

Advanced Backup Functionality for Your Consolidated IT Environment

**A deeper look at the data protection and enhanced
business continuity functionality which can be
achieved by incorporating Micro Focus® Data Protector
with HPE SimpliVity hyperconverged platforms**

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Comprehensive Protection:

Reduce costs and downtime while increasing availability and providing greater protection for your business critical data. Enjoy a complete data protection solution by combining HPE's industry leading hyperconverged solution with Micro Focus Data Protector software to create a common data availability scheme for your entire HPE portfolio.

Introduction

As technology evolves and new functions and capabilities are introduced, the complexity of maintaining and administrating the IT environment also increase. Legacy systems operate next to the newest equipment and hybrid IT is a reality with data and applications residing on a mix of physical, virtual and cloud media located in both the data center and remote locations. How can this complexity be minimized to help control costs, administration and the overall IT footprint, while protecting all key business data assets?

HPE SimpliVity hyperconverged storage helps reduce the overall footprint by combining your IT infrastructure and advanced data services into a single, integrated all-flash solution and comes at a lower cost than public cloud offerings. With policy based VM-centric management it simplifies day-to-day operations and enables seamless data mobility resulting in increased productivity.

Further value, simplification and advanced data protection can be achieved for the full hybrid IT environment by using Micro Focus® Data Protector as the single data, application and virtual system backup and disaster recovery software. The combined Data Protector and HPE SimpliVity hyperconverged storage is a certified solution which provides consolidation for cost savings and footprint reduction and meets the business continuity needs for the complex IT environment.

Although HPE SimpliVity provides basic data protection services to help protect your data and VMs, either through a local backup or remote backup to a secondary SimpliVity cluster, integration with Micro Focus Data Protector enables advanced data protection for both HPE SimpliVity and the entire IT environment. HPE SimpliVity can be integrated into the data protection scheme applied to a full heterogeneous IT environment with multiple storage systems in multiple locations. This enables the application of data backup best practices for additional data copies, or long term data retention. The full solution ensures that your data, VMs and critical applications can be fully protected by storing them in physical or virtual secondary storage, off-site, or in public, private or hybrid cloud locations.

These advanced data protection features are outlined in the following use cases demonstrating the value of the combined, certified solution.

Architectural Implementation of Micro Focus Data Protector with HPE SimpliVity

HPE SimpliVity is a hyperconverged storage platform which combines all the functionality of traditional individual hardware and software elements into a single, integrated all flash solution providing cost savings over traditional and public cloud offerings. The SimpliVity solution is compact but expandable through the addition of 2U nodes that deliver server, storage and storage network services while dramatically simplifying IT and delivering a complete set of advanced functionality. This integration enables great improvements to the efficiency, management, protection and performance of virtualized workloads for VMware and Microsoft Hyper-V implementations.



HPE SimpliVity 380:
Hyperconverged storage platform

Micro Focus Data Protector is an enterprise class, highly scalable backup and recovery software solution. Deep integration with HPE secondary storage functionality and qualified on HPE storage platforms it provides a single backup and recovery solution for simple or complex hybrid-IT environments. Complete protection is provided for unstructured data, mission critical application, Operating Systems and virtualized environments. Flexibility and security of business data is assured by allowing data to be backed up to multiple targets including disk, tape, or cloud either on site or off site. Centrally managed it provides reports and status dashboards for instant visibility of your data backup status.

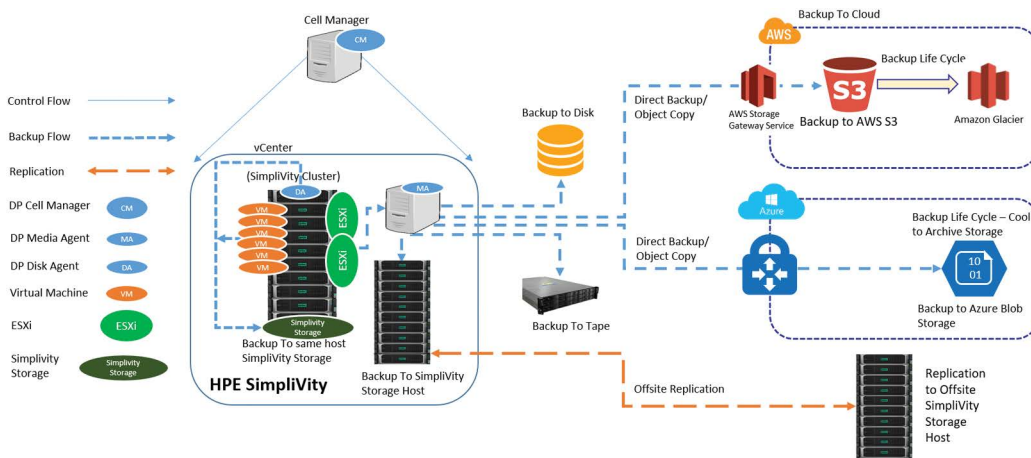


Figure 1. Micro Focus Data Protector connecting HPE SimpliVity in a Heterogeneous environment providing access to tape, cloud and secondary data storage

