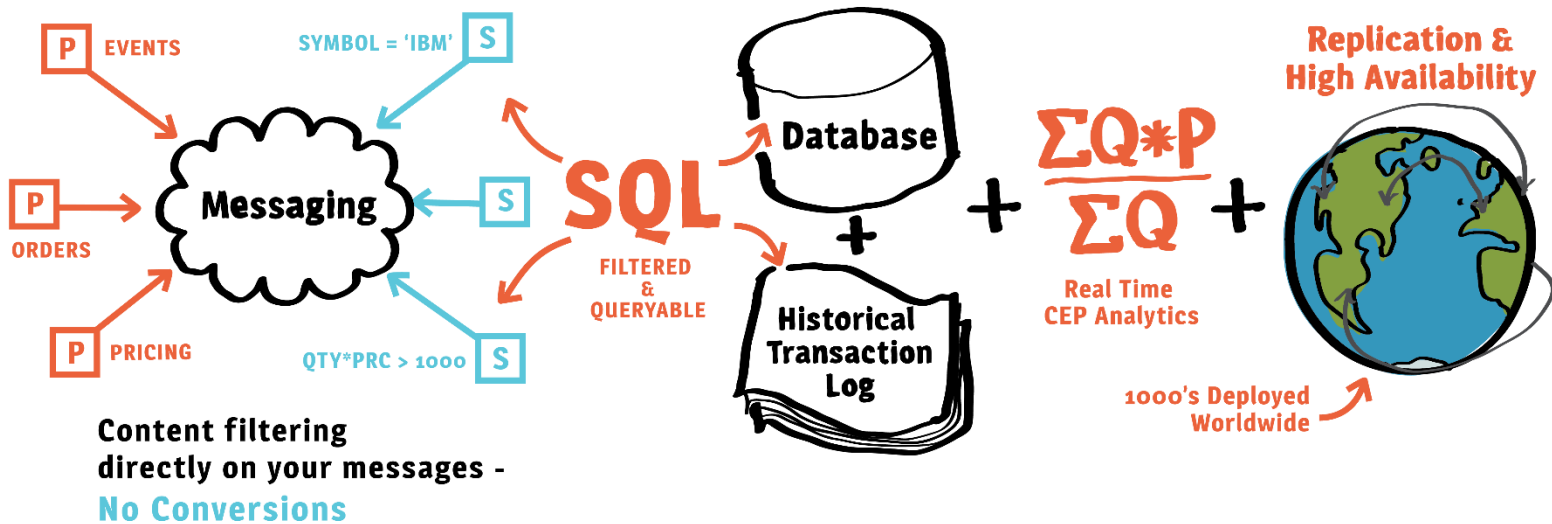
## SOFTWARE STILL RULES

Jeffrey M. Birnbaum [jmb@crankuptheamps.com](mailto:jmb@crankuptheamps.com)

Website <http://crankuptheamps.com/>



# Advanced Message Processing System (AMPS)



## Software solution, built to take advantage of COTS hardware

- x86-64 Linux
- FusionIO/DIMM-based Flash (Memory Channel Storage™ )
- Mellanox/SolarFlare
- 40GbE

## Easy to scale cost and performance up and down

- Scales from VM to high-end server
- Performance linear with machine capability
- Match investment to needs
  - Scales for test and development environments
  - Easy to scale as solution grows

