



Data Protection 2015-2025: A Fundamental Strategic Transformation

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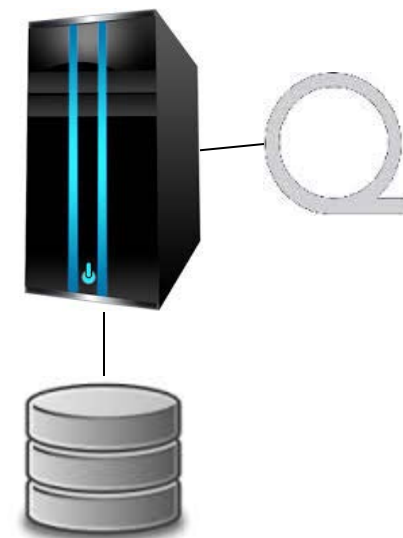
By 2025, backup and recovery will have ceased as a discrete IT activity for the majority of organizations.

Today's Discussion

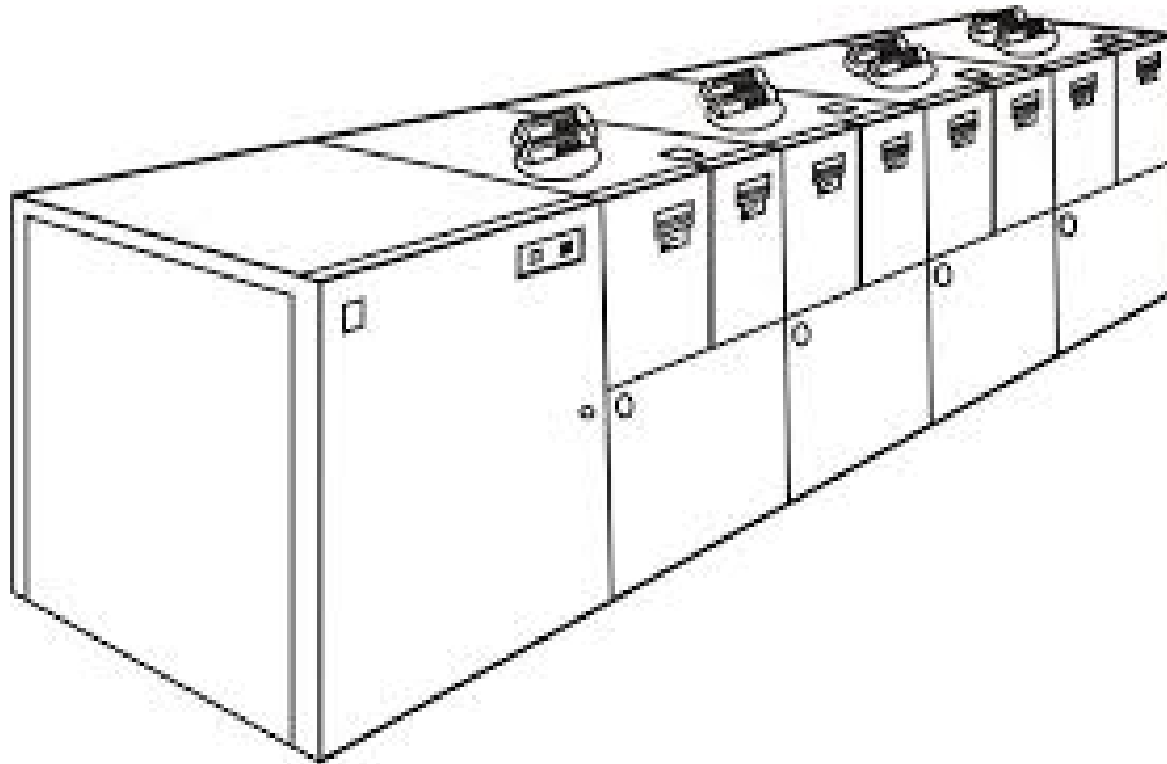
- A little historical perspective
- The drivers of fundamental change
- How data will be protected without B/R
- The looming “gotcha”
- Is there any hope for backup products?

First, a didactic journey...