The joint solution requires nothing more than following standard procedures to integrate Data Protector with HPE SimpliVity platforms and reflects the long history of joint development of Data Protector with the HPE Storage group when the product was part of HPE. No plug-ins or adaptors are required and the integration extends to any HPE secondary storage where additional benefits may be gained. What this means is that the extended backup capabilities of Data Protector can be added to any hyperconverged

HPE Integrated Solutions:
Protect your full HPE portfolio with Micro Focus Data Protector. Integrated and tested backup protection for 3PAR, StoreOnce, Catalyst and Catalyst Cloud Bank. One backup management system covers all physical, Virtual Machine and cloud implementations.

SimpliVity system, and HPE SimpliVity systems can be quickly and easily incorporated into any existing Data Protector backup and recovery solution. The full implementation procedures to connect the solution are outlined with step-by-step instructions in the product documentation.

Use Case Overview

The following use cases highlight some of the key enhancements and expanded capabilities which can be added to any IT environment to improve the data backup and disaster recovery functionality. Whether a storage environment is minimal and converged or is extensive and utilizes multiple different storage technologies, there are capabilities and processes which can maximize the protection of valuable business data.

Backup in a Heterogeneous Environment

While HPE SimpliVity offers many advantages through the hyperconvergence of hardware and functionality, and many companies are moving in this direction in order to simplify management and reduce costs, there is still the existing infrastructure to consider. Most enterprise companies have different storage platforms running different operating systems, applications and file systems. The data on these systems require protection and having a single backup and recovery solution will allow continued cost savings and management simplification for the most efficient and cost effective solution.

If Data Protector is already being used in the IT environment then it is reassuring to know that it is a simple task to integrate HPE SimpliVity into that environment and add it to the data protection processes. The certification of Data Protector with HPE SimpliVity provides the confidence that the solutions will work together and that another backup and recovery silo will not need to be created.

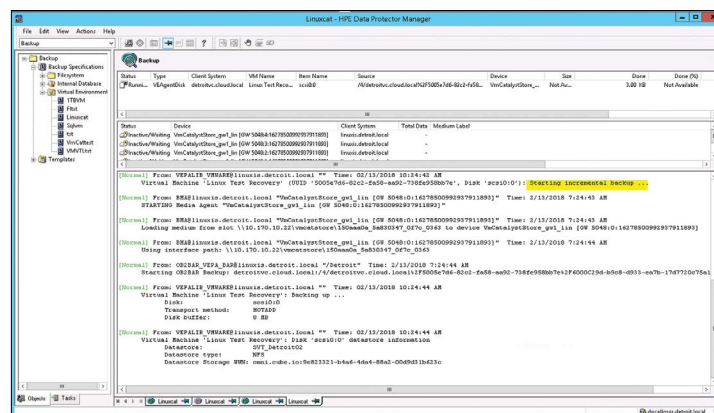


Figure 2. Data Protector Manager showing backup of the Virtual Machine

Using HPE SimpliVity's data protection capabilities for all primary data protection needs ensures no performance penalty. When it is part of a heterogeneous environment Data Protector can be leveraged to manage data protection and disaster recovery in the wider context. This solution enables the full resources for data backup and disaster recovery to be made available for the primary data on HPE SimpliVity. Doing this, existing investments can still be fully utilized and can help with a smooth transition to incorporate more hyperconverged capability in the data center, all the time providing maximum protection for your data assets.

