

Veeam Backup & Replication on HPE SimpliVity 380

1+1=3
HPE + Veeam
Better Together

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Introduction

Hewlett Packard Enterprise (HPE) SimpliVity 380 offers powerful native capabilities for data protection that can be leveraged to ensure the highest Availability of virtualized workloads. The built-in backup and disaster recovery (DR) of HPE SimpliVity leverages global data deduplication and compression for extremely fast operations: 10-minute RPO and 60 seconds or less on average for local backup or restore of a 1 TB VM – guaranteed and without any performance overhead as all operations leverage the core architectural data efficiency of OmniStack, which accelerates data replication, backup and restore functions, improving RPOs and RTOs. All SimpliVity operations are carried out at a VM level, directly from the hypervisor management console which simplifies management and infrastructure complexity.

In addition to what SimpliVity users already have available, some also desire additional capabilities such as off-site archive to cloud or tape, or an additional layer of granularity for restores, such as granular restore for some of the most popular applications. It is also possible that SimpliVity users have heterogeneous infrastructures that consist of hypervisors running on non-SimpliVity servers, or servers that can't be virtualized, where there is still a need for a data Availability strategy. This white paper goes deeper into a few of these different use cases where someone might want to add Veeam® Backup & Replication™ to HPE SimpliVity 380. For greater detail on how to use each Veeam feature covered in this paper, you can leverage the helpful links at the end.

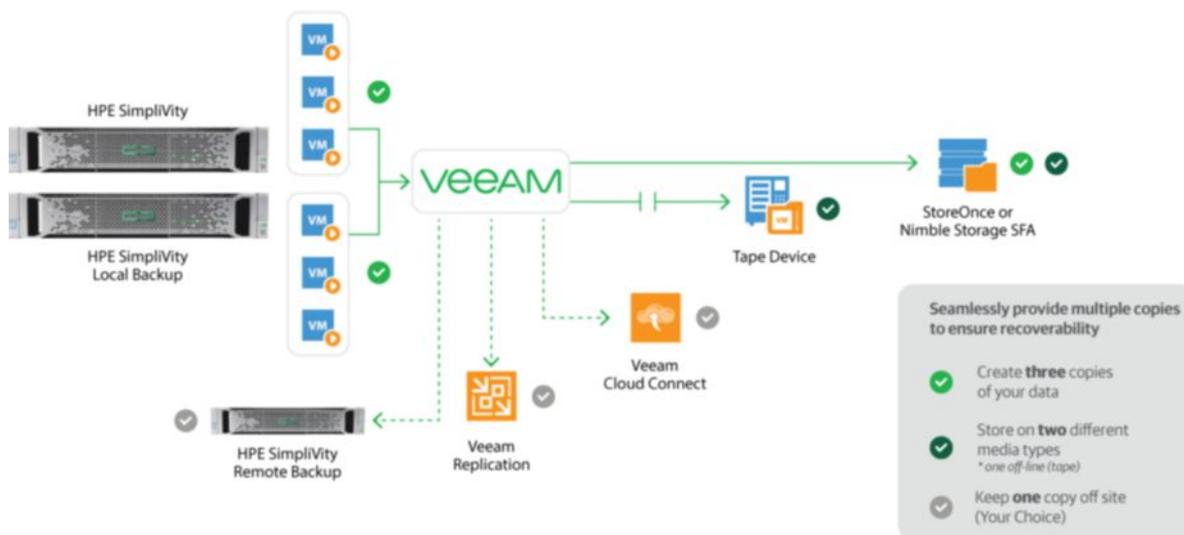


Figure 1: A holistic view of multi-tiered protection with HPE SimpliVity 380 and Veeam Backup & Replication

Veeam Backup & Replication vs. HPE SimpliVity terminology

Veeam and HPE SimpliVity data protection features, while similar in some ways, are often referred to by different names. Before reading this white paper, it is important to be able to identify what each term means when used in the context of each product.

Term	SimpliVity	Veeam
Backup	Local copy of VMs using native SimpliVity technologies and housed within a SimpliVity federation	Local copy of VM data housed in a portable Veeam backup file that exists separate of a SimpliVity federation
Backup copy	NA	Copy of a Veeam backup file that exists separate of a SimpliVity federation and is stored on remote sites, cloud or tape
Remote backup	A remote copy of VMs in a separate SimpliVity cluster using native SimpliVity technology	NA
Replica	NA	An on-site or off-site copy of entire VMs registered within SimpliVity or non-SimpliVity based vSphere hosts to provide rapid failover and failback of failed VMs

Veeam Backup & Replication architecture on HPE SimpliVity 380

Unlike traditional server and storage infrastructures, where each functionality is owned by dedicated hardware, SimpliVity takes a hyperconverged approach with their OmniStack Data Virtualization Platform to provide a single, shared resource pool across the entire IT stack, eliminating point products and siloed IT architectures. There are specific guidelines that need to be met when adding Veeam Backup & Replication to ensure optimum performance with this new, modern approach. Along with these guidelines, a standard Veeam setup and installation procedure can be followed as outlined in the Veeam Backup & Replication User's Guide linked in the helpful links at the end of this paper.