- The First Epoch of Storage:
 - ◆ The dawn of computing – 1970's
 - ◆ Mainframe era
- Each mainframe was the center of its universe
- All storage was direct-attached and dedicated
- Standalone tape drives for backup

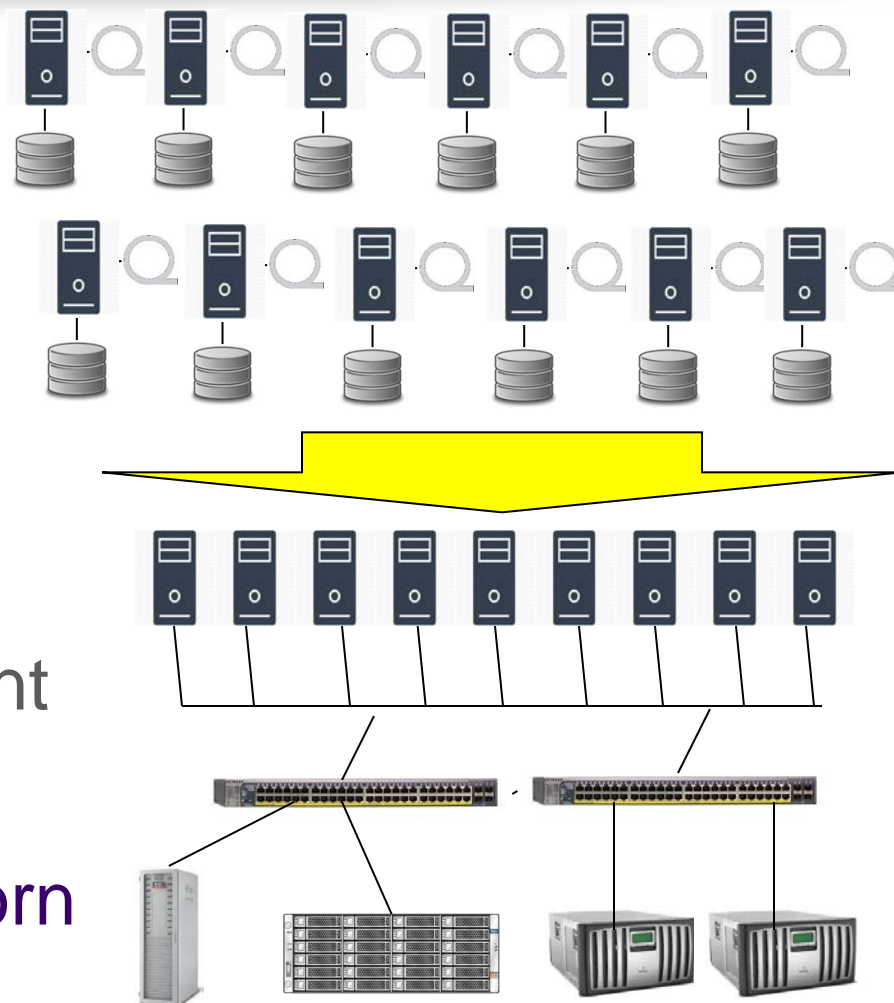


Quick Survey



Innocence Shattered...

- The Second Epoch of Storage
 - ◆ 1980s to 2010
 - ◆ Client-server
- Proliferation driven by business units
 - ◆ DAS grossly inefficient
 - ◆ Backup a nightmare
- Thus, SAN/NAS was born



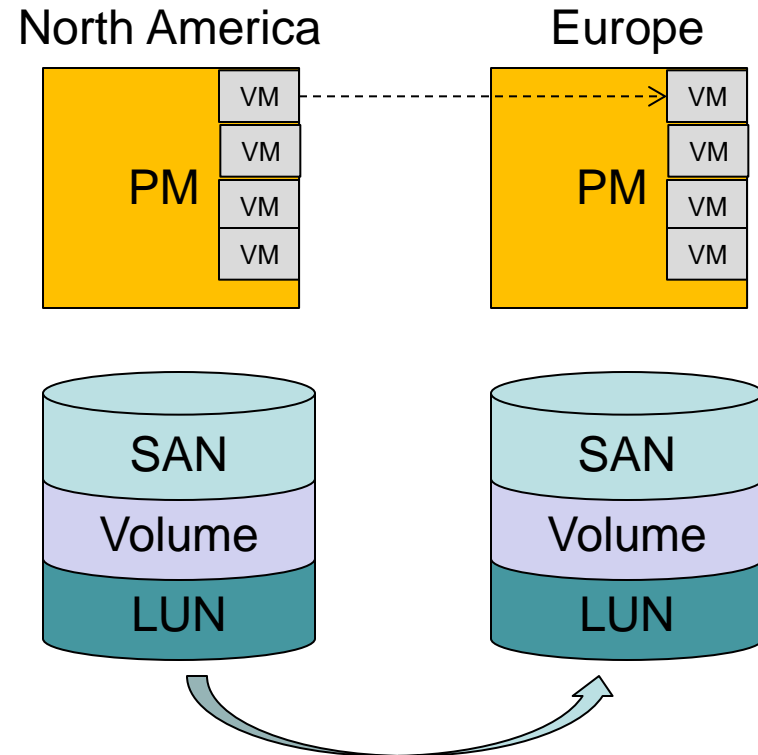
Storage Mantras of the 1990s-2000s

Consolidate!

