Hewlett Packard
Enterprise

Coexistence and migration guidelines for HPE OneView 2.0 with legacy management environments

Technical white paper

Contents

Abstract

This document describes Hewlett Packard Enterprise (HPE) OneView, specifically the features and capabilities available in HPE OneView 2.0 and HPE OneView Advanced coexistence environments. HPE OneView is the foundation of the "software-defined data center" and the narrative in the following sections begins by identifying the evolving customer needs and the associated cost pain points. System monitoring and management has moved from passively reporting system faults and indicating remediation, to a design that reflects the need for agility and responsiveness, HPE OneView combines pro-active monitoring with controls that provide consistency and uniformity. In customer communications, it is important to remember that HPE OneView design perspectives are fundamentally different from those of the HPE legacy management tools identified in this document, and by implication, features from those legacy tools may no longer be relevant (even for customers who rely heavily on an existing feature, or features).

Executive summary

HPE OneView is powerful converged management that reduces infrastructure complexity with the simplicity of automation. The HPE OneView software-defined approach transforms the everyday management of server, storage, and network resources in physical and virtual environments. As a common platform, HPE OneView helps IT teams capture best practices, processes, and configurations. It shifts the management focus from devices to 'how people work' for accurate, repeatable processes every time. HPE OneView is the first software platform to create a modern integrated workspace for lifecycle management of HPE infrastructure.

As an intelligent automation hub, HPE OneView provides out-of-the-box integration with HPE, VMware, and Microsoft, solutions while preserving the ability for custom integration with your other management products. This innovative management platform reduces operating expenses[1] and improves agility to free up your resources for new business initiatives.

HPE OneView can help you transition from your current infrastructure, tools, and processes to your IT-as-a-Service future on your path to the hybrid cloud. HPE OneView will replace HPE Systems Insight Manager (HPE SIM), HPE Insight Control, HPE VCM, and HPE Virtual Connect Enterprise Manager (VCEM).[2] HPE OneView simplifies management by consolidating many of the previous management tools and functionality into a single infrastructure platform. You can continue to use these existing HPE management systems, and they may coexist in legacy[3] environments along with HPE OneView. In this transition to HPE OneView, it is important for users to understand how existing server installations can coexist with an HPE OneView implementation, and where there are exceptions for coexistence.

This document provides guidelines for HPE OneView coexistence in these legacy environments, as well as what to avoid, and known exceptions. For more information about HPE OneView, go to hpe.com/info/oneview.

New for HPE OneView 2.0

New HPE OneView 2.0 features and capabilities include powerful server profile templates, simplifying "one-to-many" updates and adding inheritance. The HPE OneView 2.0 feature list includes:

Automated Change Management

- Easily enforce configuration consistency using server profile templates to monitor, flag, and update multiple servers
- Quickly view server profile information, with access to additional details from storage and networking, using the Profile Dashboard

Automated system software updates—Software updates at scale using template-driven firmware and device driver management, allowing you to flexibly migrate and recover workloads using profile mobility across compute platforms and generations

Storage Automation

- Enable a hypervisor-like user experience using storage volume snapshots
- Monitor health of SAN connections with administrator alerts to data path failures and reports on unauthorized access

[1] Based on HPE OneView ROI calculator with a scenario of 320 BladeSystem servers managed by HPE OneView over 3 years versus traditional management tools
[2] HPE SIM, HPE Insight Control, and HPE VCEM products will continue to support Gen8 and Gen9 platforms for HPE servers.
[3] The legacy environment described in this document refers to HPE servers and systems managed and/or monitored by HPE Insight Management tools and/or the HPE Virtual Connect applications VCM and VCEM.

- Automate SAN Fabric zoning and storage volume attach with Fibre Channel (FC) or Fibre Channel over Ethernet (FCoE), including new support for HPE 5900 AF/CP, and Cisco MDS in addition to the current support for HPE 5900 and Brocade switches

HPE Virtual Connect Networking

- Consolidate management, number of adapters, and interconnects; and reduce cables and utilization of upstream switch ports using HPE Virtual Connect Dual Hop FCoE support with 10/40 Gb
- Prioritize designated networking traffic flows and performance levels by using Virtual Connect Quality of Service (QoS) Priority Queuing
- Create enclosure groups that are associated with multiple logical interconnect groups (LIG). The advantages include:
  - Having air-gap separation between Ethernet networks to allow isolation of network traffic
  - Eliminating the need for stacking cables between interconnects, freeing uplink ports for data center traffic
  - Doubling the number of networks in an active/active configuration. See the "HP OneView 2.0 User Guide" (page 173) for more information.
- Ease the transition to advanced HPE OneView capabilities with less effort and human errors by migrating legacy VCM domains to HPE OneView.
- Support for Gen9 profiles and Link Layer Discovery Protocol (LLDP) enhancements to support rich type-length-value (TLV).

Network monitoring—Monitor Cisco Nexus 5xxx/6xxx top-of-rack switches with B22 HPE FEX support from HPE OneView (with resources, alerts, statistics, monitoring, topology, and physical connectivity views).

