HPE : Data Centre Failover and HADR Solution

Zavvy Chan & Hayden Chow

Hewlett Packard Enterprise

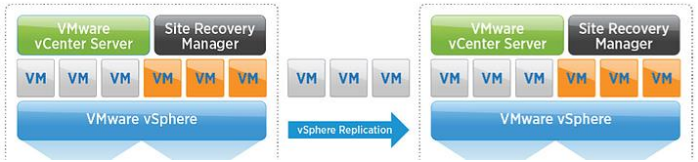
Data availability and protection:
Data Center Replication Level

Hewlett Packard
Enterprise

DATA CENTER REPLICATION LEVEL 1 -3 —DATA AVAILABILITY AND PROTECTION

Level I

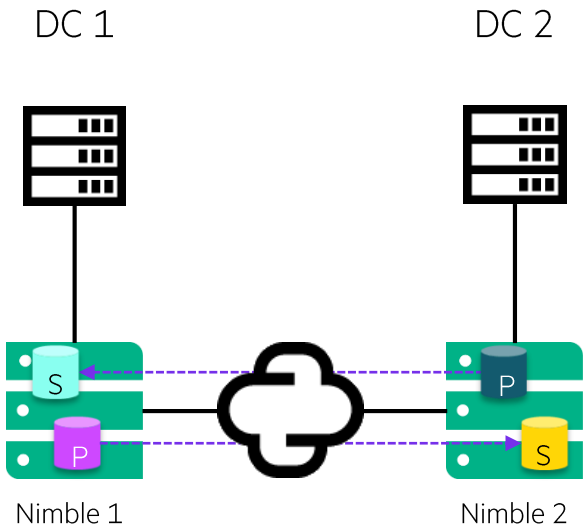
Non-storage level Replication
VM/Host level Replication



RPO = minutes to hours

Level II

Nimble Async Replication

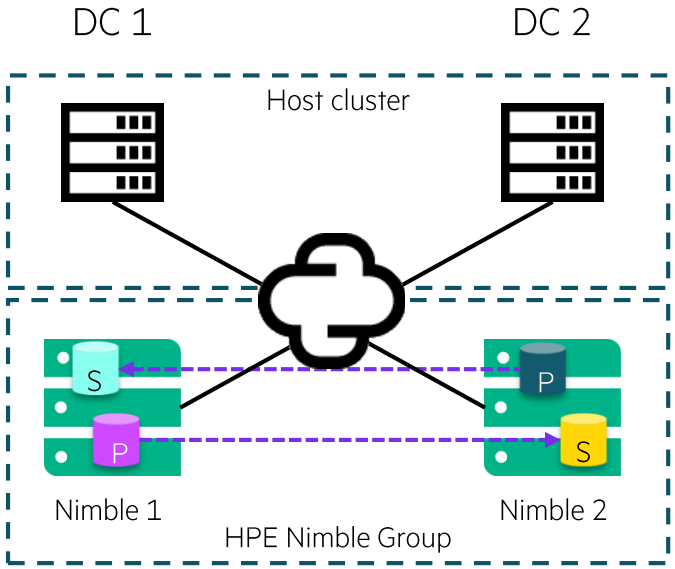


RPO = seconds to minutes

Disaster recovery across continental distances with up to 100 ms RTT

Level III

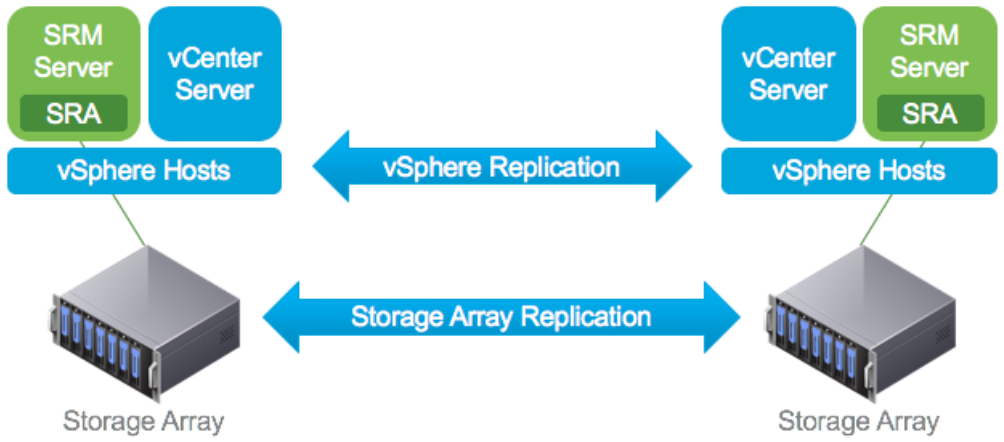
Automatic Data Center Failover
Nimble Peer Persistence



RPO + RTO = 0

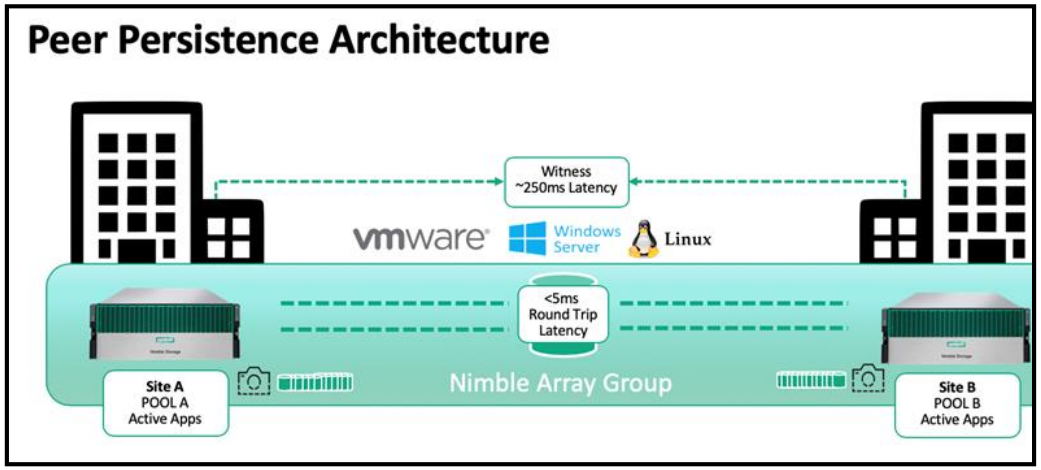
High availability across metro distances with up to 5 ms RTT (~1000 km)