- **Configure HPE SimpliVity hardware to use 10 GbE interfaces** — Standard configurations often come with enough 10 GbE interfaces to handle the native data services in HPE SimpliVity 380, while management networks run on 1 GbE adapters. Veeam will be leveraging ESXi host management networks to retrieve VM backup data, so it is important that they also be configured with 10 GbE interfaces.
- **Veeam Backup & Replication on a physical server** — While it is possible to make this server virtualized within the SimpliVity federation, it can result in a single SimpliVity compute node's network adapter being over-utilized for backup processes as Veeam reads VM data from other nodes in the federation through the NIC it has direct access to. A physical server will offer a dedicated 10 GbE HBA where no other services are running. A physical server can also optionally house Veeam backup data locally, or just process and send it to a purpose-built backup appliance such as HPE StoreOnce over Catalyst or a Nimble Secondary Flash Array (SFA).
- **Veeam Backup & Replication on a virtual server** — If a virtual server is preferred, the first bullet is still very important with supplying 10 GbE adapters for management networks, but it is also important to have a dedicated 10 GbE port to send Veeam backup data to purpose-built backup appliances such as HPE StoreOnce over Catalyst or a Nimble Secondary Flash Array (SFA). Veeam's best practice is to never store its backups within a VM in the SimpliVity Federation.

- **Force data retrieval over Veeam's "network mode" (NBD)** — While a virtualized Veeam server can use VMware's Hot Add capability for retrieving VM backup data, it is not recommended for HPE SimpliVity due to potential performance and reliability concerns. Due to this, Veeam network mode should be forced within Veeam Backup Proxies as shown in **Figure 2**.

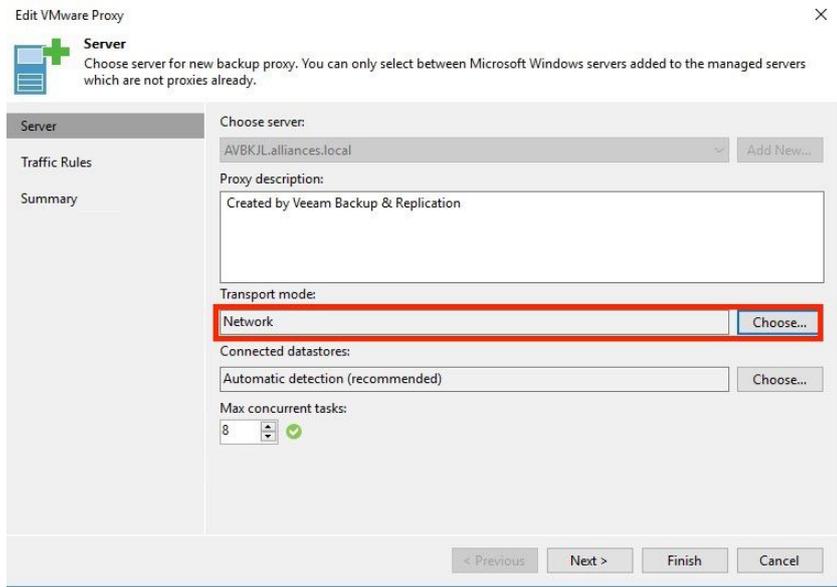


Figure 2: Choosing network mode in backup proxy settings

Customer use cases

Use case 1: Creating off-site copies of Veeam backups

Once the Veeam backup infrastructure is in place and primary backups have been completed, it is possible to make additional copies of these backups on Veeam Cloud Connect remote backup repositories that can be rented from Cloud Connect partners, or at an organization's own remote site where disk-based backup storage is located.

To achieve this, Veeam leverages the concept of backup copy jobs. A backup copy job allows an administrator to choose which VMs in one or more backup jobs get copied to the remote repository, and at what frequency. With this, a simple or advanced retention that follows the grandfather-father-son (GFS) model can be chosen. **Figure 2** shows the interface for configuring a backup copy job where target VMs, the backup copy target and retention are chosen.

