

STORAGE DEVELOPER CONFERENCE

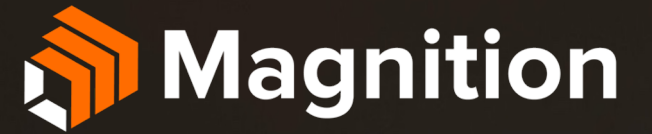


BY Developers FOR Developers

Virtual Conference
September 28-29, 2021

Software-Defined Performance Engineering

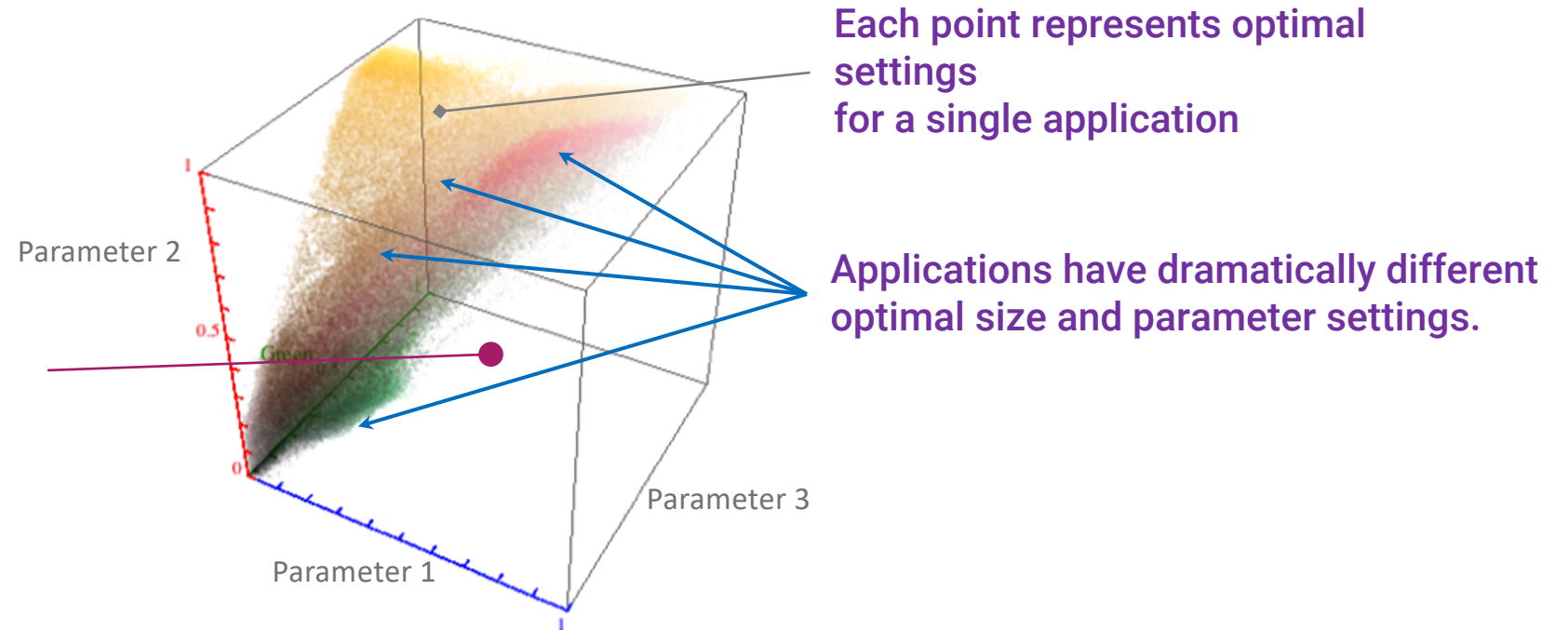
Presented by Irfan Ahmad, CEO and Founder, Magnition.io



Performance Engineering is an Exponential Complexity Problem

Today: parameters chosen based on benchmarking.

One size does not fit all.



