



NetApp®

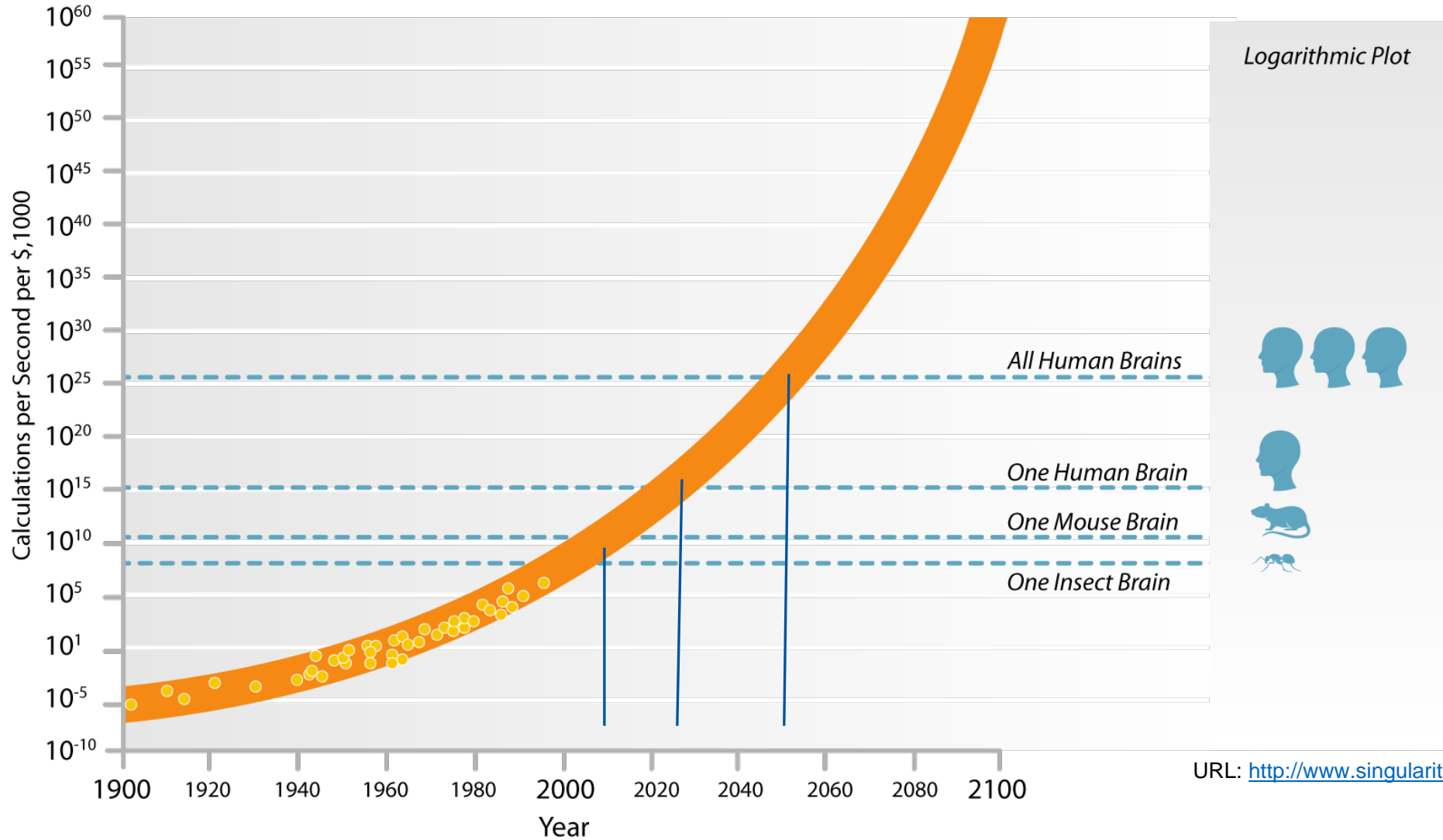
Keynote 11

Data Center Evolution: Hyperscale vs. Enterprise Architectures

Val Bercovici
Cloud and Big Data Czar
NetApp, Inc.

@valb00

Science (Fiction?)