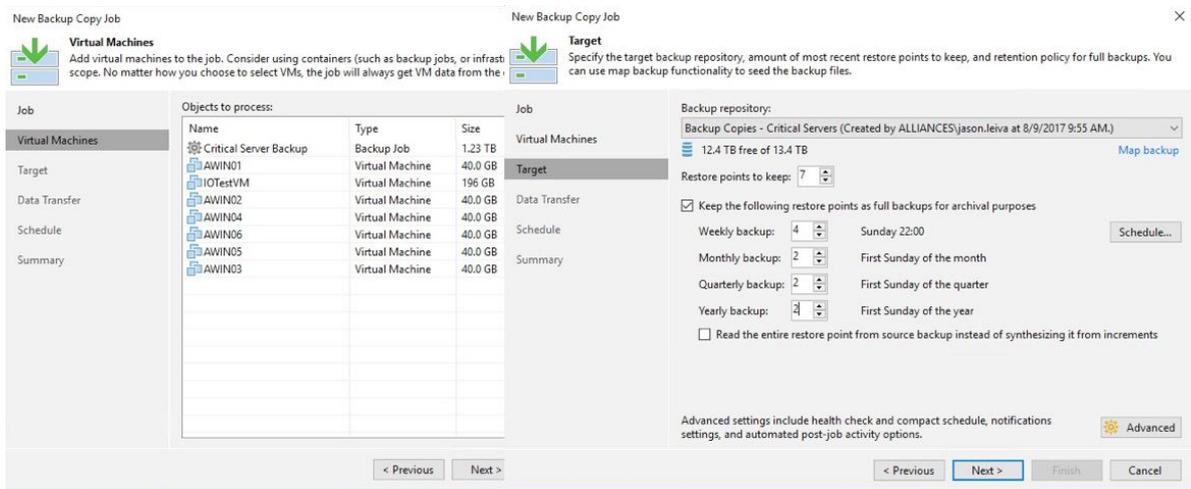


Figure 3: Choosing VMs to be copied, the repository they are going to and the retention schedule for them

Use case 2: Archiving Veeam backups to tape

Many organizations still choose tape as their preferred media for storing backups for long periods of time. In recent years, it has become popular for organizations looking to have a strategy against the threat of ransomware as it provides an easy way to take backups completely offline. Veeam's tape functionality is designed in a way that still leverages the advantages of having recent backups on disk for fast restores, but also modern tape technologies when copying those backups and managing them on tape.

Like a backup copy job, copying backups to tape consists of choosing backup files or entire backup repositories, not individual VM backups, that need to go to tape. With this comes a scheduler as well as optional GFS retention on tape media pools. Figures 4-6 show the different options available for configuring a backup to tape job. Detailed instructions can be found in the Veeam Tape Devices Support Guide linked at the end of this paper.

