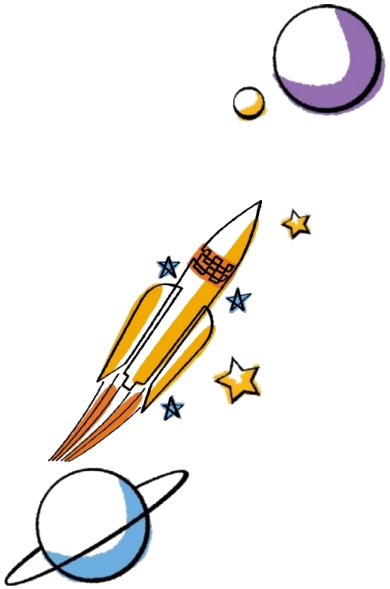
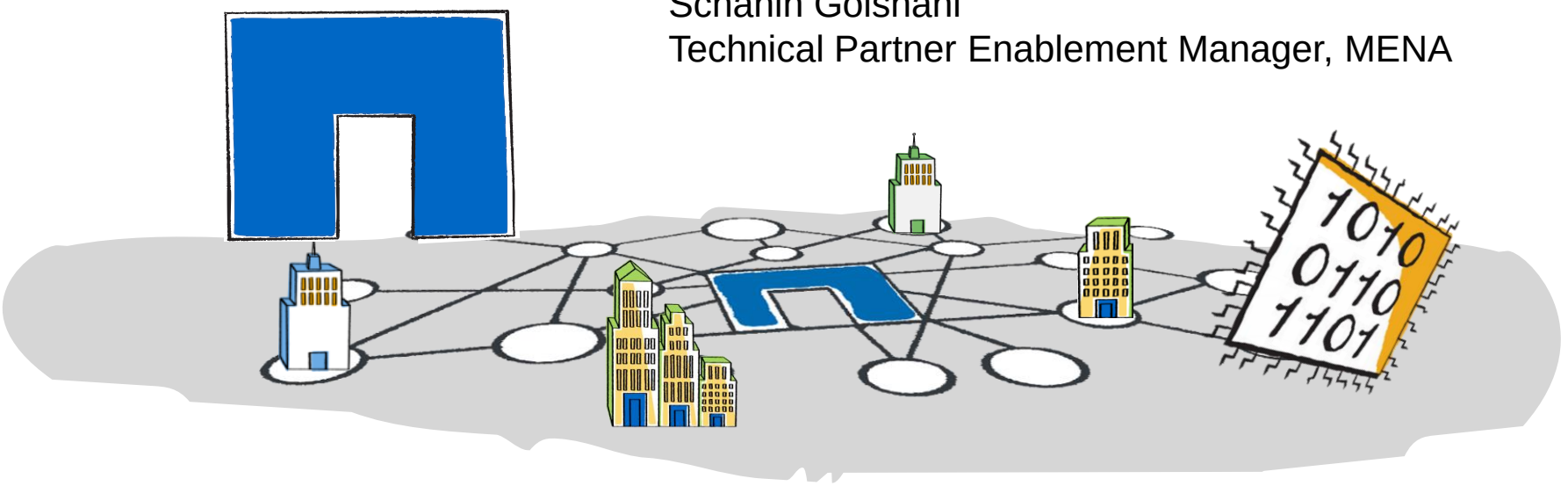


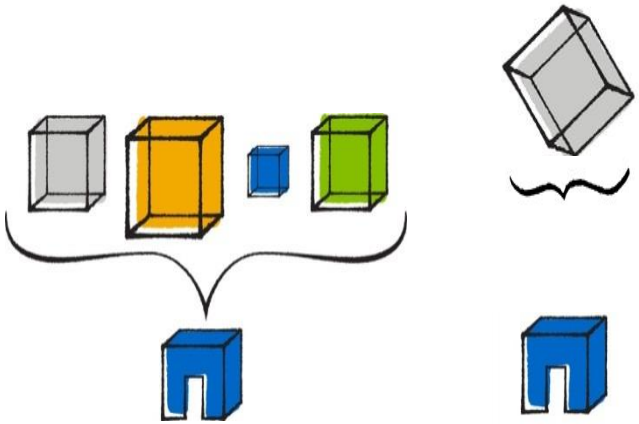
Boost your data protection with NetApp + Veeam

Schahin Golshani
Technical Partner Enablement Manager, MENA

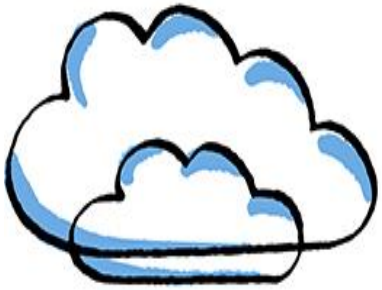


NetApp Product Strategy

Market-leading innovations, that are …

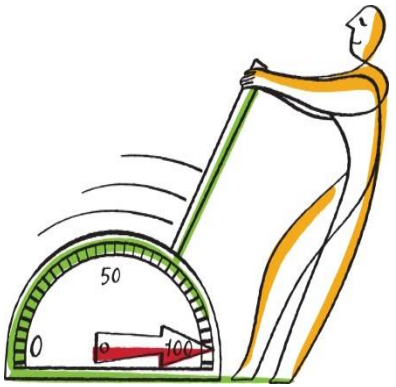


Shared & Dedicated Storage Solutions



Cloud Integrated

&



Flash Accelerated

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Lead the Industry with Storage Innovation

Corporate Data Centers

Cloud Data Centers

and...

Clustered Data ONTAP
for Shared, multi tenant Infrastructure

FlexPod | V-Series | VSA

Flash Arrays
for ultra-high performance

E-Series
for price/performance at scale

StorageGRID
for web scale object storage

for Dedicated, single workload Infrastructure

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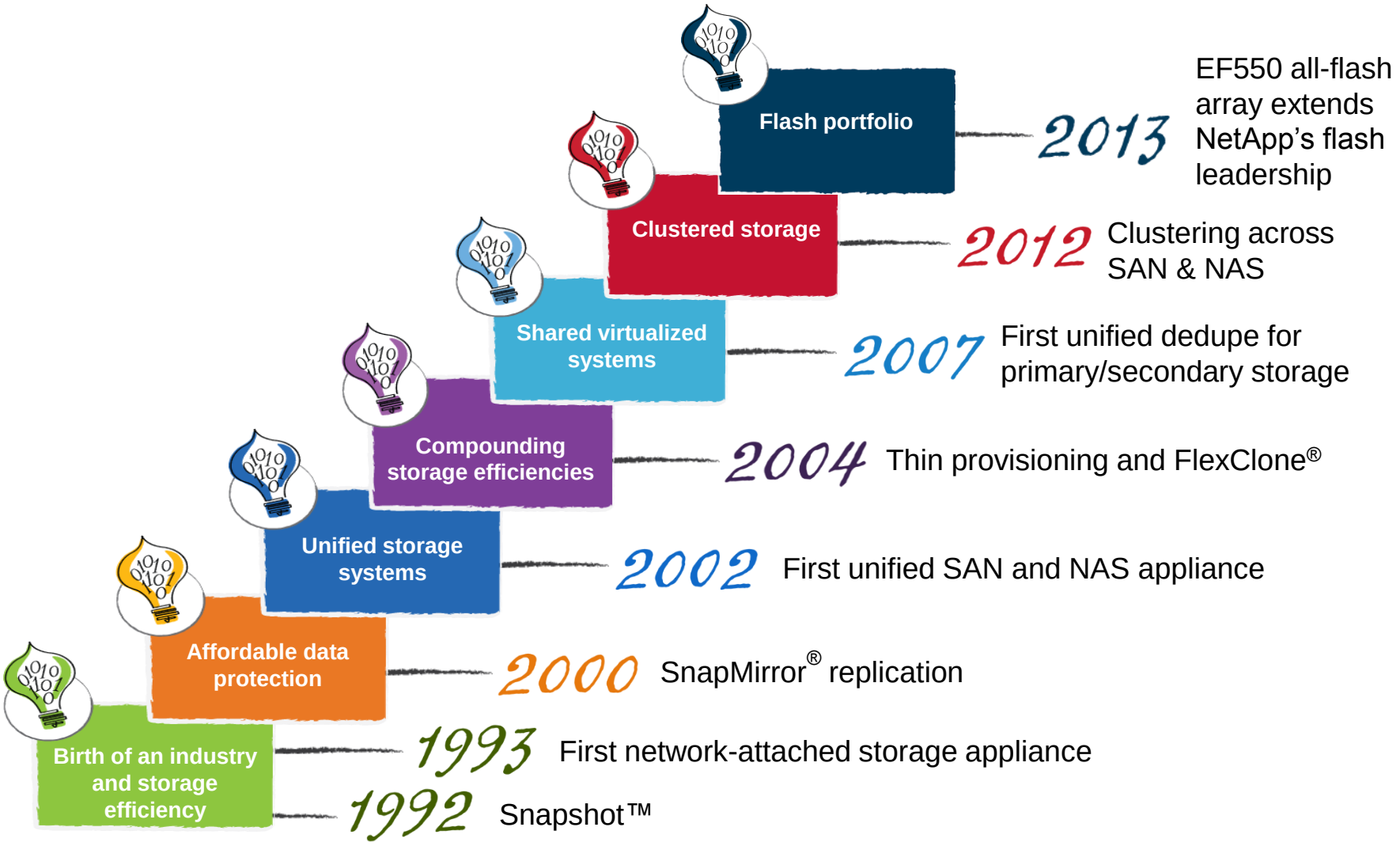
Innovation to Help You Succeed



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FAS Unified Storage Platform

- Flash accelerated
- Cloud integrated
- SDS enabled
- Massively scalable
  - Scale up
  - Scale out

NEW

FAS2520

336TB
84 Drives
4TB VST Flash

NEW

FAS2552

518TB
144 Drives
4TB VST Flash

NEW

FAS2554

576TB
144 Drives
4TB VST Flash

FAS8020

1,920TB
480 Drives
6TB VST Flash

FAS8040

2880TB
720 Drives
12TB VST Flash

FAS8060

4800TB
1200 Drives
18TB VST Flash

NEW

FAS8080 EX

5760TB
1440 Drives
36TB VST Flash

Unify and simplify storage administration under ONTAP
FlexArray software lets FAS8000 manage EMC, HP, HDS and E-Series

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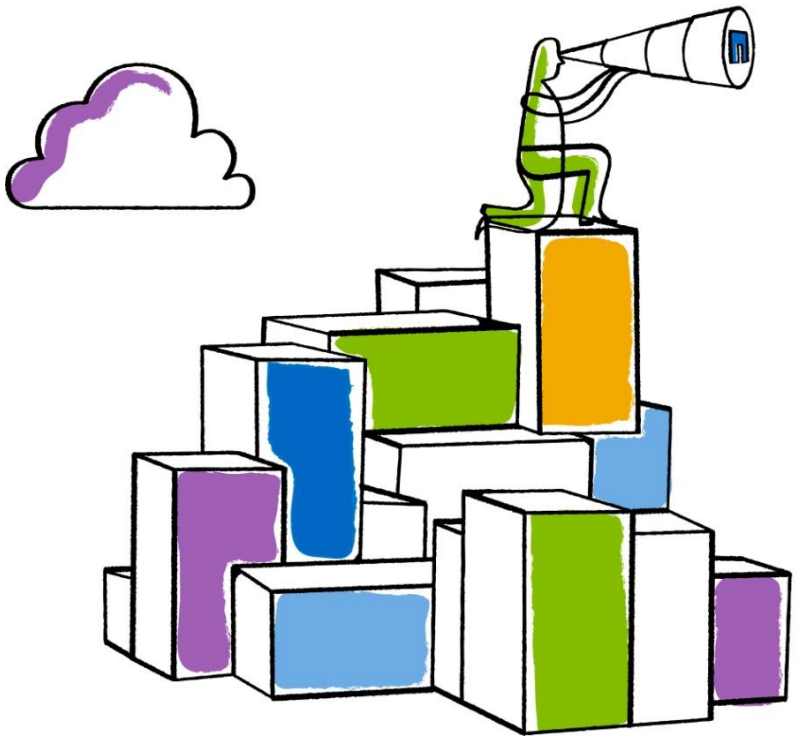
NetApp

Go further, faster®



NetApp Integrated Data Protection

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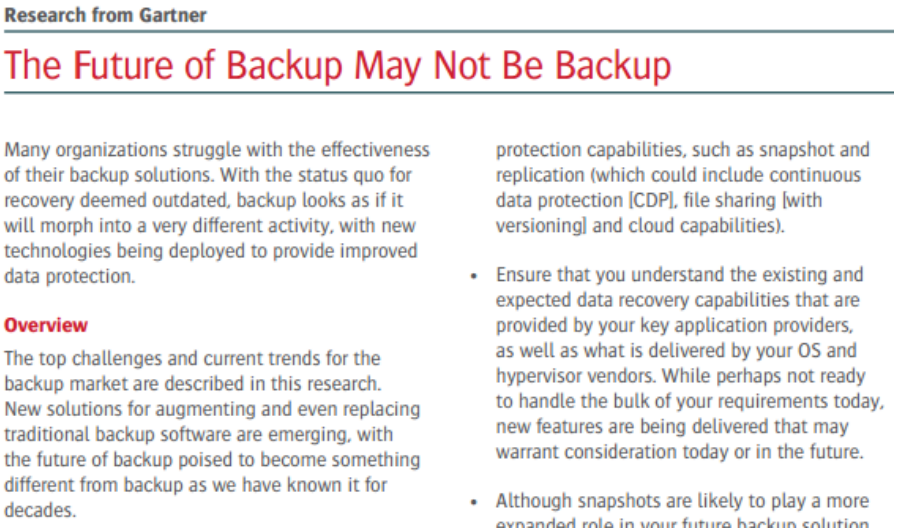
SnapShot



Research from Gartner

The Future of Backup May Not Be Backup

Many organizations struggle with the effectiveness of their backup solutions. With the status quo for recovery deemed outdated, backup looks as if it will morph into a very different activity, with new technologies being deployed to provide improved data protection.

