



Making All Flash Data Centers a Reality

Nick Triantos

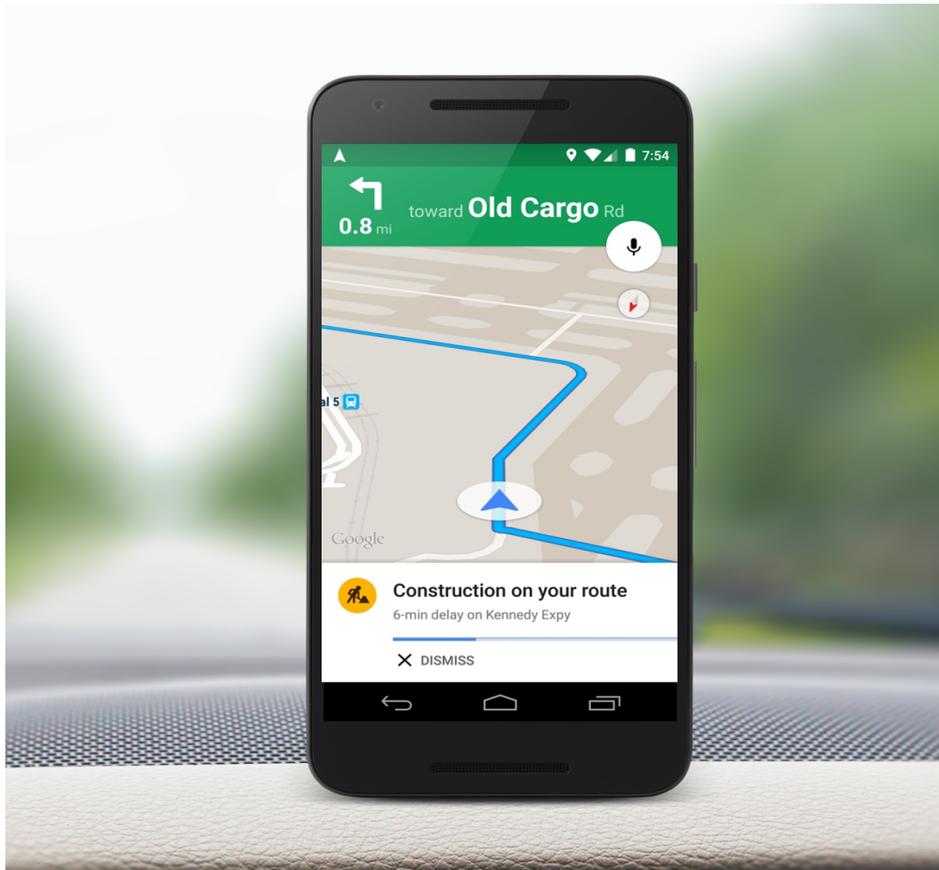
Storage Architect

ntriantos@nimblestorage.com

[@NckTri](https://twitter.com/NckTri)