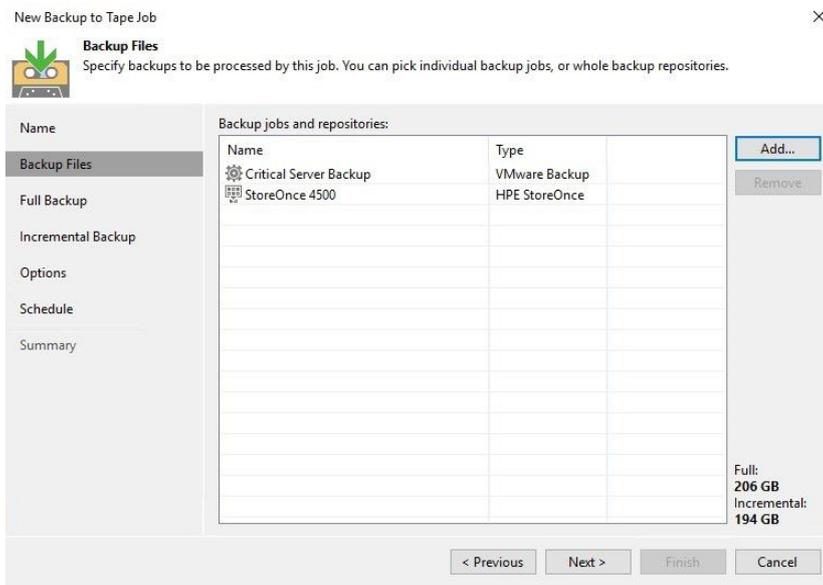


Figure 4: Select source files for copying to tape

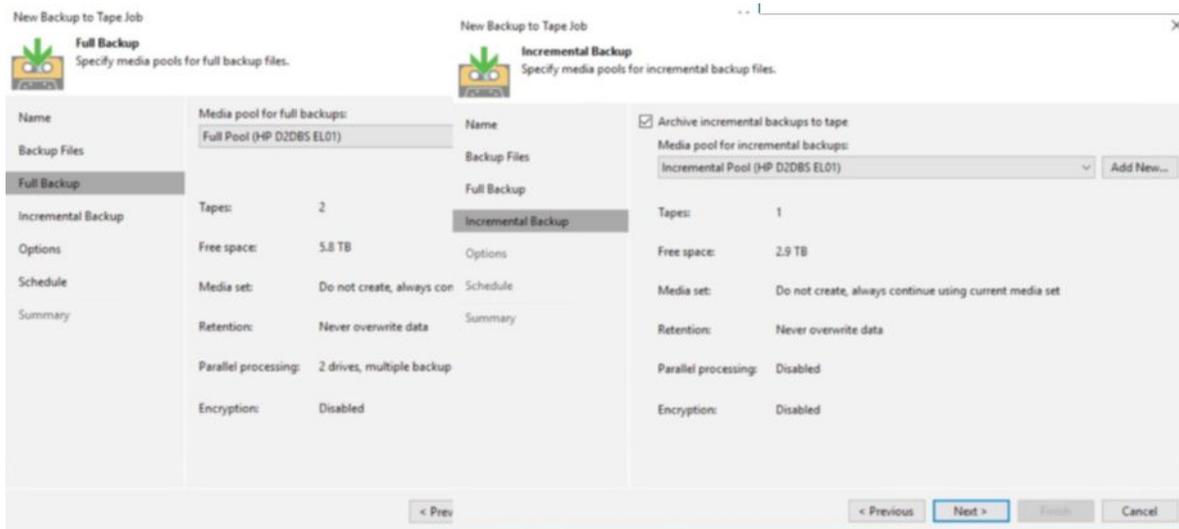


Figure 5: Select media pools to hold full and incremental backup files

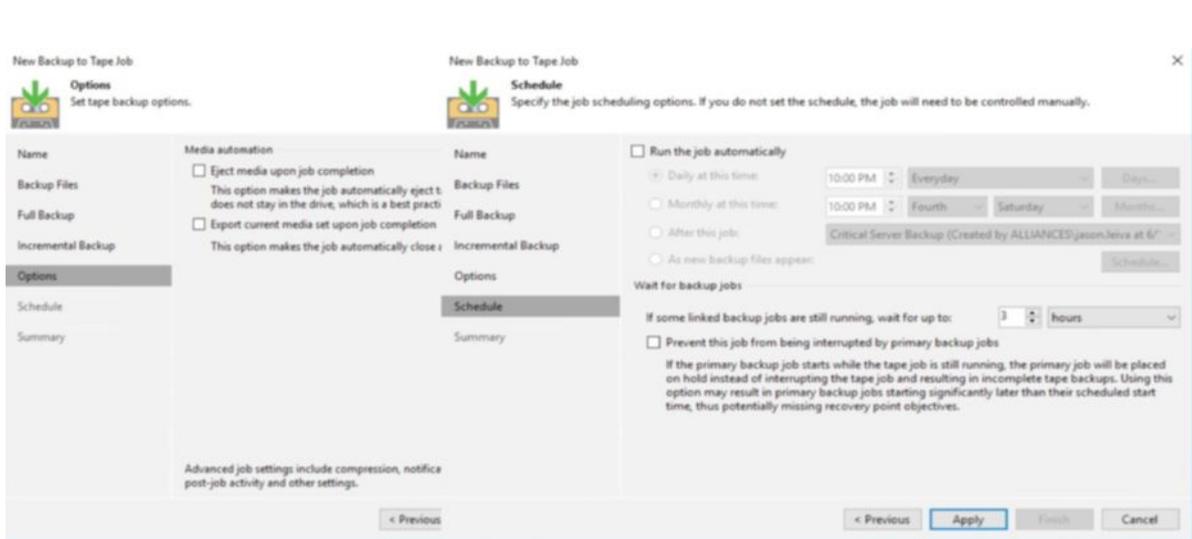


Figure 6: Tape automation and scheduling options

Use case 3: Application management and restore

Veeam Backup & Replication supports granular restores for Microsoft Active Directory, Exchange, SQL and SharePoint, as well as Oracle running on Windows and Linux. Granular restores are based on Veeam’s application consistent backup and restore technology. Restores for these applications are executed within the Veeam Explorers™ which are included in every edition of Veeam Backup & Replication.

Note: HPE SimpliVity offers application consistent backup and restore for Microsoft SQL server and will support more applications in the future. It is recommended to always leverage SimpliVity features first for data management activities within the SimpliVity federation

To enable application level processing and restore, it is important to enable Application Aware Image Processing in the primary backup jobs. **Figure 7** below shows the options available for all VMs in the backup job under Application Aware Image Processing, as well as unique options for specific applications.