Standardize!

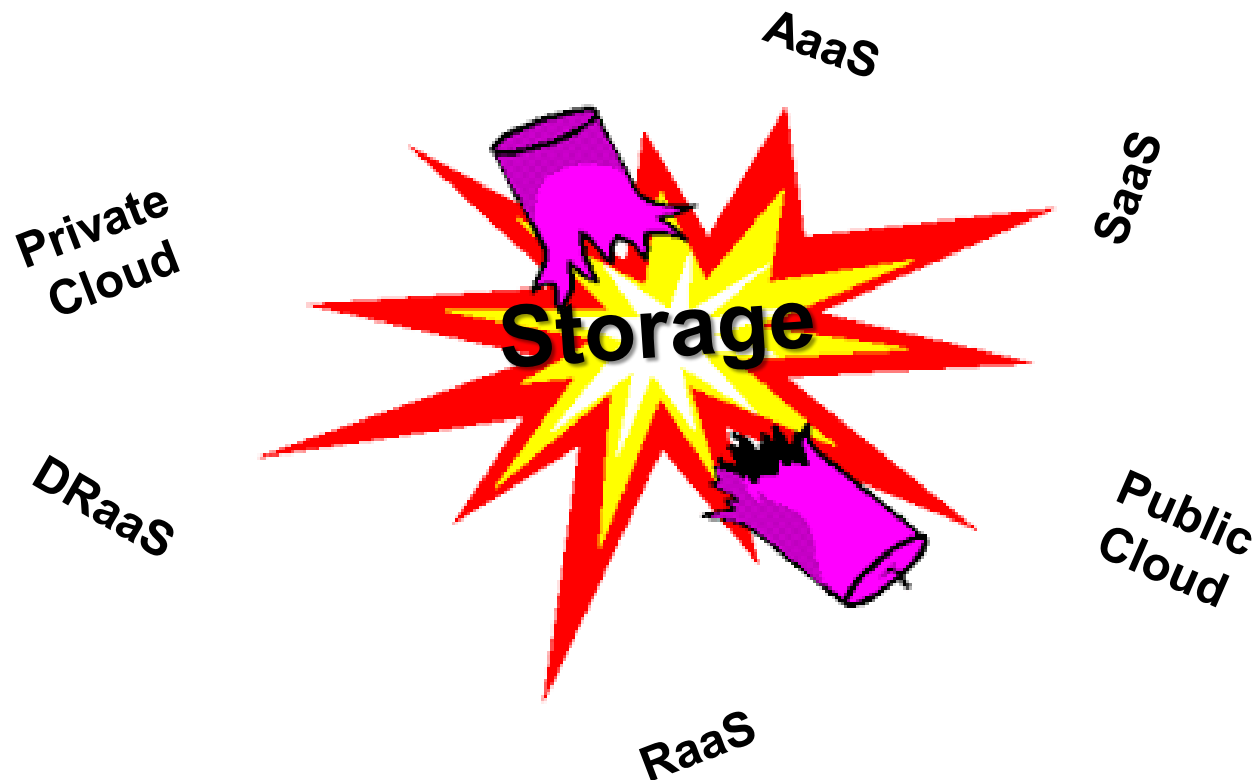
Eliminate Silos!

- ▶ **The Third Epoch of Storage**
 - ◆ Virtual Computing
 - ◆ Extending to the cloud
- ▶ **Cloud proliferation driven by business units**
 - ◆ Makes backup problematic
 - ◆ SAN/NAS not agile



And now...

- ▶ After 20 years of consolidating, standardizing and eliminating silos...



Next Bold Prediction

By 2020, SAN/NAS will be legacy architectures.