DATA AVAILABILITY AND PROTECTION ENTRY COST



Normal Practice for Level III Replication:

1. Up to HK$1M License and software fee
   -(Replication + DC failover)
2. Technical setting



Nimble Peer Persistence:

1. No license scheme
2. Multi-protocol storage
   -both iSCSI and FC

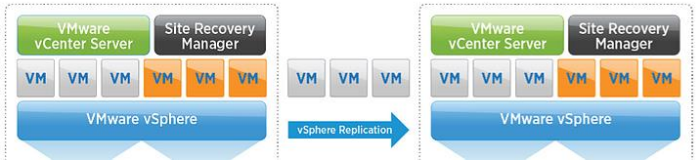
Design Principles for Nimble Sync-Replication

Hewlett Packard Enterprise

DATA CENTER REPLICATION LEVEL 1 -3 —DATA AVAILABILITY AND PROTECTION

Level I

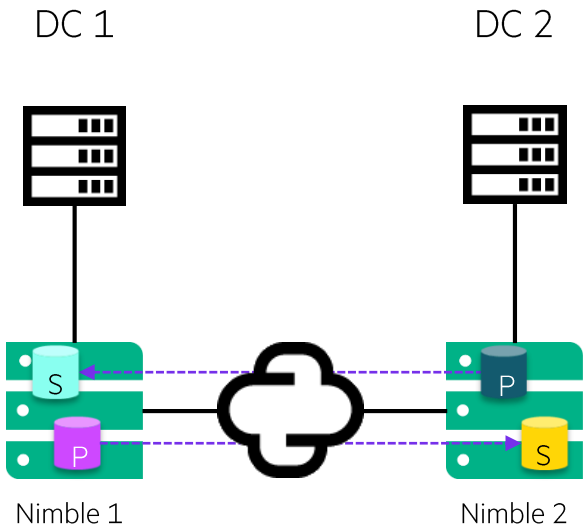
Non-storage level Replication
VM/Host level Replication



RPO = minutes to hours

Level II

Nimble Async Replication

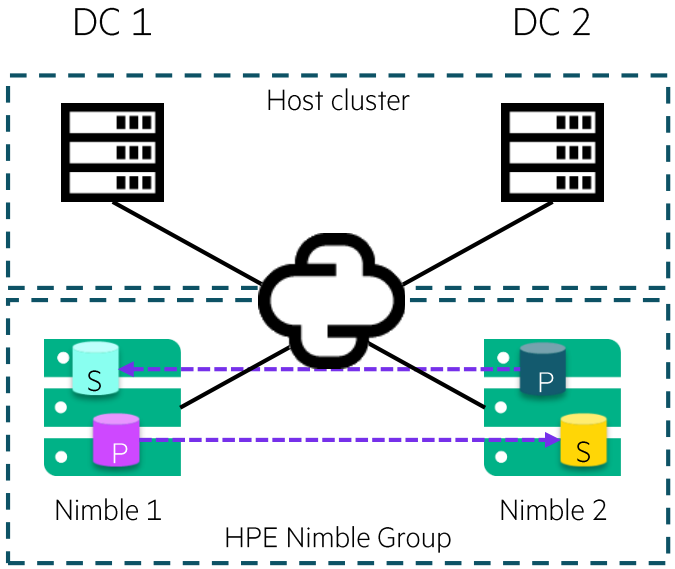


RPO = seconds to minutes

Disaster recovery across continental distances with up to 100 ms RTT

Level III

Automatic Data Center Failover
Nimble Peer Persistence



RPO + RTO = 0

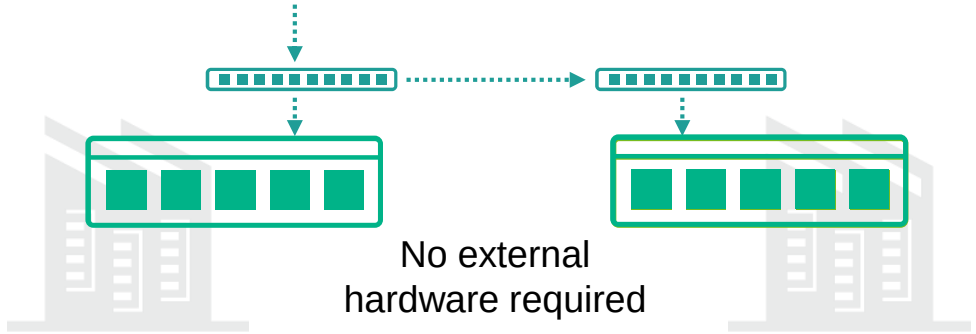
High availability across metro distances with up to 5 ms RTT (~1000 km)

Design Principles for Nimble Sync-Replication

Granular & Efficient

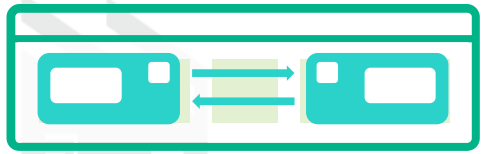
Volume level option (not entire system, or “pools”)