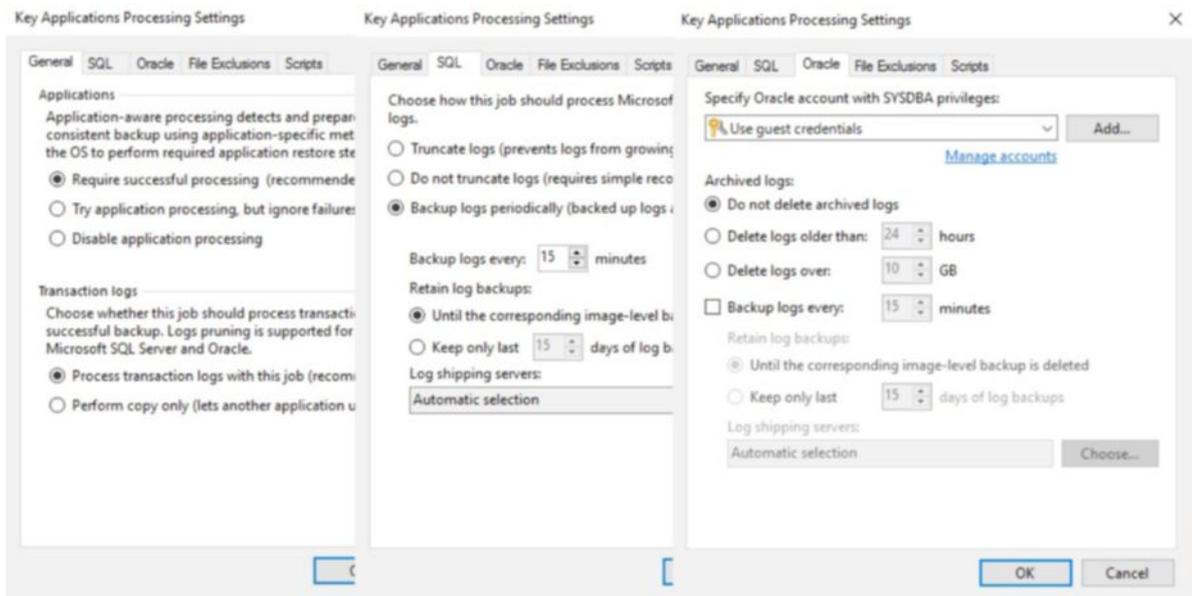


Figure 7: Application Aware Image Processing settings for all VMs and specific VM types within a backup job

For this paper, we are showing how to navigate to an existing Veeam Backup & Replication backup and launch an application object restore for Microsoft SQL. As shown in **Figure 8**, Veeam automatically detects the SQL application present in this VM and provides the option to launch a SQL object restore.

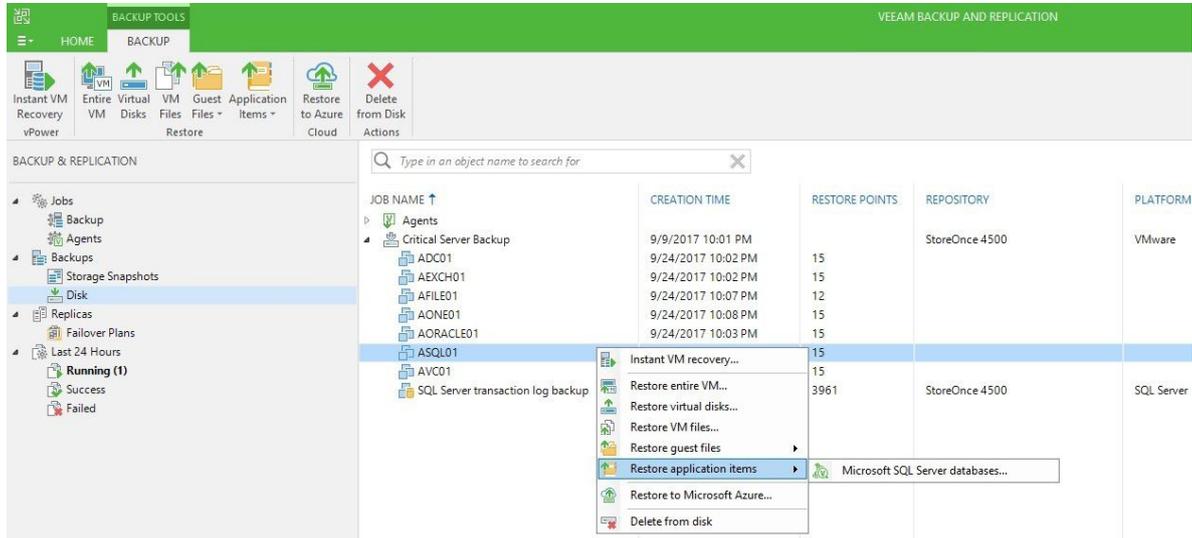


Figure 8: Select the VM for the restore and choosing to restore Microsoft SQL databases

After choosing to restore and the restore point to use, Veeam Explorer for Microsoft SQL Server opens and allows for choosing a SQL restore type, which can include entire databases, schemas and data, or specific transactions from a point in time (**Figure 9 and 10**). This type of database server restore functionality is also available in Windows and Linux-based Oracle installations. In the case of Microsoft Exchange, it would be mail items, contacts and calendar items. For Microsoft SharePoint, it would be objects from SharePoint sites or entire sites, and for Microsoft Active Directory, it would be computer accounts, user accounts, organizational units and GPOs.