Integrations and product options

- HPE OneView for Microsoft System Center supports HPE storage.
- HPE Virtualization Performance Viewer (VPV) for HPE OneView adds performance management and capacity modeling and optimization to HPE OneView.

Localization for Japanese and simplified Chinese users

HPE OneView and enhanced lifecycle management

As the primary driver of HPE infrastructure management, HPE OneView supports the lifecycle of critical operations that include configuration and provisioning for rapid deployment, system health monitoring with proactive failure notification, firmware updates, and automated simplified support management. HPE identifies the infrastructure management capabilities required as being the Embedded, Converged, Cloud, and Support segments to represent HPE solutions for managing your IT environment (Figure 1).

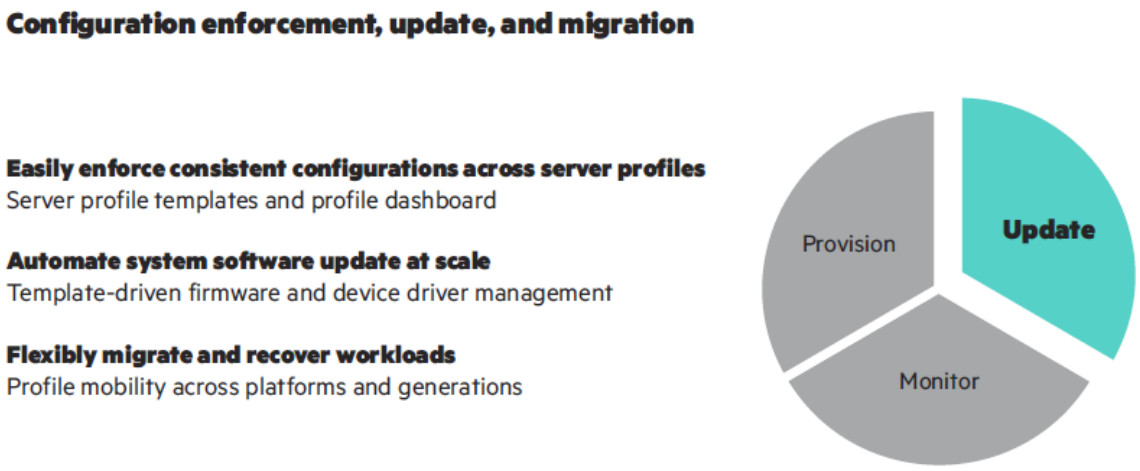

Figure 1. HPE OneView Enhanced Lifecycle Management

Embedded management

HPE delivers embedded management to make users instantly productive with their HPE infrastructure. Many capabilities are included with the purchased components, and some solutions are available as options.

The comprehensive set of embedded management tools and system utilities in every HPE ProLiant server includes:

- BIOS / Unified Extensible Firmware Interface (UEFI)
- Intelligent Provisioning, an embedded pre-boot environment
- Integrated Lights-Out (iLO), an embedded management processor
- Firmware maintenance tools that include HPE Smart Update Manager (HPE SUM) and Service Pack for ProLiant (SPP)
- Scripting tools like HPE RESTful Interface Tool, Scripting Toolkit (STK) for Windows and Linux®, and PowerShell commandlets.

Converged management

HPE converged management products are architected for use across servers, storage, and networks. HPE OneView is the premier solution for converged infrastructure management and can replace the established legacy management tools. Legacy management tools that might currently be used include HPE Systems Insight Manager (SIM), HPE Insight Control, HPE VCM, and HPE VCEM. A converged management solution can provide the foundation for complete management of your physical and virtualized IT infrastructure.

Cloud Management

As your business increases in complexity, cloud management allows you to respond quickly to changing needs while maintaining control and simplifying operations. The HPE Helion portfolio of private, public, and hybrid cloud consists of market-leading hardware, software, and services. However, Cloud management can only deliver on that promise if it is part of a well-coordinated effort that leverages both existing IT

infrastructure and new technologies. In a hybrid world, the HPE approach to Cloud management is your key to an open, secure, and agile environment that becomes the very fabric of your enterprise. Cloud offers the promise of a new era, and a new style of IT.

Support management

As technology converges in today's evolving business models, organizations of different sizes need to routinely monitor their IT devices and infrastructure, automate problem reporting and diagnosis, accelerate time-to-resolution, and simplify access to information. HPE Gen9 management tools simplify server management and support. HPE OneView, in concert with HPE Insight Online, provide a foundation for addressing complex IT management challenges. HPE Insight Online provides instant personalized access to critical device health information, and it enables round-the-clock monitoring and automated support for faster problem resolution by HPE and HPE authorized channel partners.

For more information about the HPE Lifecycle and HPE management resources, see the "ProLiant Gen9 Manageability Innovations" technical whitepaper.

General transition guidance

HPE Insight Management products have been one of the leading management solution for HPE ProLiant servers, storage and networking. HPE SIM and HPE Insight Control are part of HPE Insight Management. These management capabilities enhance your ability to troubleshoot complex problems that span server and storage infrastructure with a single source for server and storage asset information. HPE VCEM centralizes network connection and workload management for hundreds of Virtual Connect domains and thousands of BladeSystem servers. VCEM works with HPE SIM to manage server configuration profile configuration. These capabilities are transitioning to HPE OneView (Tables 1 and 2).