Enterprise class scalability and security with application-consistent recovery and best-in-class platform and cloud integrations

Micro Focus Data Protector works and is certified with many storage platforms from all major vendors but has the deepest and most comprehensive integration with HPE storage. When used in an environment with HPE storage products the full power of Data Protector becomes apparent and its many years of development as part of HPE can be seen. Some of the advantages of having Data Protector manage backup and recovery in a heterogeneous environment are:

- Certified with HPE SimpliVity for seamless interoperability
- HPE Nimble storage certification
- Deep HPE 3PAR integration such as
 - HPE Smartcache integration for HPE 3PAR snapshot offload
 - Application aware automated snapshot management including on Windows, Linux and HPE-UX
 - 3PAR Remote Copy integration reducing burden on primary array by offloading backup processing to the secondary storage array
- Native integrations with HPE StoreOnce for
 - Federated deduplication at the application source, backup server, or target device
 - Automated Replication Sync for HPE Catalyst to improve IT productivity
 - HPE StoreOnce encryption to reduce and mitigate risk
- HPE Cloud Bank support through native integration with Catalyst Copy
 - Further cloud support is possible either natively in Data Protector or through a cloud gateway

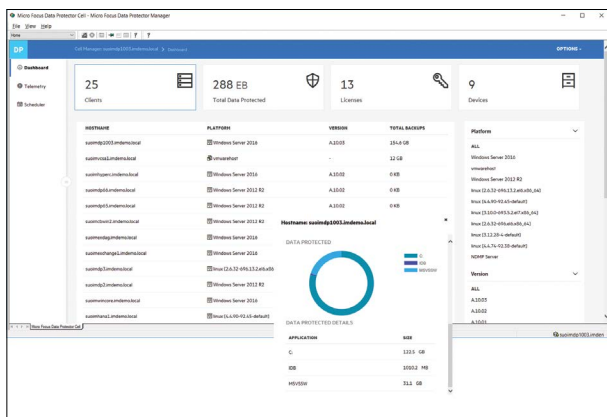


Figure 3. A single view of the heterogeneous backup environment. Individual clients can be clicked on to see all installed components, licenses and capacity consumption.



HPE StoreOnce:
Secondary storage platform

IT environments are complex enough and getting more complex with evolving technologies and requirements. There are going to be advantages to adding new storage platforms or transitioning onto newer, more capable systems such as the HPE SimpliVity hyperconverged platform. Being able to implement one backup solution across that changing environment saves time, cost and complexity and provides a level of assurance only available from a fully scalable enterprise backup solution.

Backup to the Cloud

A well-known backup strategy is to follow the 3, 2, 1 rule. This first involves keeping three copies of your data (the original and at least two backups). The backup data should then be stored on two different storage types which could be disk or tape or cloud. Finally, at least one copy of the backup should be offsite for maximum protection, disaster recovery and often for long term backup. For compliance reasons it is sometimes necessary to store data on different technologies which fits well and is supported with this methodology.

Data Protector allows additional copies of any existing file system or image backup without the need to create a separate special backup. The target for these additional copies can be whatever best fits the needs of the company and can often be on different media in different locations for different data sets.

Cloud storage is now the most common option for locating off-site data with multiple levels of cloud service available. While cloud services may be more convenient in many cases they should be carefully assessed to ensure that they are meeting the needs for any particular type of data storage. With many different cloud options such as public, private or hybrid and several major cloud providers, a backup solution which can make use of any and all of these options is essential.

Data Protector features native integration to the Amazon S3, Microsoft Azure, Scalify, and Ceph cloud storage solutions. All data exchanged with or stored within these services is compressed and encrypted for efficiency and security. This makes it simple for organizations to use cloud storage solutions as part of a single backup and recovery strategy. Cloud storage is best suited for archiving data or holding large files such as audio and video media, X-rays, and other large picture files that are often held on physical or virtual tape systems.

