Advanced Data Protection Using Veeam and NetApp Technology

The Challenge

For years, customers with stringent recovery point objectives (RPOs) have used snapshot technology to protect stored data without affecting performance or significantly increasing the amount of storage space consumed. NetApp® Snapshot® copies provide a number of advantages: You can use them for "point-in-time" recovery and create a large number of restore points frequently, without impacting production workloads—even during working hours. You can also use Snapshot copies to protect data in certain disaster scenarios. You can replicate them to a secondary, often remote storage system for disaster recovery by using NetApp SnapMirror® replication technology, or back up and archive them by using NetApp SnapVault® software. In short, NetApp Snapshot technology combines performance, scalability, and efficient storage utilization to deliver fantastic RPOs.

Now there is a way to get even more from your Snapshot copies—one that allows you to leverage both storage and hypervisor-based snapshots to achieve the lowest possible RPOs, harness NetApp FAS and All Flash FAS (AFF), dramatically improve recovery time objectives (RTOs), and leverage storage-efficient FAS and AFF secondary targets and cloud-integrated backup with NetApp AltaVault™ storage.

The Solution

NetApp and Veeam have partnered to integrate support for NetApp Snapshot technology into the Veeam Availability Suite. This integration provides customers with a deeper level of protection and availability across NetApp FAS, FlexArray®, and E-Series storage platforms. Integration of Veeam Backup & Recovery with NetApp Snapshot technology allows you to achieve:

- **Faster backups.** Back up VMware virtual machines (VMs) directly from NetApp Snapshot copies.
- **Quick recovery.** Recover entire VMs or individual items from NetApp Snapshot, SnapMirror, and SnapVault software.
- **Improved protection**. Create instant secondary backups from NetApp Snapshot copies.
- **Cost-effective cloud backup storage.** Leverage Veeam software with NetApp AltaVault cloud-integrated storage for fast and efficient backup to the cloud.

KEY FEATURES

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

SOLUTION COMPONENTS

Firmware
- NetApp Data ONTAP® 8.1 or later

Software
- Veeam Backup & Replication

Connectivity
- NFS, iSCSI, and Fibre Channel

Deployment modes
- Cluster and 7-Mode LUN

Cloning
- Traditional and FlexClone volumes (recommended)

- **Enhanced scalability.** Scale efficiently and effectively, regardless of the size of your environment and number of VMs.
- **Better return on NetApp storage investments through On-Demand Sandbox capabilities.** Use NetApp Snapshot and FlexClone® technology to create completely isolated copies of your production environment in just a few clicks, for fast and easy testing and troubleshooting.
- **Smooth implementations.** Implementations are simple to deploy and easy to manage with no agents.

NetApp and Veeam technologies combine to deliver the low RPOs enabled by NetApp Snapshot technology with the fast RTOs delivered by Veeam Backup & Replication. Veeam backup from storage snapshots transforms NetApp Snapshot copies into backups for quick VM recovery and efficient file-level recovery in VMware environments. Data is read directly from NetApp Snapshot copies without the need for VMFS resignaturing, temporary VM registration, host cleanup, or "proxying" of the VMware ESXi server. Veeam does this by leveraging VMware vSphere Changed Block Tracking (CBT), allowing snapshot-derived backups to be created quickly—up to 20 times faster than competitive offerings. What's more, you can replicate these Snapshot copies to secondary storage systems, whether local or remote, by using SnapMirror and/or SnapVault. This approach provides customers with the shortest possible backup windows, lowest impact on production VMs, and maximum RPO.

