Manage intelligent storage
your way
HPE 3PAR StoreServ Storage management
HPE 3PAR StoreServ Management Console offers a sleek and consistent feel with HPE management tools such as HPE OneView. Designed to use the latest Application Program Interface (API) and User Interface (UI) technologies, HPE 3PAR SSMC centralizes all HPE 3PAR StoreServ management under a single pane of glass with customizable reporting capabilities. Assess what’s happening across the entire data center in seconds via a simple dashboard and you are just one click away from collecting configuration and health information on any resource.

Doing more with less is the norm when dealing with complex IT environments. Being on top of changing IT environments requires more than traditional management tools. You need tools that allow you to be flexible and grow as data grows without disruption to critical business needs. Your storage must be self-managing and capable of proactively notifying you of issues, not the other way around.

HPE 3PAR StoreServ Storage offers you the flexibility, control, automation, and intelligence to manage your storage with command-line and graphical user interfaces. HPE 3PAR SSMC also offers adaptive analytic software that learns your storage operations and adapts to reporting anomalies accordingly. This new AI-driven approach to storage management continually learns and monitors daily storage operations.

HPE InfoSight Performance Insights for HPE 3PAR eliminate the guessing and time-consuming work involved with diagnosing bottlenecks and optimizing application performance. AI-driven insights enable a fast time-to-response and extend HPE InfoSight support for dark sites.

HPE Performance Insights allows you to gauge the system performance in dimensions of Storage saturation, Storage system performance, and other analytics. Furthermore, Performance Insights identifies performance issues, provides insights about available headroom to accommodate a workload and performance tuning suggestions.
Streamline storage administration

The following HPE 3PAR StoreServ Management Console features are designed to streamline your management experience:

**Dashboard:** Through the dashboard view (Figure 1), you can assess what is happening across your data center within seconds. Whether you have two HPE 3PAR StoreServ Storage arrays or sixteen, the dashboard view is equally simple; it puts you just one click away from more details. For example, when provisioning storage, the console presents you with a high-level view of your systems, including details on free capacity by storage tier. In cases where you are managing multiple systems, this helps you choose the most appropriate system on which to configure storage for a new host or workload. SSMC 3.4 introduces five new panels that provide insights to remove guesswork for troubleshooting performance issues.

**Performance Insights:** Monitor and analyze performance of a storage system in real time. An alert is generated for the performance level when the storage system experiences either an elevated service time in the last 24 hours. Associated heat map provides information about the periods of time when the performance is identified as outliers for a particular workload or when the hosts must have experienced high storage latency be global, spanning all systems and objects or confined to a given object type. Previous queries are saved to expedite searches, and hints are offered to make your next operation more intuitive.

**Saturation Chart:** Performance Insights provides information about saturation levels of the storage system during the selected time interval and periodicity of saturation levels.

**Volumes by Latency:** Performance Insights provides volumes by latency chart that displays top five virtual volumes ranked according to latency. Furthermore, it provides hotspots indicators to identify the saturation of a storage system. Hotspots provides information about Objects or entities responsible for saturating specific resources in the storage system and Objects that are oversaturated when compared to similar objects in the storage system.

**HPE InfoSight Integration:** Storage systems registered in HPE InfoSight can now receive HPE InfoSight alerts in HPE 3PAR SSMC. With HPE InfoSight connectivity enabled, SSMC gathers notifications and alerts from HPE InfoSight enabling you to know about problems such as data availability or data loss issues, and performance degradation that are likely to occur shortly. HPE InfoSight accomplishes this by running machine learning algorithms and community benchmarks to arrive at various insights.
Containers enable portability, agility, and accelerated application delivery. As enterprises transition into deploying stateful applications, HPE 3PAR StoreServ Storage provides the flexibility and control to provision, monitor, and automate storage operations from VMware vCenter® and VMware vRealize®, Microsoft® System Center, OpenStack®, configuration management tools, and containers.

The following options and technologies complement the HPE 3PAR StoreServ Management Console by enabling you to tailor your management experience to your specific needs and preferences:

**VMware vSphere® integration**

- **VMware**
- **vCenter** integration: With HPE 3PAR Management Software Plug-In for VMware vCenter, VMware® administrators can provision and monitor HPE 3PAR volumes from within the vSphere console for increased productivity.
- HPE 3PAR Recovery Manager Software for VMware vSphere for rapid online recovery from snapshots. VMware administrators are able to recover whole Virtual Machine Disks (VMDKs), individual VMs, or even individual files simply.
- **VVol**: HPE 3PAR is the only reference architecture for VMware VVol for FC arrays. With VVol, HPE 3PAR will enable data services such as replication, snapshots, QoS, Deduplication and Adaptive Flash Cache to be performed for each individual Virtual Machine.
- **VAAI**: HPE 3PAR offer silicon integrated VAAI implementation. Full support for VAAI primitives is available.
- **SRM**: HPE 3PAR supports VMware Site Recovery Manager™ (SRM) with a HPE 3PAR Site Replication Adapter (SRA) to provide a foundation for disaster recovery and business continuity solutions. VMware SRM offers centralized management of recovery plans, nondisruptive testing, and automated site recovery, failback and migration processes. HPE 3PAR SRA software orchestrates storage replication provided by HPE 3PAR Remote Copy to ensure the highest performing and most reliable disaster protection for virtualized applications.
- **VASA**: Enables VMware vCenter Server® to detect the capabilities, datastores and configurations of the HPE 3PAR storage array for simplified management.
- **vCOPS**: HPE 3PAR support for vCOPS enables HPE 3PAR StoreServ performance monitoring from an integrated VMware console.