Table 1. Management capabilities transitioning from legacy tools to HPE OneView

LEGACY MANAGEMENT	ACCESSED THROUGH	CONVERGED MANAGEMENT	ACCESSED THROUGH
HPE Virtual Connect Enterprise Mgr (VCEM) **HPE VCM** **HPE Insight Control** **HPE Systems Insight Manager (SIM)**	VCEM web UI or VCM command line (CLI)	**HPE ONEVIEW**	HPE RESTful APIs PowerShell HPE RESTful Interface Tool HPE RESTful API for UEFI and iLO

Table 2. Embedded legacy management and system utilities transitioning to HPE OneView converged management

LEGACY MANAGEMENT	ACCESSED THROUGH	CONVERGED MANAGEMENT	ACCESSED THROUGH
HPE Smart Update Manager (SUM) **HPE Service Pack for ProLiant (SPP)**	Intelligent Provisioning OnBoard Administrator	**3PAR Array Management** **Array Configuration Utility**	UEFI and BIOS Integrated Lights-Out (iLO4)

As you evaluate whether HPE OneView is appropriate for a complete transition in your environment, you may opt to have your current infrastructure management system and HPE OneView coexist. To help you with this evaluation, see Table A-1 in "Appendix A: HPE OneView and legacy comparisons," which lists the hardware compatible with HPE OneView.

General coexistence guidelines

Moving forward, HPE OneView is the standard for managing IT infrastructure, but there are still some differences between the HPE legacy tools (HPE SIM, HPE Insight Control, and HPE Virtual Connect) and HPE OneView. You should decide when to migrate to HPE OneView based on your business needs. The remainder of this document provides general coexistence guidelines for HPE OneView version 2.0 (and later), and includes use cases for everyday management tasks in environments where HPE legacy applications and HPE OneView coexist. For feature comparisons between legacy applications and HPE OneView, see Tables A-2 and A-3 of "Appendix A: HPE OneView and legacy comparisons."

Management and monitoring

While you can run HPE SIM and HPE Insight Control in both virtual machines (VMs) and physical servers, HPE OneView is delivered as a ready to run virtual appliance, which can run on an ESXi host or Hyper-V host. You can run HPE SIM, HPE Insight Control, and HPE OneView in VMs and host them on the same physical server (VM host), but they must have defined management responsibilities. Administrators must decide on the primary manager, HPE OneView or HPE SIM, for managed devices and follow best practices to avoid anomalies in hardware behavior.

In coexistence environments of HPE OneView and legacy (HPE SIM and HPE Insight Control) management, HPE recommends that you configure services in this way:

- HPE OneView-managed environment: HPE OneView Advanced for management services and use HPE SIM and HPE Insight Control for monitoring and reporting services. Control functions of HPE Insight Control should not be used.
- Legacy-managed environment: To keep the integrity of this management hierarchy, continue to use HPE SIM and HPE Insight Control in in the traditional management and monitoring roles (see Figure 2). HPE OneView is not used to manage or monitor devices in this environment.

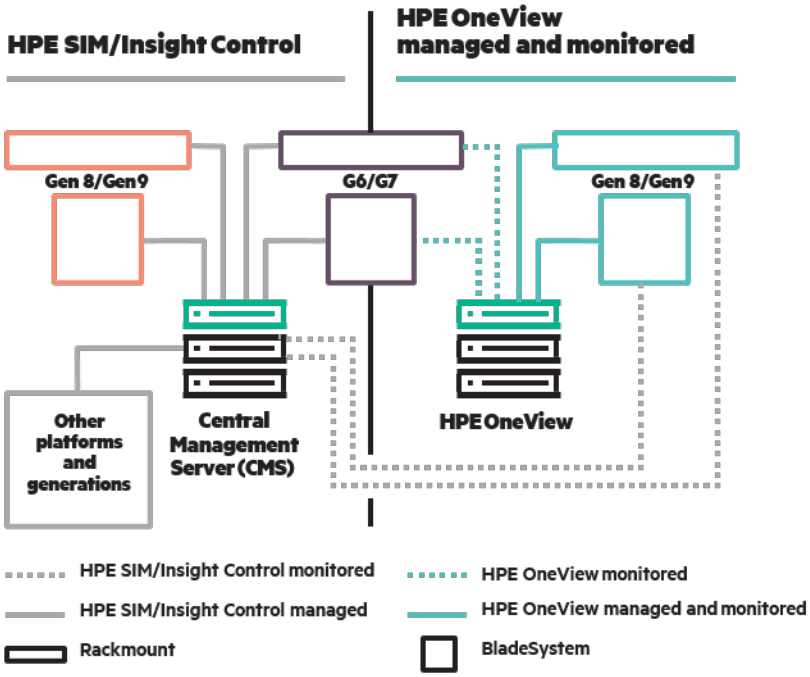

Figure 2. Management and monitoring in legacy environments

Table 3. Identifies supported platforms for the monitoring and management environment shown in Figure 2.