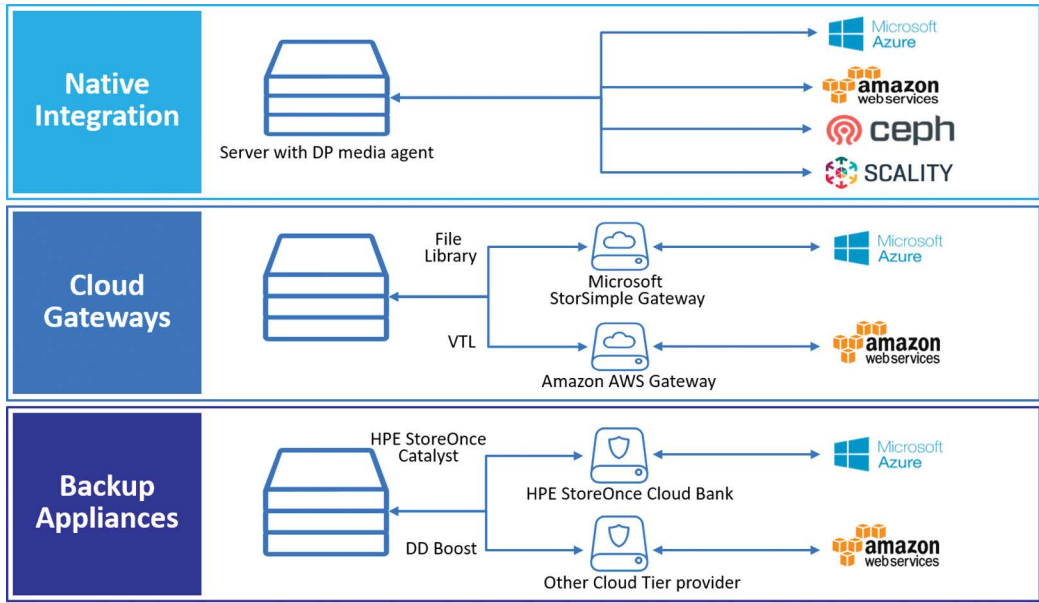


Figure 4. Cloud backup and recovery options available with Micro Focus Data Protector

Any media server can act as a gateway to the supported cloud services. This means administrators can use the cloud storage just like any other backup target—a simple mouse click sends data to the cloud instead of a local device. Administrators can also access cloud services through gateway appliances such as AWS Storage Gateway and Microsoft Azure StorSimple. The backup and restore process can be controlled directly from Data Protector.

Data Protector integrates with leading cloud services and HPE StoreOnce Cloud Bank Storage to enable fast, seamless, and reliable backup and recovery on-premises and in the cloud. This ability to backup to hyperscale cloud services can be preferable for larger data sets since these dedicated appliances provide additional caching capacity and enable users to further optimize when and how data is moved to the cloud.

Critical Application Management and Restore

Within the SimpliVity federation it is recommended to use the SimpliVity features first for data management activities. There is no application performance dip incurred during backups, and no backup windows are needed. HPE SimpliVity also supports application consistent backup and restore for SQL Server through Microsoft VSS Service and has been certified with SAP and SAP HANA.

The 3-2-1 Rule:

- 3—Have at least three copies of your data
- 2—Store the copies on two different media types
- 1—Keep one backup copy offsite

Data Protector offers predictive analytics which monitor and track Service Level Agreements to provide valuable insights to forecast and avoid outages. Certified with Oracle and SAP HANA 2.0, Data Protector ensures the SLA's for these critical applications can be monitored and met.

Data Protector provides one of the most comprehensive mission critical applications protection for applications such as Oracle, SQL, Microsoft Exchange, SharePoint, SAP, and SAP HANA. This provides backup support across the enterprise and ensures business continuity with a rapid recovery after any data loss or system interruptions.

The application integration offers granular recovery to enable individual files, directories or file systems to be recovered quickly to minimize any disruption. Full application recovery can be performed if needed with the application restore ensuring that all files, logs, control files and cache files are restored with the appropriate resources available. Data corruption and restore inconsistencies are avoided by utilizing the application-consistent recovery of Data Protector rather than having to rely on crash-consistent recovery.

Multiple applications are used within every company and each has its own level of importance and is classified accordingly (mission-critical, operational, supportive, etc). Any backup solution must be able to identify these levels of importance and assign an appropriate service level to ensure the recovery is done in a way to minimize operational disruption. For the mission-critical applications it is necessary to be able to define the Recovery Point Objective (RPO) and Recovery Time Objective (RTO) to reduce any downtime. Less critical applications with lesser service level expectations can then be tiered to enable a strategic approach for disaster recovery.

