

Dedupe, Compression, and Pattern- Based Testing for Flash Storage

Controlling Data Content is Key



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Load Dynamix

Effectively Measuring AFA Performance



Helping IT organizations
optimize flash storage
deployments



Product Suite

- **Software:** LDX Enterprise
- **Hardware:** LDX load generation appliance

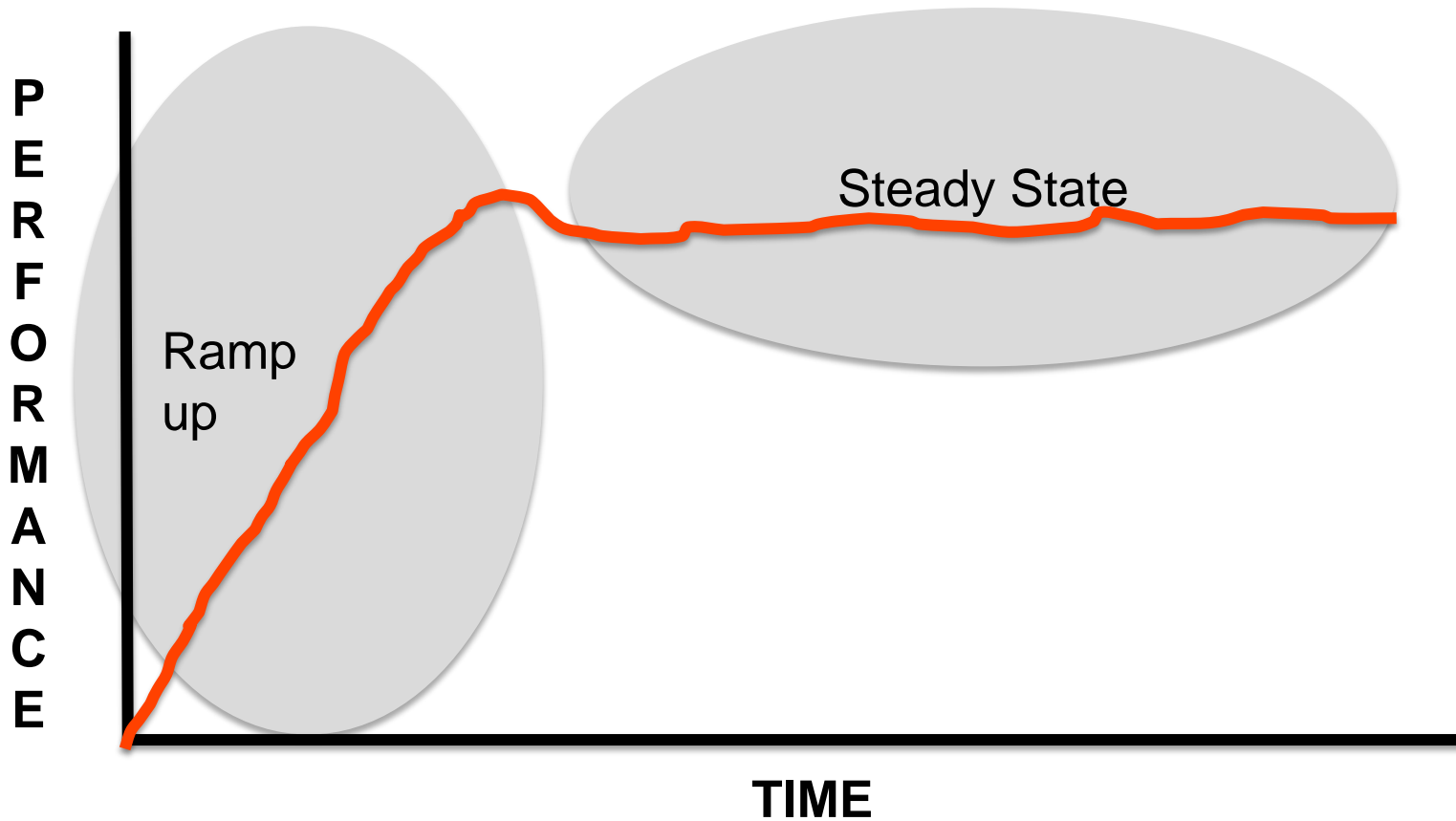
Award Winning Technology



Discussion Panel Points

- Flash behavior is unique
- AFAs have a different performance curve
- A new testing methodology is required due to deduplication and compression