- ▶ 69.7% of x86 infrastructure is virtualized
 - ◆ Growing to 71.7% by 2018
- ▶ Recent SMB survey
 - ◆ 61% RTO < 4 hours
 - ◆ 37% RTO < 2 hours
 - ◆ 61.7% RPO < 1 hour
 - ◆ 53% use the cloud, 35% plan to do so within 12-24 months

◆ IDC Definitions

- ◆ Archive as a Service – Capacity optimized offsite storage
 - › May include tape (LTFS)
 - › May include search/discovery/litigation services
- ◆ Backup as a Service – Capacity optimized disk offsite disk repository
 - › Direct, hybrid, PBBA
- ◆ Recovery as a Service – BaaS plus on-demand compute/network services necessary to recover and application
 - › Few added services
 - › Not much different from IaaS
- ◆ DR as a Service – RaaS plus added services around run books, personnel plans and test plan/execution

➤ Archive as a Service (AaaS)

- ◆ \$299.64 (2015) growing to \$397.82 (2018)
- ◆ 9.03% 5 yr CAGR

➤ Backup as a Service (BaaS)

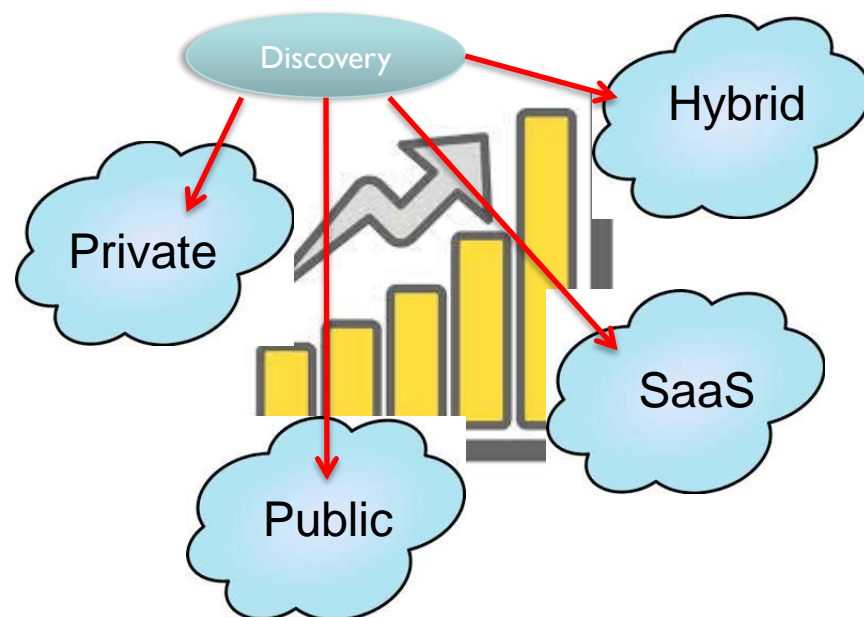
- ◆ \$466.97 (2015) growing to \$639.34 (2018)
- ◆ 9.65% 5 yr CAGR

➤ Recovery as a Services (RaaS)

- ◆ \$206.25 (2015) growing to \$383.60 (2018)
- ◆ 21.44% 5 yr CAGR

1. SLAs are ever more stringent
2. IT managers increasingly need to be able to query the data (meta data)
 - a. Discovery SLA becoming more common
3. Organizations desire more self-service recovery
4. IT managers want to make backup “somebody else’s problem.”

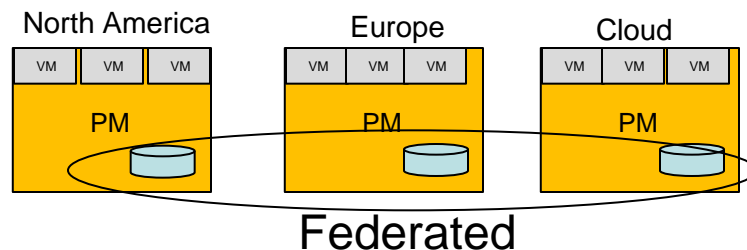
SLAs rapidly nearing 100%



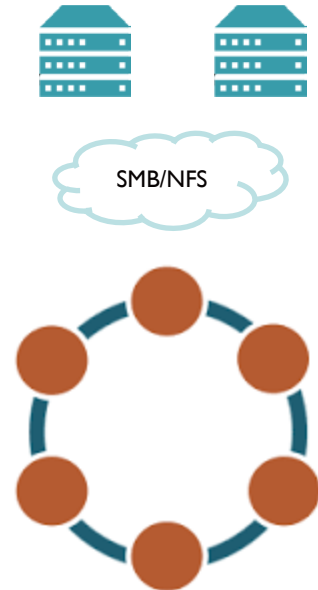
Third Epoch Storage Architecture

➤ VM-level / Object storage

- ◆ No RAID, LUN or Volume
- ◆ Protection via replication
- ◆ Geographically distributed
 - › Could include cloud