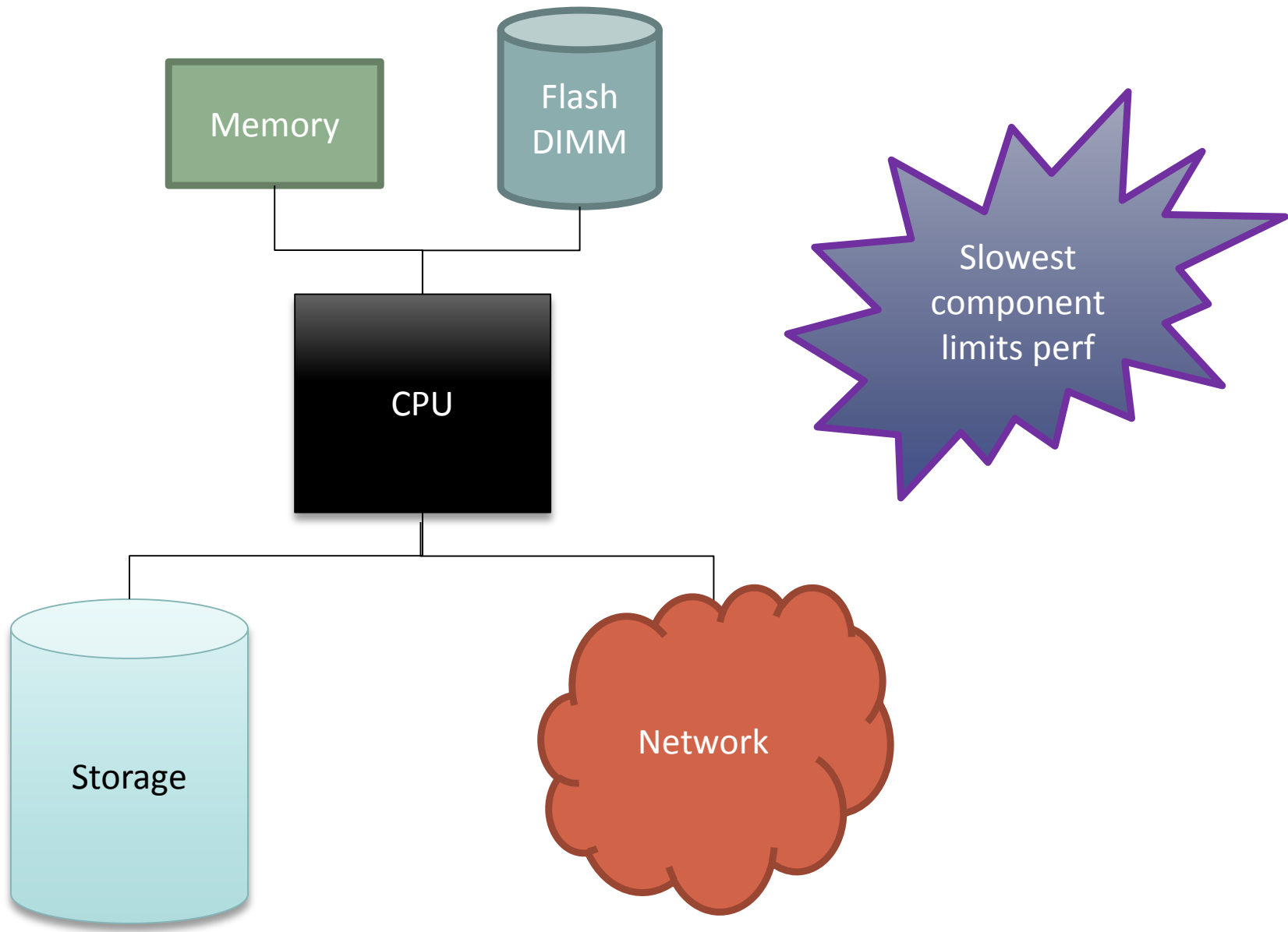
Typical production performance, in messages per second:

Spinning disk: 100-300K/s

Fusion-IO: >1M/s

Flash DIMM(MCS): > 3M/s

Durable messaging with State of the World database  
(storage is the bottleneck)