Overview

The top challenges and current trends for the backup market are described in this research. New solutions for augmenting and even replacing traditional backup software are emerging, with the future of backup poised to become something different from backup as we have known it for decades.

protection capabilities, such as snapshot and replication (which could include continuous data protection [CDP], file sharing [with versioning] and cloud capabilities).

- Ensure that you understand the existing and expected data recovery capabilities that are provided by your key application providers, as well as what is delivered by your OS and hypervisor vendors. While perhaps not ready to handle the bulk of your requirements today, new features are being delivered that may warrant consideration today or in the future.
- Although snapshots are likely to play a more

- NetApp has invented SnapShot by 1993
- NetApp Snapshots does not have any write impacts
- Same feature and same # of SnapShots across the entire FAS Series
- NetApp SnapShot is free of charge, base feature NetApp SnapShots can be used as part of DP, DR, Backup, HA, Test And Dev solutions simultaneously.
- 3rd Party vendors use NetApp SnapShots as fundament.

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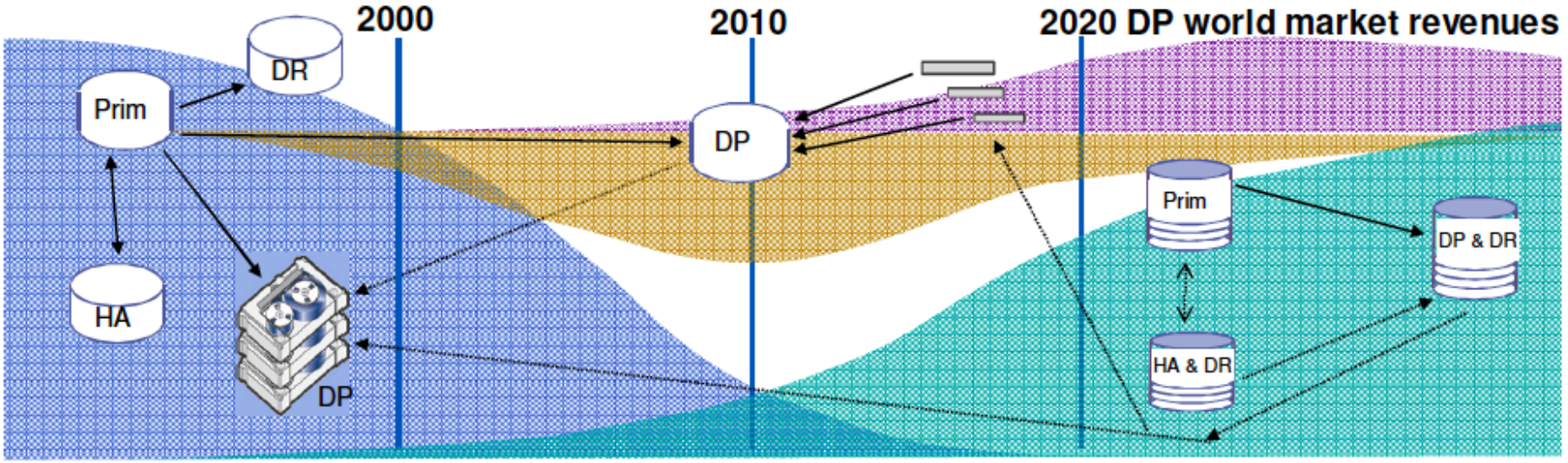
NetApp's current offerings for the Data Protection Market paradigm change



1st Generation DP: **Regular full backups to Tape**
Separate techniques for DP, DR and HA

2nd Generation DP: **Incremental / Full Backup2Disk/VTL**
(Dedupe- and Non-Dedupe targets offer only limited improvements to 1st generation solutions)

3rd Generation DP: **Block-Incremental-Forever Backups**
(often by Client-Dedupe; reduced backup xfer rates, but slower large Restores & Tape copies)

4th Generation DP: **Snapshot-based DP, avoids data-movement**
for backups and restores with Mirroring / Replication (DP, DR, HA and Test/Dev-needs can be combined)

Traditional DP result in very poor DP SLAs
(too much data & files have to be transferred)

Dedupe & compression benefits start at Primary Data and can be kept in backup copies

→ **4th Generation Snapshot based Data Protection is the future for the DC,**
3rd Gen is the future for client DPR & may be an alternate for backups "out of Array Snapshots"←

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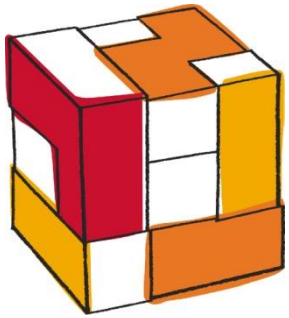
Data Management Challenges

Growth

- Data growing 30-50% per year
- Scaling current process and systems is difficult

Complexity



- Too many technologies to integrate
- Coordinating technologies slows response times

Cost

- Frozen or shrinking IT budgets
- Need to consolidate resources across the business

Risk

- Slow recovery times impact business units
- Mandated compliance and need for rapid eDiscovery

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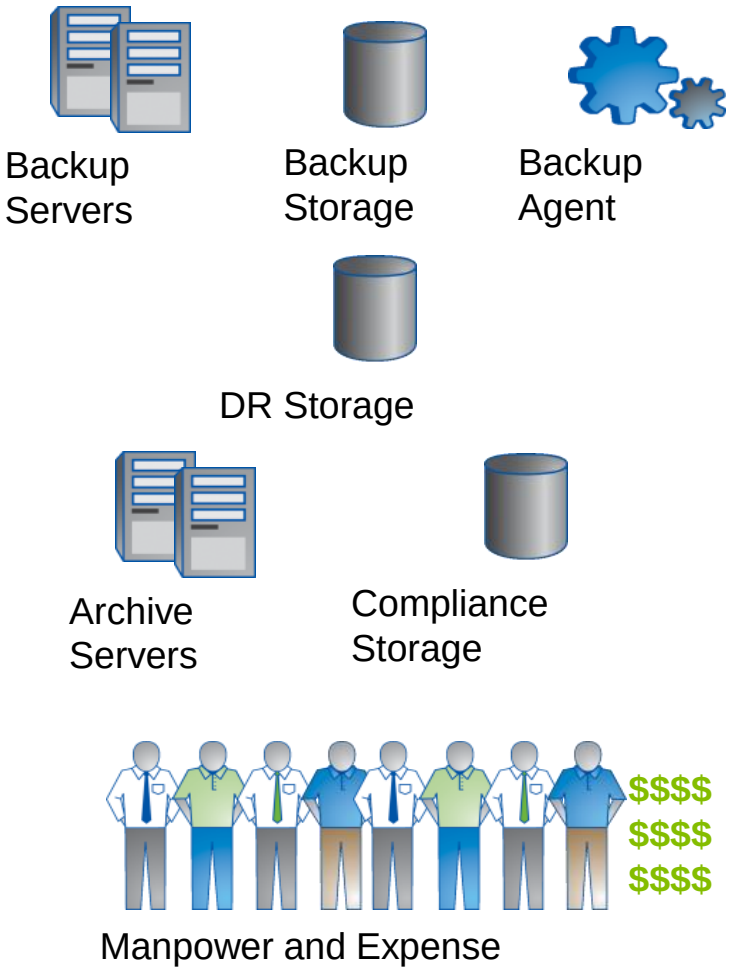
Implementing Traditional Data Protection



Costly

- Multiple, specialized devices to buy
- As data grows, you scale multiple products

Complex

- Time consuming to deploy
- Multiple silos of management
- Multiple vendors & support contracts

Limited flexibility

- Cannot use systems for multiple purposes
- Difficult to use with virtual servers (e.g. backup)
- Not well suited to on-demand, multi-tenancy needs of IT as a Service / cloud

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NetApp Integrated Data Protection

Reduces risk

- Continuous availability
- Recovery in minutes
- Secure retention for compliance

Drives greater cost efficiency

- Up to 90% less capacity used
- Up to 70% less network utilization

Improves and simplifies processes

- Built-in protection that rolls out in minutes
- Up to 40% lower management overhead
- Flexible and scalable in any environment

Business agility

- Enables IT to be a business driver
- Accelerates business intelligence efforts
- Up to 95% lower development costs

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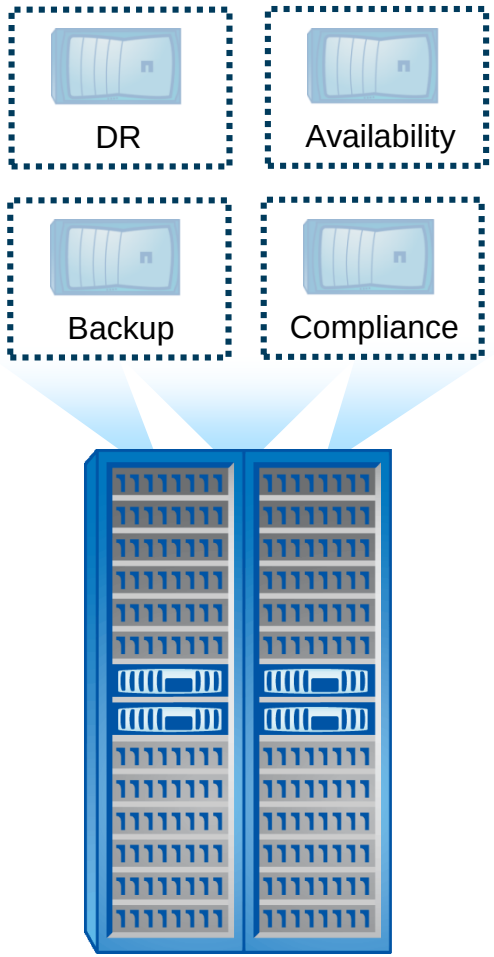
A Single Platform



Satisfies broad set of recovery objectives

- Continuous availability – zero RTO
- Disaster recovery – flexible RTO
- Backup and recover – multiple RPOs
- Archive and compliance

Easily and quickly deployed

- Services are already on board – add as needed
- Configure and make available in minutes

Supports multiple environments

- Physical servers
- Virtualization
- IT as a service

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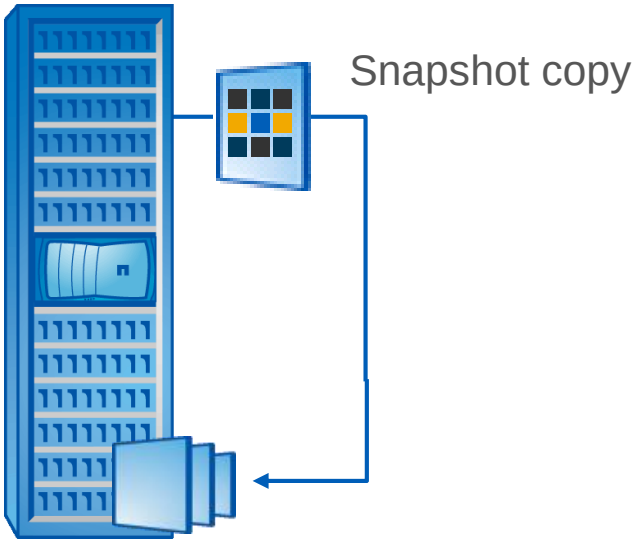
Risk Mitigation: Faster Protection



Safeguard data up to 98% faster

- Creates instant point-in-time Snapshot® copies
- Has near-zero impact on performance
- Enables you to back up when you want, as often as you want to prevent data loss

Restore faster, to eliminate risk of downtime

- Snapshots revert to specific point in time
- Meets tight recovery time objectives
- Uses a single command to restore, minimizing downtime

"Until recently the backup took several hours. With NetApp we have a time saving of at least 18 hours and were able to eliminate the tape backup."