Built-In Software Feature



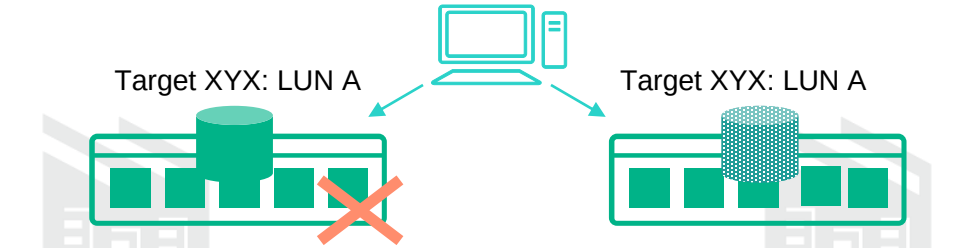
No external hardware required

Complements Hardware HA



Site level HA prevents equipment failure from becoming site failure

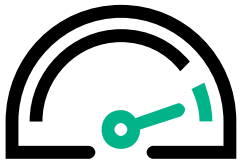
Transparent Replication



Identity is mirrored to allow transparent failover

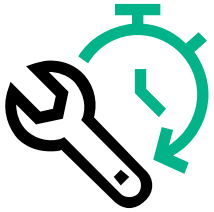
Summary of Peer Persistence On Nimble Storage

Always on availability



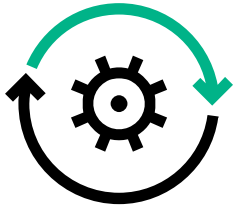
- **Online all the time** withstanding failover of array, fabric, or even complete site
- **Guaranteed resiliency** with peered systems delivering over 6-9s guaranteed
- **Advanced data integrity** with Triple+ RAID and Cascade Multistage Checksums

Protection simplicity



- **Set it and forget it** with integrated data protection
- **Free insurance policy** with no software licensing required
- **Save time, money, and bandwidth** by syncing only the volumes needed

Active-active mobility



- **Freedom to move** data non-disruptively
- **Get value** from the second site instead of letting it go idle

Use Case Sharing

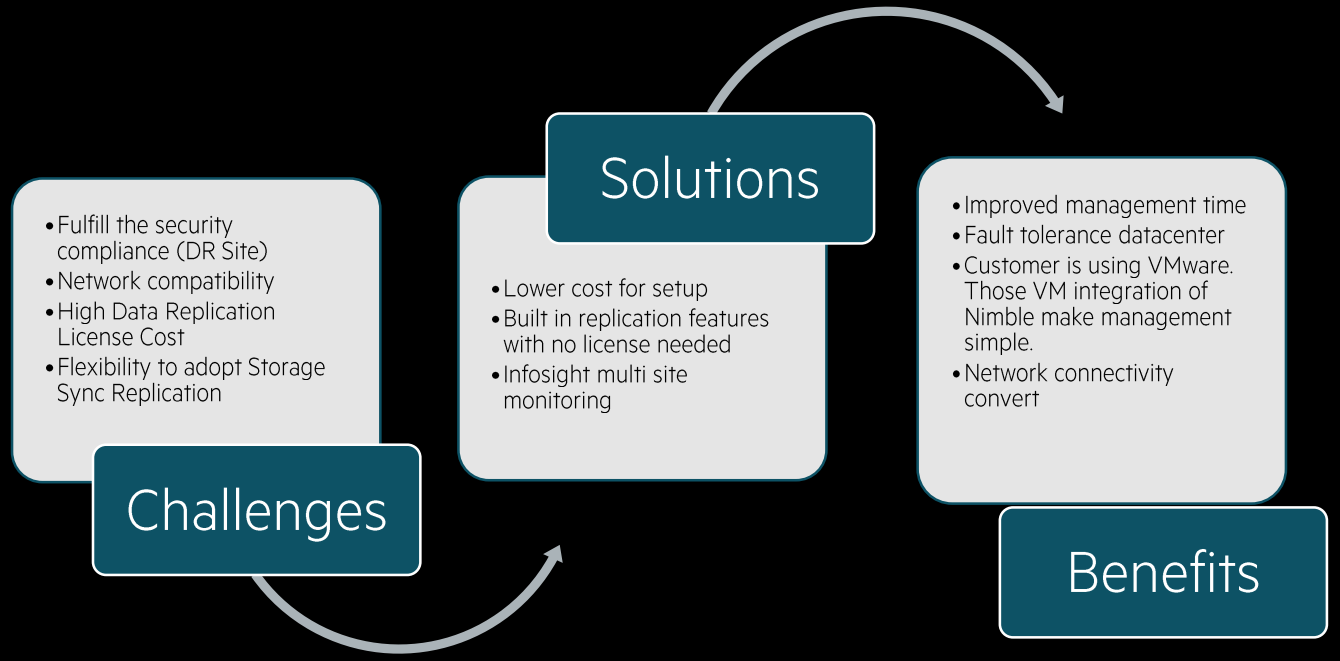
A worldwide leading Asset Management company