**Exponential Growth
of Computing**
20th Through
21st Centuries



Social



25%

productivity increase¹

Mobile



75%

of the world's population
have a mobile device²

Analytics



63%

Competitive advantage⁴

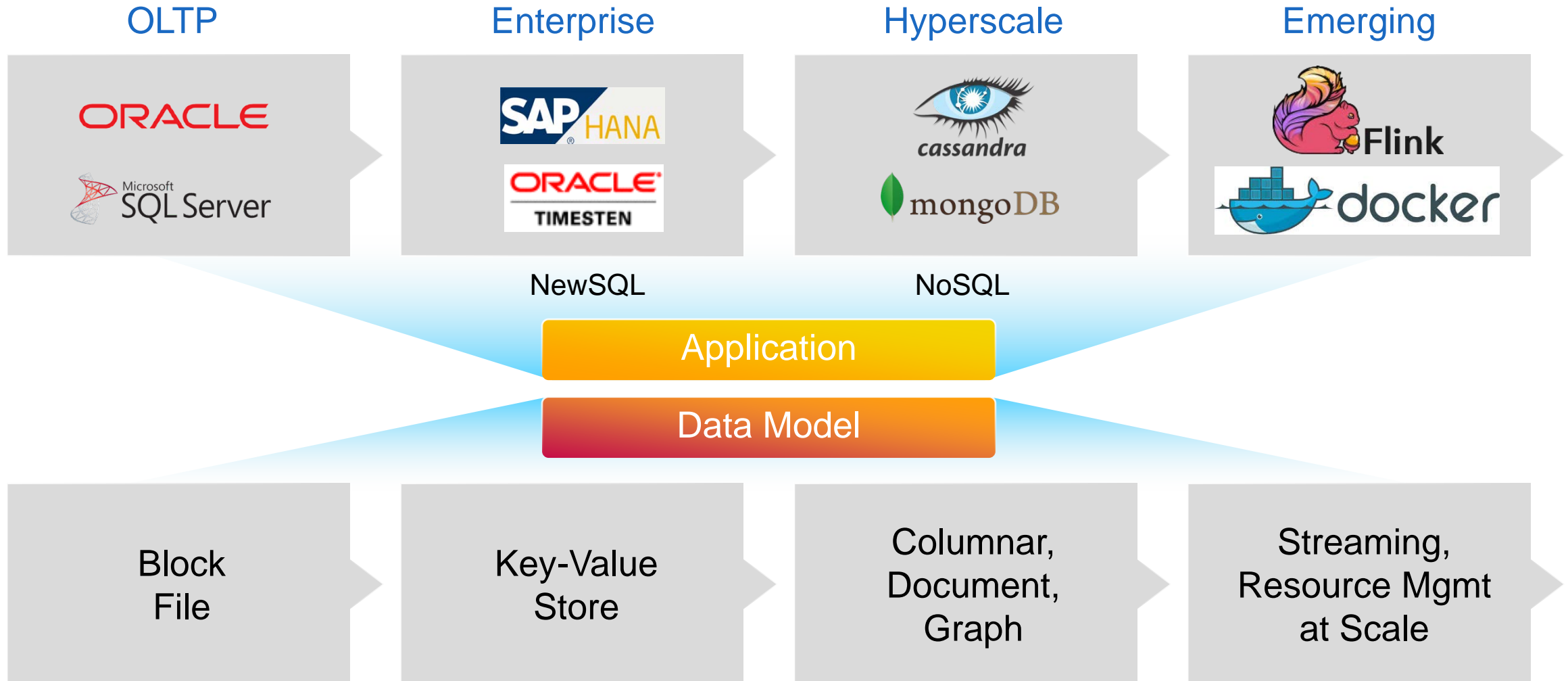
Cloud



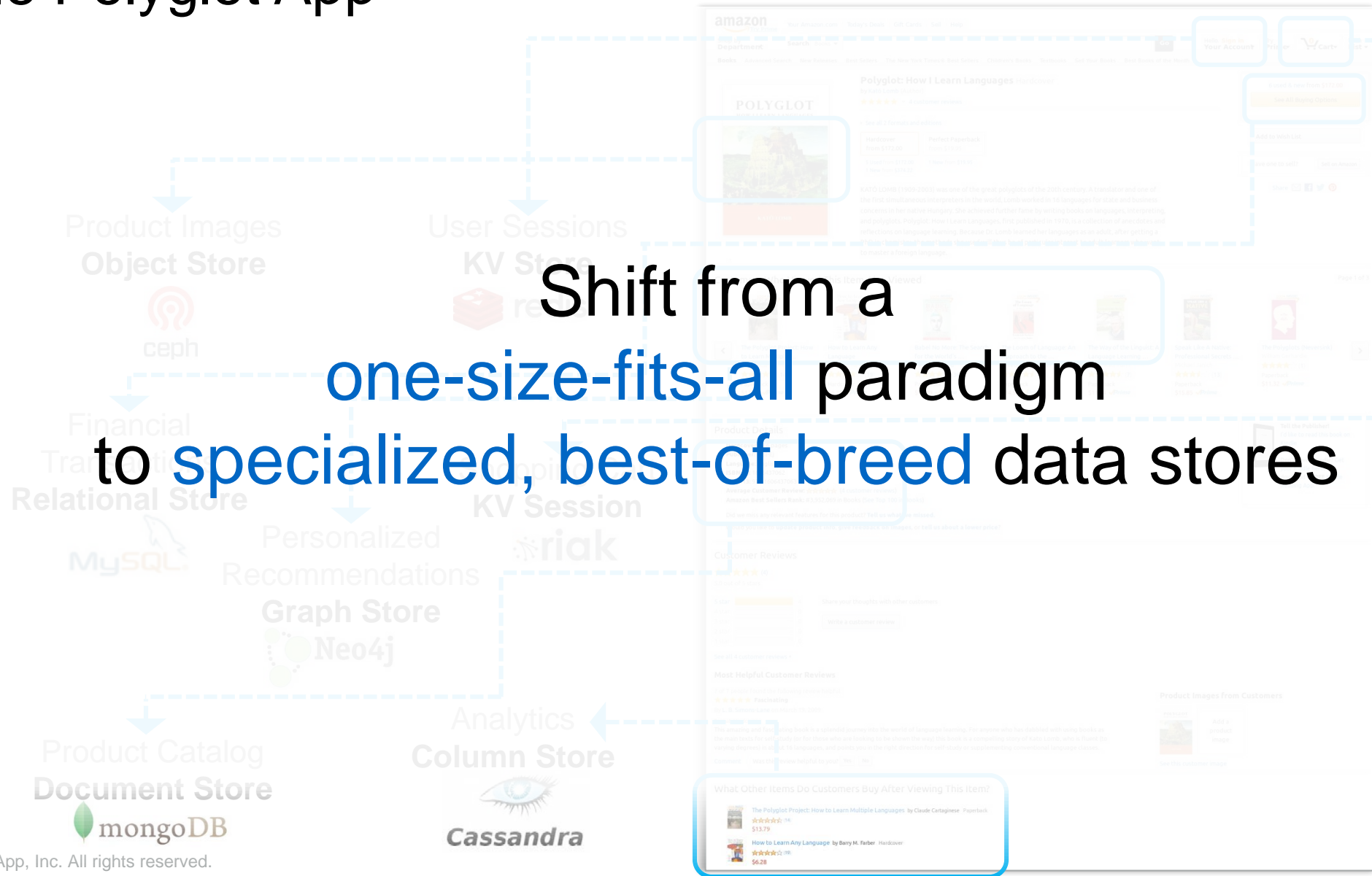
60%

of CIOs indicate that cloud is
one of their Top 5 priorities³

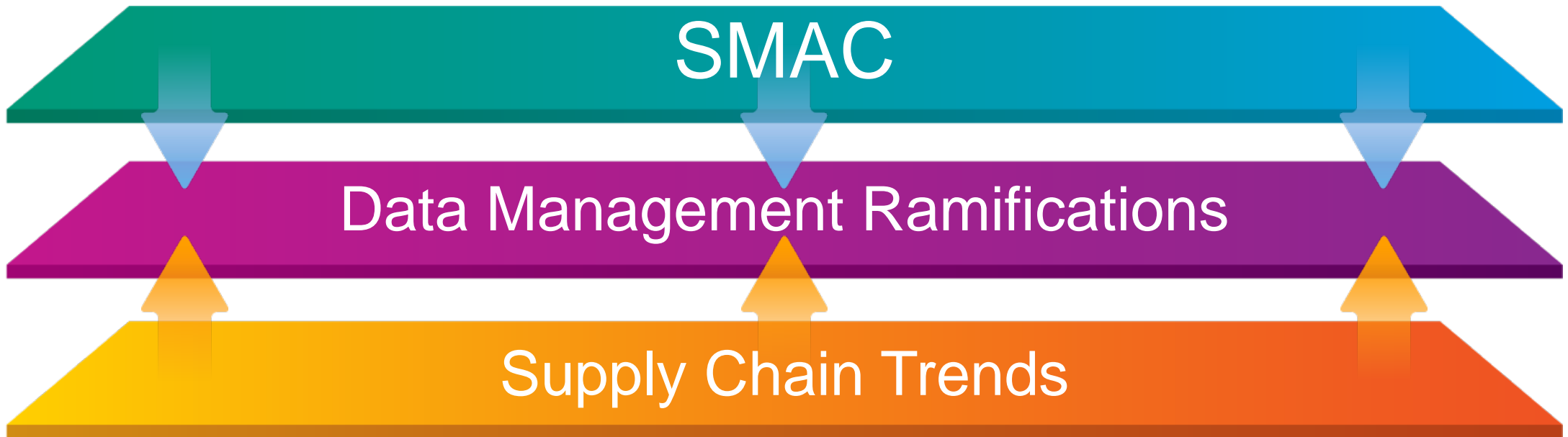
Evolving Application Architecture Landscape