HPE INSIGHT MANAGEMENT ENVIRONMENT*	HPE ONEVIEW ENVIRONMENT*
Manage and Monitor: HPE ProLiant BL, DL, ML, SL servers	Manage HPE Servers: BL (Gen9, Gen8), and DL (Gen9, Gen8)
Generations: Gen9, Gen8, G7, G6, G5…	Monitor HPE Servers: BL (G7, G6) and DL (G7, G6)

* Check the appropriate product support matrix for details at hpe.com/info/oneview/docs and hpe.com/info/hpsim/docs

Note

It is important to know that in existing legacy-managed HPE BladeSystem enclosures, you cannot add new HPE ProLiant blade servers to that enclosure and expect to manage them with HPE OneView. In order for HPE OneView to manage additional servers, those servers must reside in a new or existing enclosure managed by HPE OneView.

OS Provisioning

If you are performing multi-server bare metal OS provisioning of HPE ProLiant rack mounted or HPE BladeSystem servers, HPE Insight Control server provisioning is the preferred method. HPE Insight Control server provisioning is the VM based multi-server provisioning capability for HPE Insight Control, HPE CloudSystem, and HPE OneView. The HPE SUM capability embedded with HPE OneView Advanced is the preferred solution for hardware and firmware provisioning, while HPE Insight Control server provisioning is the preferred OS provisioning tool.

HPE Insight Control server provisioning (v7.5 and later) is delivered as part of HPE OneView Advanced and they work together to give you the common functionality of infrastructure provisioning and firmware updates (Figure 3), providing complete hardware and firmware provisioning.

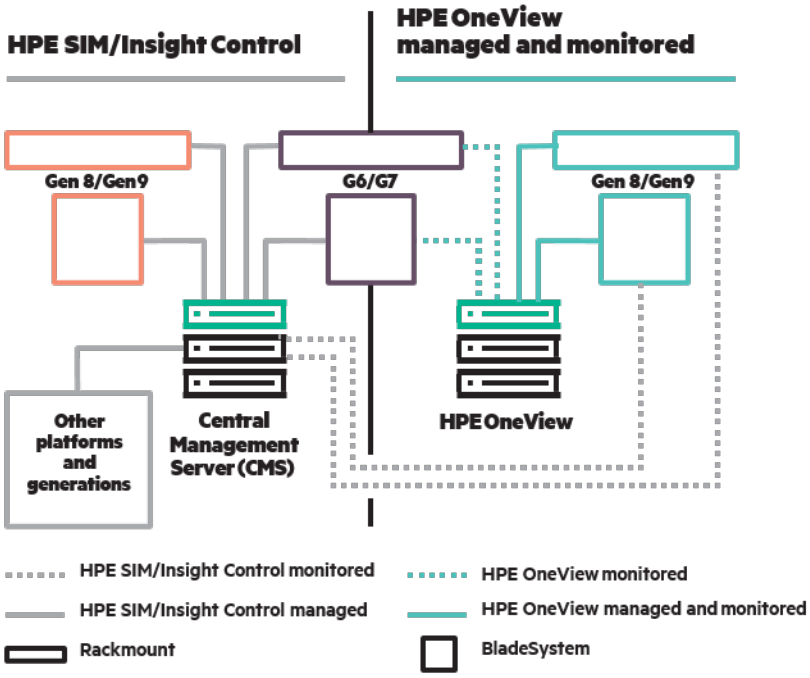

Figure 3. Provisioning in legacy environments

Unlike HPE SIM, both HPE Insight Control server provisioning and HPE OneView Advanced can coexist in active management roles. To avoid management conflict, the two applications actively communicate to identify server management status in the affected environment.

The HPE Insight Control server provisioning support matrix includes the following servers:

- HPE ProLiant BL, DL, ML, SL servers (Gen9, Gen8, G7, G6). No earlier generations are supported.
- The hardware support matrix aligns with HPE Insight Control 7.5 and later releases.
- The hardware support matrix is the same for this HPE OneView VM, as delivered for HPE Insight Control and HPE OneView.

Refer to the HPE OneView Support Matrix for detailed hardware support information.

HPE OneView and HPE Insight Control server provisioning can both be used to perform the following functions:

- Configure BIOS settings
- Manage firmware updates
- Configure Boot from SAN

If HPE OneView is managing these aspects of your servers, then you do not want HPE Insight Control server provisioning to run build plans that perform these same actions. HPE Insight Control server provisioning needs to be aware of your HPE OneView instances. You can identify the HPE OneView appliances using the “HPE OneView Appliances” screen available from the HPE Insight Control server provisioning main menu. The HPE OneView user account configured in the HPE Insight Control server-provisioning appliance requires “Read Only” access. An account with more privileges is unnecessary and should not be used. Insight Control server provisioning communicates with HPE OneView Advanced to check whether or not there is a server profile associated with the server targeted for OS provisioning. If there is a server profile on that server managed by HPE OneView Advanced, then HPE Insight Control server provisioning warns that HPE OneView already manages the server.