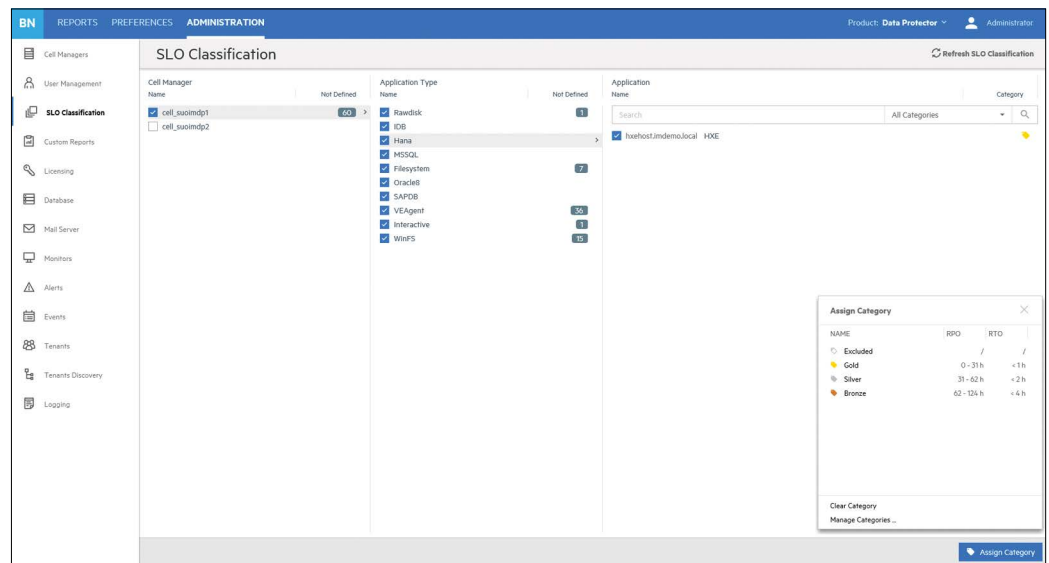


Figure 5. Analytics and reporting service level classification for applications, file systems and VMs allowing categorization by RPO and RTO.

Tape Archive and Cyberattack Protection

Tape backup is an important aspect of data protection for many companies, primarily to meet compliance requirements or provide long term storage and archives. Data Protector works alongside HPE SimpliVity to augment its functionality and can backup to tape without interrupting HPE SimpliVity's operation. Tape was and often still is the cheapest form of long term storage and when combined with the additional protection benefits of tape as a storage medium it can be an attractive addition to a comprehensive backup and data protection strategy.

Tape backup is one of the many media types supported by Data Protector allowing it to be fully integrated into the backup environment. Scheduling of backup to tape is usually different from local primary backups and the graphical scheduler in Data Protector allows all backup schedules to be seen at once for easier management. Tape also provides security from ransomware attacks by backing up data onto a media type which is isolated from the regular system environment and so prevents malicious code from infecting the systems and data. Recovery of the data from tape can be made to restore small amounts of data or by performing bare metal full system and application restores.

Traditionally off-site data would be stored on tape and then physically moved to a secure location. This is still a preferred method of secure and long-term data storage for many companies. There are additional security capabilities available using tape such as Write Once, Read Many (WORM) and encryption. Both these capabilities provide further protection of data ensuring it cannot be deleted or used if stolen.

Hyperscale Cloud Services:
Integration with HPE StoreOnce Catalyst copy enables HPE Cloud Bank support for fast seamless and reliable backup recovery on-premises and in the cloud.

Data Recovery from Local Tape Drives:
Ensures business continuity if a network is not available.

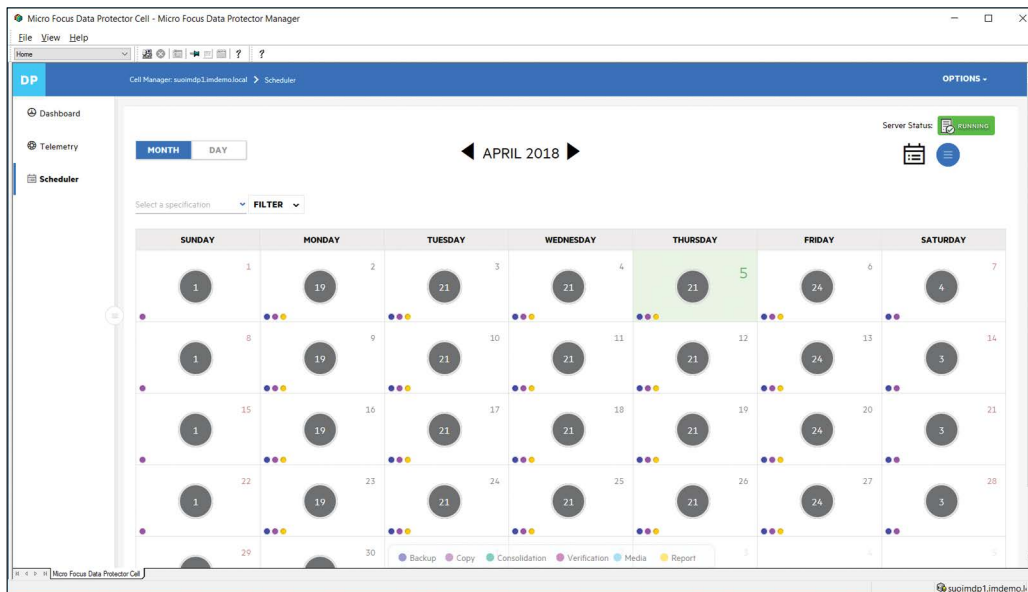


Figure 6. Monthly backup schedule view allowing at –a–glance view of what type of backup is to be performed.