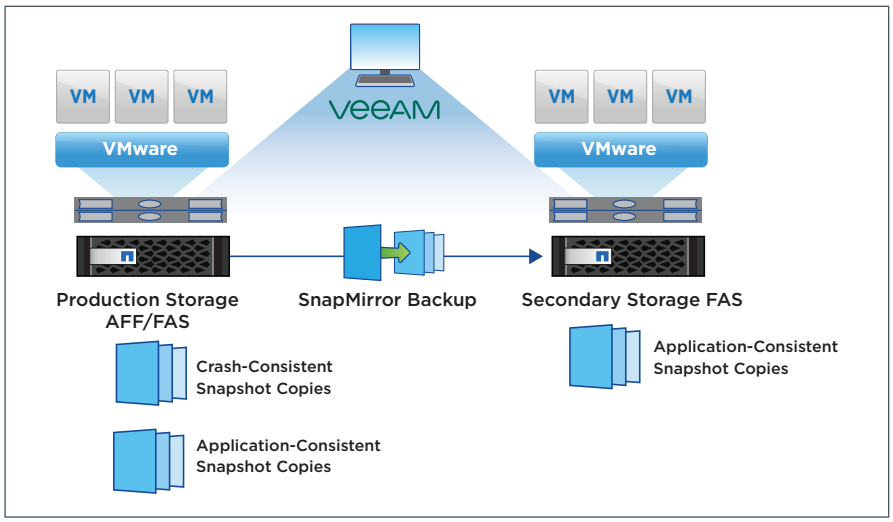

DIAGRAM 1: VEEAM AND NETAPP DELIVER UNIFIED REPLICATION.

Granular recovery from NetApp Snapshot copies

Regardless of the care you take in protecting your organization from data loss, you'll ultimately be called on to restore VMs and application items to a previous state. Legacy backup tools weren't designed to deal with the demands of today's virtual environments and the always-on enterprise. Veeam Explorer for Storage Snapshots allows you to take advantage of the low overhead that periodic array-based snapshots offer by letting you quickly restore guest OS files, application items, or an entire VM in minutes directly from native NetApp Snapshot copies. Users can also restore data directly from these Snapshot copies, eliminating the need for staging. In addition, data and application recoveries can be performed directly from NetApp Snapshot copies on primary or secondary NetApp storage (AFF, FAS), helping you maximize your NetApp investments. And Veeam helps reduce the time needed to mount Snapshot copies by a factor of 10 or more compared with manual processes.

This time efficiency helps you lower your RTOs while avoiding human errors that can occur during critical recovery steps such as mounting Snapshot copies. The process is simple: Just a few clicks from the Backup & Replication interface are all it takes to restore your data.

A complete, effective data protection solution

One of the best ways to protect data is to follow the "3-2-1" rule—keep three copies of your data stored on two different sets of media with at least one copy stored off site. Veeam provides an easy and efficient way for system administrators to implement a comprehensive data protection strategy. Veeam Backup Snapshot Vaulting creates primary and secondary backups directly from NetApp Snapshot copies —instantly storing one of the backup copies in SnapVault. To do this, Veeam Backup & Replication first creates an application-aware VM snapshot copy followed by a storage snapshot copy. Once the storage snapshot copy is

created, the VM snapshot is released and the Veeam proxy server creates a new backup file. Since Veeam is completely storage agnostic, you can save the backup file anywhere, including on NetApp AltaVault for cloud storage. By combining the low RPO capabilities of NetApp software with Veeam's fast RTO enablement, Veeam and NetApp provide customers with unprecedented levels of data protection and a simple, easy-to-manage suite of capabilities that delivers affordable, industry-leading performance.

Veeam Explorers for Microsoft Exchange and SharePoint provide instant visibility and granular recovery of individual items. Veeam is extending this same fast, agentless, and easy recovery to Microsoft SQL Server databases and Microsoft Active Directory, making item-level recovery even easier while continuing to enable the lowest RPOs and RTOs available. Veeam Explorer for Oracle can also be leveraged by administrators to get fast, transaction-level recovery across Oracle database environments. Integration of NetApp Snapshot capabilities into Veeam Backup & Replication helps customers get more value out of their backup data by reducing operational and management costs while delivering advanced data protection for the modern data center.