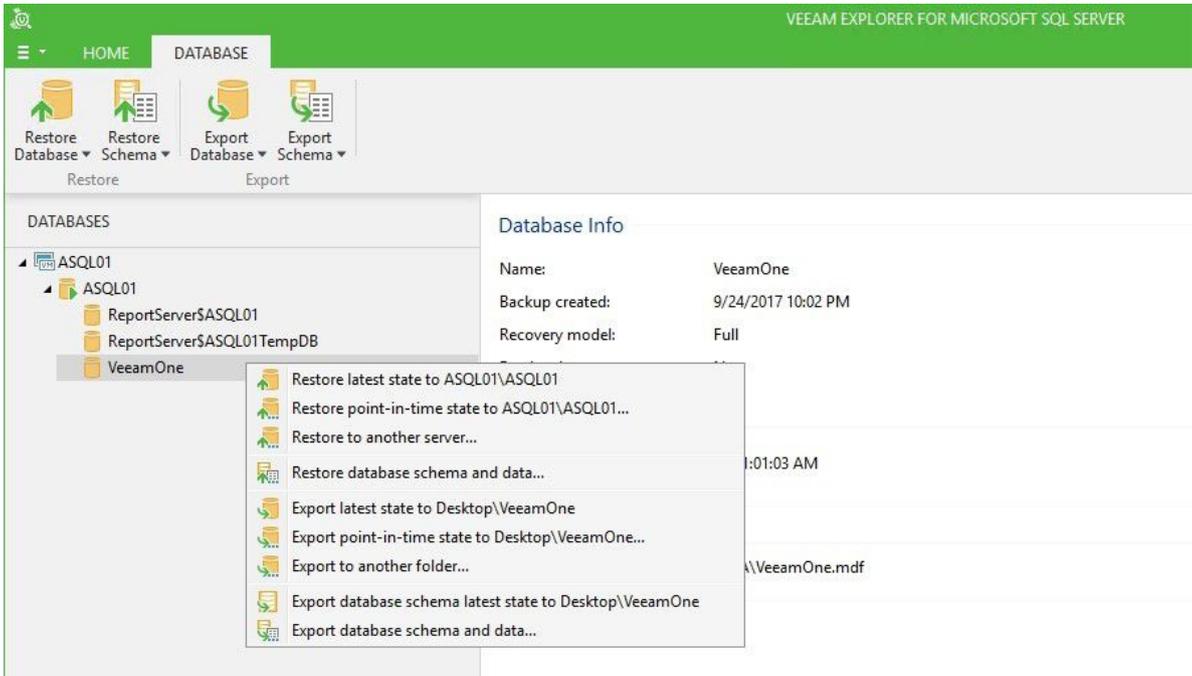


Figure 9: Use Veeam Explorer for Microsoft SQL Server to perform an application level restore

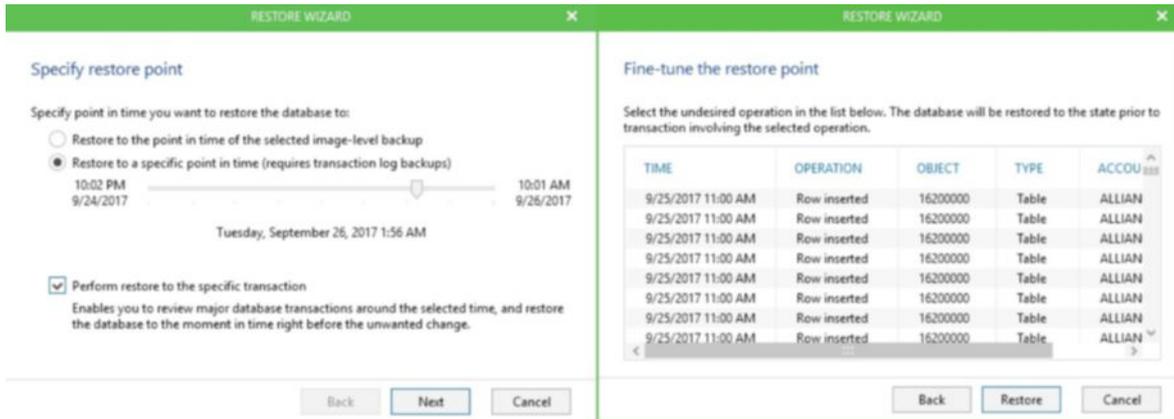


Figure 10: Use Veeam Explorer for Microsoft SQL Server to fine tune restore points and restores

Use case 4: Replicating VMs from SimpliVity to non-SimpliVity infrastructure

In environments where SimpliVity has been deployed in one location, but not at a DR site, it is possible to use any server with VMware vSphere and accompanying storage as a target for VM replicas managed by Veeam Backup & Replication. With this comes the ability to create failover plans to automate the order in which replica VMs power on in an outage, the automation of changing IP addresses (Windows VMs only), and the efficiency of failing back only changes to production VMs when a disaster is over.