Advanced Integrated Backup Recovery:

Data Protector's bare metal recovery feature, called Enhanced Automated Disaster Recovery (EADR), automates the disaster recovery process and provides advanced recovery capabilities on Windows and Linux clients and cell managers.

Data Protector supports WORM LTO tape media, which means once written, data can't be erased. This protects the backups and helps organizations prepare for audits. In addition, administrators can use Data Protector to encrypt backups. The software achieves this by taking advantage of the encryption capabilities in HPE LTO Tape and HPE StoreOnce devices.

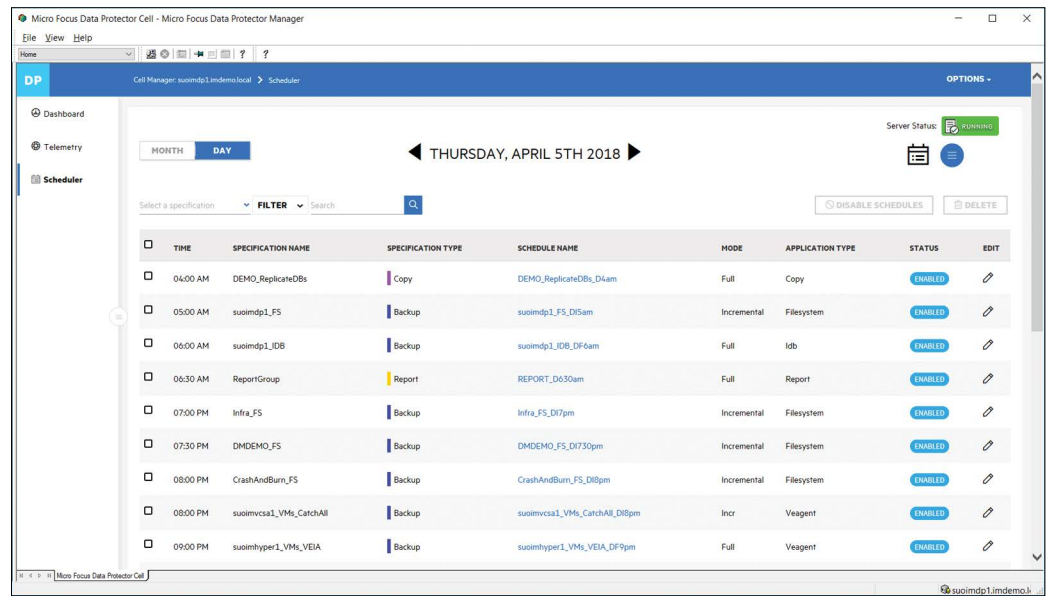


Figure 7. Daily scheduler view in Data Protector providing detailed information on the backup operations including status and reports.

Ransomware and cyberattacks are a real and increasing threat to company data incurring not only inconvenience but potentially huge costs in lost productivity, lost data and negative customer experiences. HPE SimpliVity has data recovery functionality which can help mitigate attacks by allowing administrators to define recovery point objectives (RPOs) and recovery time objectives (RTO). These can determine how long a business could be shut down while waiting for a restore to take place and how much business-critical data a company can afford to lose.

The HPE SimpliVity data efficiencies enable more frequent backups for near-continuous data protection, longer retention periods, and faster recovery. With HPE SimpliVity, terabyte-sized VMs can be backed up and restored in less than a minute—even over bandwidth-constrained WAN links. In the event of a ransomware infection, a VM and all its data can be restored quickly and easily, minimizing system downtime, business disruptions, and revenue loss.