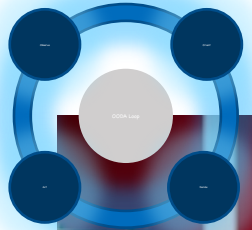
Static Data Infrastructure Vulnerable to:

- Thrashing, Scan pollution
- Gross unfairness, Interference
- Unpredictability

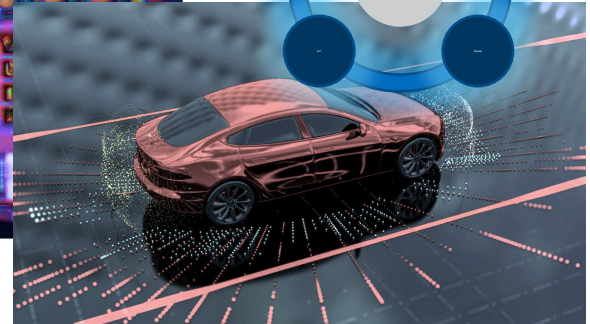
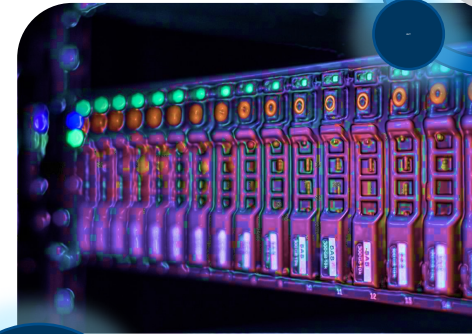
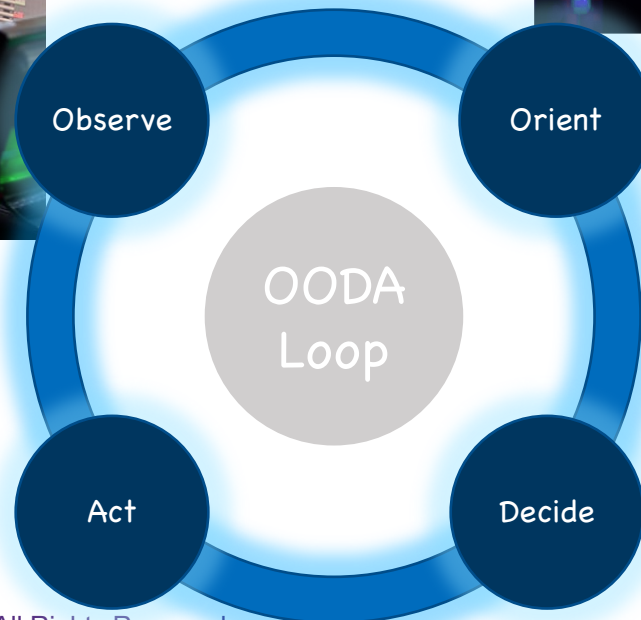
⇒ **Overprovisioning**

⇒ **Lack of Control**

What is Software-Defined Performance Engineering?



New Thinking Needed for
Building, Instrumented,
Controllable, Self-Aware Software
and Hardware