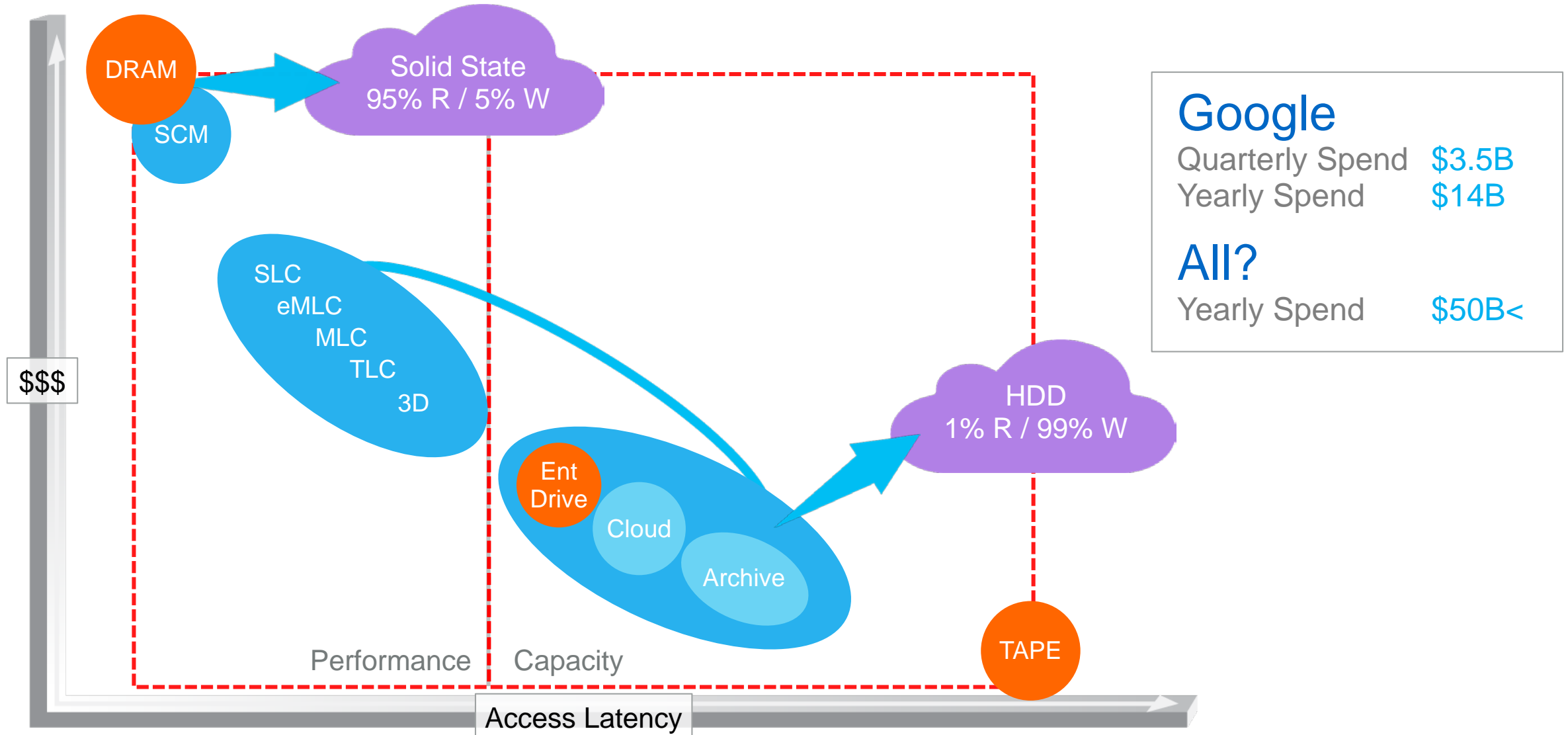
Sample Polyglot App



Unintended Consequences



Economics Driving Polarization of Storage

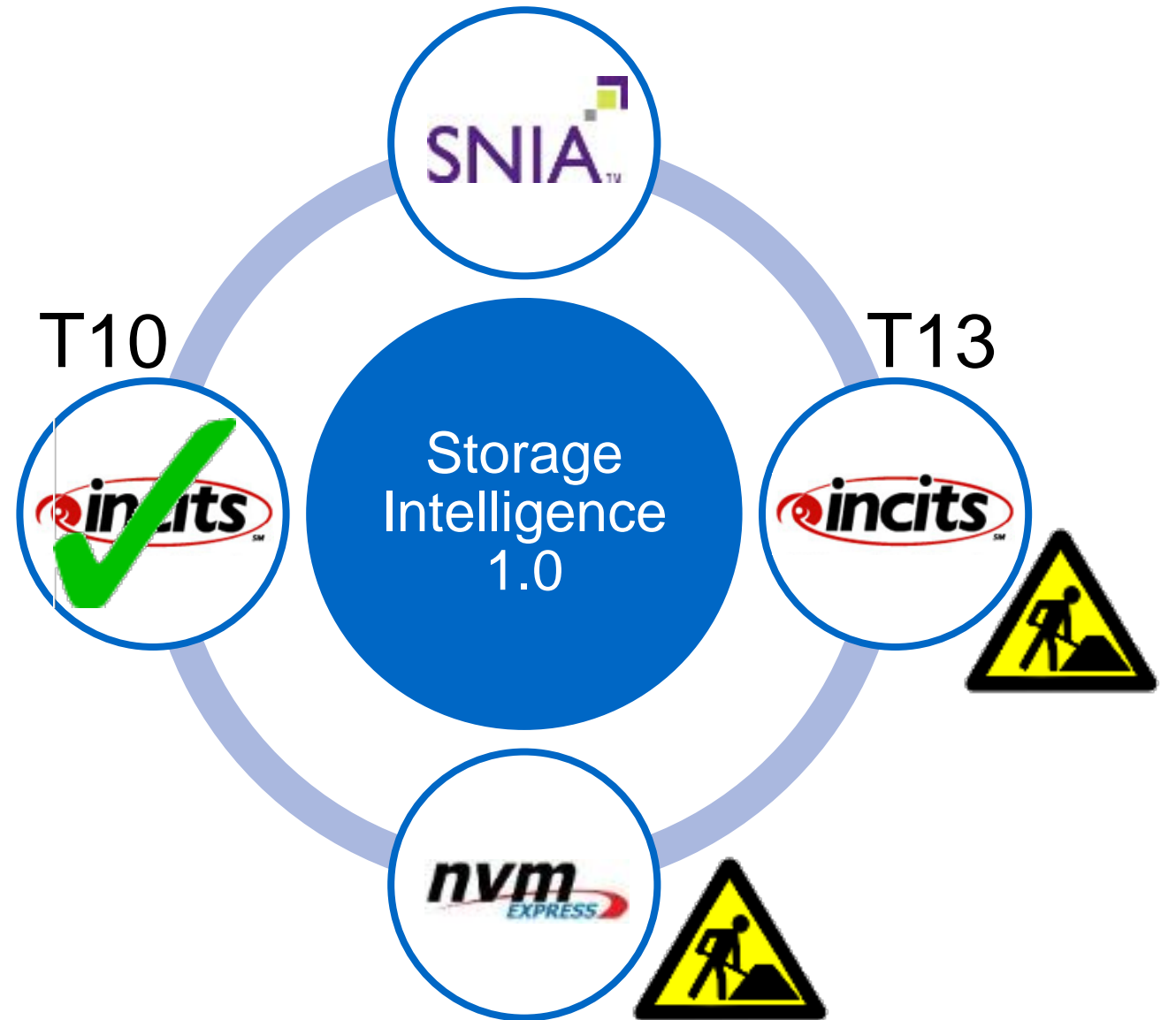


Storage Intelligence 1.0

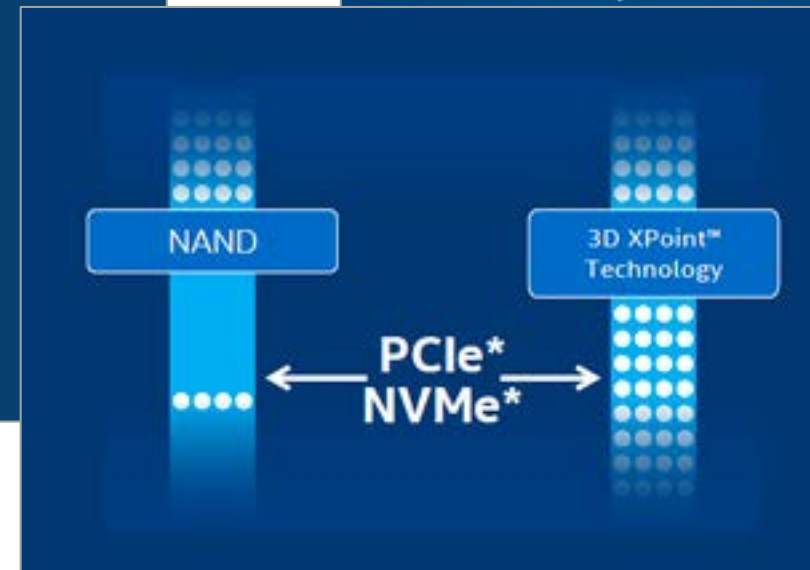
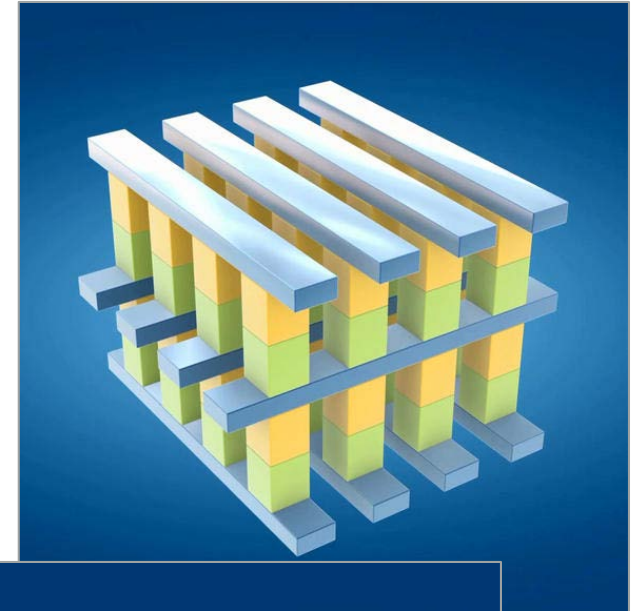
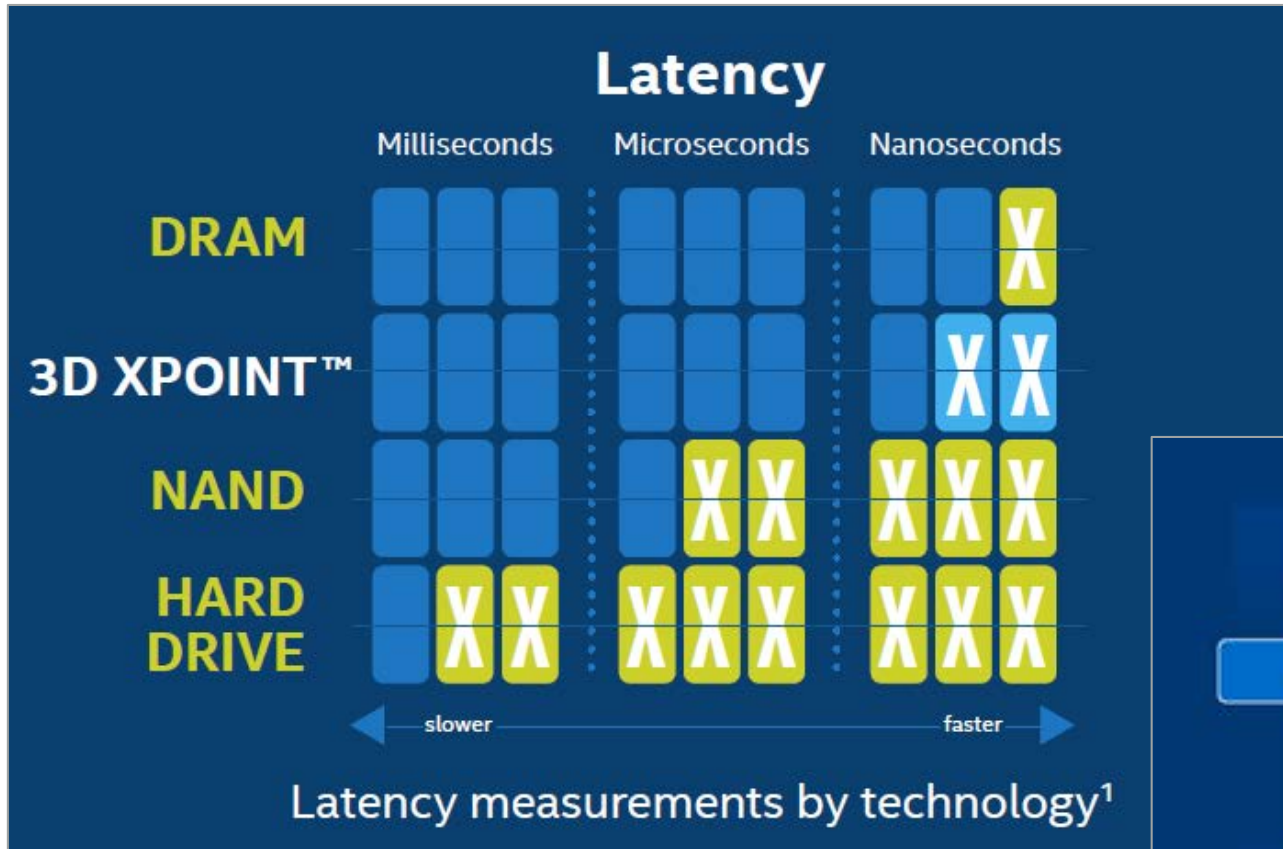
SAMSUNG

“NetApp selected Samsung solid-state drives to bring enterprise-grade performance and capacity to a customer base that also expects the cost effectiveness of V-NAND TLC flash. The combination of NetApp Clustered Data ONTAP software value with Samsung hardware component expertise has helped the NetApp All Flash FAS array become the fastest growing product in NetApp history.”