Hewlett Packard Enterprise

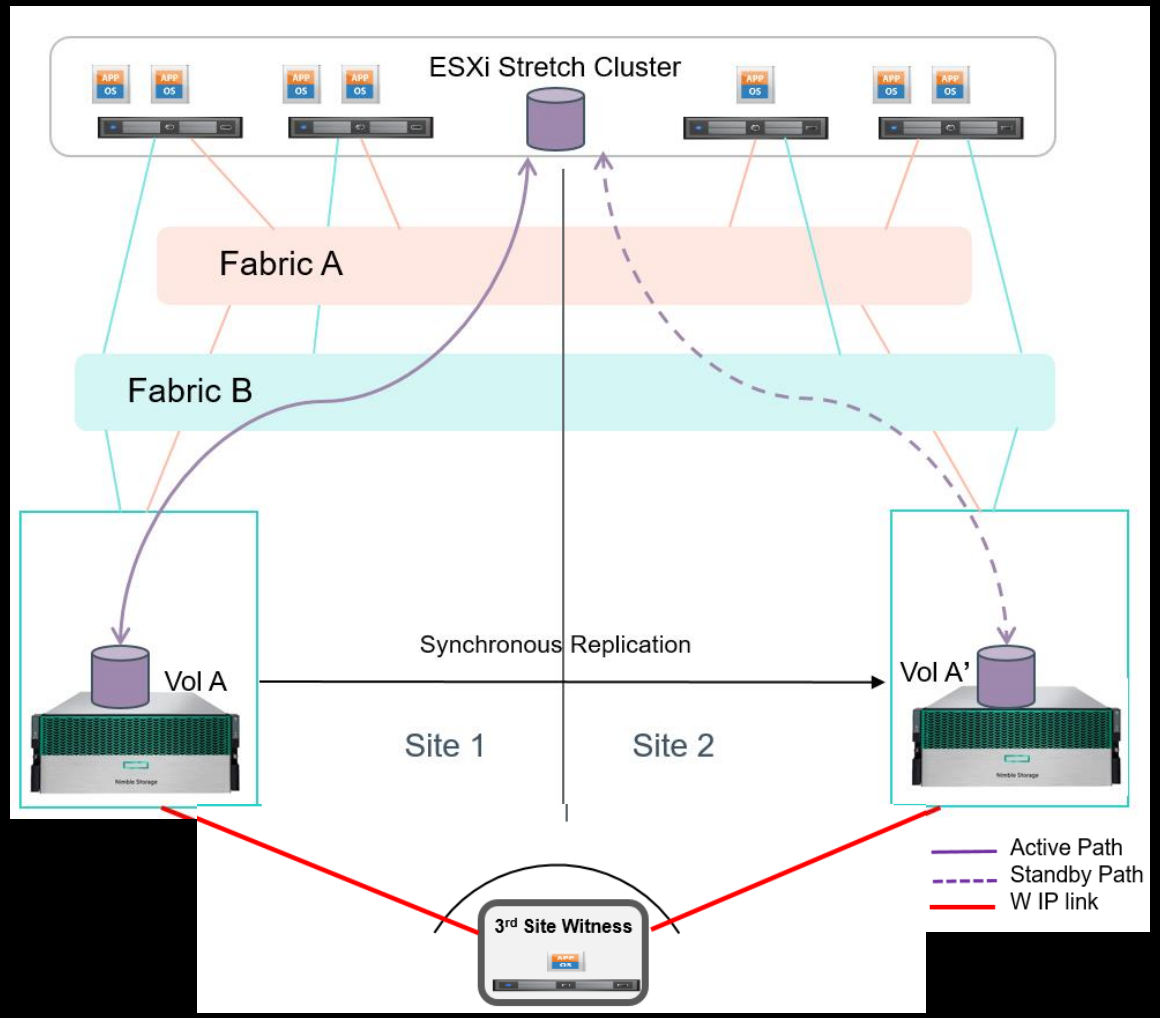
USE CASE SHARING – (ACTIVE-ACTIVE DATACENTER)

Company Background

- A worldwide leading Asset Management company in Europe
- Deployed HADR (High Availability and Disaster Recovery) in HK Branch



USES CASE SHARING – ASSET MANAGEMENT (ACTIVE-ACTIVE DATACENTER)



Items they bought for DR

- 1 x Nimble AF Series on DR Site
- 2 x DL380 Gen10 as VM Host
- 2 x 10 GB Network Switches

Advantages of adopting Nimble

-seamless data replication with Nimble Peer Persistence Technology

-Simple 2 sites management with InfoSight support and monitoring

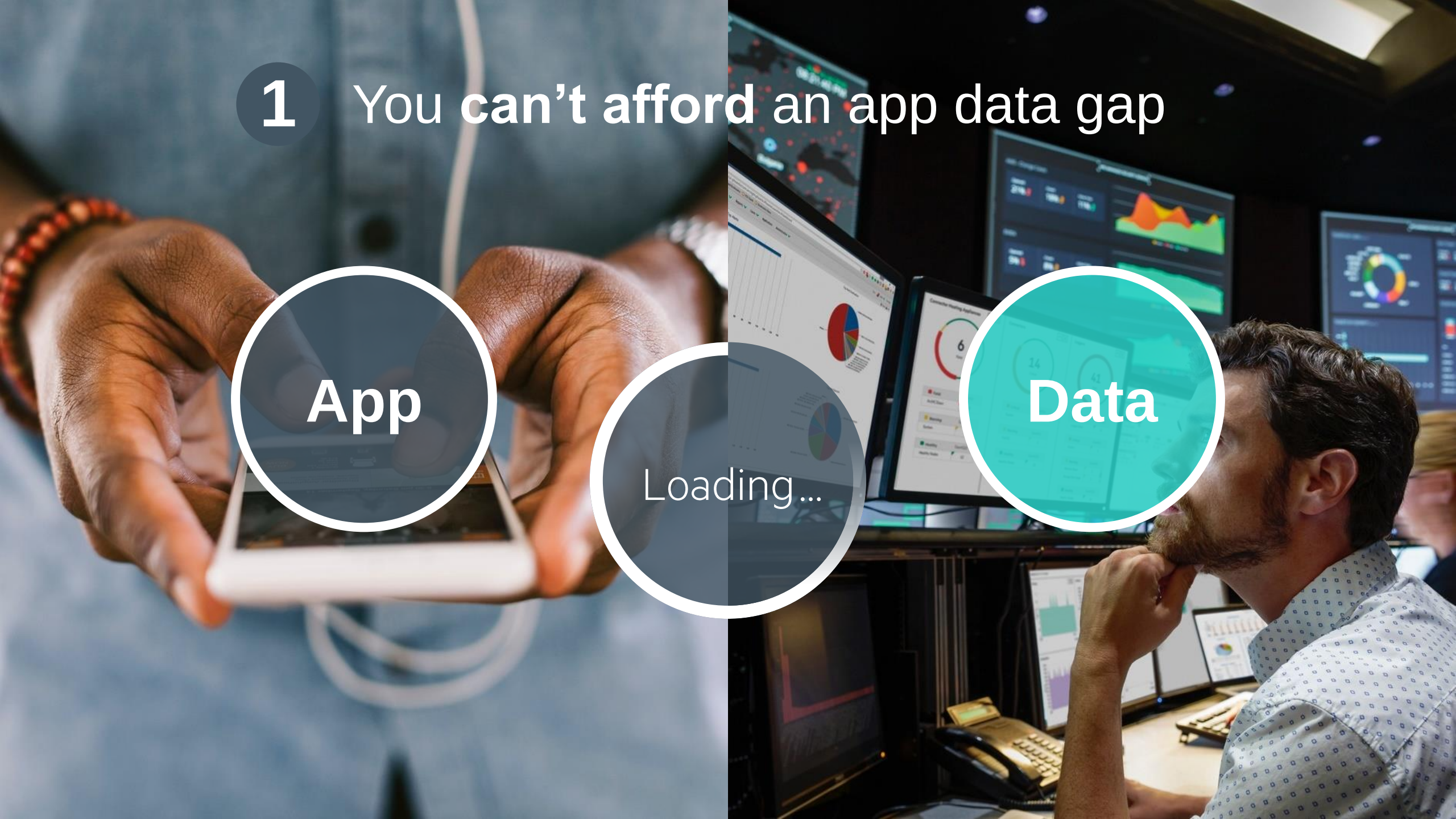
-Fulfill 0 RTO on fault tolerance datacenter design