When HPE Insight Control server provisioning runs an OS Build Plan, it checks to see if there are identified HPE OneView appliances and if the OS Build Plan type is one of the following three types:

- SAN Configuration (hardware)
- BIOS Configuration (hardware)
- Firmware (software)

As discussed earlier, HPE Insight Control server provisioning compares the list of servers and build plans selected with the HPE OneView VMs listed to see if HPE OneView Advanced is managing that aspect of the server. If a conflict is found, a notification is displayed which allows you to make corrections. See the online help included with HPE Insight Control server provisioning for details on these notifications.

You can read more about HPE Insight Control server provisioning at: hp.com/V2/GetPDF.aspx%2F4AA4-8057ENW.pdf

Network management

HPE OneView Advanced 2.0 supports new Virtual Connect capabilities for network management. These capabilities include QoS, Dual-hop FCoE, Partially stacked domains, support to migrate legacy VC domain to OneView, Gen9 profile support, and Link Layer Discovery Protocol (LLDP) enhancements to support rich type-length-value (TLV). HPE Virtual Connect interconnects continues to play an integral role in HPE OneView 2.0 with the addition of key feature parity to OneView.

HPE Virtual Connect Dual-hop FCoE parity support—This feature allows FCoE traffic egress out of the enclosure to external bridge device which handles the conversion of FCoE to FC traffic, but also provides many benefits including cable consolidation, reduction in utilization of the upstream switch ports, consolidation in management, as well as number of adapters and interconnects required. This feature also supports up to 32 FCoE networks (i.e. 32 VLANS) and FCoE on 40 Gb FCoE uplinks of the FlexFabric-20/40 F8 module. Together with enhancements around automated storage provisioning on FCoE SANs, OneView is now able to provide definition and provisioning of storage volumes, automatic SAN zoning as part of the provisioning process, and volume attachment to server profiles. This activity takes place over end-to-end FCOE.

HPE Virtual Connect parity quality of service —QoS is used to provide different priorities for designated networking traffic flows and performance through resource reservation. The QoS feature introduces the ability to configure traffic queues for different priority network traffic, categorize and prioritize ingress traffic and adjust DOT1P priority settings on egress traffic. Administrators can use these settings to make sure that important traffic receives the highest priority handling while less important traffic is handled at a lower priority.

HPE Virtual Connect partially stacked domains— Partially-stacked domains (different from multi-enclosure stacking) provide air-gap separation between Ethernet fabrics and reduce need to stack interconnects within the enclosure. Partially stacked domains cover several customer and product requirements:

- Enhanced Active/Active experience with up to 1000 networks for the Active/Active pair of connections instead of current 500 limit
- Removes one-to-one relationship between physical enclosure and LI, and reduces the need to stack interconnects within the enclosure.
- It frees up interconnect uplink ports from being consumed by stacking cables, reduce overall cost and provide isolation between specific networks and fabrics

You can read more about HPE Virtual Connect parity features in the HPE OneView 2.0 User Guide.

Management coexistence for HPE Virtual Connect and HPE OneView

VCM/VCEM and HPE OneView cannot coexist as management options in a single BladeSystem enclosure. You can transition to HPE OneView completely, or use HPE VCM/VCEM and HPE OneView to manage separate enclosures. HPE recommends that you work with your HPE account team to understand which management tools are better for your environment. Once HPE OneView is used for Virtual Connect management, HPE VCM and VCEM are no longer needed (Figure 4).

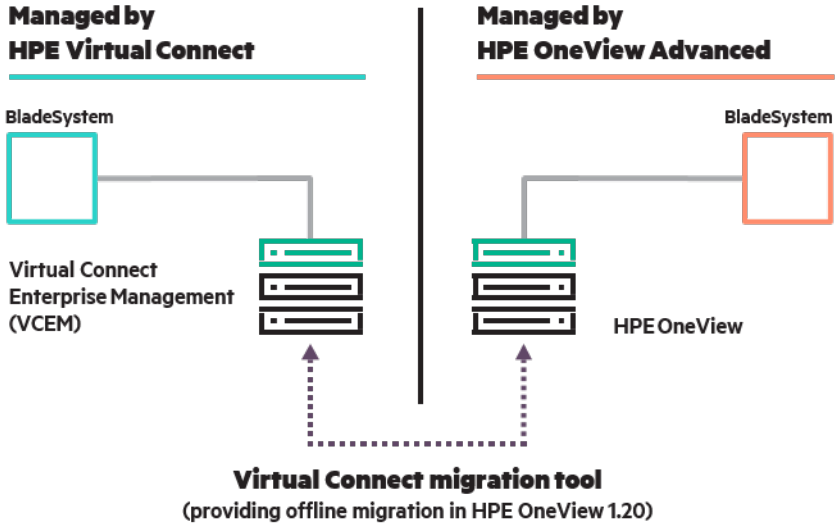

Figure 4. HPE Virtual Connect migration

When you are ready, HPE encourages you to experience the ease and simplicity of managing your infrastructure with HPE OneView. You can view the HPE OneView demos at hpe.com/sdp/default.aspx

Preparing to transition HPE Virtual Connect managed domains to HPE OneView

The HPE OneView Readiness Assessment Tool (Figure 5) is available to HPE field personnel and partners. This tool aids in the transition of Virtual Connect and VCEM environments to HPE OneView. This tool helps you evaluate your IT infrastructure and assess readiness for migration to HPE OneView.