Target best-of-breed hardware & use its features

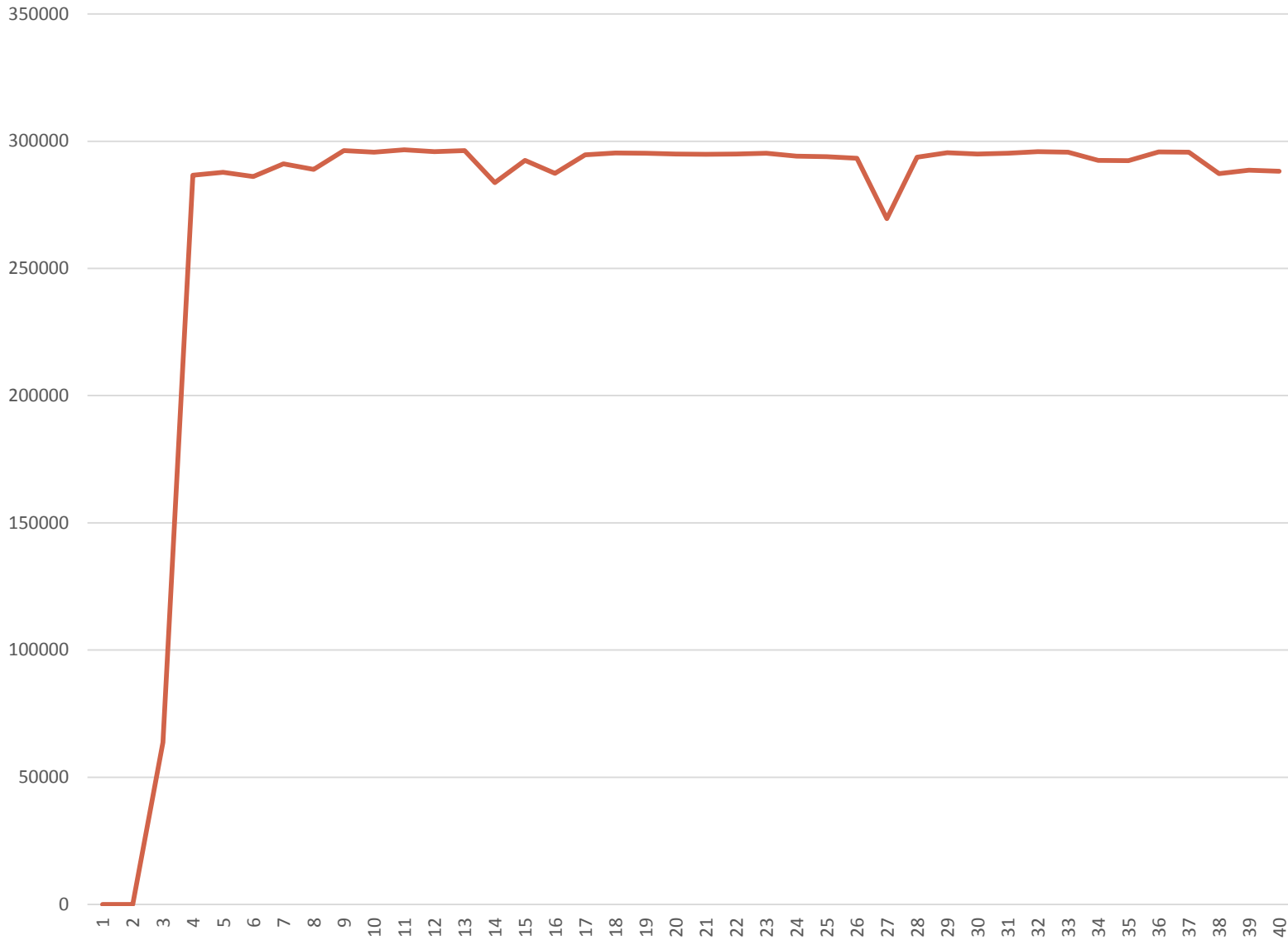
Maximize parallelism