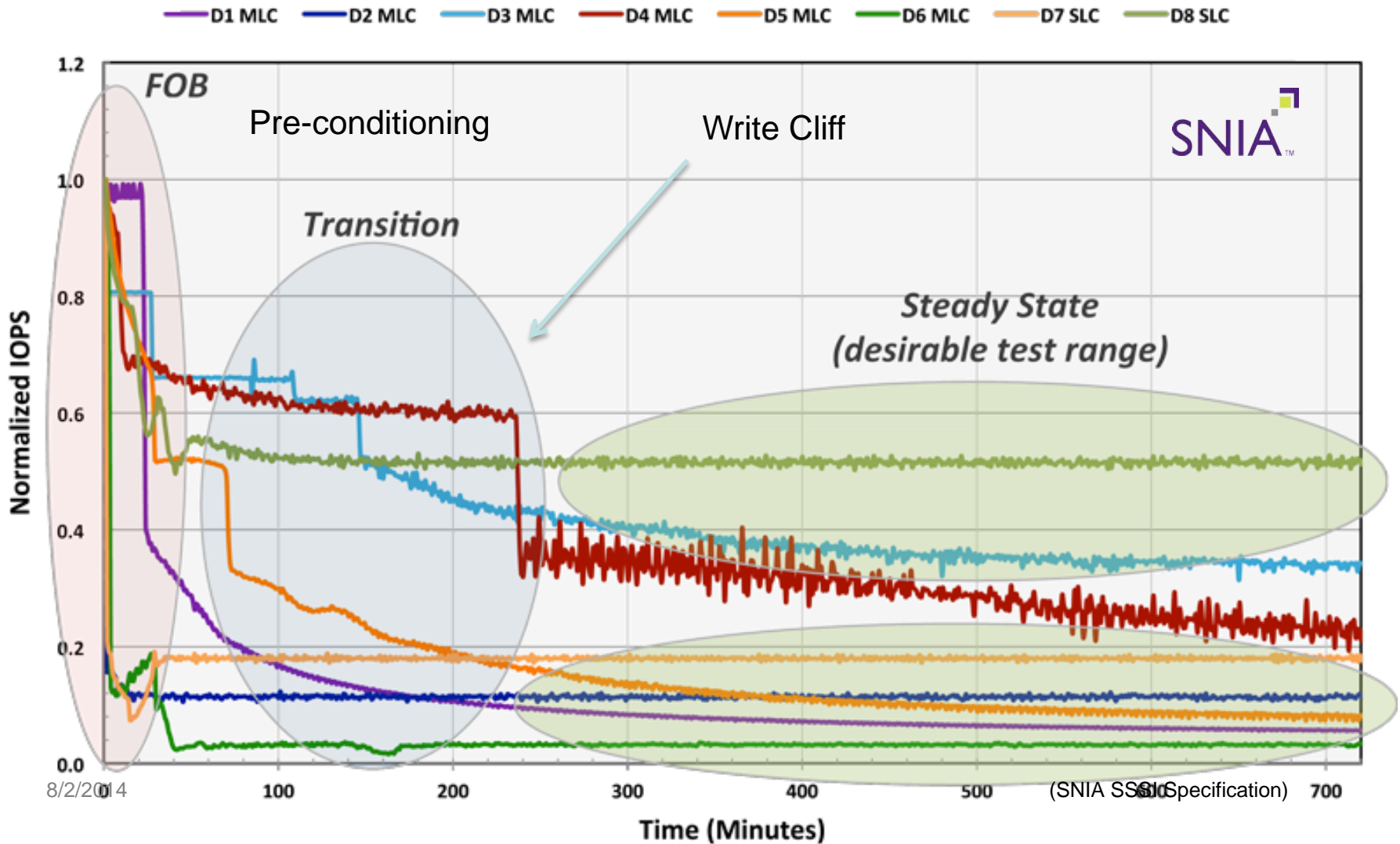
Traditional Disk Performance Curve



Many Flash Vendors

Wide performance variations

SSD Performance States - Normalized IOPS



Measuring with Inline Data Reduction

- Data content patterns
 - Created before testing
- Data content streams
 - Written during testing
- Repeating and non-repeating patterns
 - Random
 - Compressible
- Varying pattern lengths