As attacks become more sophisticated another level of security should be considered and that is to ensure backup copies are created which are totally detached from any operational systems. This is to avoid any infection or corruption of data backups in the connected systems. SimpliVity backups are completely

detached from the original VM and in the case of remote backups, completely on different systems. The most secure backup protection however is obtained by storing the backup on a different technology, and tape provides this level of detachment and operational difference. Data Protector can enable that extra layer of protection to be utilized by making backup copies of the data to tape which can then be stored on or off site. Tape backups are completely detached from any operational system so any infections which may have been lying dormant or which have been slowly infecting operational systems cannot affect the tape backups. These backups now provide a fall back to ensure data can be restored and business made operational from known clean copies of the data.

VM Power On and Live Migration

Power-on restore is another advanced capability which enables rapid recovery. It allows VMs to be powered on instantly once they are restored from Data Protector's backup image. So, should a primary VM be lost then it can be instantly recovered and started, minimizing any down time or disruption.

Universal network access and storage-sharing enables companies to use the most appropriate IT infrastructure for backup and recovery

Recovery of data to dissimilar hardware enables recovery of data from physical servers to virtual machines (VMs), or to physical servers with different configurations to those they replace.

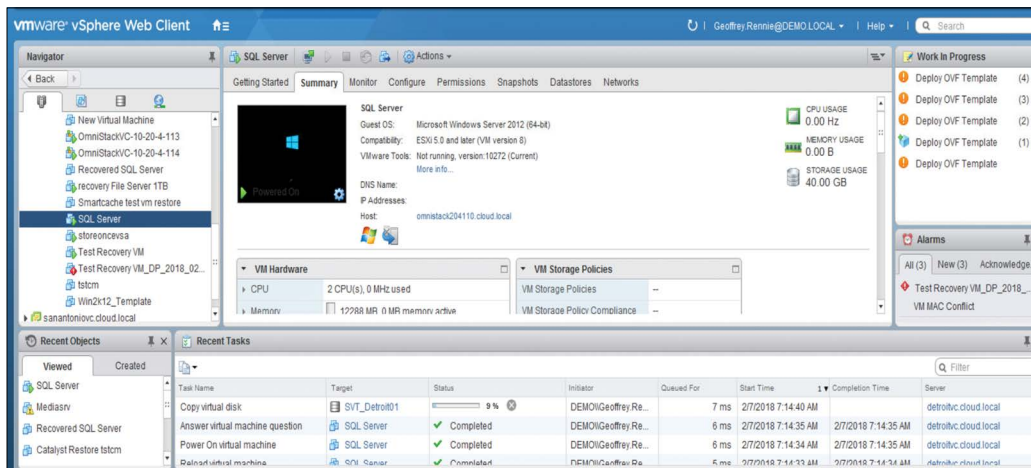


Figure 8. Instant power on of a VM is possible from a backup image

The Data Protector Virtual Environment integration supports migration of virtual machines between Microsoft Hyper-V systems within a clustered environment. After a virtual machine migration in such a cluster, you do not need to change the backup specification; Data Protector will find out where the virtual machine to be backed up has migrated, using the Microsoft Hyper-V WMI services, and back it up.

Virtual machine power-on provides instant restore and access to virtual machines directly from backup repositories. The Live Migrate feature migrates virtual machines to production environments while they are running.

Protection of Physical and Virtual Machines allowing users to perform disaster recovery in physical and virtual IT environments.

The granular recovery (GRE) feature restores a single file to the VM it came from or to another VM. It can restore this file directly to the VM from full or incremental backups stored on an HPE StoreOnce Catalyst device, SmartCache server, or HPE 3PAR snapshot

Management and Analytics

When deployed with HPE SimpliVity and other storage products the backup environment being managed by Data Protector can be consolidated to provide backup and disaster recovery views in a single management interface. This allows configuration, control and status to be operated from one interface simplifying the task of data protection and providing an efficient way to review the status of all backup operations. Multiple reports are available for detailed backup resource and efficiency analysis so it is easier to identify any gaps in the protection scheme and identify where resources are not being used effectively. A high level dashboard provides a clear, visible health check of processes and any areas of concern can be drilled down into for more details.