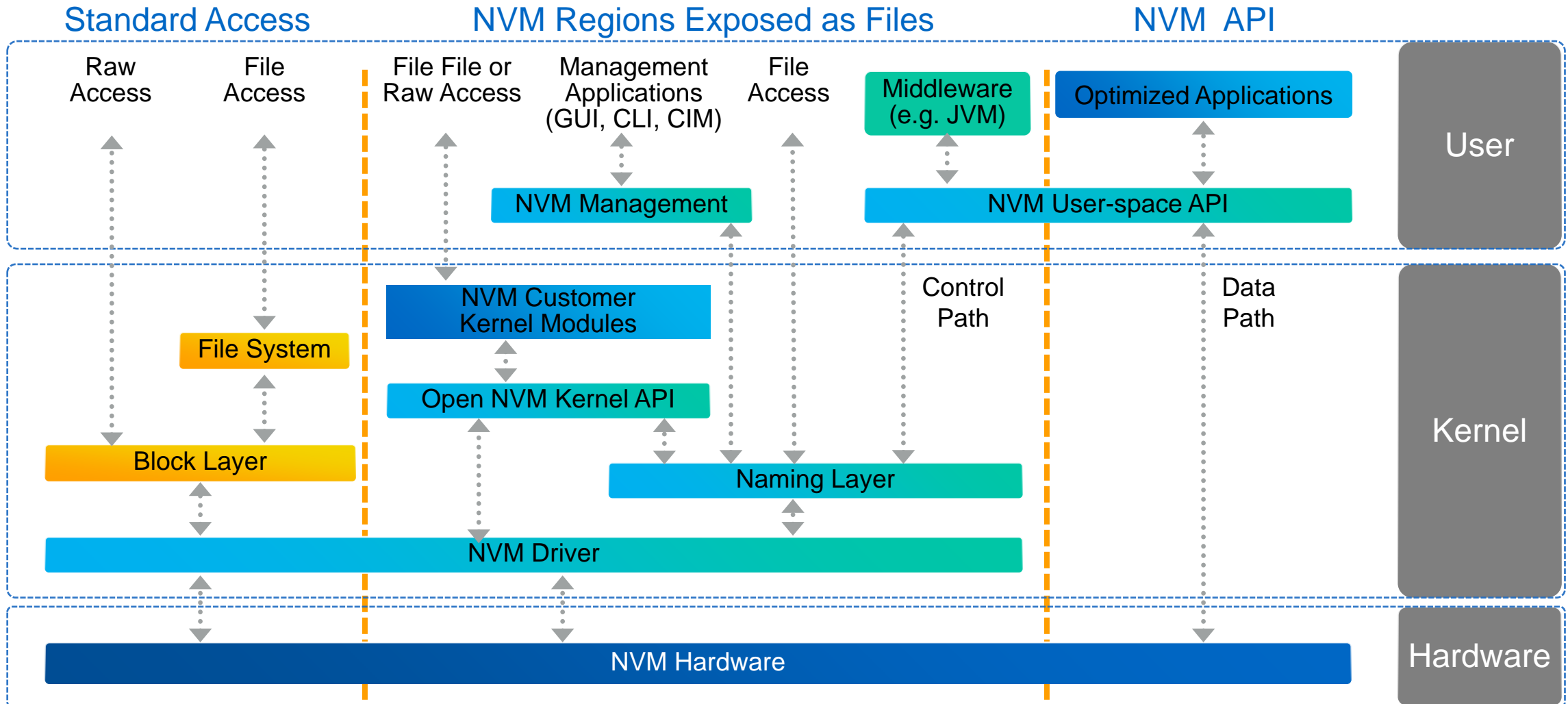
– Lee Caswell, VP
Product and Solutions Marketing
NetApp, Inc.



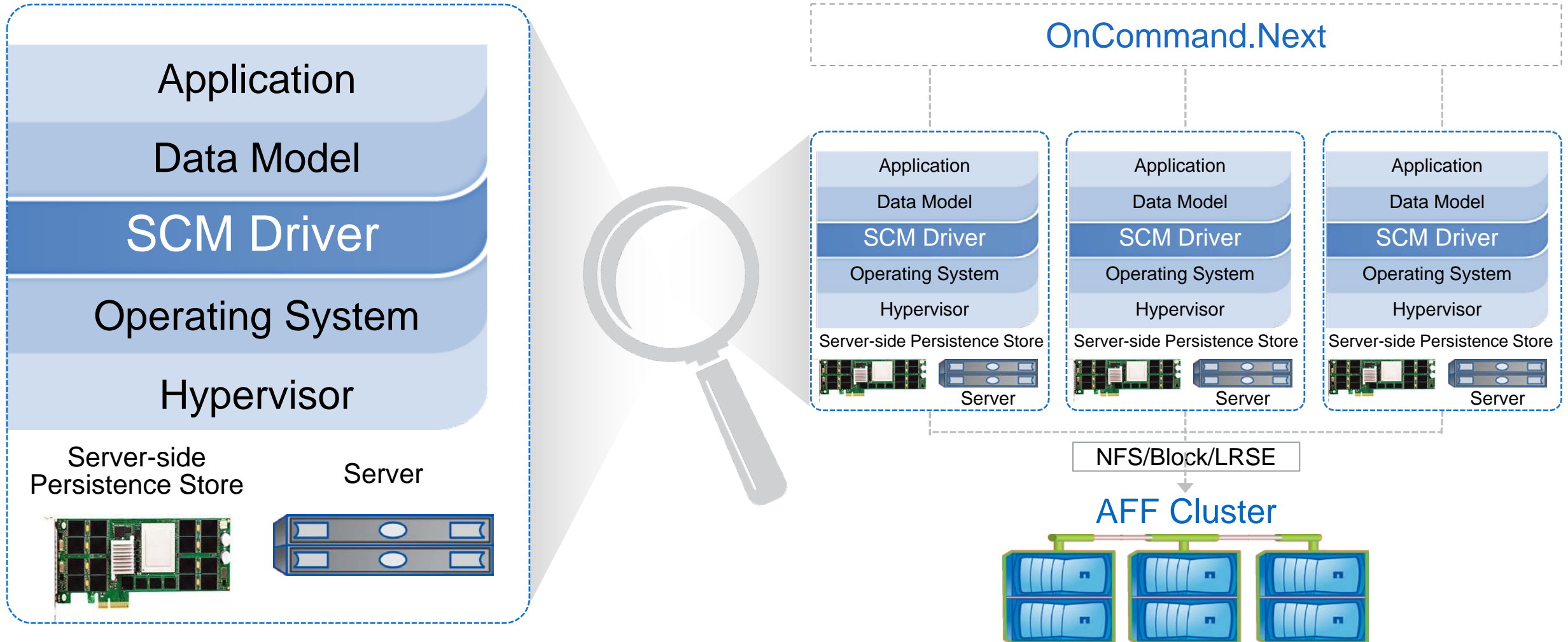
New Memory / Storage Tiers



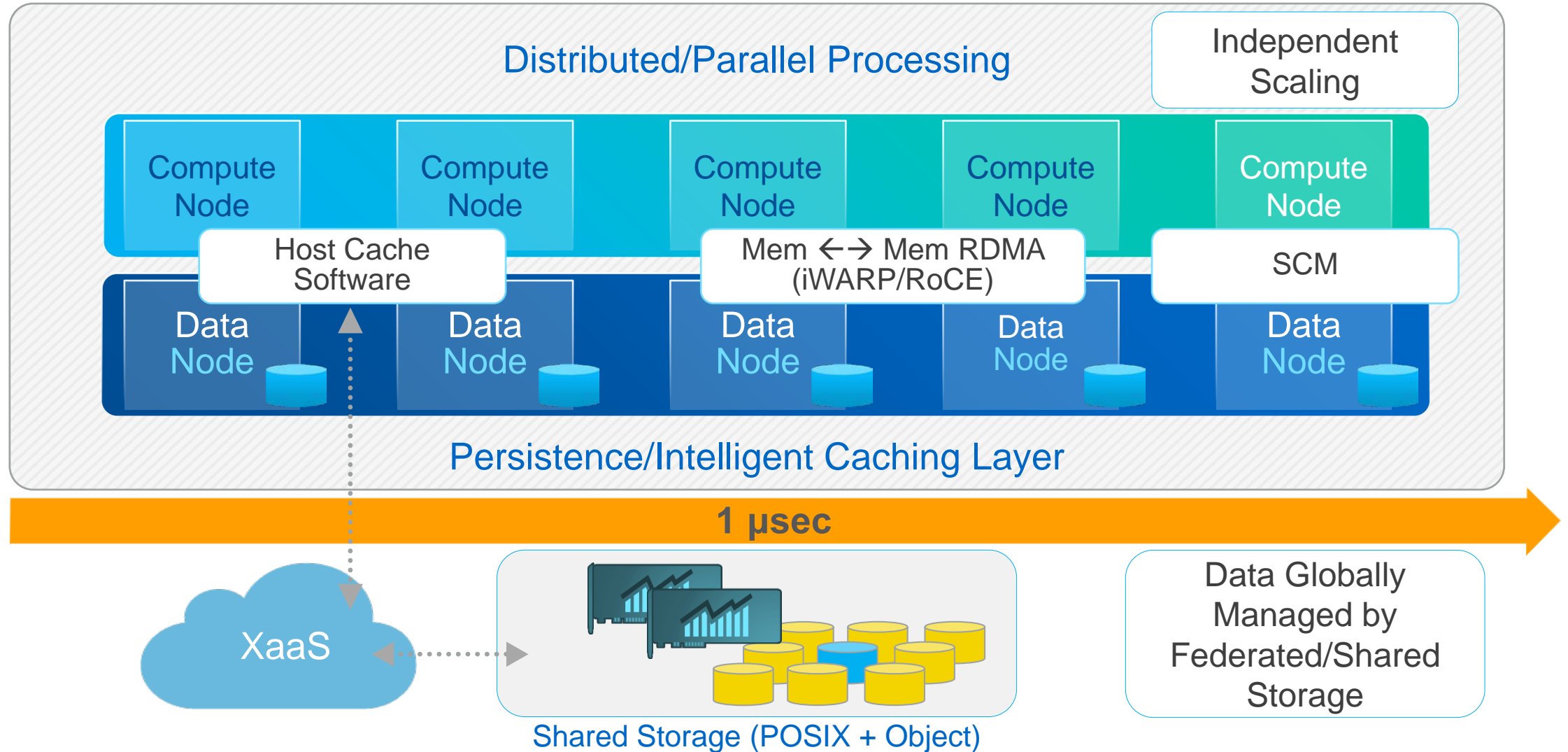
NVM/Persistent Memory Programming Model – pmem.io