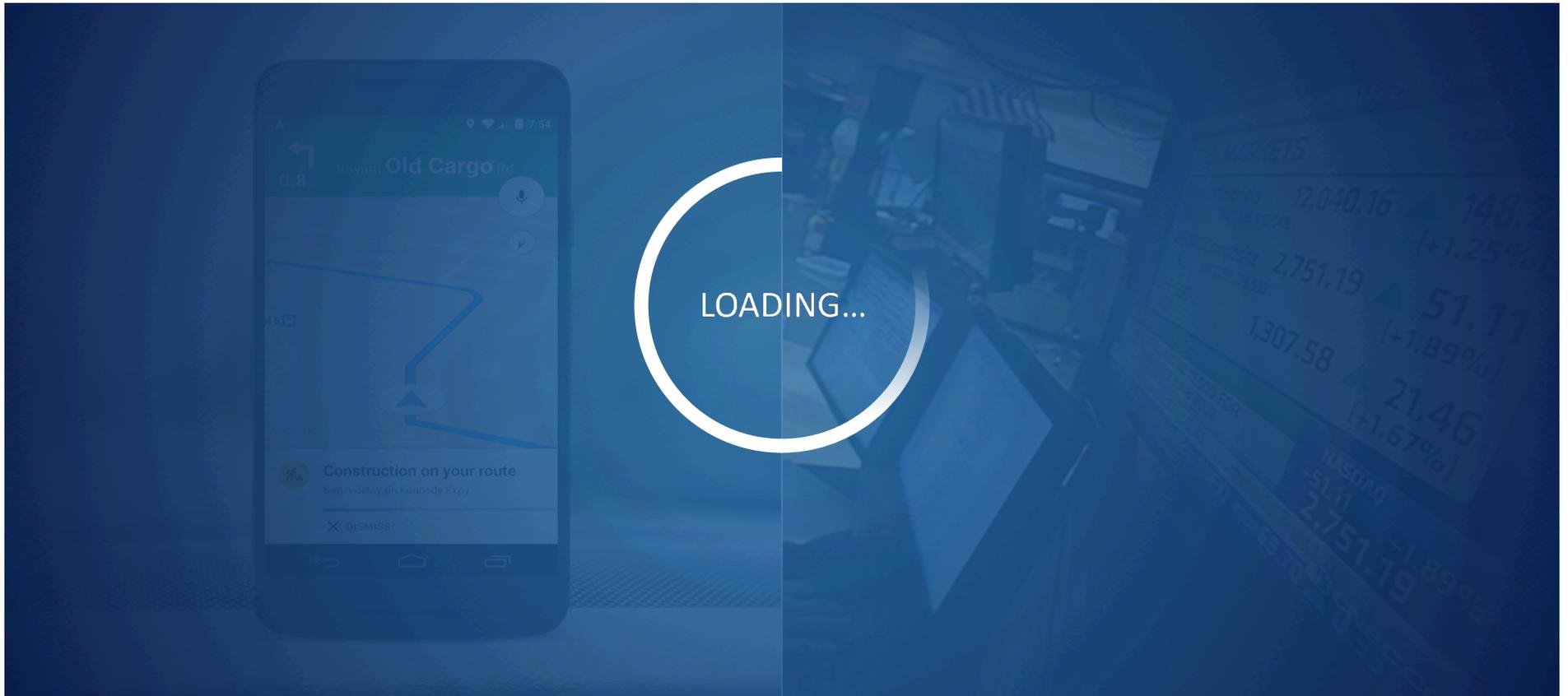


We expect Data to be available...instantly

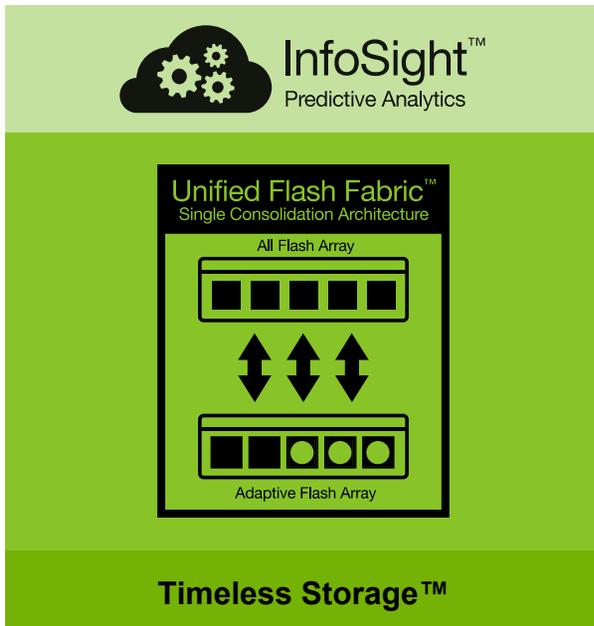


U.S. MARKETS			
Dow Industrials	12,040.16	▲ 148.23	[+1.25%]
NASDAQ Composite	2,751.19	▲ 51.11	[+1.89%]
S&P 500	1,307.58	▲ 21.46	[+1.67%]