Additional capabilities for replicas are automated testing and verification of each replica restore point, the ability to sandbox replicas for testing and development, and the use of Veeam WAN Accelerators when network bandwidth is limited or when there are large amounts of data to replicate.

The configuration of Veeam replication jobs is similar to that of the primary backup job with major differences being that backup storage isn't the target, but rather the VMware vSphere host(s) at the DR location, and customizing the behavior of the replicas for failover scenarios. The methods Veeam uses to retrieve source data for replicas is the same as it is for backup jobs. **Figures 10-12** show the specific configuration options for a replication job.

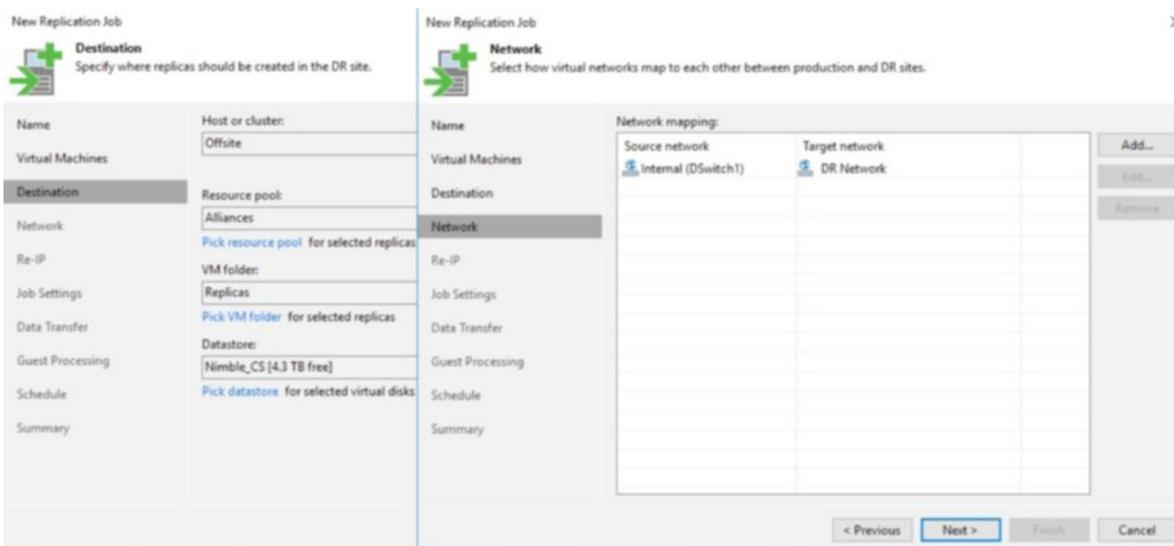


Figure 11: Select destination and network mapping between source and target locations

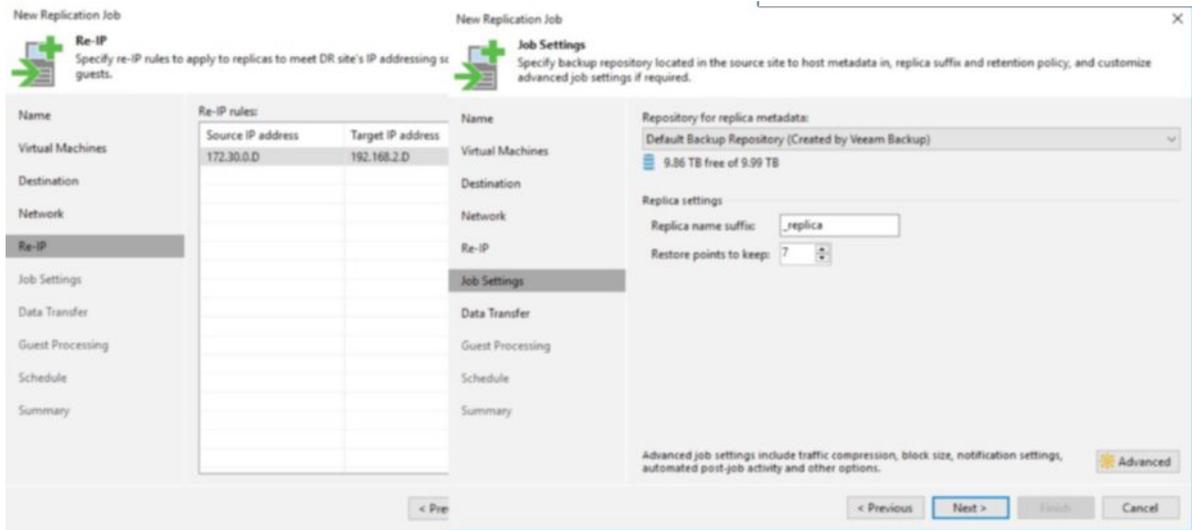


Figure 12: Establish re-IP rules for replicated VMs, custom naming suffixes and up to 28 restore points