Management in the SCM Data Path: Latency Rules



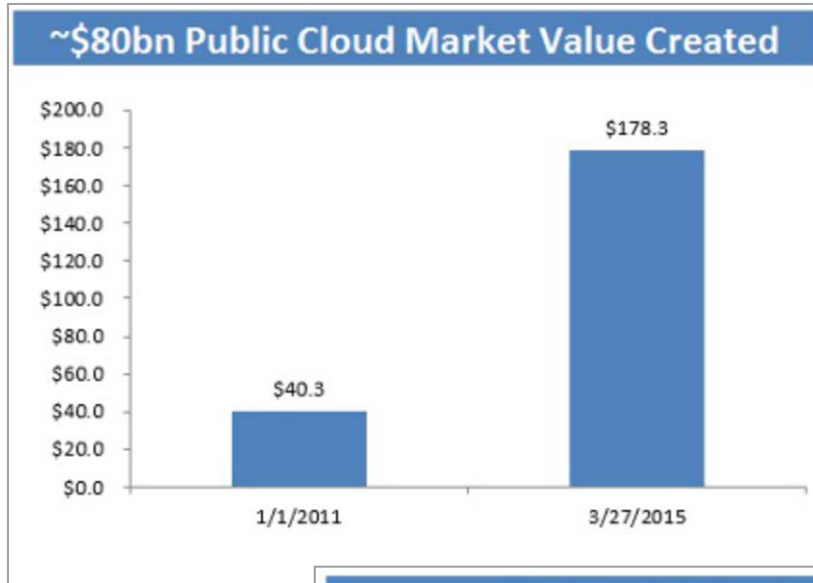
New Data Center Storage Stack Circa 2020





Waterfall “Lean Cloud” (Enterprise & Hyperscale) Lifecycle Comparisons

Summary: Cloud Landscape Since 1/1/2012

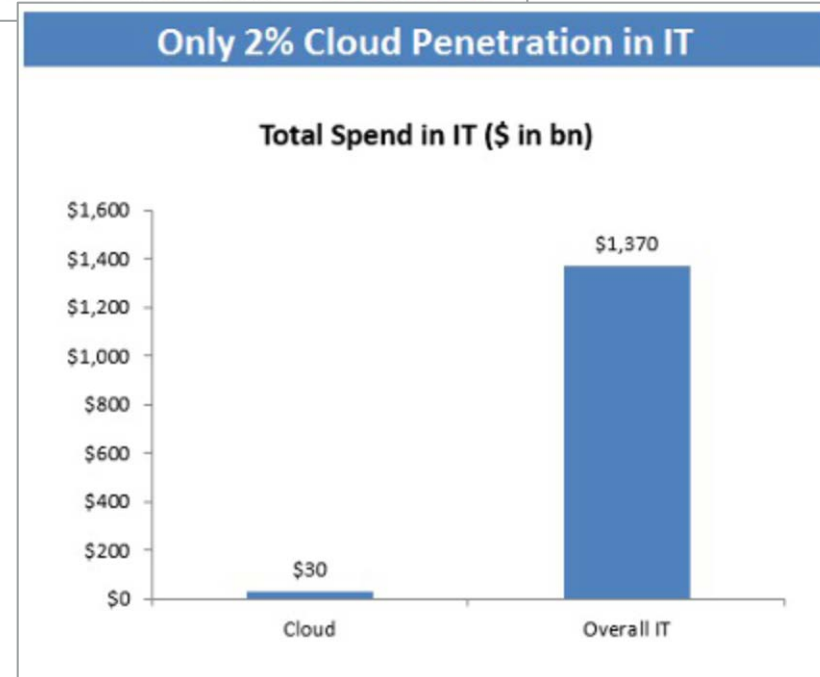


Source: Gartner, July 2013
 Note: Estimates per 2013. Cloud includes SaaS, PaaS and IaaS.
 Overall IT includes worldwide spend in Data Center Systems, Enterprise Software and IT Services.

\$13bn+ Public Cloud M&A

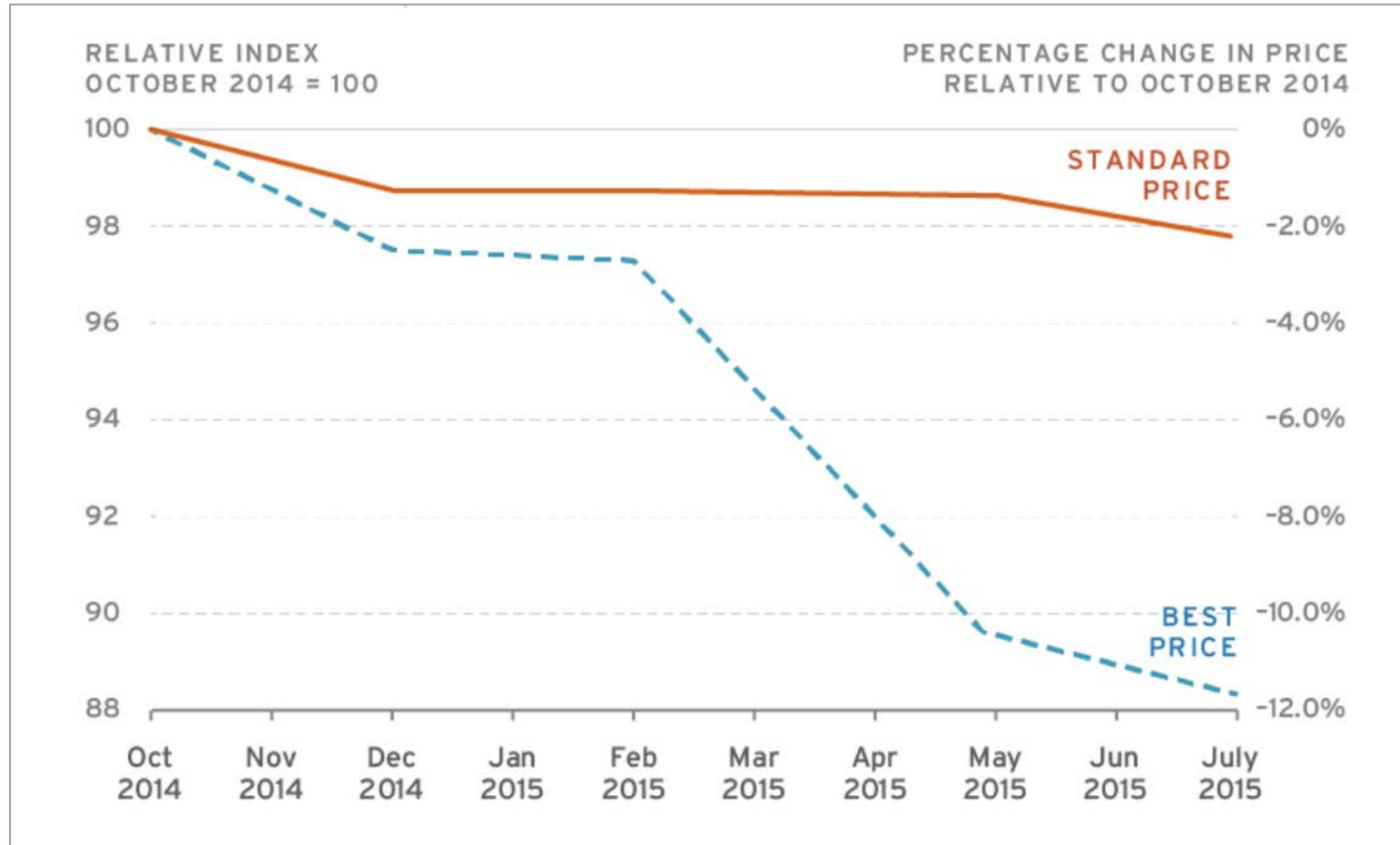
(\$ in m)