Pekka Purontaka, Storage Manager
AFA Insurance

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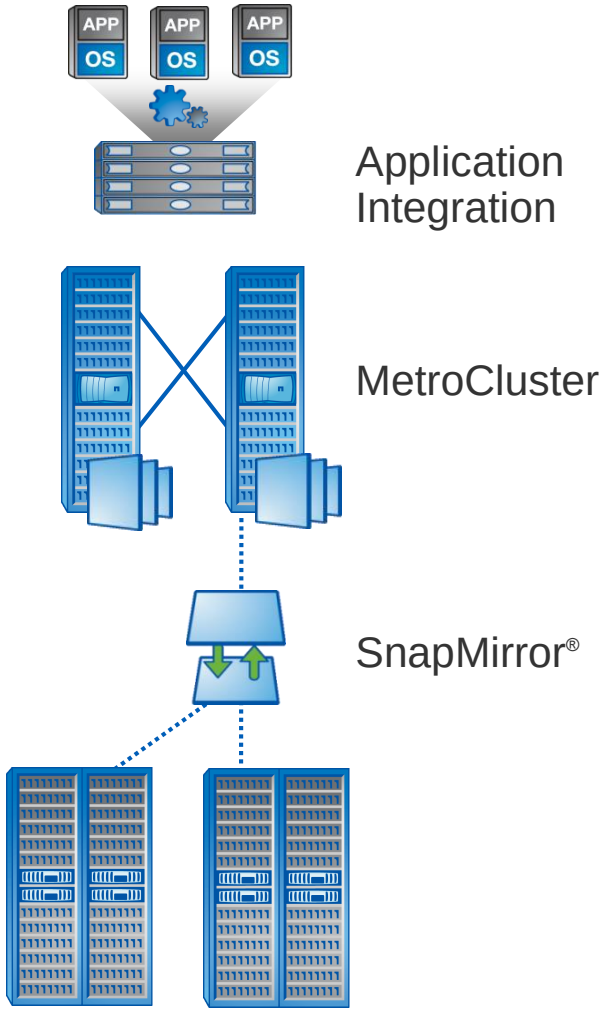
Risk Mitigation: Increased Availability



Designed for continuous availability

- Storage clustering for zero data loss
- Eliminates planned and unplanned downtime
- Cluster up to 100 km for greater protection

Delivers flexible disaster recovery

- One to many and many to one
- Any platform to any platform (FC or SATA)
- Integrates with virtualization software for automatic VM failover
- Replicates between NetApp and third-party storage (via V-Series)

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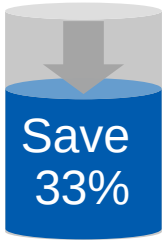
Cost Reduction: Storage Efficiency

(RAID-DP®)

Protects against double disk failure with no performance penalty.

Snapshot™ Copies

Point-in-time copies that write only changed blocks. No performance penalty.



Thin Provisioning

Flexible volumes appear to be a certain size but are really a much smaller pool.

Deduplication & Thin Replication

Removes data redundancies in primary and secondary storage.

Virtual Clones

Near-zero space, instant “virtual” copies. Only subsequent changes in cloned data set get stored.

Network Efficiency

Minimizes the amount of data transferred and accelerate data protection.

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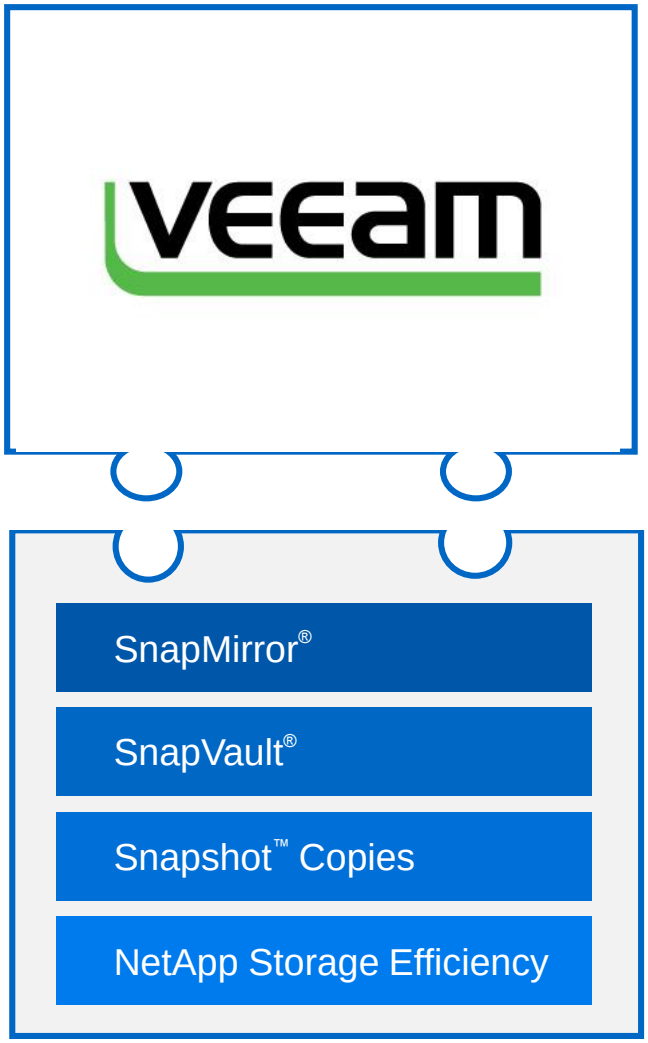
Simplified Management through Integration



- Integrates versus replacing
  - Lets backup application manage NetApp IDP
    - Local Snapshots to meet tight RPOs
    - Replication for up to 98% faster protection
  - Leverages storage efficiency to reduce costs
- Eliminates risk and complexity
  - Consolidated interface for policies
  - Cataloging for rapid search & recovery
  - Leverages existing product best practices
- Reduces costs
  - Snapshot copies consume less space
  - Deduplication and compression keep costs down over time on primary & secondary
  - Integration lowers operational overhead

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The most important features of ONTAP for Customers with Veeam?

- ONTAP **Snapshots really scale** up to 255 Snapshots
- ONTAP offers a (to Veeam & all access-Protocols transparent) stable & scaling sync Mirror: **MetroCluster**
- ONTAP offers stable and scaling async BLIF-Replications (SnapMirror / **SnapVault**) for any distance
- NetApp's **Management functions** for the Storage & VMware (cost free System Manager, VSC for vSphere & SnapCreator) can fill Veeam Gaps

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NetApp and Veeam better together!

- Two proven, industry leading technologies combine:
  - Fantastic RPOs (NetApp) with the fastest RTO (Veeam)
  - Zero impact snapshots (NetApp) with industry-leading VM backup (Veeam)
  - SnapVault storage (NetApp) with application-aware VM processing logic (Veeam)

- One disruptive, innovative, and robust solution

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Thank you

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Veeam & NetApp
Better Together

Mehmet Gonullu
Presales Consultant, Middle East
mehmet.gonullu@veeam.com

Agenda

- Veeam Availability Suite
- Veeam + NetApp Integration

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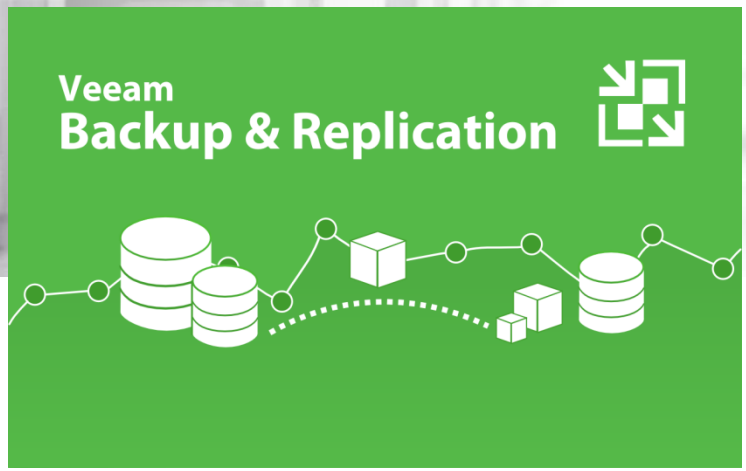
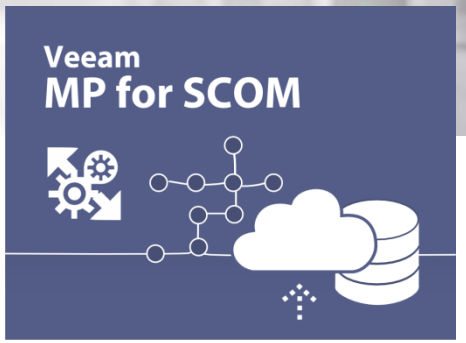
Availability
for the modern datacenter





What sets Veeam apart?

Strong R&D – history of innovation

Solid financial foundation

Impressive customer growth

Robust channel

Strategic partnerships

vmware PARTNER TECHNOLOGY ALLIANCE

Microsoft Partner
Gold Application Development
Gold Datacenter

NetApp
Alliance Partner

cisco Preferred Solution Partner

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Veeam is built for virtualization

50+ awards
500,000+ users
111,500+ customers
30,000+ partners

The Always-On Business

The business has changed:

- Customers, partners, suppliers, employees: everyone is connected
- Everyone needs access to information
- Anytime, everywhere

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The Challenge for IT

The always-on business

New requirements for IT:

- Access to applications and data everywhere anytime
- No patience for outage or loss
- Amount of data skyrocketing

While risk is increasing:

- More complex IT
- Outage, Data Loss
- Disaster

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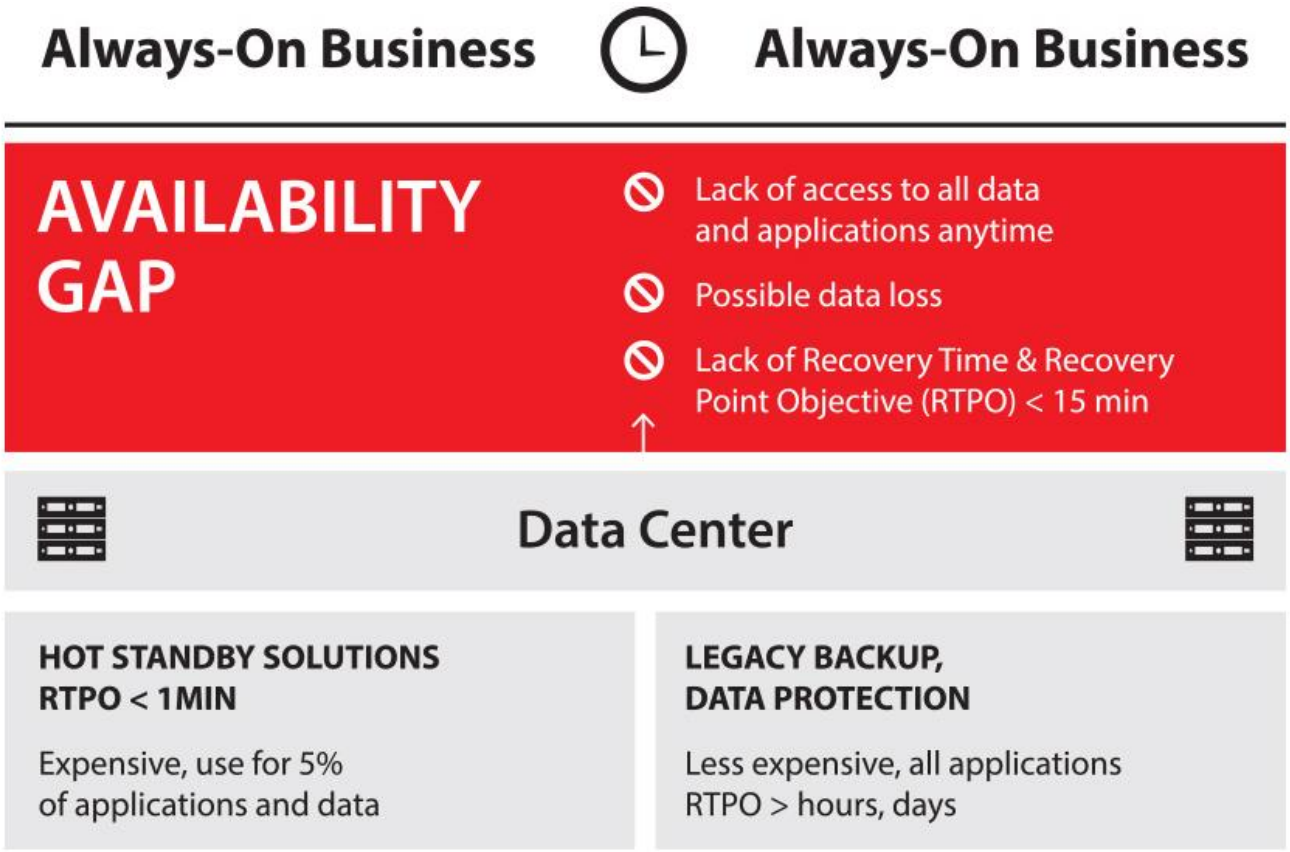
The Key 5 Questions:

- How quickly can you recover what you need?
- What are you doing to reduce the risk of data loss?
- What are you doing to ensure everything is recoverable when you need it?
- How do you mitigate risks from new applications and changes?
- How do you detect potential issues before they have an impact?