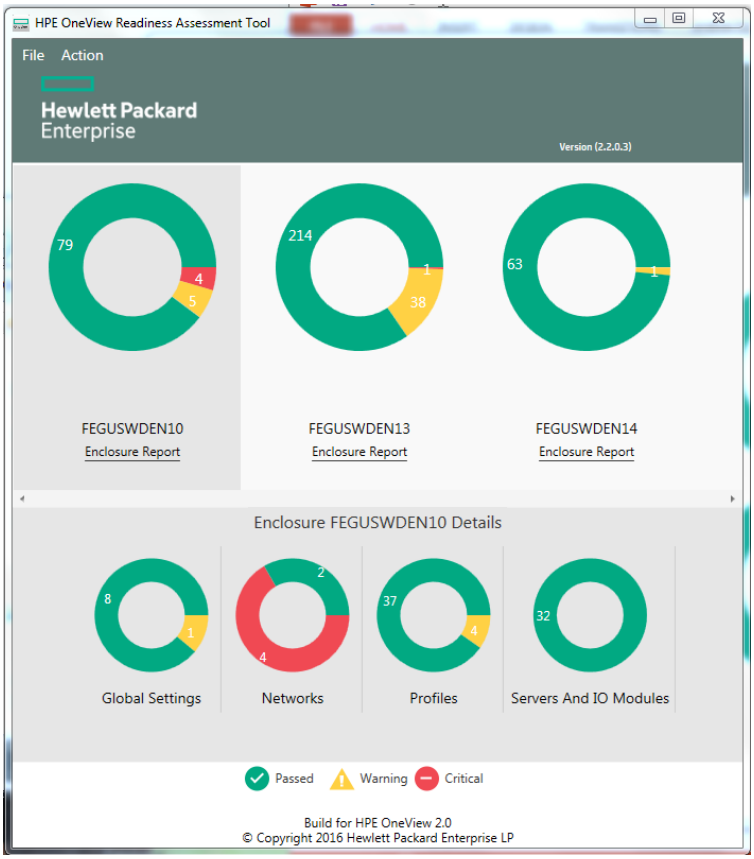

Figure 5. HPE Readiness assessment tool version 2.0

The HPE OneView Readiness Assessment Tool automates the inspection of a customer's blade and VC environment non-disruptively and helps to determine their readiness to move to HPE OneView management in as little as 2 minutes per enclosure. The tool provides immediate feedback (Figure 6) and calls out issues that may prevent a smooth migration to HPE OneView.

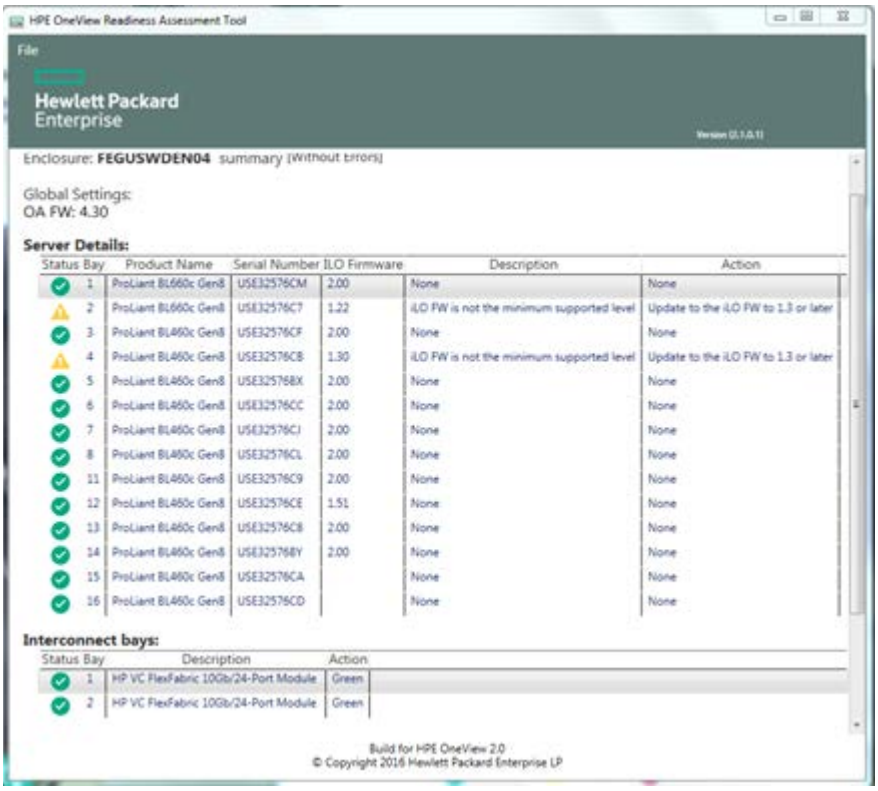

Figure 6. HPE Readiness assessment tool summary report

The 2.0 version of the HPE OneView Readiness Assessment Tool includes the following feature updates:

- Compatibility with HPE OneView 2.0 Advanced Licensing Rules
- Ability to inspect VC Backup Files and OA Show All files together
- Rich reports that summarize the readiness of an enclosure (see sample above)
- Reports now include OA firmware and iLO firmware information (when OA Show All is used) and blade serial numbers
- Option to export reports to XLS and PDF

You can watch a training video for the Readiness Assessment Tool at brighttalk.com/webcast/11165/169303. You can read more about migration to HPE OneView in the "Transitioning a Virtual Connect configuration to HP OneView" technical white paper.