-No License cost on replication

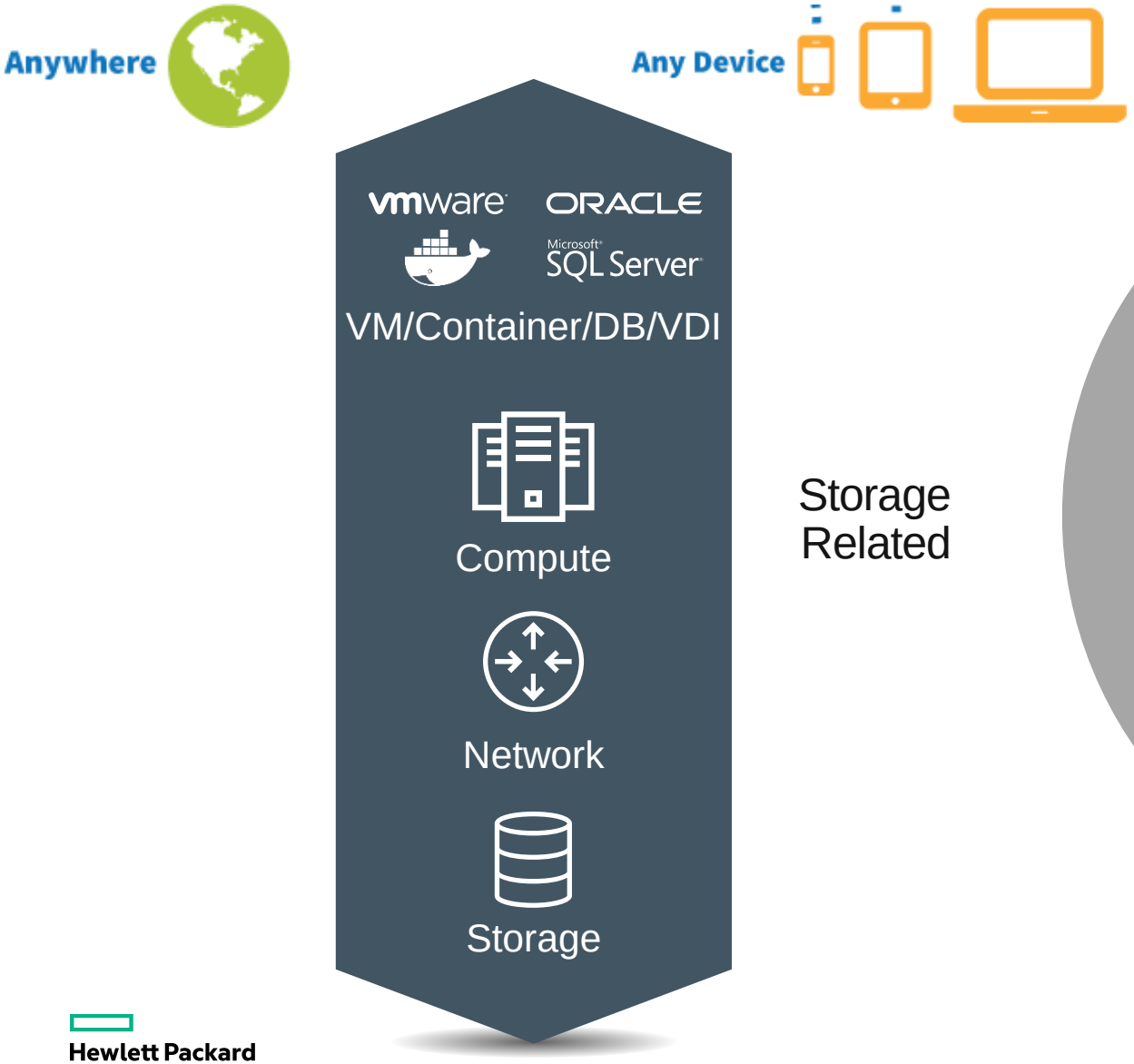
HPE AI Infosight:
Nimble Dater Center Failover