The Availability Gap



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Veeam Availability Suite

Enabling the Always-On Business™

Veeam capabilities

- High-Speed Recovery
- Data Loss Avoidance
- Verified Protection
- Leveraged Data
- Complete Visibility

Customers reconfirming availability

Results from ESG Survey Feb. 2014

96% of Veeam recoveries are within recovery time objective (RTO) service level agreements (SLA), compared to 78% for other solutions

83% of Veeam customers are more confident in their backups than with previous solutions

71% of Veeam customers report improved reliability of backups compared to other solutions

84% of Veeam Virtual Lab users save an hour or more every month by avoiding deployment problems, and 26% save more than 6 hours

71% of customers using Veeam monitoring and reporting tools say their risk awareness has improved compared to other solutions

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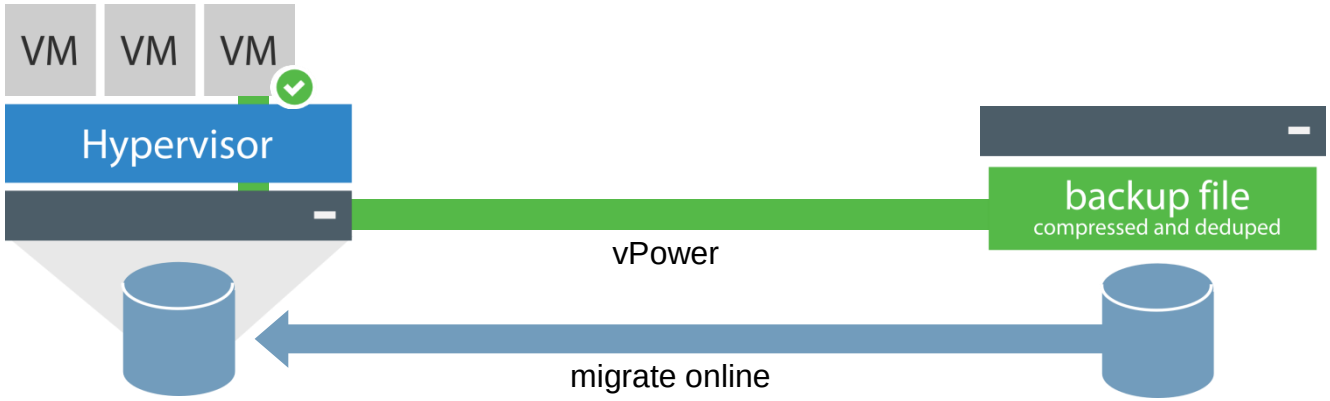
High-speed Recovery

instant VM recovery



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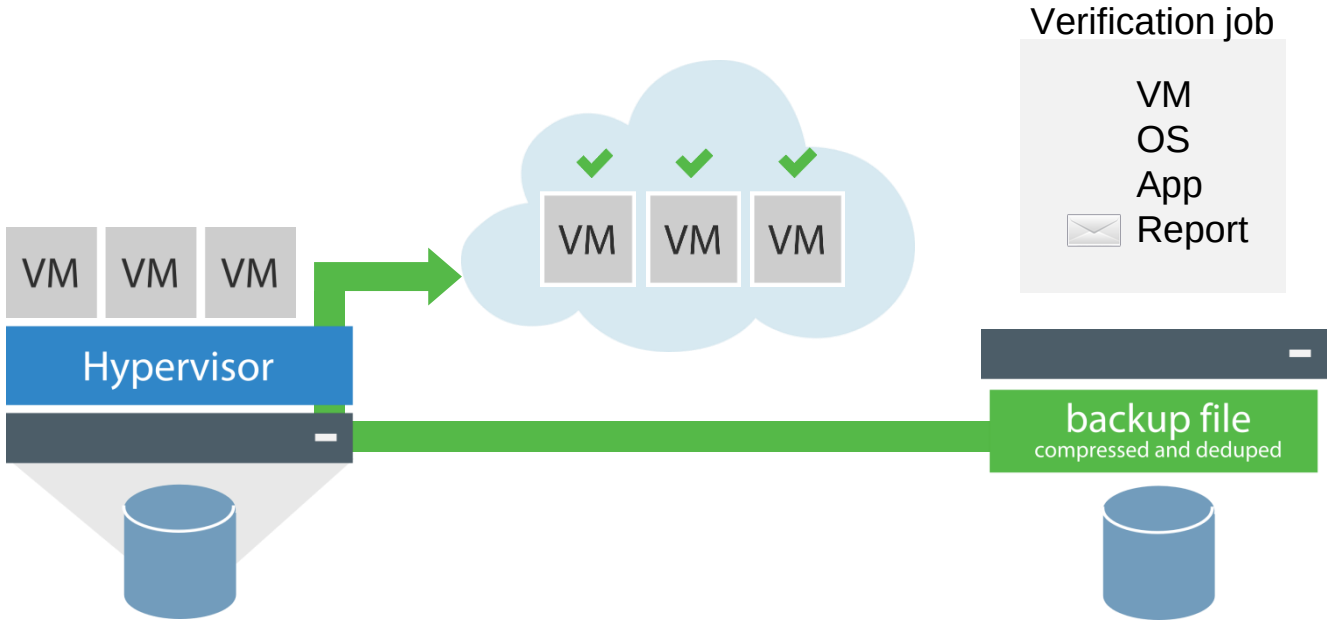
Verified Protection

automated recovery verification



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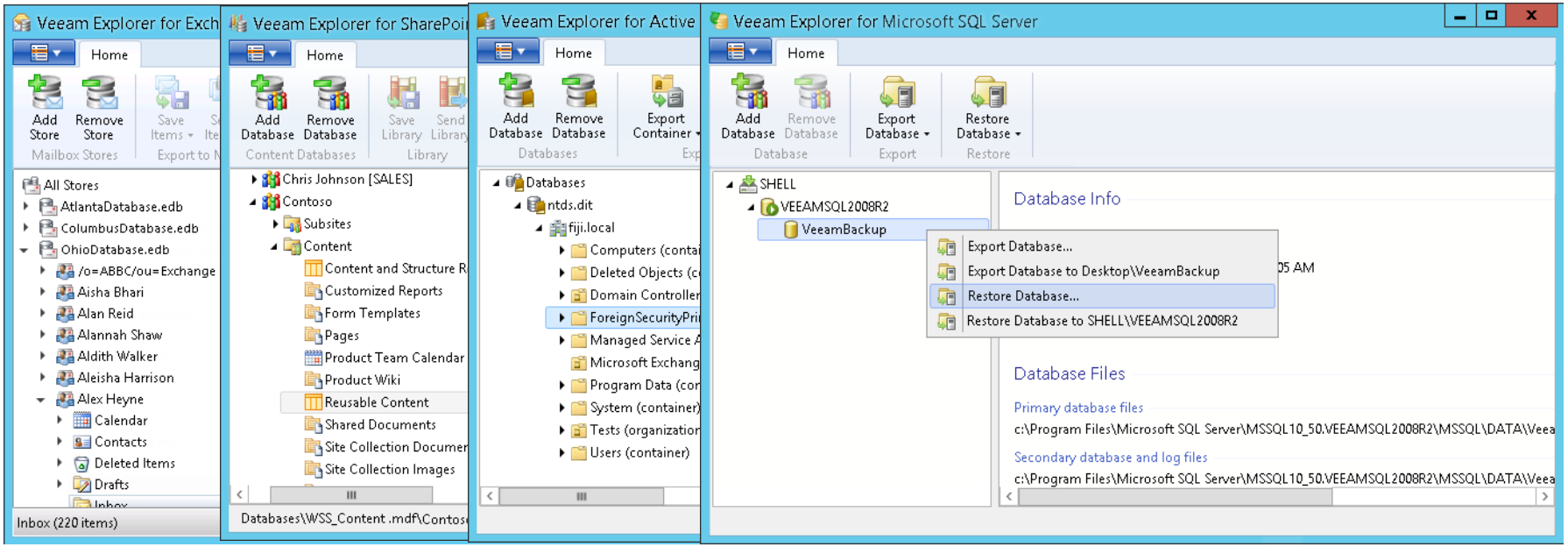
Application Item Recovery

Veeam Explorers for Microsoft Applications



NetApp Integrated Data Protection

NetApp and Veeam: 1+1 = 3

Two proven, industry leading technologies combine:

- Fantastic RPOs (NetApp) with the fastest RTO (Veeam)
- Zero impact snapshots (NetApp) with industry-leading VM backup (Veeam)
- SnapVault storage (NetApp) with application-aware VM processing logic (Veeam)

One disruptive, innovative, and robust solution

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Veeam & NetApp
Partnership Value Proposition

Achieve unprecedented levels of data protection combining NetApp's low RPO capabilities with Veeam's low RTO enablement

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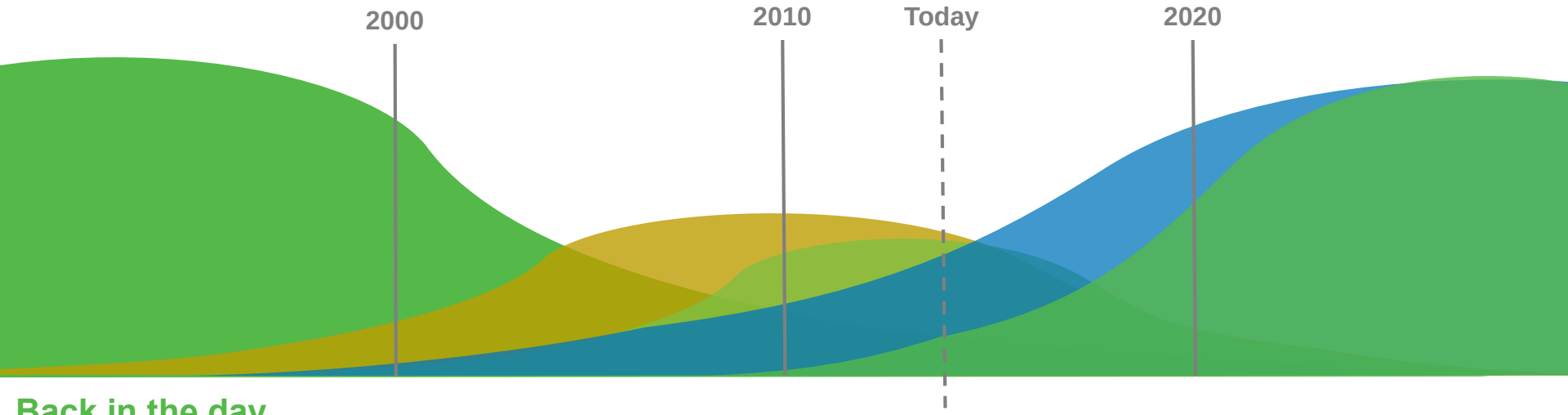
Evolution of Data Protection