Migrating HPE Virtual Connect managed domains to HPE OneView

Continuation of investment in VC franchise includes additional capabilities around automated migration to:

- Eases transition process and provides guidance for migrating to OneView, it also reduces the effort and human errors associated with manual migration. Process is fully automated and requires only a few clicks of a mouse.
- Virtual Connect Support Utility (VCSU) parity for Update of the Logical Interconnect firmware with minimal downtime. It provides additional firmware update orchestration options for VC interconnects in c7000 including odd/even orchestration with minimal service outage.

Additional network management capabilities in HPE OneView Advanced 2.0 include resource control of new general network switches and monitoring of Cisco Nexus 5xxx/6xxx top-of-rack switches with B22 HPE FEX functionality from HPE OneView. This includes views of resources, alerts, statistics, monitoring, topology, and physical connectivity.

You can migrate an enclosure managed by HPE VCM into HPE OneView Advanced or add it as a monitored enclosure, depending on the VCM configuration. If added as a monitored enclosure, the enclosure remains managed by VCM. If an offline migration is performed, the management and configuration is transferred to HPE OneView.

An HPE OneView Advanced license provides the ability to perform an offline migration which automates the transfer of the VCM configuration to HPE OneView, including networks, uplink sets, domain configuration, profiles (including MACs and WWNs), and enclosure hardware. The offline migration capability migrates Virtual Connect domain information from HPE VCM to HPE OneView for migration-supported configurations. This capability does require that VCEM-managed domains are removed from the domain group prior to the migration. Expect an outage of 40 minutes or longer.

See the "Virtual Connect migration" use case later in this document for more information on using the Virtual Connect migration tool to move Virtual Connect configuration and enclosure information to HPE OneView 2.0.

Important

When you transition an enclosure to HPE OneView, any G6 servers in the existing Virtual Connect Domain are monitored. G5 and earlier servers and HPE Integrity servers are unmanaged/unsupported. Read the "Transitioning a Virtual Connect Configuration to HPE OneView" technical white paper for more information.

HPE Insight Remote Support and HPE Insight Online

Whether you are running HPE OneView, HPE Insight Control, or HPE SIM, you can use HPE Insight Remote Support (Insight RS) v7 to remotely monitor the devices, regardless of location, and provide information to Insight Online. HPE OneView and Insight RS have separate discovery and monitor functions that provide complimentary management and support capabilities. HPE OneView provides monitoring, while Insight RS provides access for your devices to HPE for automated call logging, faster problem resolution, and near-100% first-time fix accuracy. Figure 7 shows a view of the integrated management and support experience. This includes the integration of management and support software technologies into one seamless experience throughout the server lifecycle. You can see how three key software products integrate. HPE iLO Management provides onboard intelligence, HPE Insight Remote Support provides remote monitoring, diagnosis and problem resolution, and HPE Insight Online allows you to access support and management information anytime, even when away from your desk.