Hewlett Packard
Enterprise

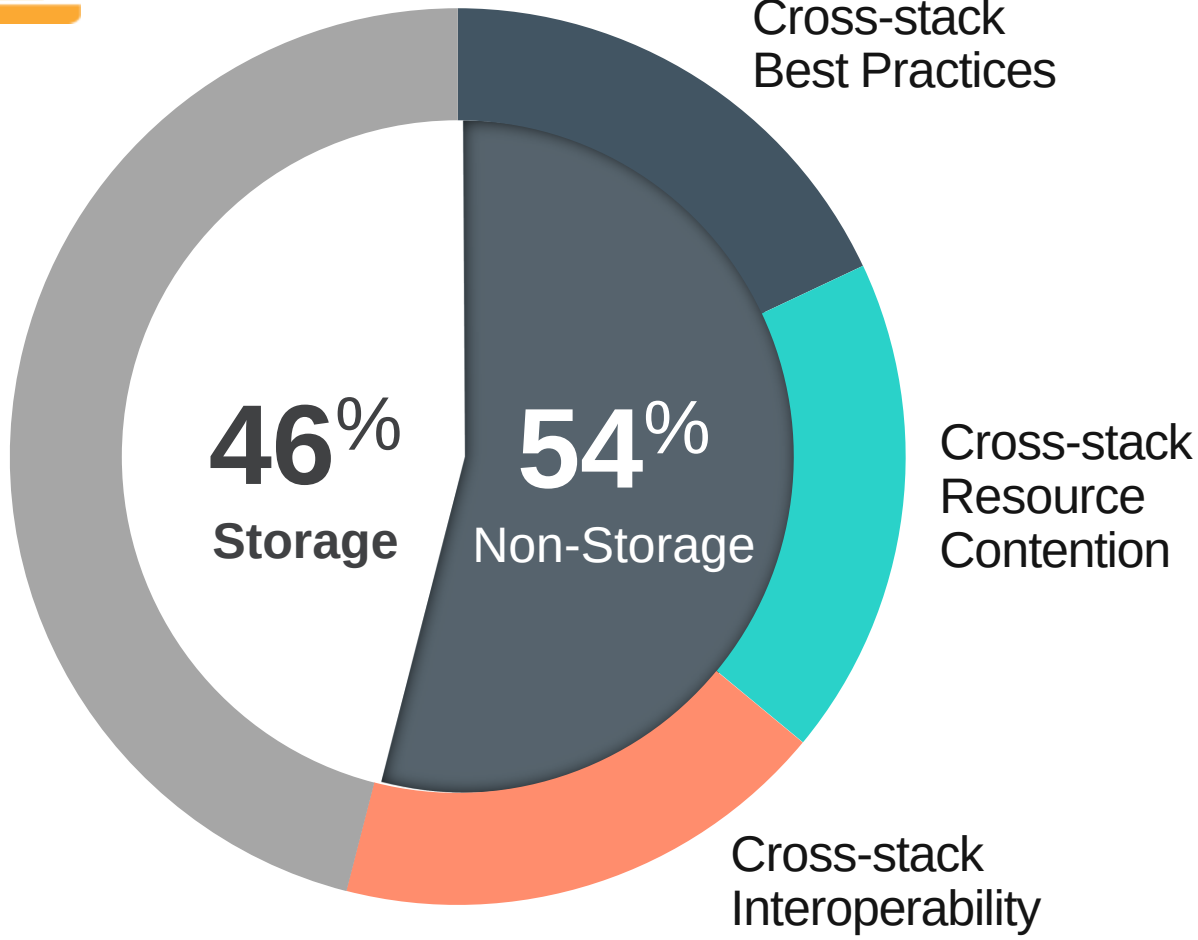
1 You **can’t afford** an app data gap



There is no one cause… and it's too complex for humans to fix



Storage Related



Source: InfoSight analysis HPE customer base

Hewlett Packard Enterprise

Endless fire-fighting with lost nights and weekends

1. Reacting to unexpected problems
2. Spending countless hours interpreting graphs and logs
3. Calling vendor support adds to the frustration