Flash Memory **Data Disruption shows down Progress**



Flash Memory Summit **The Industry's Only Predictive Flash Platform**

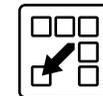


Sheer Performance and Scalability



- 1.2 million IOPS
- 8PB+
- <1ms latency

33%-66% less TCO



- 5X lower footprint

Absolute Resiliency

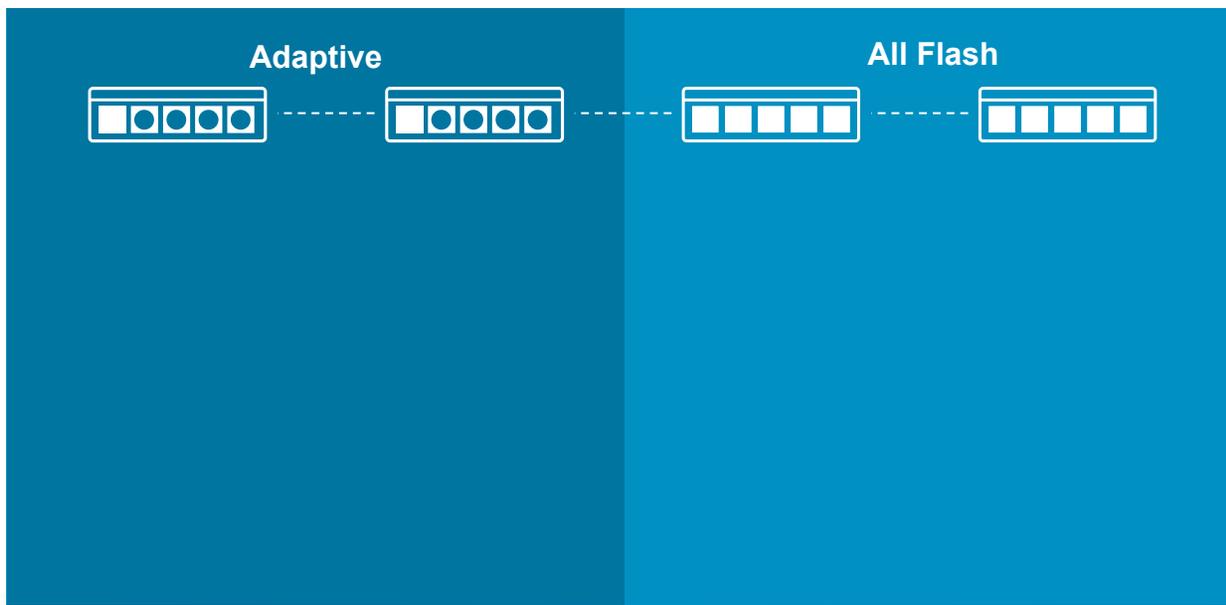


Flash Memory Summit 2016
Santa Clara, CA

Flash Memory Summit **Transparent Application Mobility**



Mix-and-Match All Flash and Adaptive-Flash in a Scale-out Cluster



ORACLE®



VDI



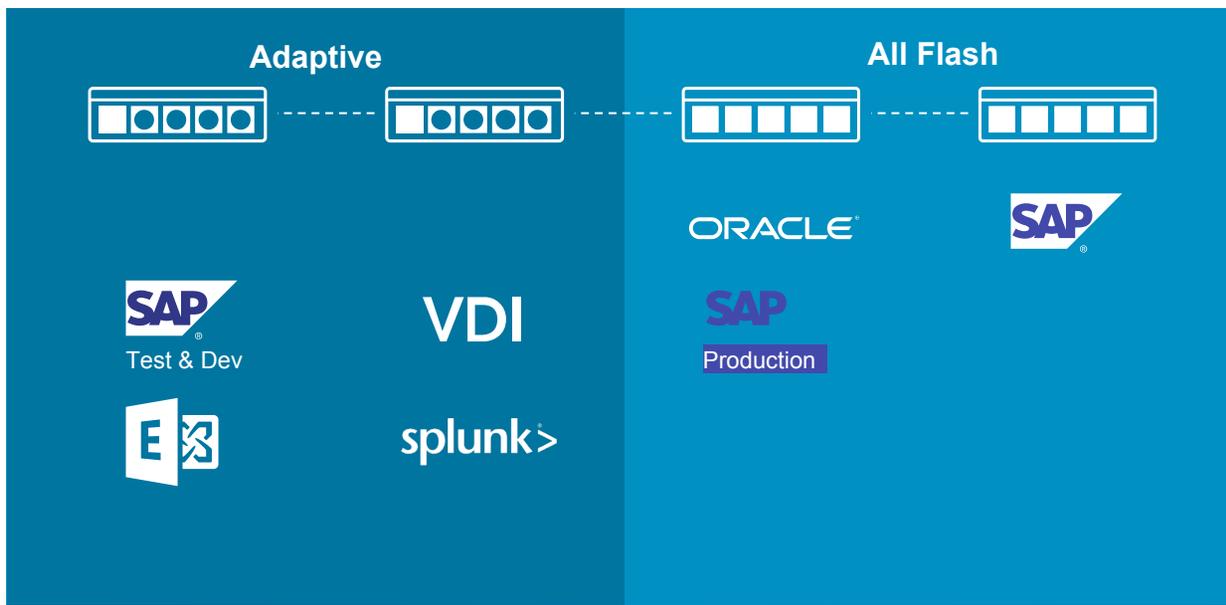
splunk>



Flash Memory **Transparent Application Mobility**



Transparent Application Transition Across All-Flash Array & Hybrid



ORACLE

SAP

SAP
Test & Dev

VDI

E

splunk

Microsoft
SQL Server



Flash Memory 33%-66% Less TCO Than Other All Flash Arrays



Requires 10-30X Less Memory



Cost and Performance Optimized for 3D-NAND



5X or More Data Reduction



Backup, DR and Archival at a Third of the Cost





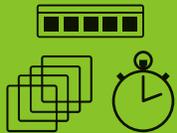
Non-Stop Availability

Measured at less than 8 seconds a month



Triple+ Parity RAID

Tolerate three simultaneous drive failures plus Intra-Drive protection and integrated sparing