Back in the day…

Backup2Disk and VTL…

Client/Server Block-level Increment …

Snapshot-based…

The “Cloud”…

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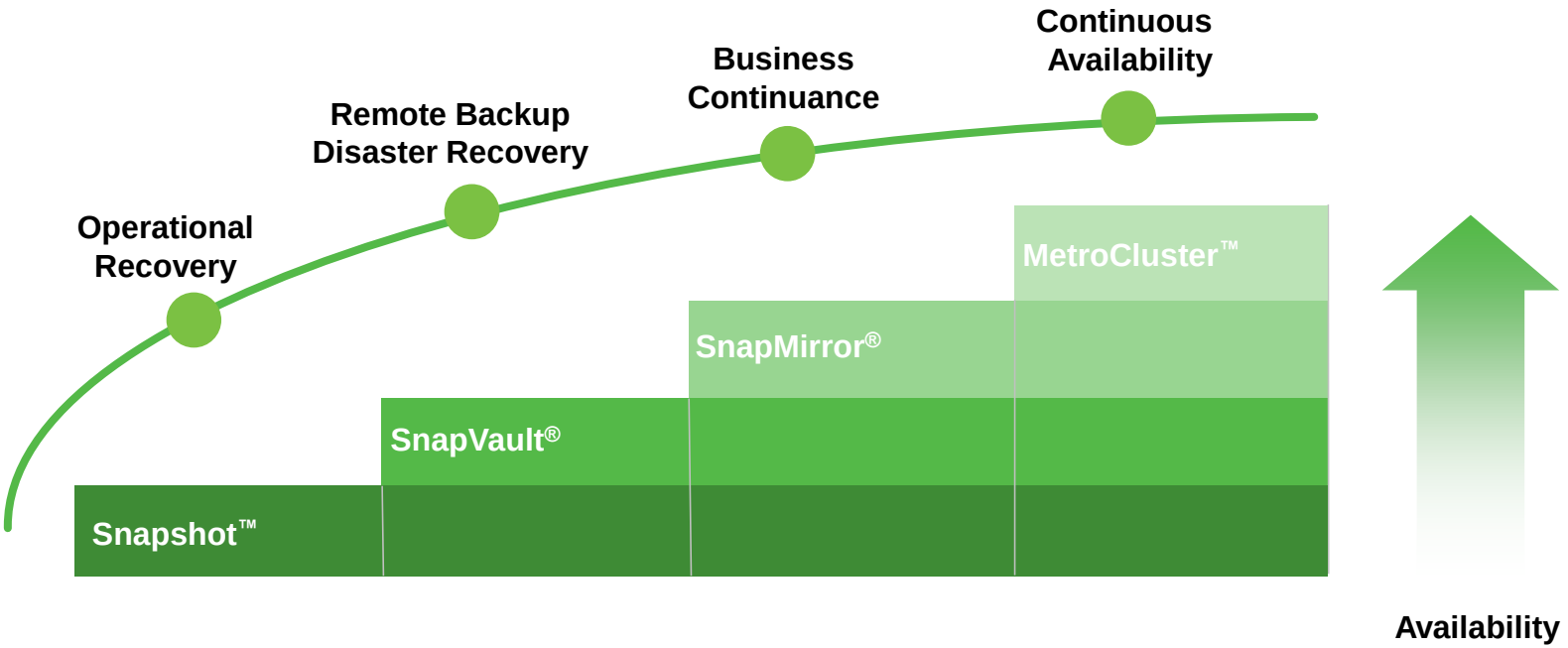
NetApp

Clustered Data ONTAP

Data protection portfolio



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Veeam & NetApp integration

Integrating NetApp and Veeam allows users to:

- Create backups from storage snapshots up to 20 times faster than competitive products
- Recover individual items quickly and efficiently from NetApp Snapshot, SnapMirror and SnapVault
- Improve DR protection by creating instant, secondary backups from storage snapshots

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Advanced storage integration with v8

- Integration in NetApp ONTAP for VMware backups
  - Restore out of NetApp Snapshots
  - Restore out of SnapVault/SnapMirror
  - Snapshot Orchestration
  - Backup from Storage Snapshot

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High-Speed Recovery for VMware

Veeam Explorer for Storage Snapshots

Snap

Fantastic RPOs

Zero impact on production

Reduce bandwidth utilization

Leverage NetApp storage capabilities

Store

Block-level incremental changes

Efficient data replication

Flexible solution with multiple uses

Reduce management overhead

Recover

Fastest RTO

File-level recovery for 17 different file systems

Item-level restores for four Microsoft applications

Support for

- NetApp Snapshot
- NetApp SnapMirror
- NetApp SnapVault

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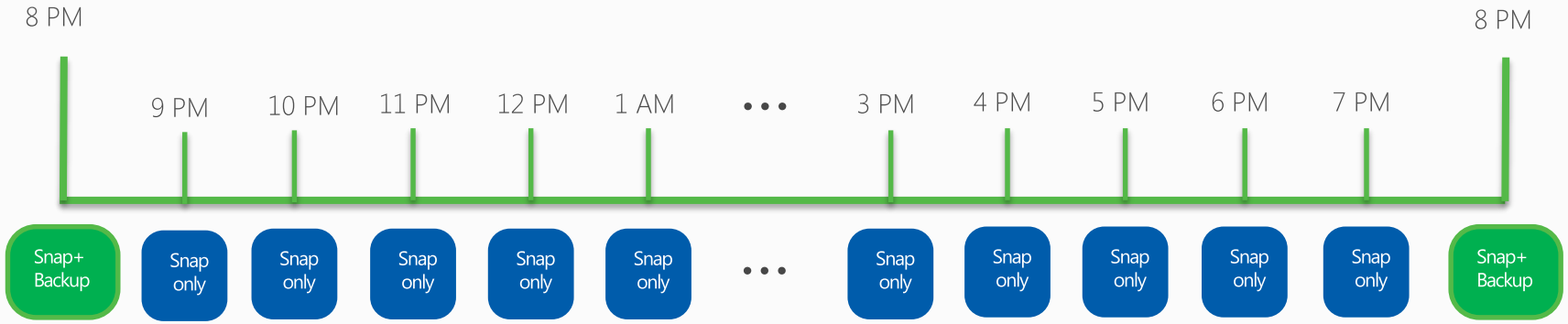
Better RPO with storage snapshots

Transport data and consistency processing reduce performance of applications

⇒ Veeam Backup Processing typically “only” 1-4x a day

⇒ Solution: Use Storage Snapshots between the Backups (once per hour or more frequent) for better RPO



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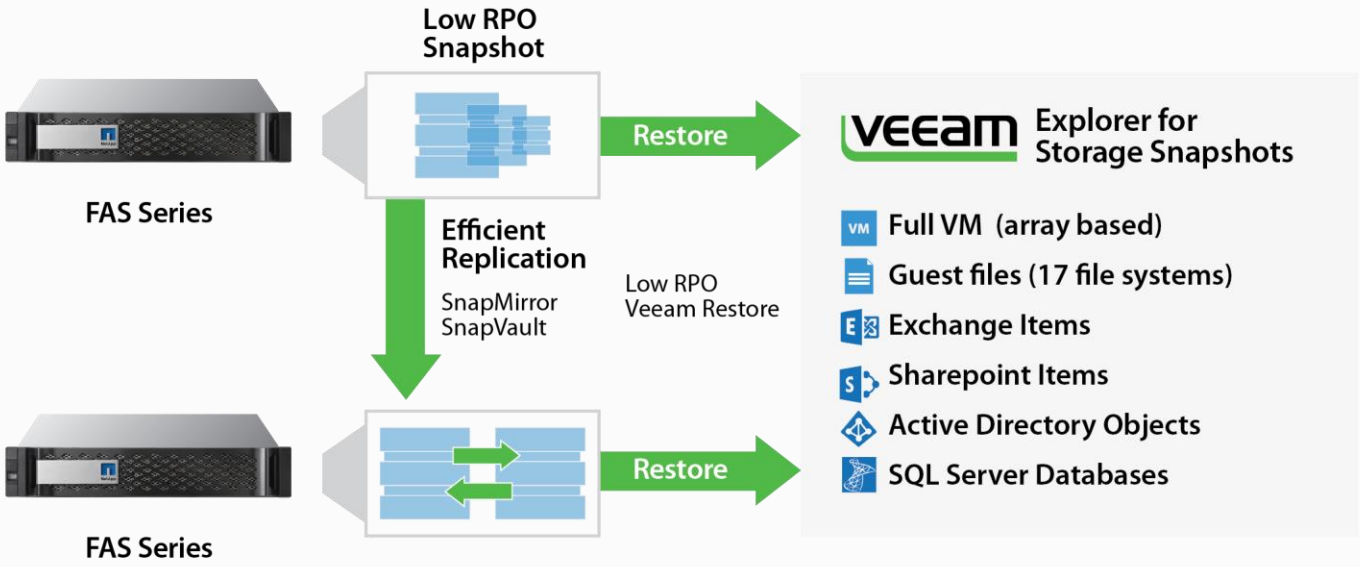
Veeam Explorer for Storage Snapshots

High-Speed Recovery



Combine low RPOs of NetApp snapshot copies with low RTOs of Veeam Explorer for Storage Snapshots

- Use crash-consistent storage snapshots created outside Veeam or schedule storage snapshots directly in Veeam
- Support for NetApp snapshot copies, SnapMirror, and SnapVault
- Included in all editions of Veeam Backup & Replication including Backup Free Edition

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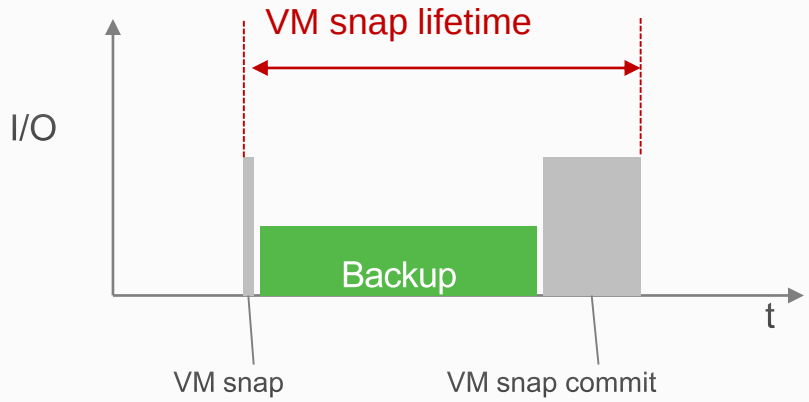
VMware snapshot challenges

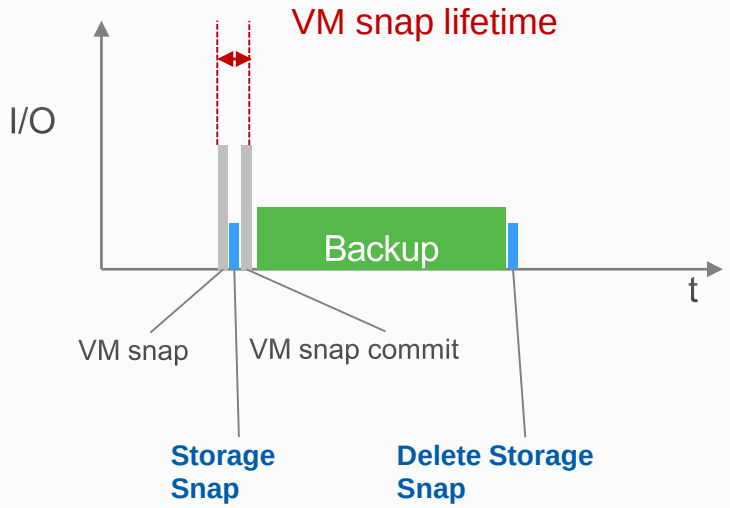
Standard VM backup



High load at snapshot commit at storage

Can take hours/days

With NetApp snapshot integration



Faster commit with less data

Near instant VM snapshot commit

Use of storage snapshot for backup

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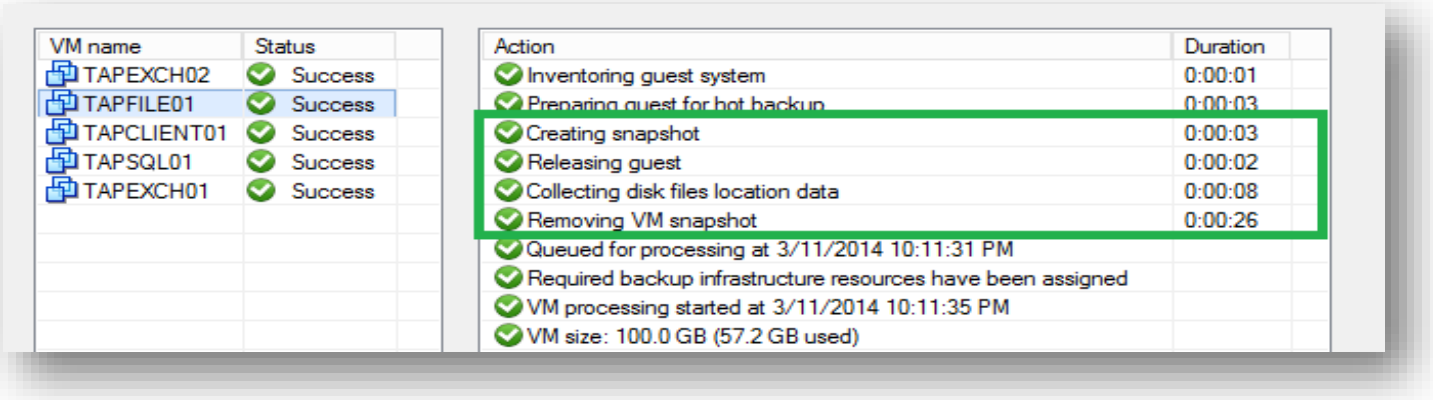
NetApp storage snapshots for Veeam backups