Disruptions, business impact, and wasted time

Hewlett Packard Enterprise

Our Vision is the Autonomous Data Center

Self-**Managing**

Self-**Healing**

Self-**Optimizing**

Storage

Servers

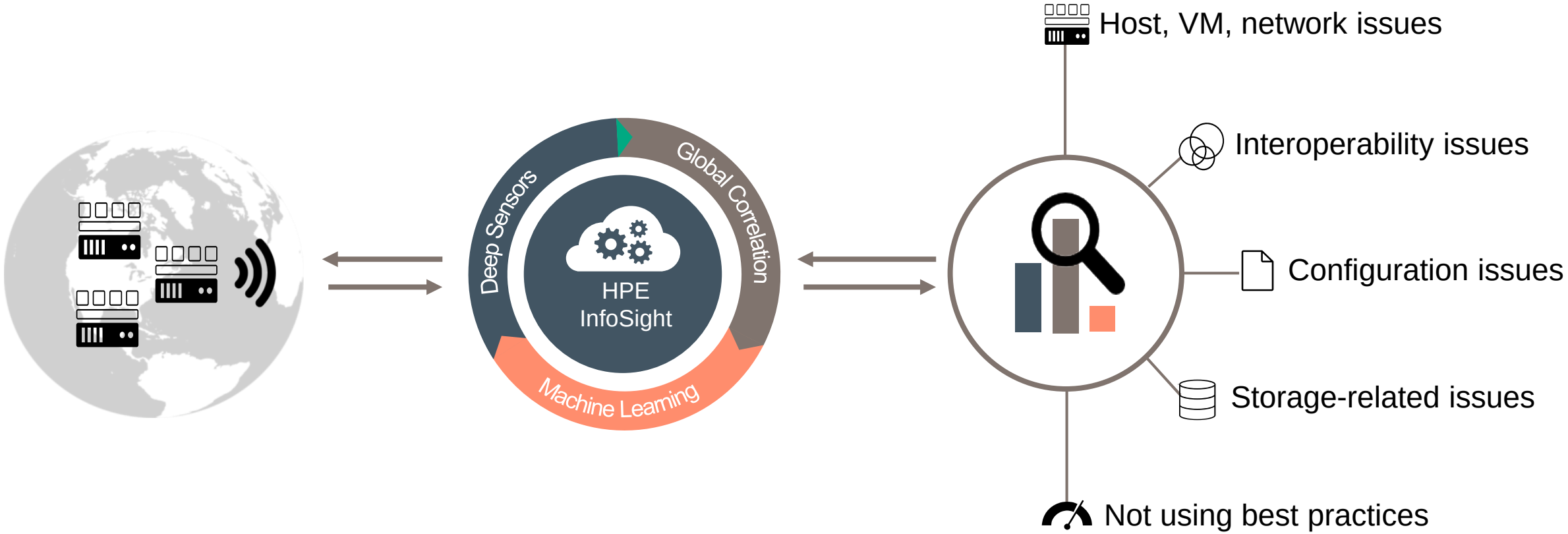
Networking

Converged

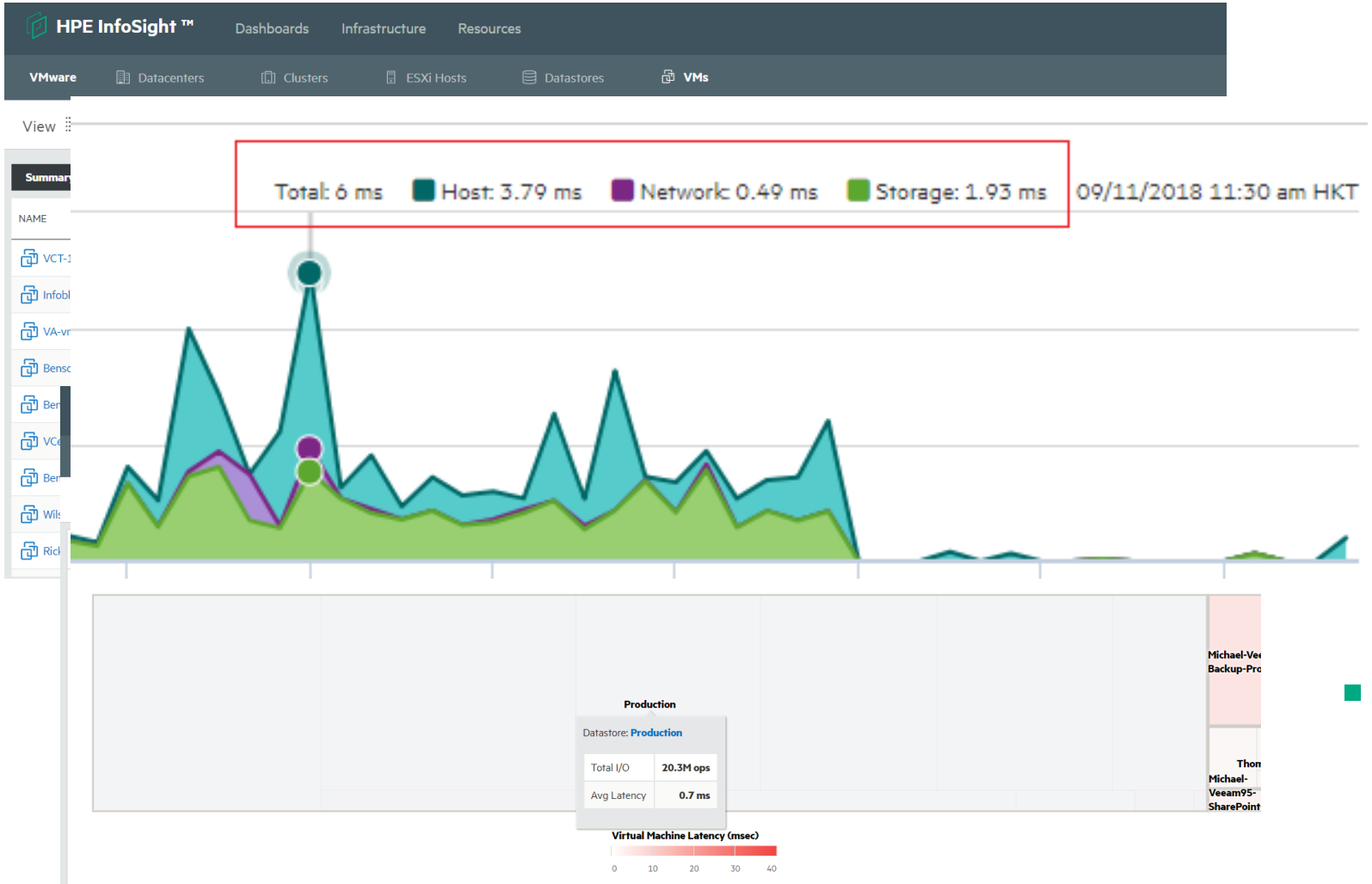
Powered by **HPE InfoSight:** AI for the Data Center