Date	Target	Acquirer	Deal Size
Mar-14	VOCUS	GTCR	\$0.4
Dec-13	responsys	ORACLE	\$1.5
Jul-13	ExactTarget	salesforce	\$2.5
Dec-12	eloqua	ORACLE	\$1.0
Aug-12	Kenexa	IBM	\$1.3
May-12	ARIBA	SAP	\$4.3
Feb-12	Taleo	ORACLE	\$1.8
Total			\$12.8



Cost of Cloud Price Index Specification Over Time

n = Market Weighted Average of 70% of Market



Enterprise Technology Spend Ratios

2008

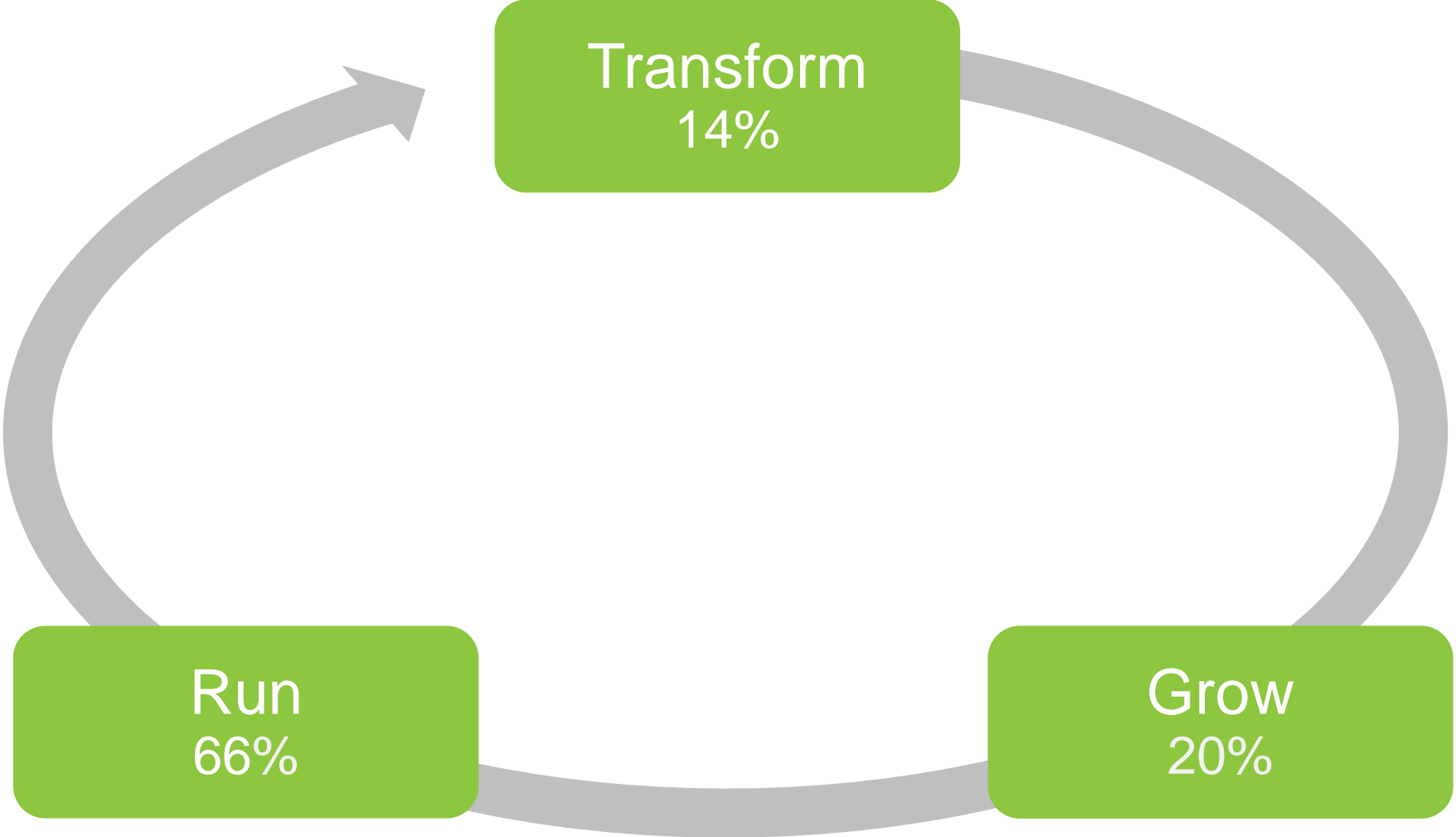
2014



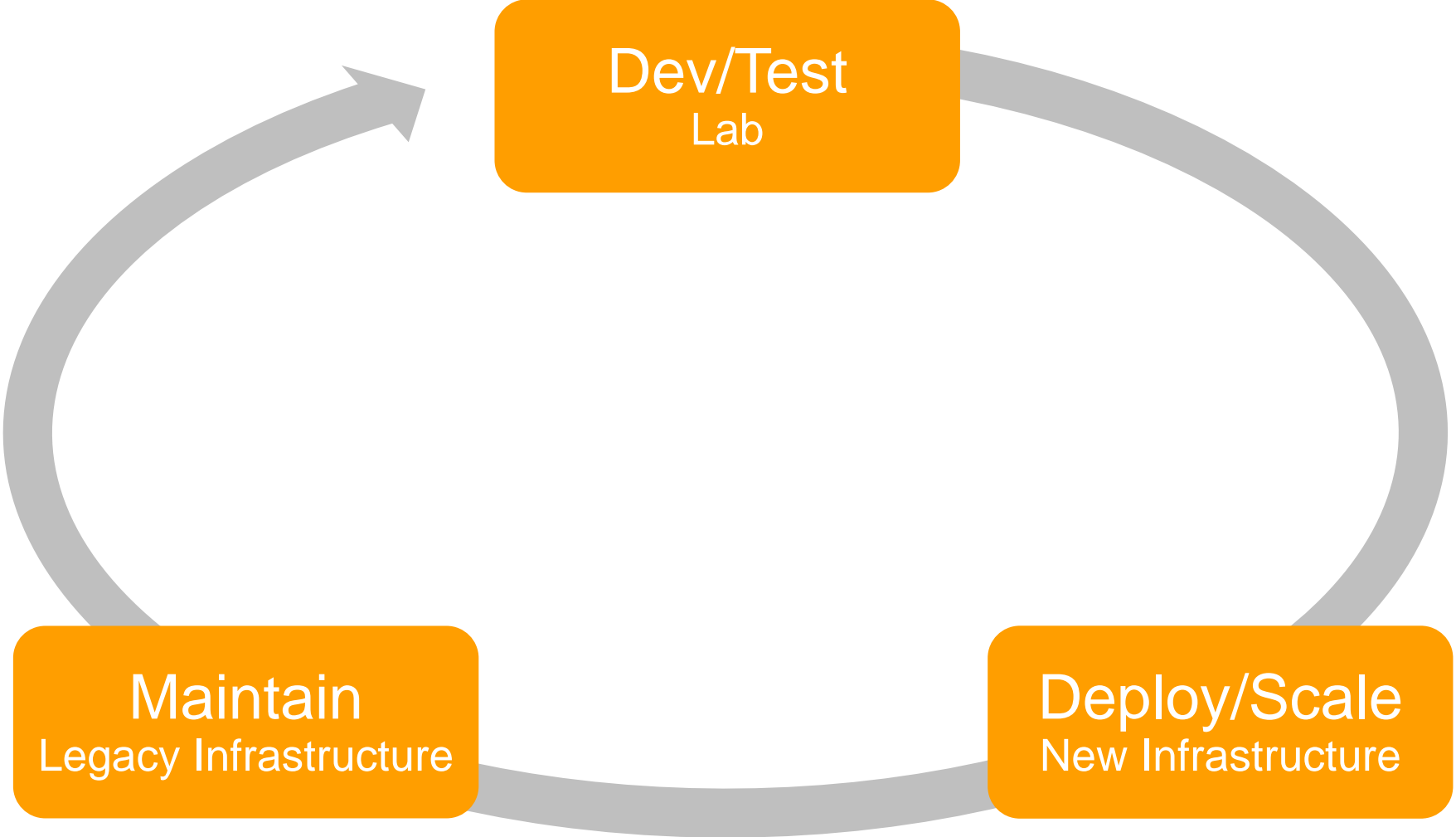
IT Budget

LoB Tech Spend

Tech Spend → Mapped to Project Lifecycles

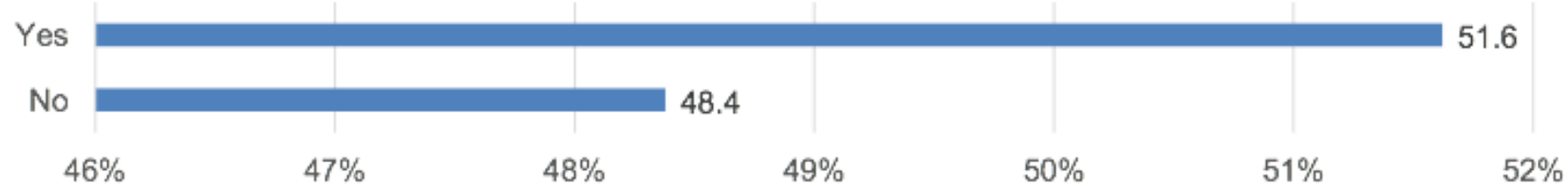


Application Lifecycles



“In-sourcing” AWS storage

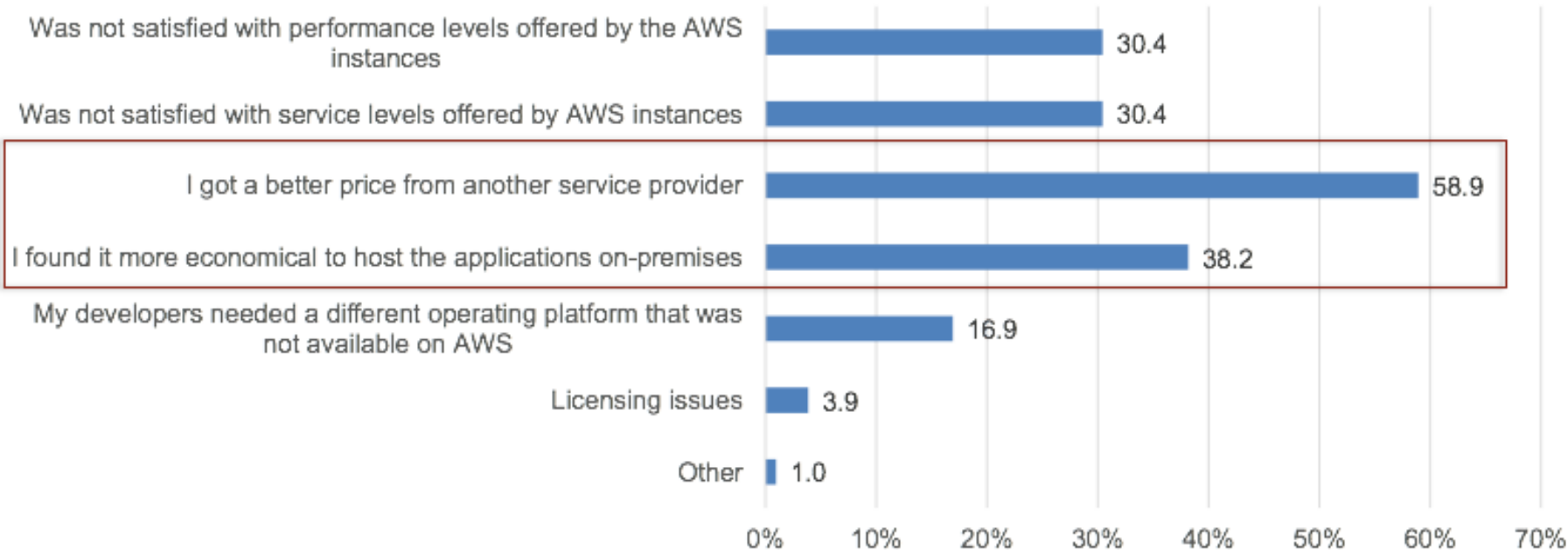