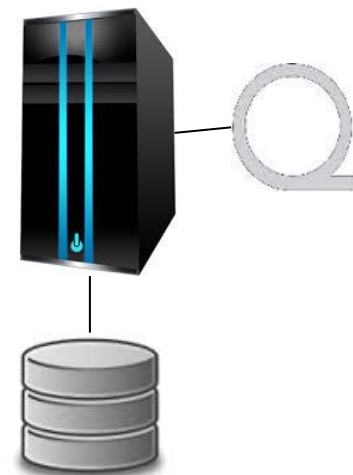
Ring Architecture



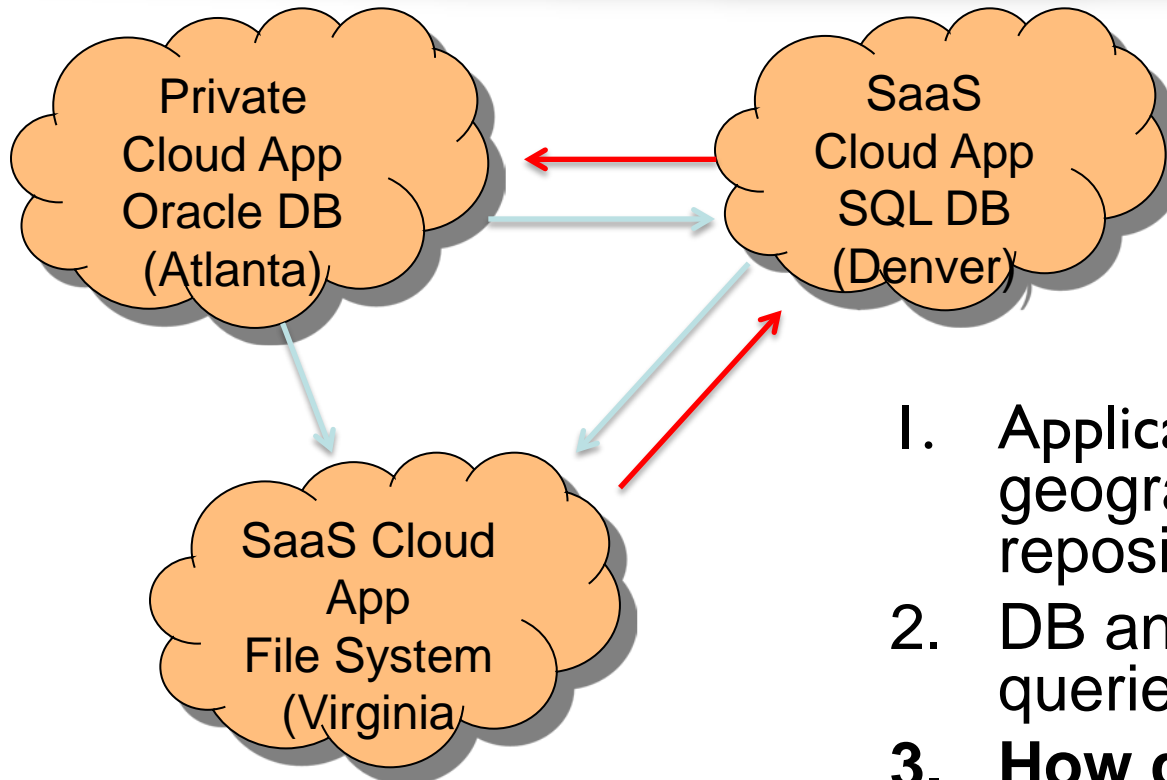
Once data is protected geographically and immediately recoverable, why would you ever backup again?

Real world example

- Insurance claims app
- Today's architecture
 - ◆ iSeries processor
 - ◆ 100 TB of internal disk
- Summary
 - ◆ End-to-end transaction management
 - ◆ Stringent SLAs
 - › 20 ms transaction SLA
 - ◆ Excessive downtime
 - ◆ Lack of agility
 - ◆ High costs



The looming “gotcha”



1. Application traverses geographically separated repositories
2. DB and file systems are queried and updated
3. **How do we:**
 - a. **Restore all repositories to a consistent state?**

➤ Recovery orchestration

- ◆ Leverage the ability to recover from multiple data repositories
- ◆ Recovery to a point-in-time view of the data

➤ Data interrogation

- ◆ Leverage knowledge about the data (meta data) and where it is
 - › Governance, BI, legal self-service

- Storage will never get an “best actor” award
 - ◆ Best supporting actor is the most we can hope for
- Storage is transforming to response to virtual computing
- Data protection is transforming as well
- Expect disruption!