**Container**

Containers enable portability, agility, and accelerated application delivery. As enterprises transition into deploying stateful mission-critical applications, persistent data storage, performance, availability, and protection of application data becomes critical.

The integration of HPE 3PAR with Docker, Kubernetes, Red Hat® OpenShift, Mesosphere DC/OS, and SUSE CaaS platforms enables dynamic provisioning of storage, Quality of Service (QoS), snapshots, clones, replication of data volumes along with high performance delivered by the underlying storage platform with guaranteed six 9s availability. The integration also enables migrating legacy data volumes into containers paving way for modernizing traditional workloads with containers. The IT Ops teams can deliver multitenant Container-as-a-Service (CaaS) offerings for tenants to onboard workloads with clear separation of data enabled by Virtual Domains. The integration is made possible with HPE 3PAR Volume Plug-in for Docker, HPE FlexVolume driver and Dynamic Provisioner for Kubernetes. HPE 3PAR is Docker certified and is also a Red Hat OpenShift Primed partner.

**Microsoft Windows® integration**

Integration with Microsoft Windows provides you with a single-pane-of-glass monitoring view of physical, virtual, and cloud environments. Detailed information on virtual storage infrastructure such as volumes, LUNs, and hosts as well as HPE 3PAR StoreServ Storage array properties and capacity utilization is made possible through the Microsoft System Center Virtual Machine Manager (SCVMM) plug-in. The HPE Storage Management Pack for Microsoft System Center Operations Manager (SCOM) provides automated installation and discovery, as well as event monitoring and HPE 3PAR StoreServ Storage alerts without ever leaving SCOM.

**OpenStack support**

With support for OpenStack technology, over both iSCSI and Fibre Channel protocols, HPE 3PAR StoreServ Storage provides the flexibility and cost-effectiveness of a highly resilient cloud-based open source platform that meets the requirements of your mission-critical applications. With OpenStack support, HPE 3PAR StoreServ Storage enables:

- High performance to meet peak demands
- Nondisruptive scalability to easily support storage growth
- Increased efficiency and extended flash media lifetime
- Effortless storage administration to lower operational costs and reduce time to value

**SDK and Configuration Management tools**

Enabling developer-friendly tools to consume Infrastructure as Code is really critical in delivering cloud-like automation benefits on-premises. The SDKs in Ruby and Python enable DevOps teams to programmatically manage HPE 3PAR storage using their language of choice. In addition, the HPE 3PAR cookbook for Chef HPE 3PAR modules for Puppet and HPE 3PAR module and playbook for Ansible provide IT Ops teams to automate storage provisioning and storage management tasks on HPE 3PAR with configuration management tools eliminating manual error-prone process.
Manage your storage, your way (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tr>
<td>PowerShell Toolkit</td>
<td>Conveniently manages HPE 3PAR StoreServ Systems with HPE 3PAR StoreServ PowerShell Toolkit from a Microsoft Windows PowerShell environment. The toolkit contains 160 PowerShell scripts (wrappers around native HPE 3PAR StoreServ CLI commands) that cover most common storage management operations like Replication, Performance, System Reporter, Capacity, CPG, Host and Host Sets, Virtual Volume and Virtual Volume Sets, Snapshots, Spares, and more that can be performed on HPE 3PAR StoreServ Systems.</td>
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<td>HPE 3PAR CLI</td>
<td>The scriptable HPE 3PAR Command Line Interface (CLI) simplifies storage management by giving you powerful customization capabilities that are simple to configure and reduce the need for extra management tools and costly consulting services.</td>
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<tr>
<td>Web services API</td>
<td>A web services API enables you to automate management of hosts, ports, volumes, CPGs, VLUNs, storage space, and system information. It includes sample clients that can be referenced for the development of clients specific to your needs. Clients of the API interact with the server through HTTPS.</td>
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<td>SMI-S support</td>
<td>Support for the Storage Management Initiative Specification (SMI-S) issued by the Storage Networking Industry Association (SNIA) enables delivery of business efficiency and provides greatly simplified storage management from within the Microsoft System Center Management framework. This support enables Microsoft System Center Virtual Machine Manager 2012 (SCVMM 2012) to provide storage classification used in creation and deployment of VM templates, storage provisioning for Hyper-V clusters (for allocation of storage pools and individual LUNs to host groups), as well as rapid provisioning of VMs by leveraging the array's snapshot and cloning capabilities.</td>
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