- **VMware VM Snapshot only open for ~10 seconds**
- Creates **NetApp Volume Snapshots** in the background directly after VM Snapshot creation
- Near-instant VMware **VM Snapshot commit (26 seconds)**
- Works with **FC/iSCSI/NFS VMware datastores**
- NetApp Snapshot can be used to **trigger NetApp SnapVault/SnapMirror** update or for Veeam backup (out of ONTAP)

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NetApp snapshot orchestration

Veeam snapshot orchestration

- Use Veeam as a NetApp console
- Create manual snapshots directly from the Veeam interface
- Schedule snapshot-only “backup” jobs (lowest RPO)
- SnapMirror and SnapVault orchestration for single-pass backup into two destinations (instant “Backup Copy”)

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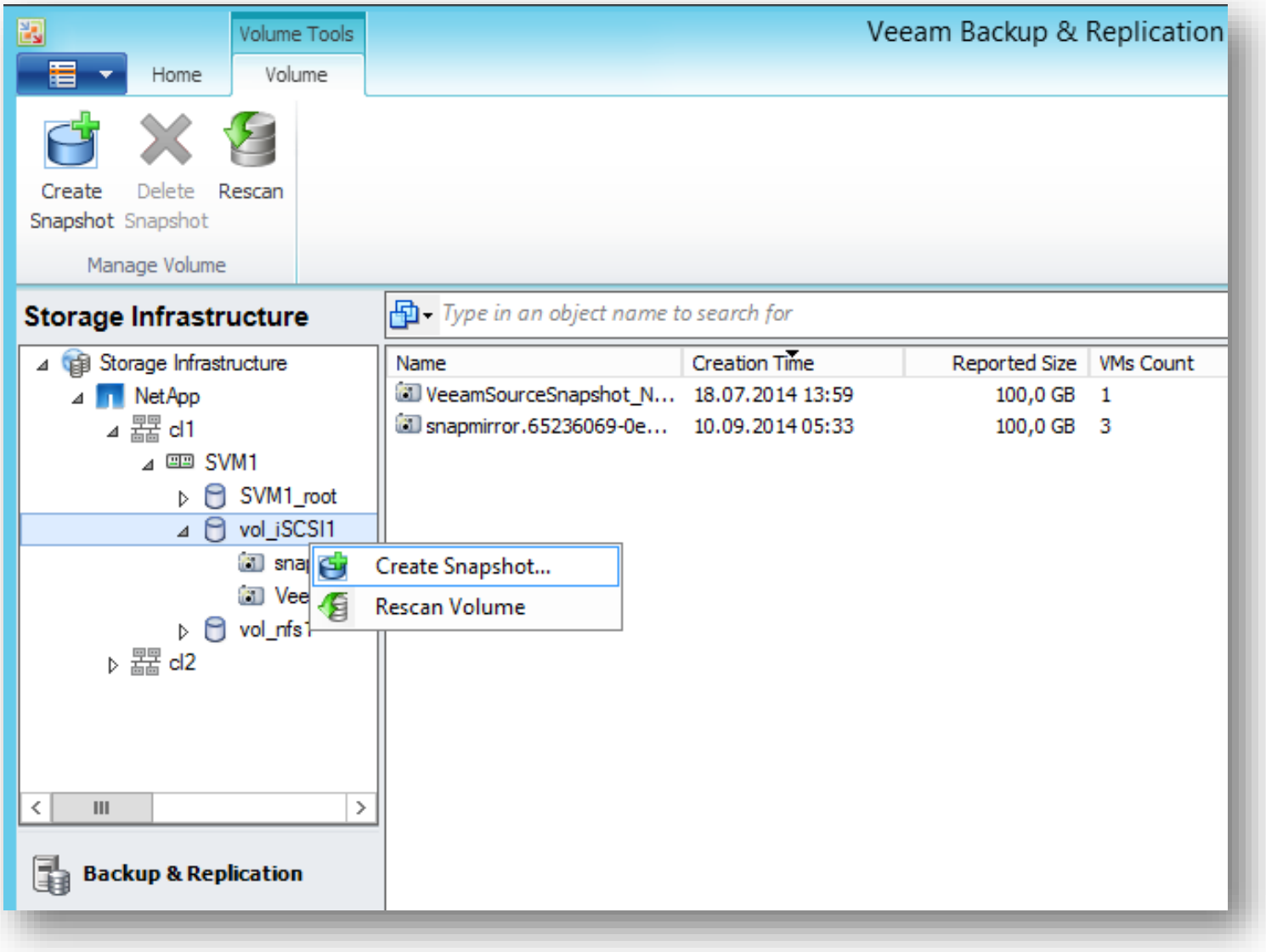
Veeam UI: Manual NetApp snapshot



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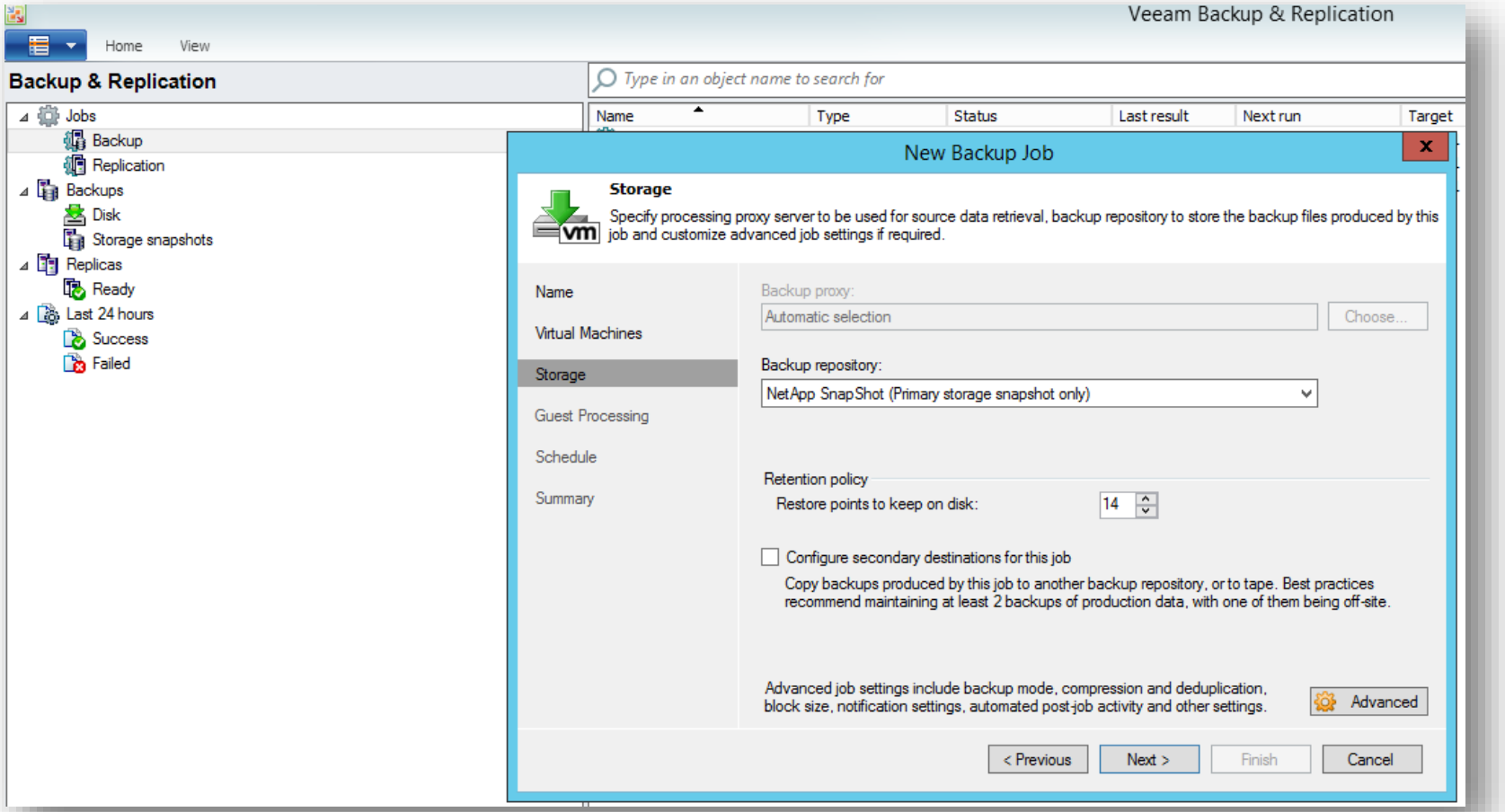
Veeam UI: NetApp snapshot only “backup”



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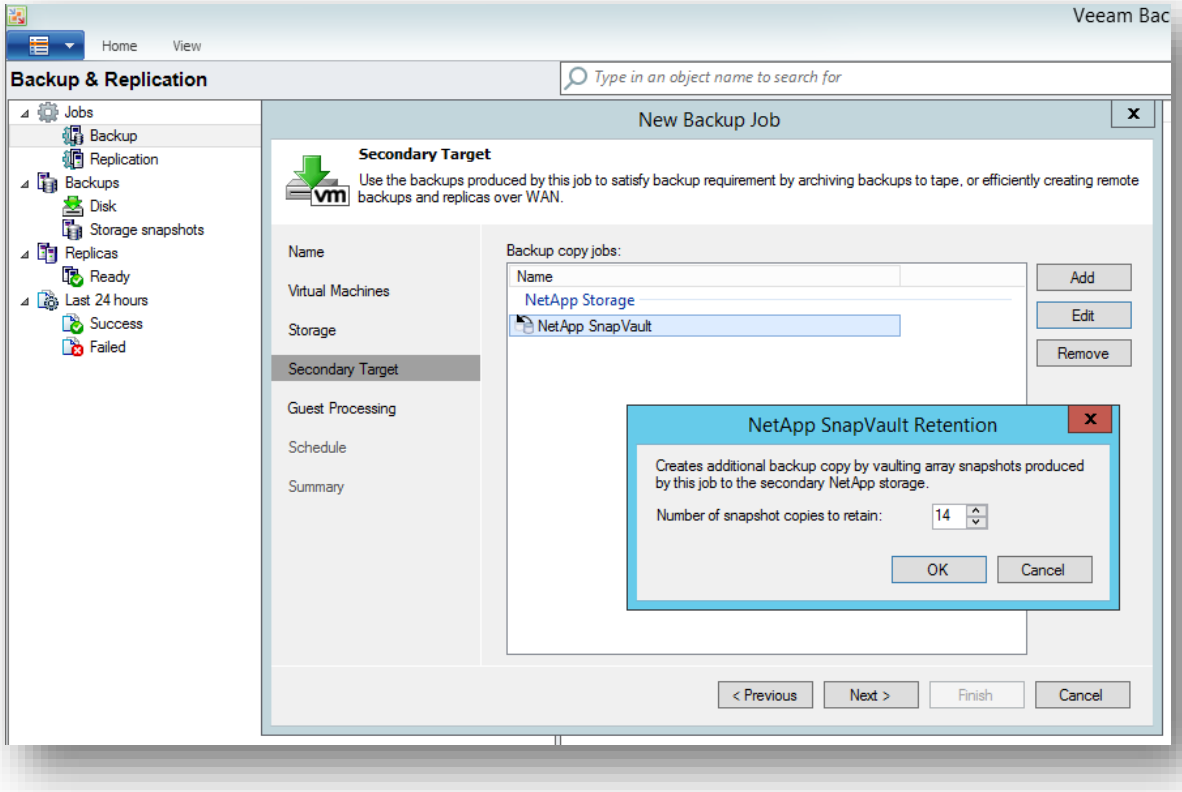
Veeam UI: Scheduled NetApp SnapVault/SnapMirror

Can be triggered from Veeam's NetApp snapshot orchestration without creating a classic Veeam backup

Can be used together with Veeam Backup from NetApp Storage Snapshots to process backups out of Data ONTAP