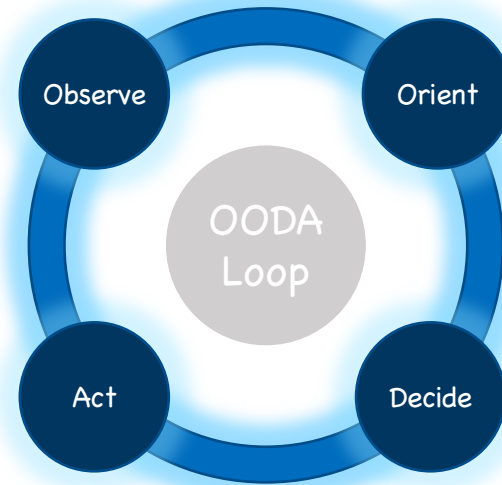



KEEP CALM
AND
OODA

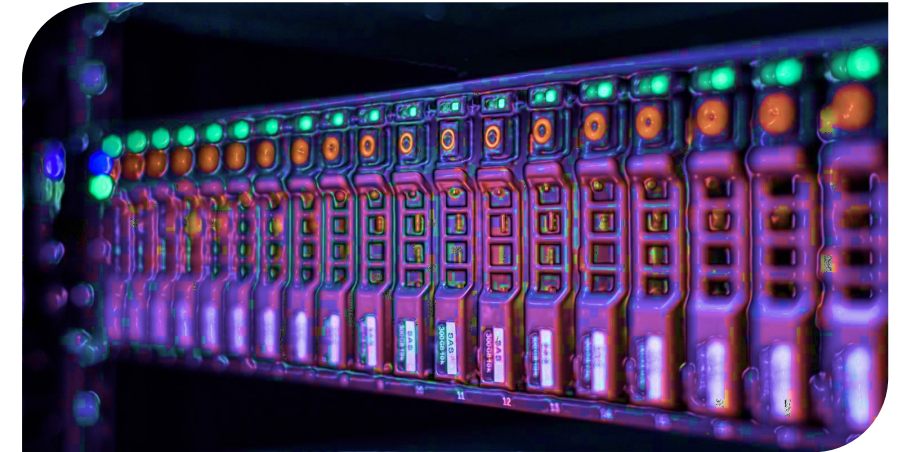
Magnition's Software-Defined Performance Engineering



**Simulation-based,
CAD-like software
design cycle**



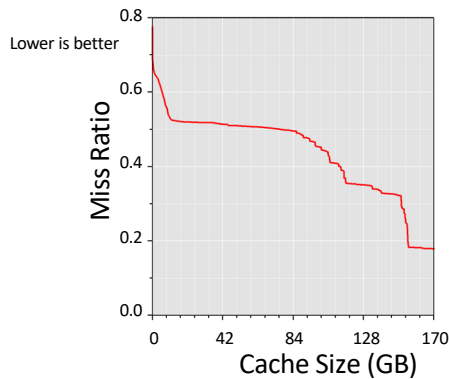
Global Latency Guarantees
Global Throughput Guarantees
Distributed Multi-tenant Policies
Flash Cache Auto-Reservation
DRAM Cache Allocation
SCM Data Placement
Cache Time Series Analysis
Cache Thrashing Remediation
Remote v Local Cache Allocation
Write Cache Allocation
Self-tuning Cache Policies
Automatic Write Policy Selection
Automated Tiering



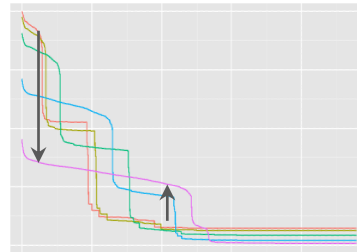
**Autonomous storage
systems**

Software-Defined Performance Engineering Use Cases

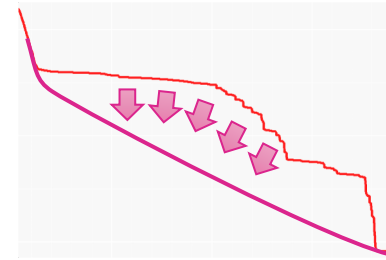
Monitoring



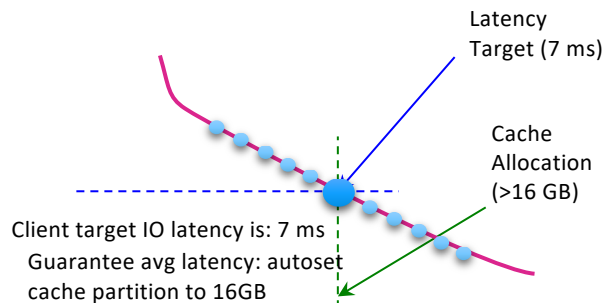
Auto-Select Policies (dynamic parameters)