Q36. Has your company and/or organization moved Amazon AWS compute and/or storage services back on premise or to another service provider in the past 12 months?



N=401

Source: Amazon AWS Infrastructure as a Service (IaaS) Survey, IDC, November, 2014

Q37. Why has your company and/or organization moved AWS services back on premise or to another service provider in the past 12 months?



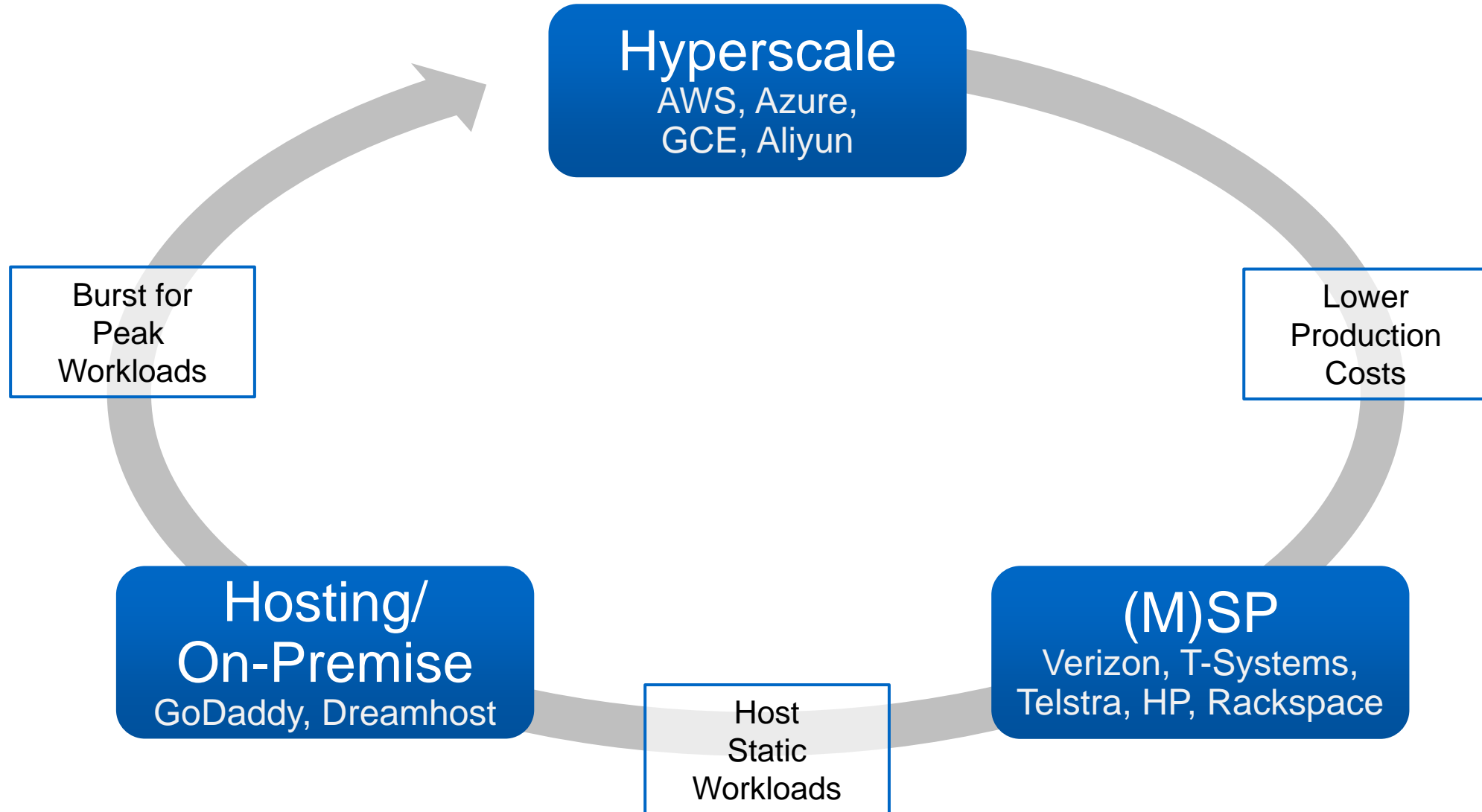
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Source: Amazon AWS Infrastructure as a Service (IaaS) Survey, IDC, November, 2014



Amazon Web Services IaaS (Storage) Deployments: Analysis and Insight
IDC #255387
April 2015

Economics of a Hybrid Cloud Ecosystem



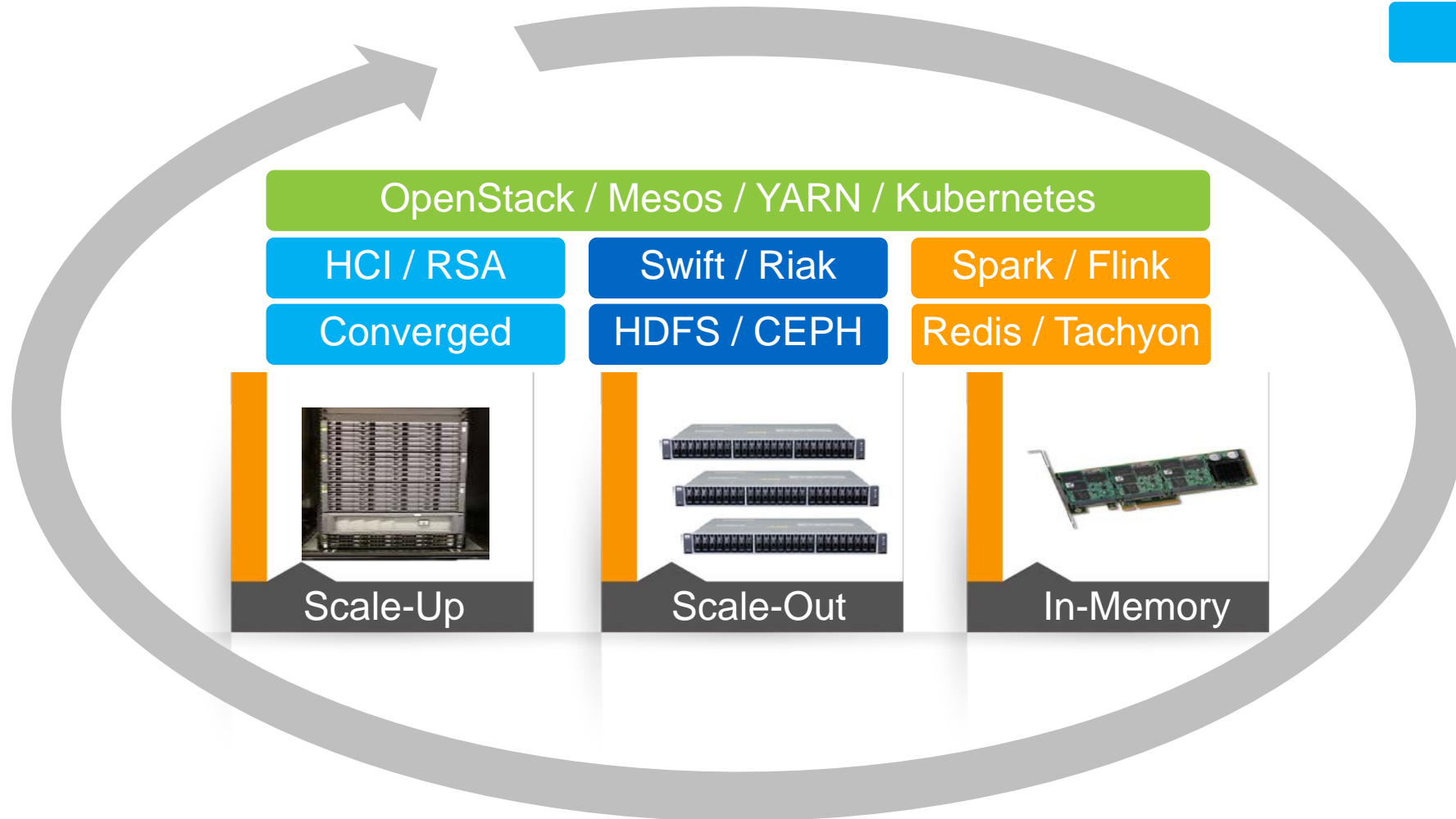
New Resource Managers and Control Points