Backup to the cloud

Many businesses are interested in leveraging low-cost storage in the cloud as a way to efficiently store and protect critical business data off site. Veeam integrates with the NetApp AltaVault cloud-integrated storage solution to give organizations a simple way to back up data to the cloud.

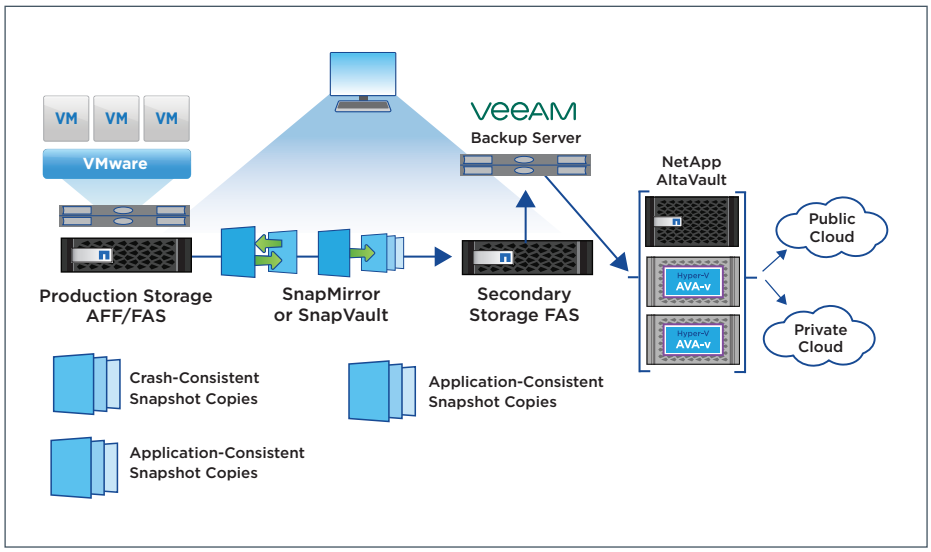

DIAGRAM 2: VEEAM AND NETAPP DELIVER UNIFIED REPLICATION PLUS CLOUD INTEGRATION.

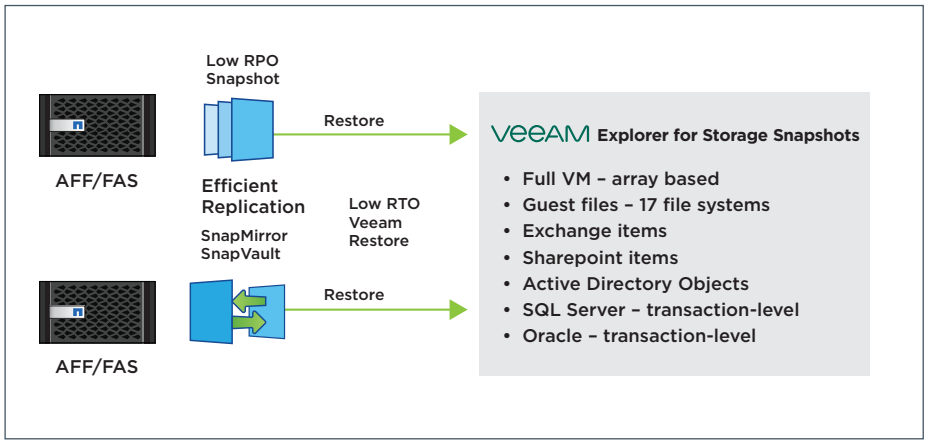

DIAGRAM 3: VEEAM EXPLORER FOR STORAGE SNAPSHOTS USED WITH NETAPP SNAPSHOT COPIES.

