Monitoring I/O Performance

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The Franklin I/O Pipeline

Compute Node

IO Node

Torus Network

Object Storage Sever (OSS)
4 Object Storage Targets (OST)

OSS, 4 OSTs

OSS, 4 OSTs

MDS

LMT

LMT

LMT

almanack
Monitoring Can Mean Different Things

• Regularly scheduled benchmarks
• Server-side statistics
• Client-side instrumentation
Benchmarking With IOR

\[ R = N \left(1 + \left(e^{((b - B)/t)}\right)\right)/(1 + (N/M)(e^{((b - B)/t)})) \]
DB of Results
Do Statistics on the Results
Server Side Monitoring

Data Rate (MB/s)

Time (PDT)

read

write rate
Look at the Statistics

Distribution of LMT observed rates

- **read** (red line)
- **write** (blue line)

Count

MB/s

0 50 100 150 200 250 300 350 400 450 500

0 10 100 1000 10000 100000 1000000
Summary

• Have a model: benchmarking is an iterative, learning process.
• Keep your results in a db
• Look at the statistics
• Monitor the server
• Instrument your application