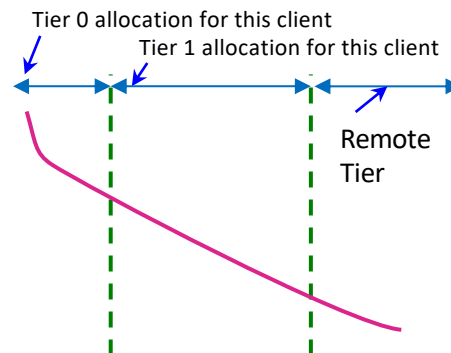
Latency Reduction (Thrashing Remediation)



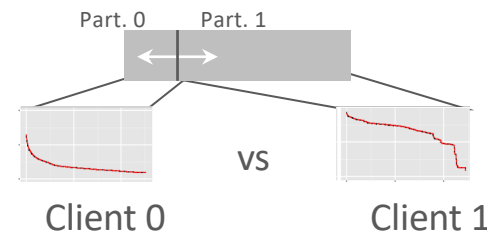
Latency Guarantees



Accurate Tiering



Multi-Tenant Isolation



Results:

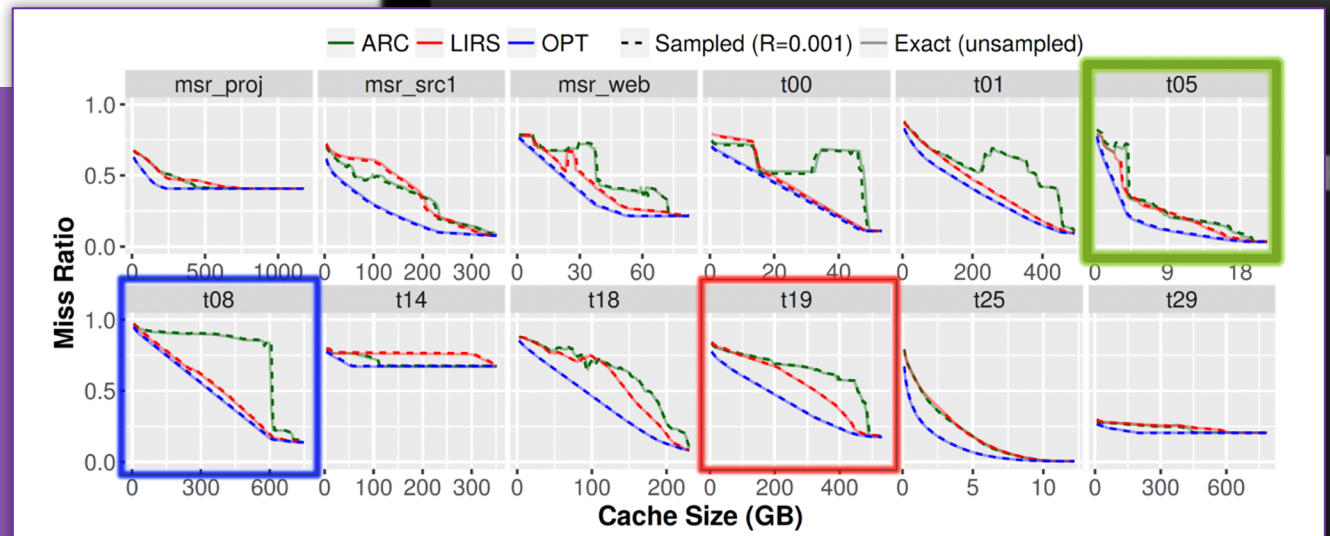
- Quantify impact of changes via CAD-like simulations
- Accurate Capacity Planning and Bill of Materials Optimization
- 50-150% efficiency improvements (\$\$)
- Latency SLAs
- Higher consolidation ratios

MAGNITION STORAGELAB

Software-Defined Performance Engineering

Patented Miniature Simulation Modeling

Simultaneous modeling and testing of
production workloads in real-time delivering
results in seconds instead of days.