Management

Persistence

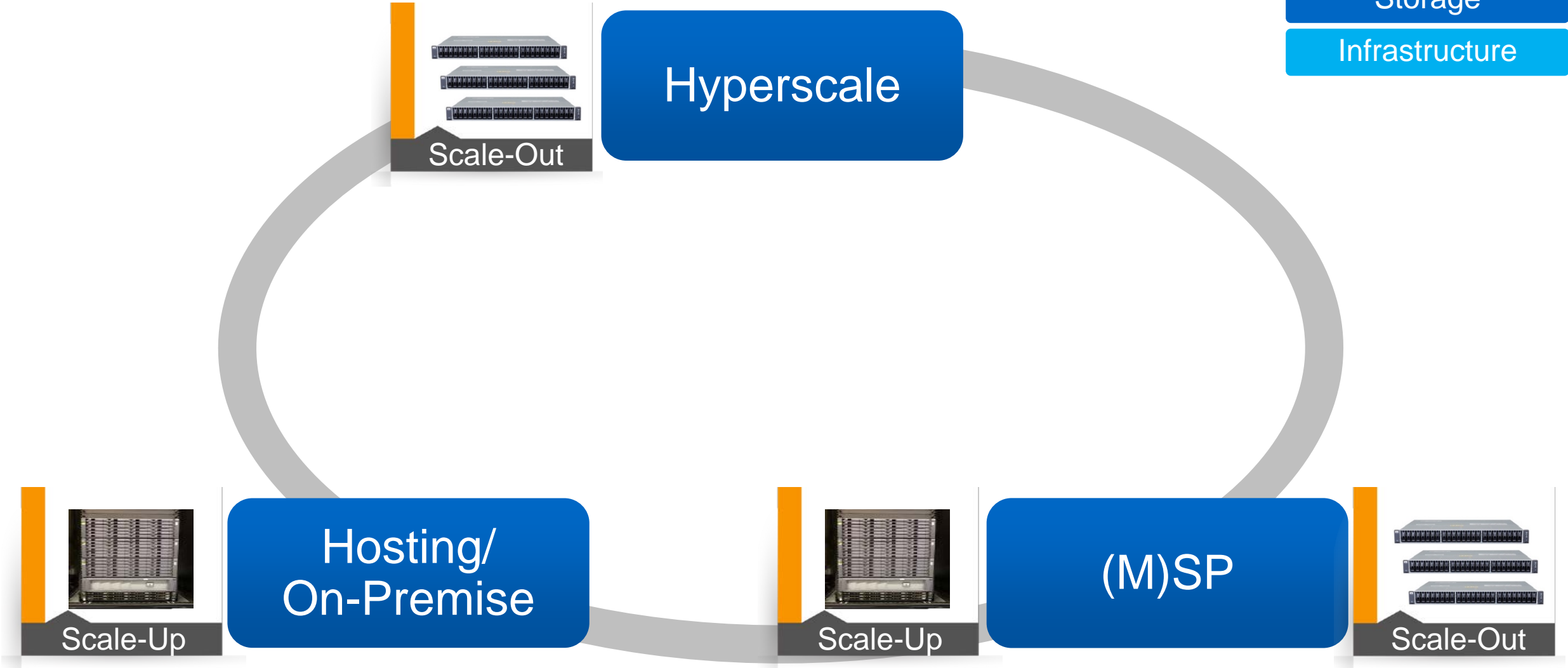
Storage

Infrastructure



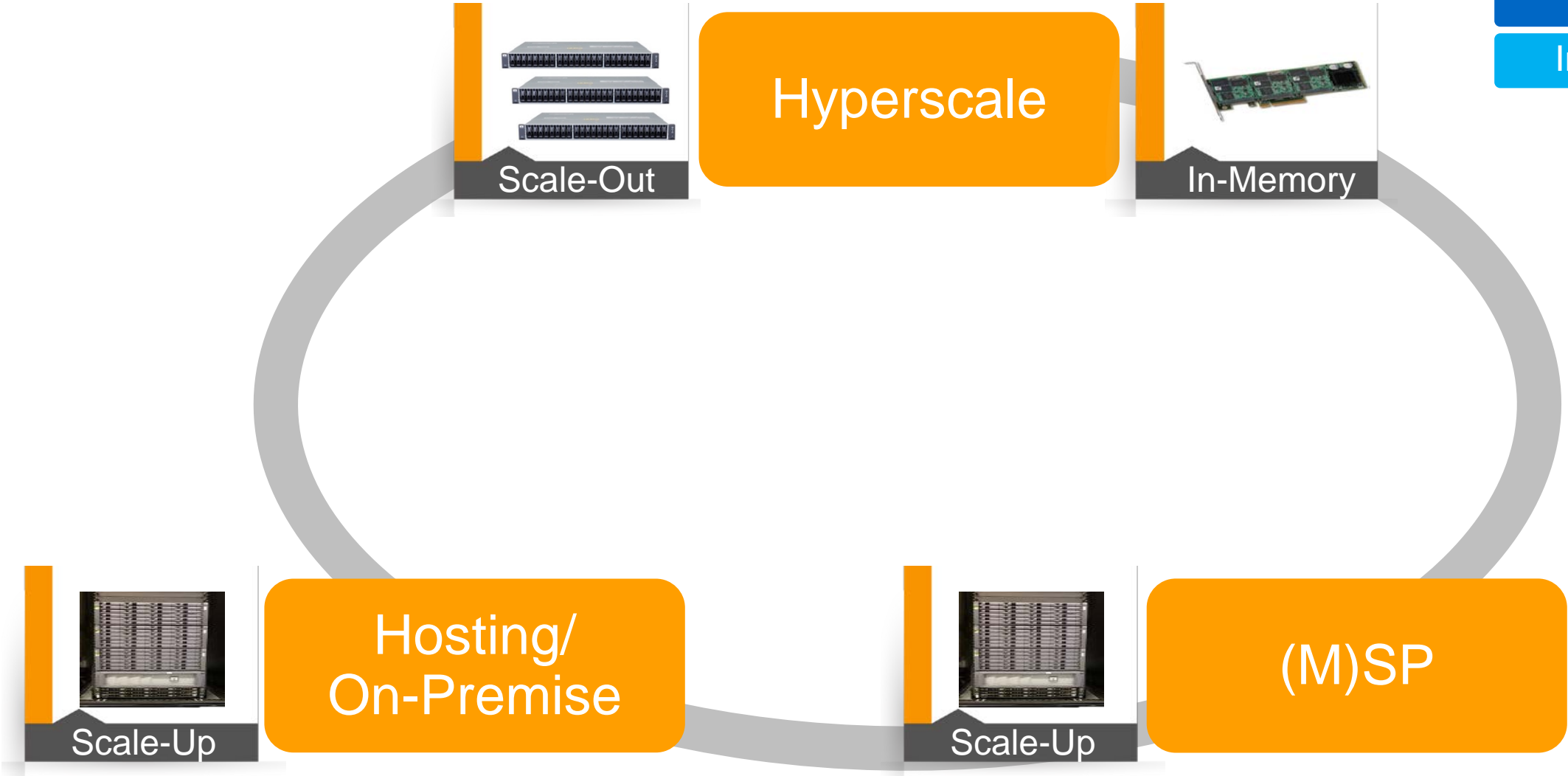
Architecture Biases: Today

- Management
- Persistence
- Storage
- Infrastructure



Architecture Biases: Tomorrow

- Management
- Persistence
- Storage
- Infrastructure





Thank You