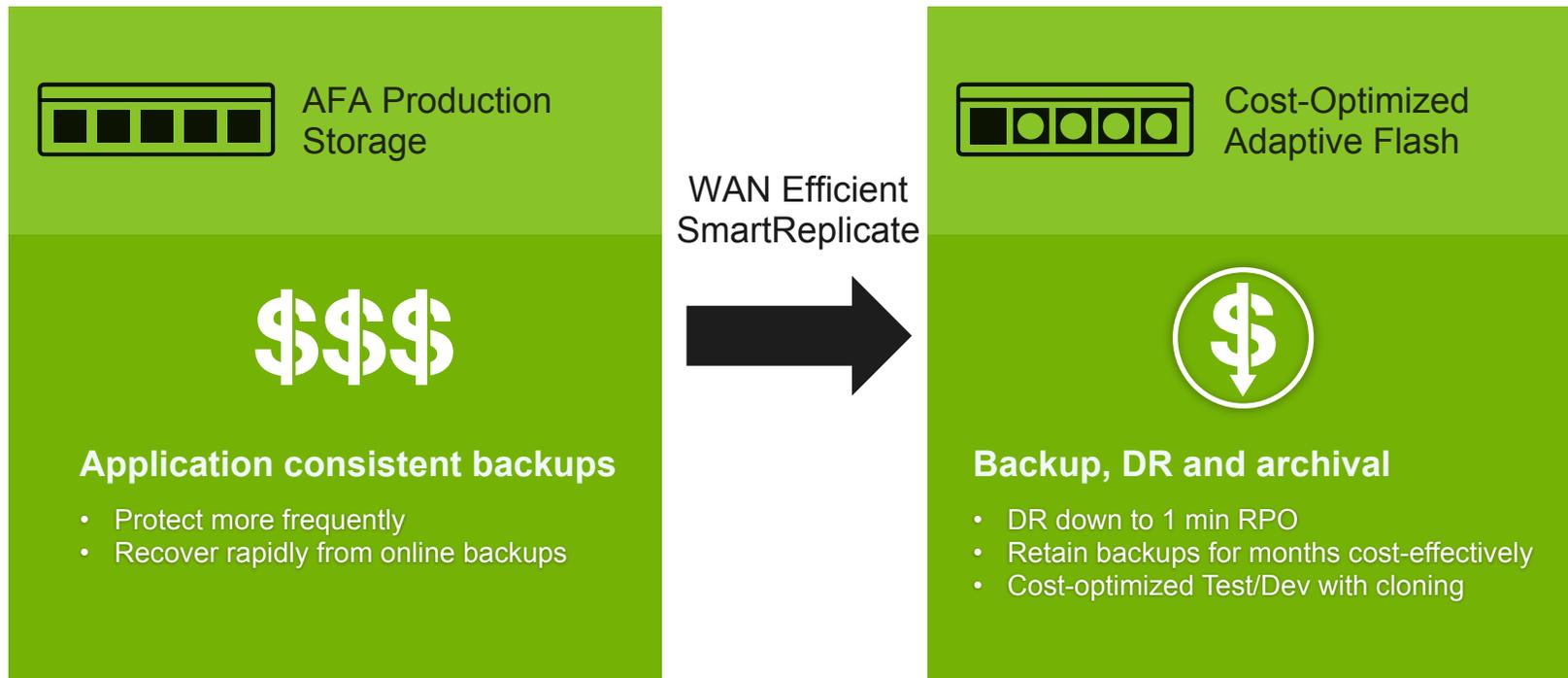
Integrated Data Integrity & Protection

Frequent application consistent Backups via SmartSnap Protection from Lost Writes, Mis-directed Writes & Reads