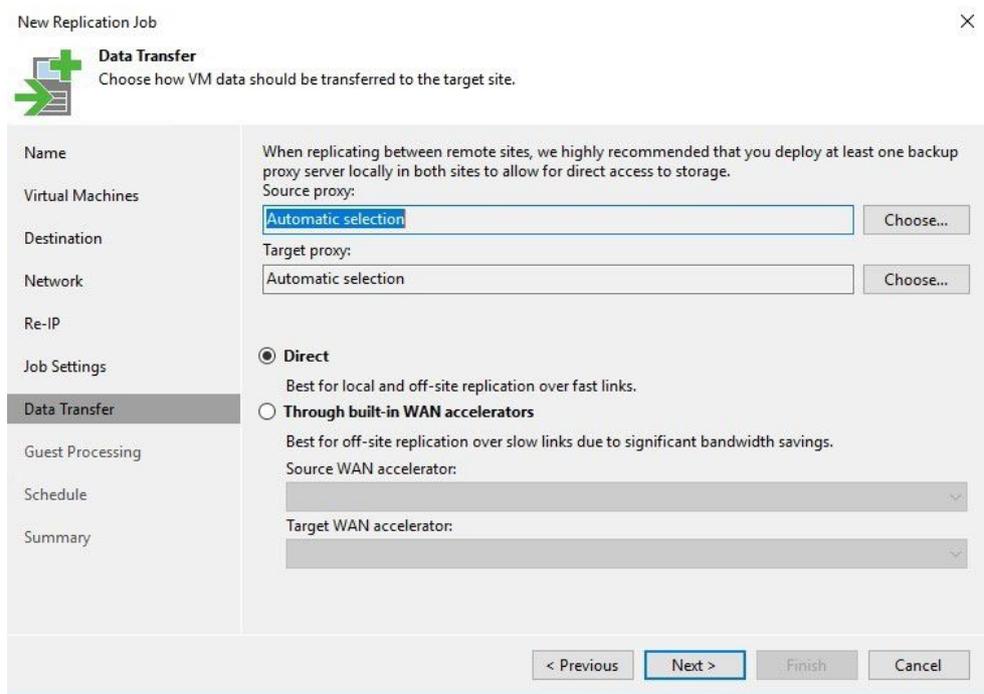


Figure 13: Optional customization of Veeam proxies in use and methods for optimizing data transfer

Conclusion

Data protection and data Availability services play a critical role in the modern enterprise. SimpliVity provides a robust built-in data protection and Availability solution that helps customers achieve most use cases. However, there are certain scenarios which the combination of Veeam and SimpliVity can help achieve. This paper outlined just a few possibilities of what can be accomplished when Veeam Backup & Replication is combined with HPE SimpliVity 380. While the use cases listed in this paper are the most commonly used, there are certainly additional capabilities that can be discussed with your Veeam and HPE SimpliVity representatives to meet the unique needs of an organization

It is strongly recommended that you view all the links below to obtain deeper knowledge on Veeam and SimpliVity products. You are also encouraged to download a FREE 30-day trial of Veeam Backup & Replication that can be used with current or future SimpliVity deployments, and easily transferred to a production license if desired.

Helpful links

SimpliVity

- [SimpliVity product page](#)
- [Data Protection on HPE SimpliVity platforms](#)
- [HPE SimpliVity HyperGuarantee](#)

Veeam

- [Veeam Backup & Replication product page](#)
- [Veeam Backup & Replication User's Guide](#)
- [Veeam Evaluator's Guide for VMware vSphere](#)
- [Veeam Tape Devices Support Guide](#)
- [Veeam Explorers Guide](#)

About Veeam Software

Veeam® recognizes the new challenges companies across the globe face in enabling the Always-On Business™, a business that must operate 24.7.365. To address this, Veeam has pioneered a new market of Availability for the Always-On Enterprise™ by helping organizations meet recovery time and point objectives (RTPO™) of < 15 minutes for all applications and data, through a fundamentally new kind of solution that delivers high-speed recovery, data loss avoidance, verified protection, leveraged data and complete visibility. [Veeam Availability Suite™](#), which includes [Veeam Backup & Replication™](#), leverages virtualization, storage, and cloud technologies that enable the modern data center to help organizations save time, mitigate risks, and dramatically reduce capital and operational costs.

Founded in 2006, Veeam currently has 49,000 ProPartners and more than 255,000 customers worldwide. Veeam's global headquarters are located in Baar, Switzerland, and the company has offices throughout the world. To learn more, visit <http://www.veeam.com>.

AVAILABILITY for the Always-On Enterprise™

VEEAM

A nighttime photograph of a city skyline, likely Chicago, with the Willis Tower prominently featured. The buildings are illuminated with lights, and their reflections are visible on the water in the foreground. The overall color palette is dark with highlights from the city lights.

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