Lock-free data structures

NUMA awareness

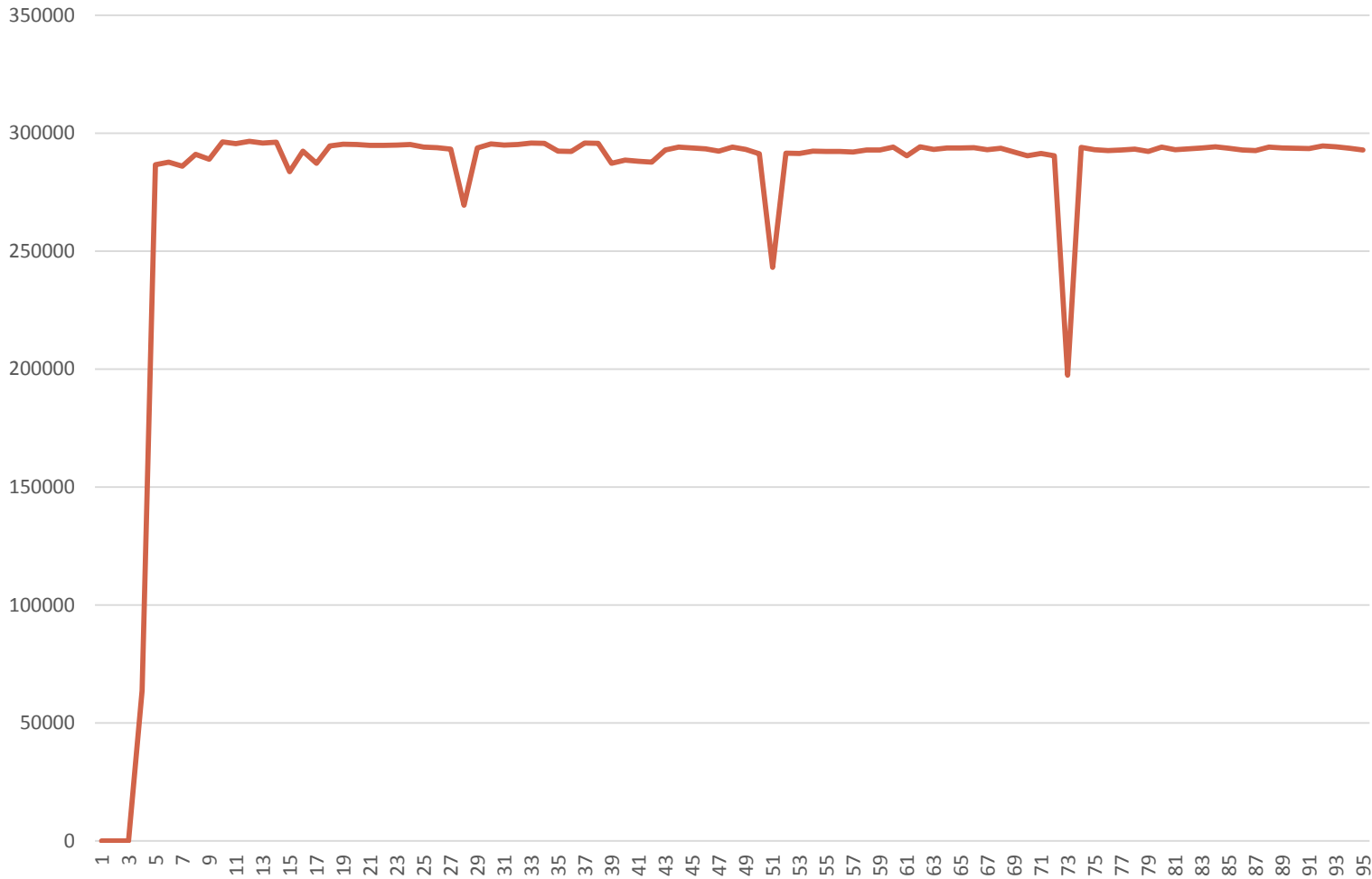
Measurement, aggressive goals, and constant work