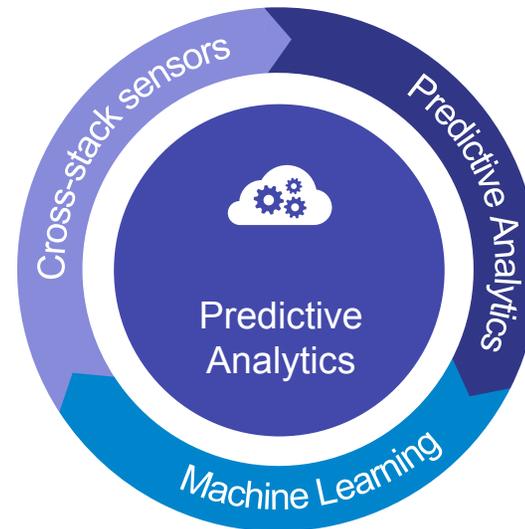
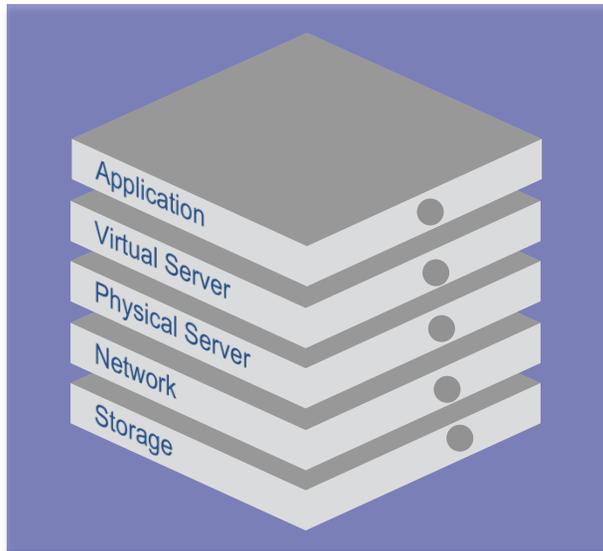


SmartSecure Encryption

Application-granular encryption and secure data shredding

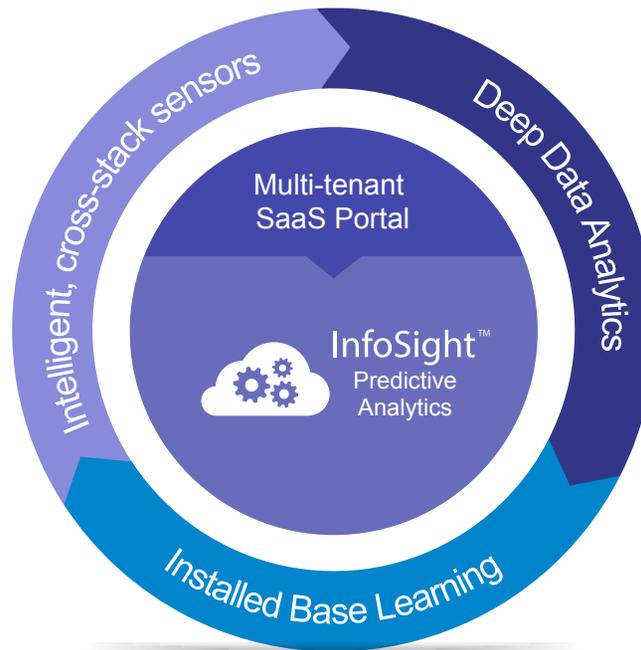


Every week InfoSight Analyzes more than a Trillion Data Points



Non-Stop Availability with InfoSight Predictive Analytics

- Prevent issues and avoid downtime
- Cross-stack Rapid Root Cause Analysis
- Predict future needs and simplify planning



>99.9997%

Measured uptime

9 out of 10

Issues detected before you do

<1 minute

Hold time to speak to level 3 engineer

Issue vSphere initiator sends incorrect SCSI response to Storage		
Impact	Solution	Result
10x Higher Latency	Mitigated risk by Blacklisting 600 systems that would otherwise hit Performance degradation	2PB data delivered at 1ms Latency that would otherwise have taken 10x longer

Bad Host NIC causes High Latency



Issue | Strange Host Latency Behavior

Impact

**Sporadic
High
Latency**

Solution

**End-to-End
Correlation**

Identified specific pattern of
Network Retransmits due to
Bad Server NIC

Result

**NIC
Replaced on
Server**

Server & Hypervisor
vendors unable to resolve
issue

Providing Security Across the Nimble Install Base

! Issue | Open ports on the Internet will undergo brute force attacks

Impact	Solution	Result
Malicious cyber attack DOS, Data theft (IP, Personal data, etc.)	Ethical hacking techniques employed to identify at-risk systems immediately	400TB data at-risk of brute force attack at 100 customers now protected



Thank You

Flash Memory Summit 2016
Santa Clara, CA