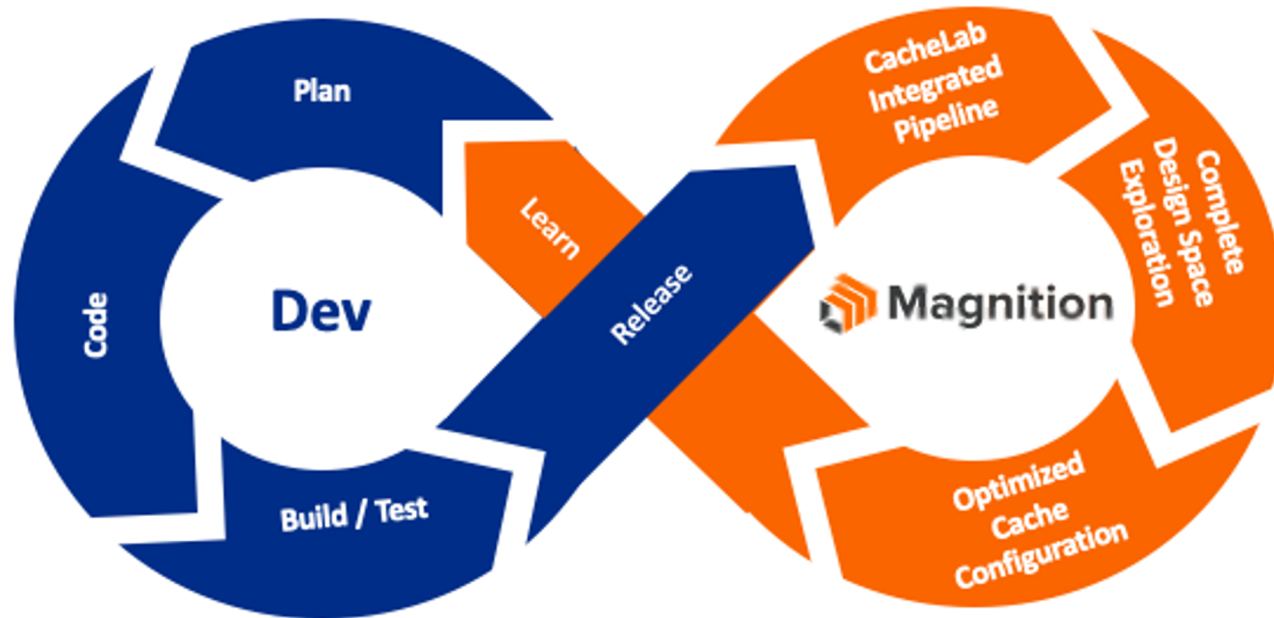
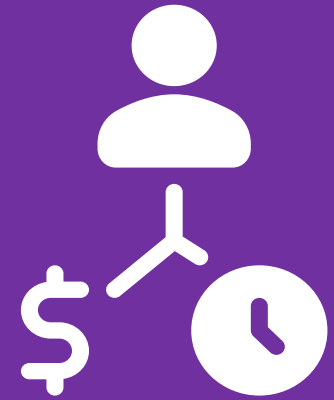
TESTING WITHOUT LIMITS

CODE. COMMIT. CACHELAB.

Developer Pipeline Integration with Magnition CacheLab

Fully automated design space exploration with Magnition

CacheLab developer pipeline integration.



Up to 1000X Faster

CacheLab delivers results in minutes instead of days.

ABOUT MAGNITION

STORAGE PERFORMANCE, REINVENTED



World's First Real-Time Data Placement Optimization
Forms the embedded foundation for Fully Autonomous Storage

Proven At-Scale, with Production Workloads
Use customer traces to fully test diverse workloads in real-time.

Peer-Reviewed and Published in Leading Journals
Multiple industry articles published and reviewed.

Award-Winning, Patented Technology
3-time award winner for innovative technology.



THANK YOU



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