### Typical Perf Run

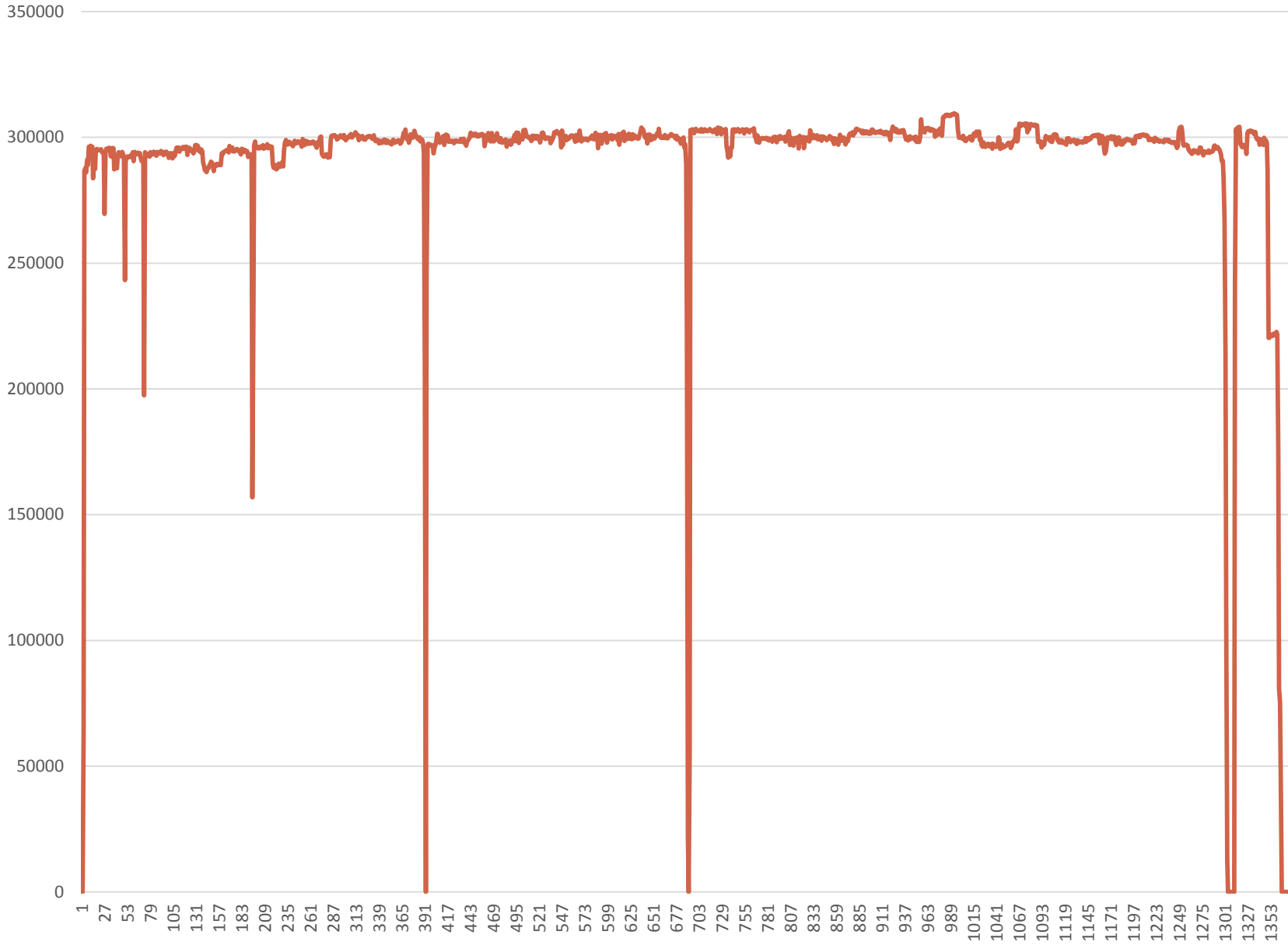




### Extended Perf Run: Full Day Traffic



### Extreme Perf Run: 10x Full Day



### Extreme Perf Run After Change



Best-of-breed commercial off the shelf hardware

+

amazing software

=

industry-leading performance

# Measure, Measure, Measure

You don't know until you measure  
Measurements will surprise you

## Go BIG

Most people add 20% or 50% performance headroom as a requirement  
Why not add 10x or 20x?

## Accept Learning

Build things you think will last forever... and don't be afraid to redo them in a month because you can make them even better

## Keep Going

Performance is never finished: you've just moved the bottleneck



## Q & A

Try out AMPS <http://crankuptheamps.com/evaluate>

# Enable mind-blowing end-to-end performance for real time streaming database applications.

- Founded in 2010
- Jeffrey M. Birnbaum & Brand Hunt, co-founders
- Growing customer base
  - Focused on financial sector
  - Thousands of instances deployed worldwide
- Current technical staff
  - Alumni of IBM, Rogue Wave, Microsoft, Morgan Stanley, Bank of America/Merrill-Lynch