Enterprise scalability

The exponential growth of data and provisioned IT services is forcing businesses and enterprises of all sizes to rethink their availability strategy. Veeam scales efficiently and effectively and provides benefits that include:

- Backup acceleration technologies that double I/O performance and shorten backup windows by up to five times—all while reducing load on primary storage, backup storage, and vCenter Servers
- Full VM restore acceleration technologies with custom-tailored logic for raw disk, deduplicating storage, and tape, greatly improving VM restore performance processing engine enhancements that let you scale for large environments and efficiently process jobs containing thousands of VMs or millions of files

Veeam On-Demand Sandbox for Storage Snapshots

Veeam On-Demand Sandbox for Storage Snapshots integrates Veeam's long-standing on-demand sandbox capability with NetApp Snapshot and FlexClone technology, giving you another way to leverage your NetApp storage investment.

Using this capability, you can provision a complete, isolated copy of your production environment in just a few clicks by running copies of production VMs directly from FlexClone copies on NetApp primary or secondary storage. This allows you to test updates or troubleshoot your production environment—plus a variety of similar use cases—at the full speed and scale of production storage.

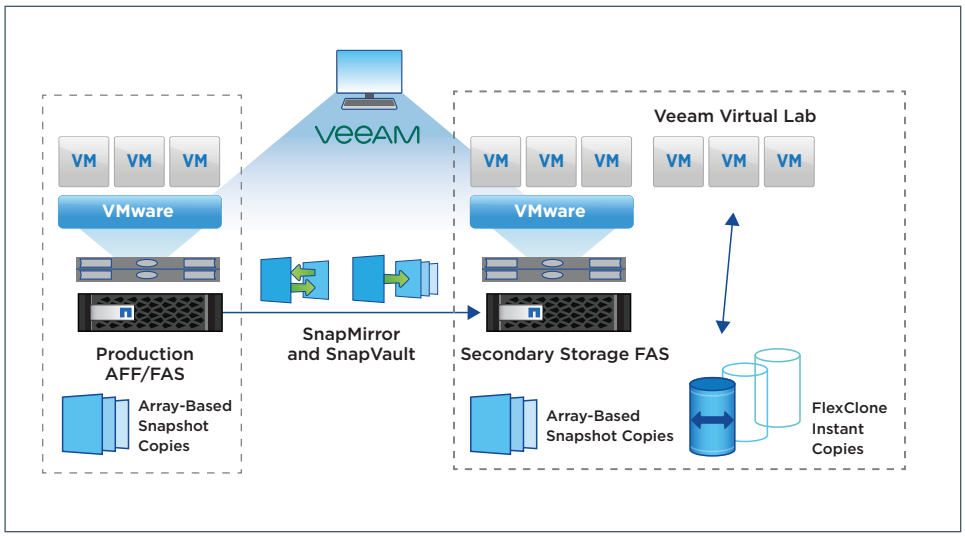

DIAGRAM 4: VEEAM ON-DEMAND SANDBOX WITH NETAPP SNAPSHOT AND FLEXCLONE TECHNOLOGY.

Ease of implementation

As an agentless architecture that directly integrates with VMware vSphere and Microsoft Hyper-V, Veeam Backup & Replication is simple to install and manage. When Veeam is combined with NetApp powered storage solutions, businesses can simplify IT operational management, significantly improve application availability, and mitigate risk.

"Our data center is 99% virtual and we decided on Veeam because it is built for virtualization as well as being agentless, scalable, simple to deploy and manage. We've standardized on NetApp, and by combining both Veeam and NetApp, our clustered Data ONTAP architecture achieves the outstanding recovery points from snapshots, as well as rapid recovery from Veeam, protecting our data from both large-scale failures as well as common user errors. We can recover whole VMs or individual application items easily and in minutes. Veeam also provides us integration into our Microsoft Systems Center environment for monitoring."

Brent Dunington
Systems Architect,
University of British Columbia

ABOUT VEEAM

Veeam® enables Availability for the Always-On Enterprise™ with the Veeam Availability Suite™ by helping organizations meet today's service-level objectives, enabling recovery of any IT service and related applications and data within seconds and minutes. More than 200,000 customers worldwide rely on Veeam to protect 11+ million VMs. To learn more, visit www.veeam.com

ABOUT NETAPP

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit www.netapp.com. #DataDriven