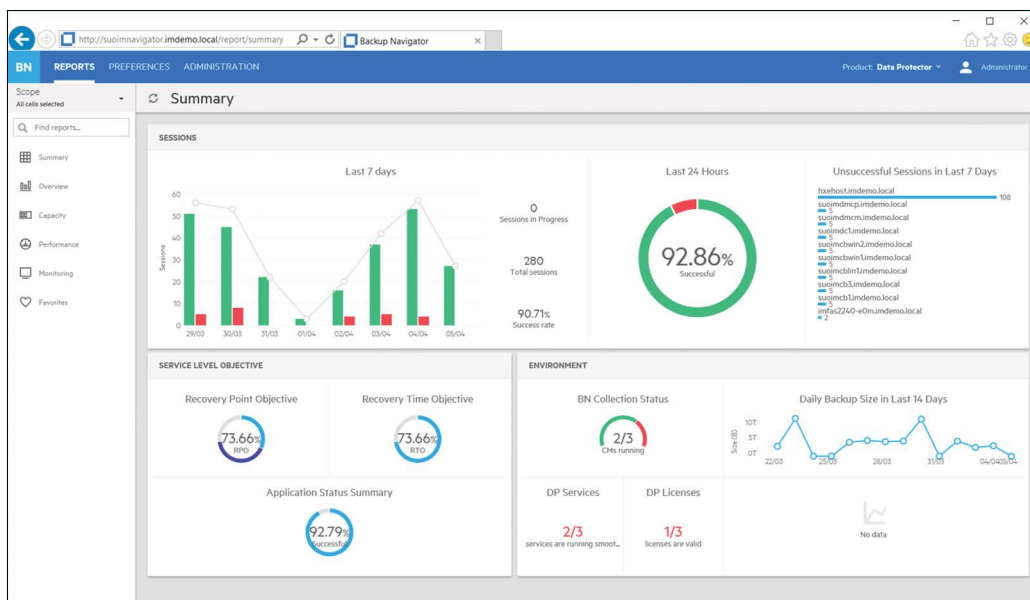


Figure 9. Data Protector Report Dashboard

HPE SimpliVity has its own built in management capability to control replication and backup within the HPE SimpliVity cluster and provides an excellent solution for control, backup and restore of applications running on it. As part of a wider IT environment with multiple storage platforms then the whole environment needs to be backed up. This is where the cross platform capabilities of Data Protector can provide great savings by providing the single management and reporting capability necessary to gain the insight and control of all backup and data protection tasks.

Integration with other Micro Focus products such as Operations Orchestration (OO) enables creation of workflows to automate a variety of backup and recovery tasks. The Business Value Dashboard (BVD) provides point in time backup data accessible anywhere from any device to provide the high level monitoring of backup processes. Detailed dashboard reports provide valuable insights into performance indicators of backup and recovery, allowing IT administrators to filter, change and modify views.

These integrated and comprehensive functions provide assurance that the data is being fully protected and gives clear visibility of any issues or inefficiencies in the backup processes. It allows savings in administration overhead and consolidation of resources and easily embraces the changes being made in any storage environment which is inevitable as technology advances.

Clear insight into backup status ensures there are no gaps in your protection coverage, and shows if any processes are not running or completing as scheduled. Analytics determine resource utilization hot spots and allow for infrastructure cost and performance optimization

Further References

[HPE SimpliVity Storage Platform web site](#)

[HPE SimpliVity overview and document resources](#)

[HPE SimpliVity HyperGuarantee](#)

[HPE SimpliVity Hyperconverged Infrastructure—Mitigate Ransomware Risks](#)

[Micro Focus Data Protector web site](#)

[Micro Focus Data Protector data sheet](#)

[Backup to Hyperscale Cloud Services with Data Protector](#)

[HPE and Micro Focus Alliance](#)

About Micro Focus Data Protector

Micro Focus Data Protector is a highly scalable, enterprise grade backup software application that enables customers to centrally manage and orchestrate protection for data centres and remote offices. From managing replication and store creation, to securing data in local storage, within the network, or off-site its advanced integrations with the leading storage platforms, application vendors and cloud providers ensure businesses are kept running and their data is safe. Data Protector provides streamlined management without having to rethink how backup and restores are performed or taking on additional infrastructure spend. In addition, Data Protector delivers real-time operational intelligence which enables better management and future planning of backup resources with analytical reporting, secure data transfer, highly intuitive and interactive monitoring dashboards, rapid root-cause analysis and problem solving, giving the ability to predict capacity needs to optimize CAPEX/OPEX investments.

About HPE SimpliVity

An enterprise-grade, all Flash, hyperconverged platform that speeds application performance, improves efficiency and resiliency, and restores VMs in seconds. Policy based, VM-centric management abstracted from the underlying hardware simplifies day-to-day operations and enables seamless data mobility. Built-in backup and recovery delivers bandwidth-efficient replication using deduplication and compression and can restore a local 1TB VM in 60 seconds or less.

Learn more at

<http://microfocus.com/dataprotector>

<http://hpe.com/simplivity>

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