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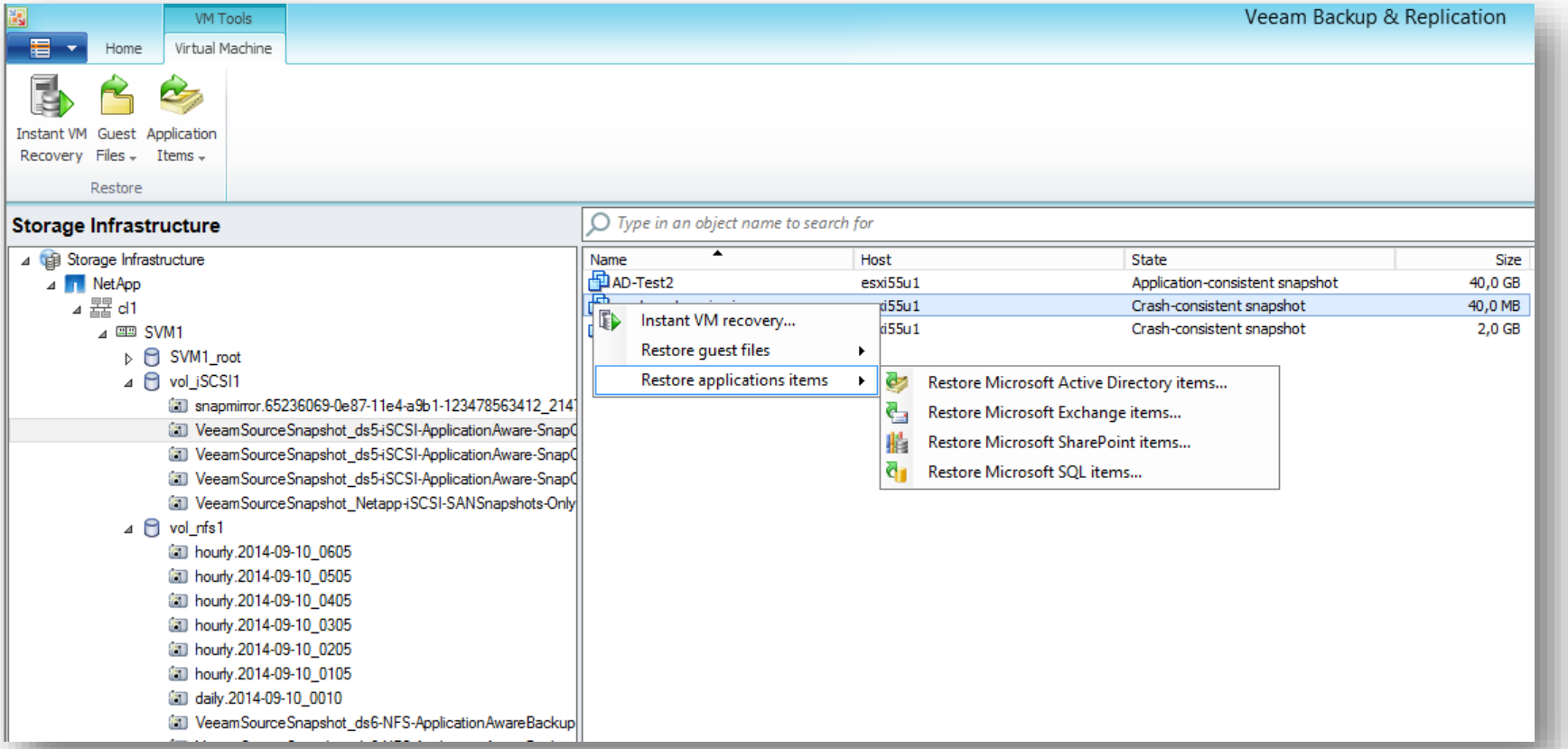
Veeam UI: Browse and restore from NetApp primary snapshot



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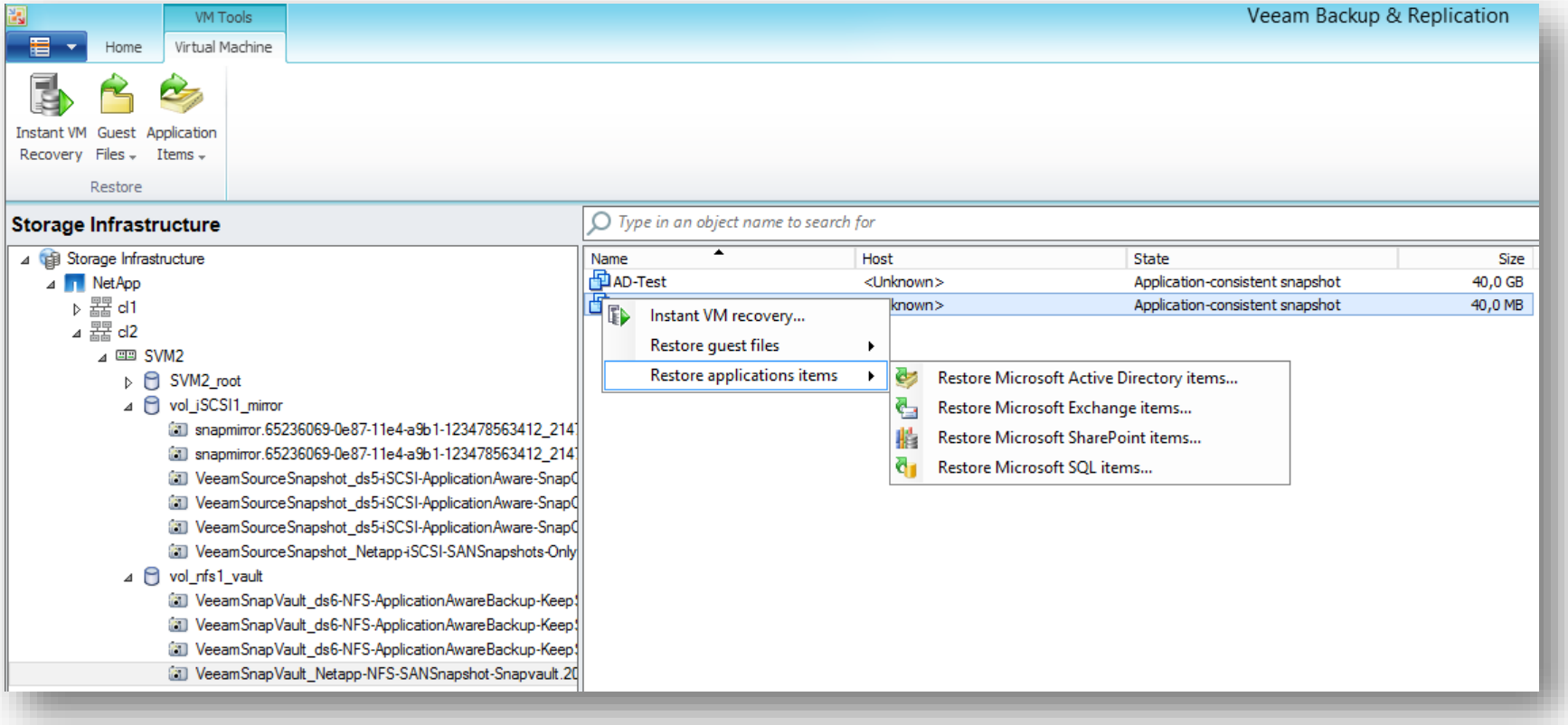
Veeam UI: Browse and restore from NetApp SnapVault/SnapMirror



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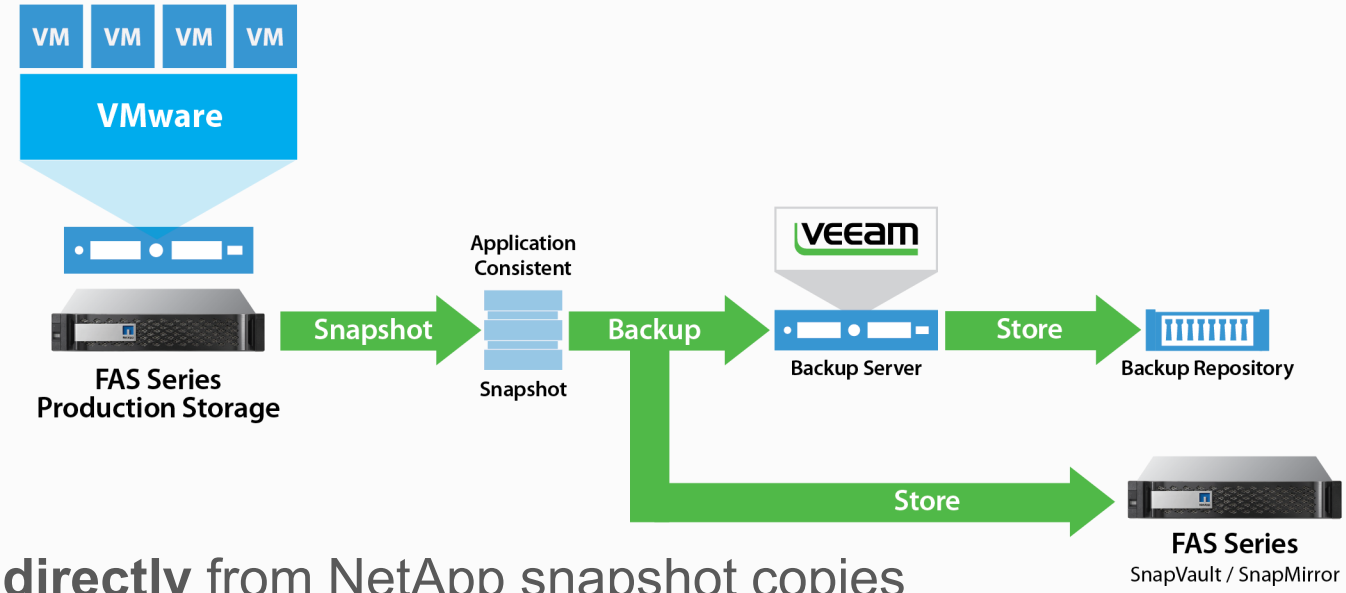
3-2-1 Backup Concept

Veeam – NetApp – VMware

Veeam Backup from Storage Snapshots with NetApp



Backup **directly** from NetApp snapshot copies

- No datastore mount to proxying ESXi
- No VMFS resignaturing
- No temporary VM registration or host configuration cleanup

Leverages VMware CBT (patent pending)

- Up to 20x faster than competing solutions

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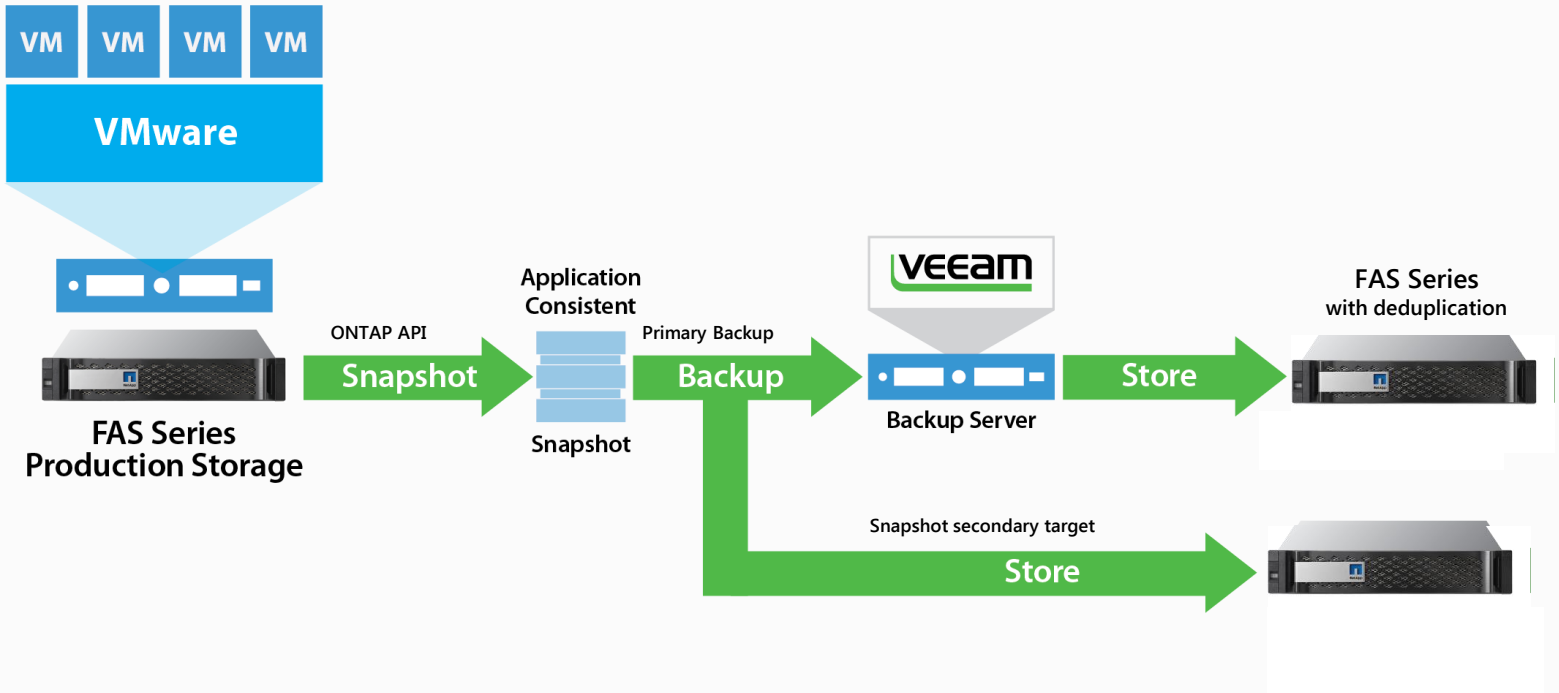
Data Loss Avoidance