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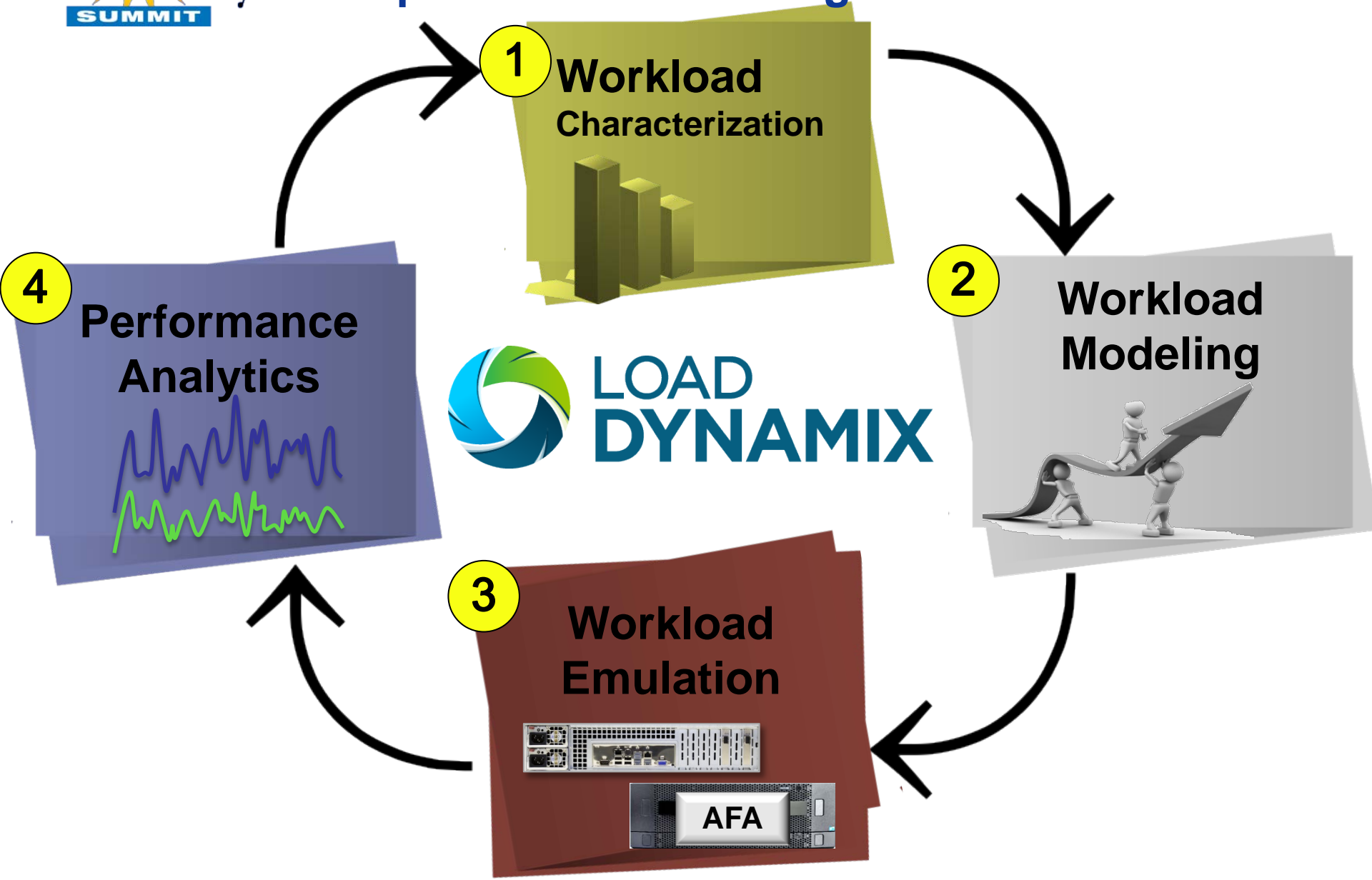
Repeatable non-compressible pattern

Repeatable non-compressible pattern

Repeatable non-compressible pattern

New Approach to Validating AFAs

4 Steps to Validate Storage



Methodology In Action

Actual results comparing 2 leading AFAs

IOPS Comparison for 3 Groups of Data Patterns & R/W Ratios

Which is best?
Depends on your workload.