See Once, Prevent for All

Learning from the installed base



Visibility Beyond Storage



InfoSight VMVision pinpoints VM-related issues

InfoSight VMVision gives visibility up to the VM layer

Determine VM latency factors: storage, host or network

Take corrective action on noisy neighbor VMs

- Reclaim space from underutilized VMs

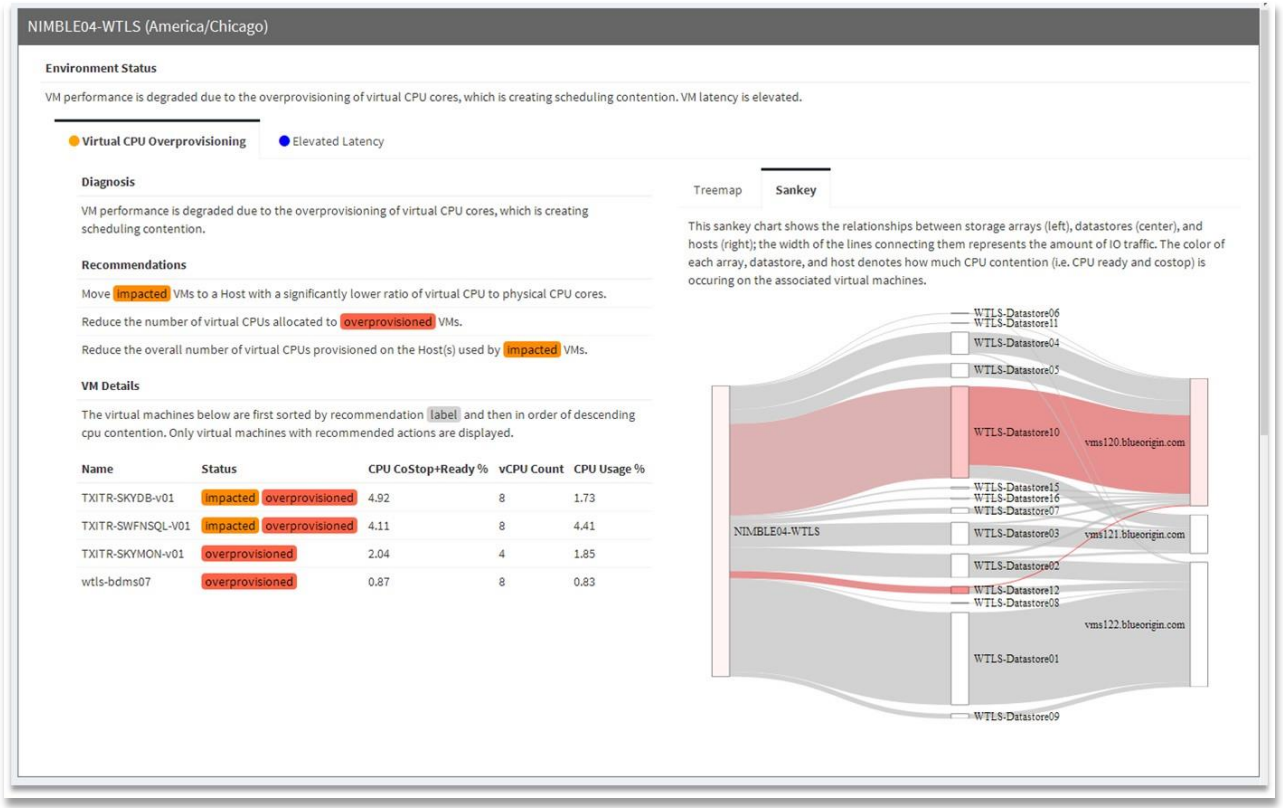
Hewlett Packard Enterprise

Cross-Stack Recommendations

InfoSight for HPE Nimble Storage - Extending AI-Driven decision making

CROSS-STACK RECOMMENDATIONS FOR VMWARE NEW

- Optimize VM Performance by diagnosing root cause of performance bottlenecks
- On the Fly, Implicit and Explicit Recommendations
- Global Predictive Intelligence



HPE InfoSight: AI for the Data Center

Differentiated Impact

Predictive Support Automation

AI-Driven Management

Unique Product Experience

Cloud-Based Platform

Predictive Analytics Engine

Global Learning

Recommendation Engine

Cross-Stack Telemetry

vmware

Compute

Network

Storage

Hewlett Packard Enterprise

Support

InfoSight for Nimble Storage

SUPPORT

1. **No More Escalations**
   Automated *Level 1 and 2 issues*

2. **Rapid Root Cause**
   Analytics with full stack expertise

3. **We'll Call You**
   Never worry about who to call

Hewlett Packard Enterprise

Transformed Data Center Autonomous Experience

Efficiency
Immediate access

Support you actually like

86%

Issues automatically opened and resolved

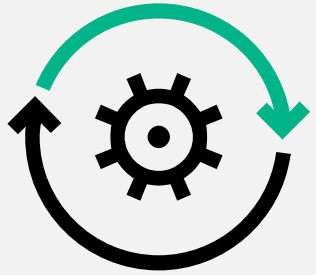
Accuracy
Predictive analysis

Effortless management

79%

Lower storage operational expenses

Security
Reduce data risk, Monitor only



Self-improving infrastructure

99.9999%

Guaranteed availability

Source: HPE Nimble Storage

Hewlett Packard Enterprise

Ready for demanding applications

Always-On Availability	Guaranteed 6x9s storage availability
CPU-Driven	Guarantee IOPS Always on function features (Inline-Deduplication & Compression)
Fault Tolerant	No single point of failure, hardware redundancies with the ability to tolerate 3 simultaneous drive failures
Data Protection Built-in	Backup more frequently and recover faster with application consistent snapshots and advanced replication
Encryption Built-in	Application-level encryption and secure data shredding

Hewlett Packard Enterprise

Key take-away for Nimble P.P.

– Better flexibility on volume level replication

– Built-In Software Feature, no external hardware required

– No HADR Zero-recovery license

– Multi-protocol, can switch iSCSI to FC, or switch FC to iSCSI

– Simple 2 sites management with InfoSight support and monitoring