Veeam Secondary Backup
to NetApp SnapMirror & SnapVault



Meet the **3-2-1 backup rule** for maintaining three copies of data efficiently

Perform primary and secondary backups directly from only one NetApp Snapshot

Instant secondary, **application consistent,** backup

Faster DR protection, lower management costs, reduced infrastructure impact

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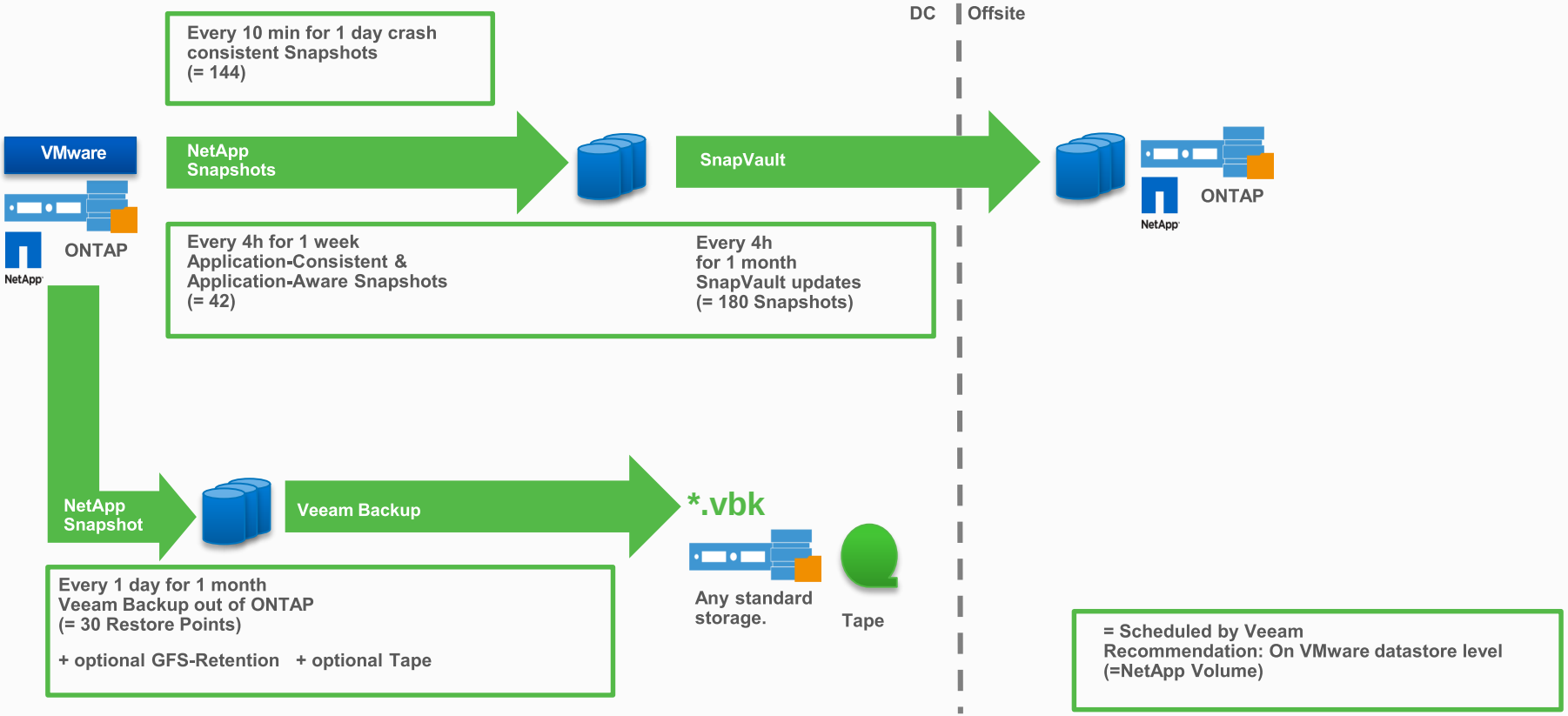
Concept 1 – ONTAP Storage SnapVault + Veeam v8



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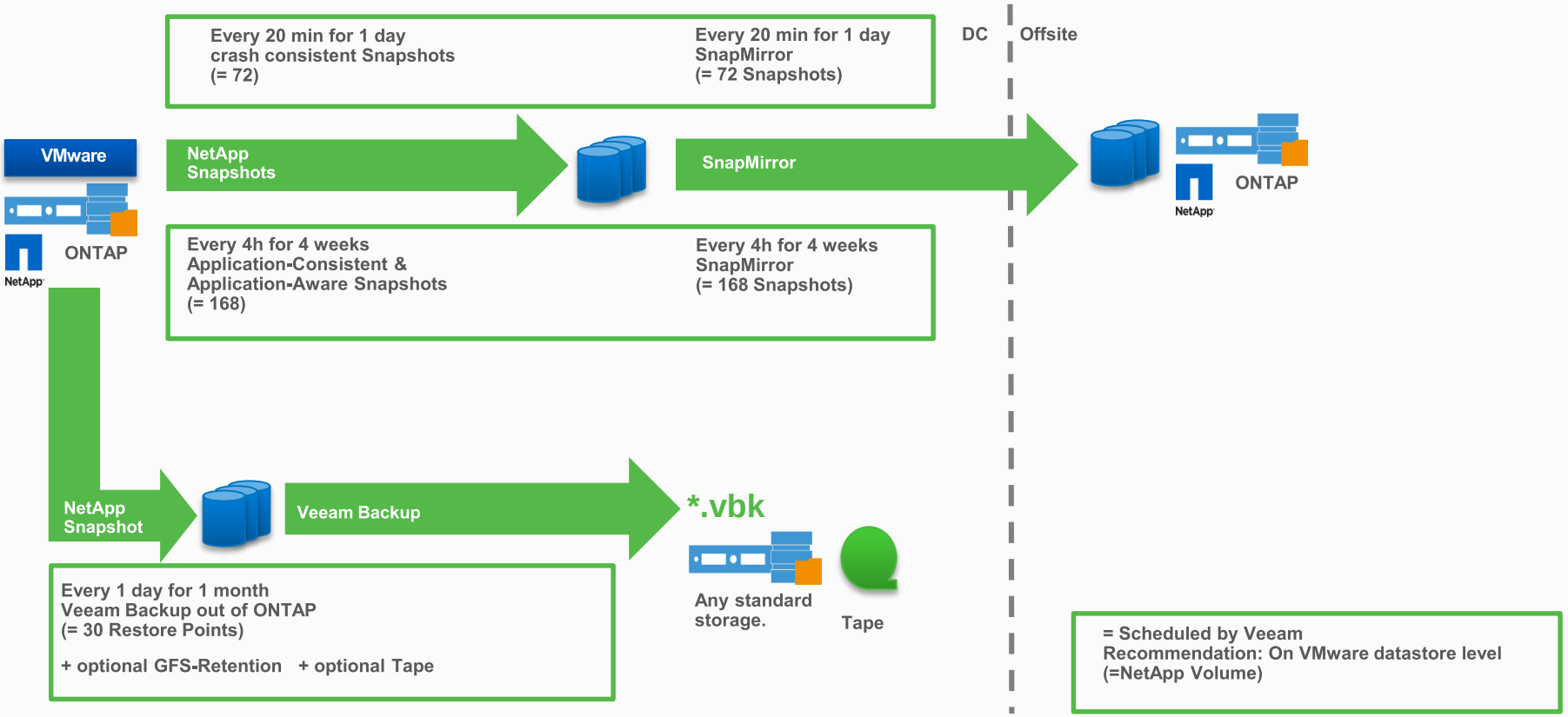
Concept 2 – ONTAP Storage SnapMirror + Veeam v8



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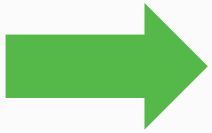
Restore from NetApp Snapshot/SnapVault/SnapMirror

Restore Source

Restorable Objects

NetApp Snapshot with VMware VMs

- Primary Snapshot
- SnapMirror/SnapVault Snapshot
- Crash Consistent or Application Consistent

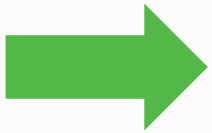


- Instant VM Recovery
- VM Recovery
- Win/Linux/Unix Instant File Level Recovery
- AD/Exchange/SharePoint Single Object Restore
- SQL DB Restore

Additional Veeam Backups

- On Disk
- On Tape (with Disk staging)

*.vbk



- Same as above +
- MS SQL Single DB Restore with log file roll forward (with enabled Veeam log file backup)
- SureBackup (On Demand Labs + automatic restore tests)
- Universal Application Item Recovery

You can use NetApp SnapManager and/or NetApp SnapCreator to complement Veeam for additional applications like Oracle, SAP, SAP HANA, DB2, Informix and others

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Veeam & FlexPod

Veeam and FlexPod

Benefits

- **High-speed recovery options** to easily recover individual items or entire VMs from NetApp Snapshot™, SnapMirror® and SnapVault®
- **Fast, application-consistent recovery points** by orchestrating NetApp Data ONTAP® to create snapshot only backups
- **Reduced risk of data loss** by automating the creation of secondary backups from NetApp SnapVault
- **Verified protection** by automating the testing of backups in the background to guarantee the recoverability of every file, application and virtual machine (VM)
- **A cloud ready platform** that enhances data availability by providing an efficient way to get backups off site to a service provider

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Veeam / NetApp / Hyper-V

Hyper-V + Veeam + NetApp

Veeam's backup processing is able to use storage snapshots of NetApp ONTAP and E/EF-Series Storage

- Uses NetApp hardware VSS provider
- Veeam's Changed Block Tracking Technology for Hyper-V used for CBT-based incremental forever backups (and VM replicas)
- Like VMware, all restore possibilities possible but it's not possible to restore out of a NetApp snapshot that contains Hyper-V VMs
- All Veeam advanced features (SureBackup/Virtual Lab/On-Demand Sandbox/Self Service, etc.) are available too

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System Requirements

NetApp System Requirements

Firmware

Data ONTAP 8.1 or 8.2

Hardware

NetApp FAS, FlexArray/V-Series, Data ONTAP Edge VSA and IBM N-series

Connectivity modes

NFS, iSCSI and Fibre Channel (FC)

Proprietary NFS client for best reliability and performance

ONTAP deployment modes

7-mode iSCSI/Fibre Channel (no licenses required; FlexClone license recommended)

7-mode with NFS (FlexClone license required; limited use with SnapRestore or NDMP)

Clustered ONTAP (FlexClone or SnapRestore required)

LUN cloning

Traditional clone and FlexClone (recommended)

Veeam works with NFS and iSCSI/FC datastores with VMware VMs based on VMDK disks

Relevant NetApp licenses required for SnapVault or SnapMirror use

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Veeam licensing

Licensed per virtualization host socket

Restore out of NetApp Snapshot (Primary/SnapMirror/SnapVault) with Veeam Explorer for NetApp SAN Snapshots (for VMware)

- Veeam Backup Free Edition includes Application Single Object Export
- Enterprise Edition includes Application Single Object Restore to original places
- Snapshots can be triggered manual or by non Veeam scheduler

Veeam Backup from NetApp Storage Snapshot and Veeam/ NetApp Snapshot Orchestration (for VMware)

- Veeam Backup & Replication Enterprise *Plus* edition or
- Veeam Essentials Enterprise *Plus* edition or
- Veeam Availability Suite Enterprise *Plus* edition

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Questions?

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