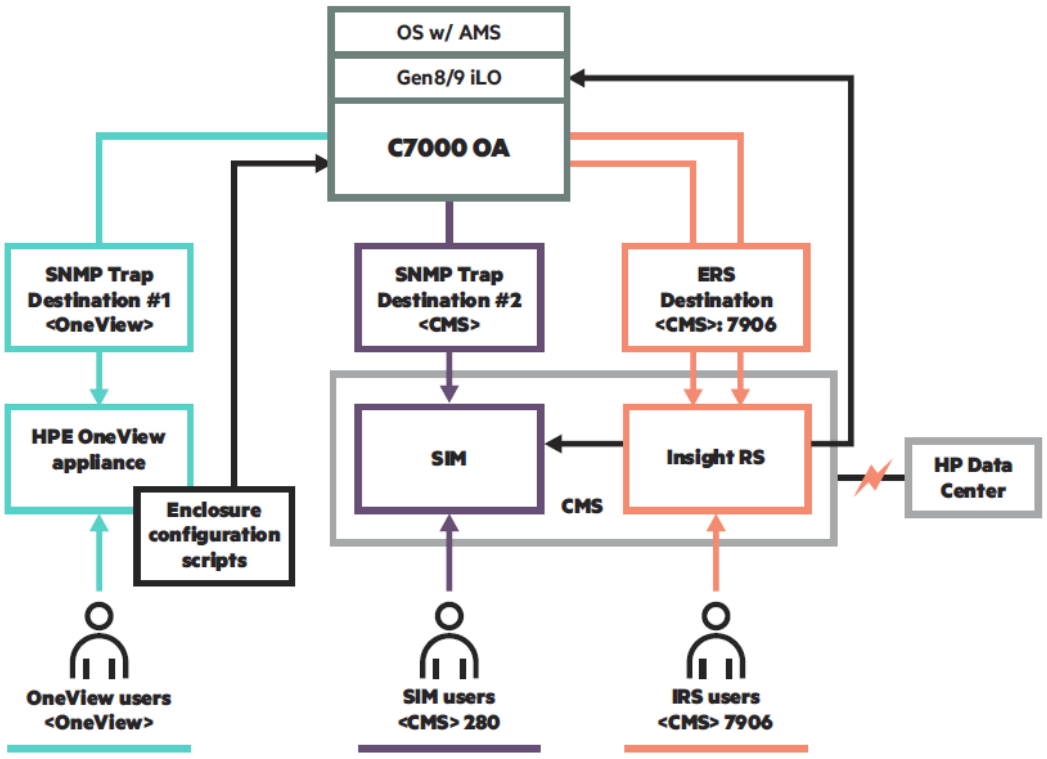

Figure 7. HPE Insight Remote Support

In the recommended configuration, HPE OneView manages while HPE Insight RS monitors hardware for failures and securely communicates to HPE to automatically create support cases for response by HPE Technology Services when required. HPE Insight RS (with or without HPE SIM and HPE Insight Control) can monitor HPE OneView-managed systems.

HPE Insight Online displays the devices monitored by HPE Insight RS v7.x. It provides a personalized dashboard for simplified tracking of IT operations and support information, including a mobile dashboard for monitoring while you are on the go. Use the Insight Online dashboard to monitor hardware health, track service events and support cases, view device configurations, and proactively monitor your HPE contracts and warranties as well as HPE Proactive service credit balances. It is available at no additional cost with HPE warranty and contract services. Learn more at hp.com/go/insightonline/info.

You can install HPE Insight RS either on an HPE ProLiant server running Windows or in a Windows virtual machine for Microsoft Hyper-V, VMware ESX® and VMware ESXi™, and Citrix® Xen. Third-party integrations with HPE Insight RS are provided to allow adoption by current users of VMware vCenter™ integration and ESXi.

See “Appendix B: HPE OneView, SIM, and Insight RS Coexistence” for information about how to install and configure OA and iLO devices for use by HPE Insight RS.

For information on compliant devices and the OS combinations that you can monitor, see: hp.com/go/OneView/docs and hp.com/go/insightremotesupport/docs.

Server migrations

HPE Insight Control allows you to migrate operating system, applications, settings, and data from one server to another using a wizard-based approach. HPE Insight Control includes an unlimited number of server migrations to each of your Insight Control-licensed servers, and it offers the following types of server migrations:

- Physical-to-ProLiant (P2P) migration
- Physical-to-virtual (P2V) migration
- Virtual-to-ProLiant (V2P) migration
- Virtual-to-virtual (V2V) migration

There are no plans for HPE OneView to support server migration. HPE OneView leverages the capabilities of the user's preferred virtualization partner (VMware, Microsoft, or Red Hat) for virtualization-based migrations (P2V, V2P, and V2V). Physical-to-ProLiant (P2P) migrations can be performed using HPE Insight Control. The purchase of full HPE OneView Advanced licenses includes the rights-to-use HPE Insight Control, and therefore, the use of server migrations.

Use cases with specific coexistence guidelines

This section of the document identifies some of the primary use cases for coexistence environments involving HPE legacy applications and HPE OneView. These use cases demonstrate how HPE OneView supports coexistence throughout the lifecycle of your IT infrastructure. HPE OneView provides powerful capabilities for the embedded management and Converged management segments of the HPE Lifecycle. The use cases presented in this section provide specific examples showing how you can use HPE OneView to perform common management operations in coexistence environments.

The management operations include:

- Firmware updates
- System software updates
- Alert notification and health monitoring
- Virtual Connect migration
- Reporting
- Power management
- Performance management

Firmware updates use case scenarios

In the use case presented here, HPE OneView allows administrators to update firmware components on devices with advanced licenses using four different scenarios:

- When a new enclosure is added into HPE OneView
- After an enclosure is added, from the "Logical Enclosures" page
- After an enclosure is added, from the "Logical interconnects" page
- After a server is added, if the firmware baseline assigned to a Server Profile or Server Profile Template is modified

When a new enclosure is added into HPE OneView

If you specify a firmware baseline and the Virtual Connect modules, Onboard Administrator, or any of the HPE iLOs in the enclosure have firmware versions older than the baseline specified, they will be updated to that version.

If a baseline is not specified, and the firmware on the Onboard Administrator or iLOs are older than the minimum versions supported by HPE OneView, they are updated automatically using the SPP in HPE OneView that contains the latest OA or iLO firmware when the enclosure is added.

After an enclosure is added from the Logical Enclosures page
It is strongly recommended that this operation be performed during a maintenance window since servers must be powered off for firmware to be updated. If server hardware or logical interconnects are selected for update, they become unavailable for the duration of the update.

There are three update firmware options available:

- Shared Infrastructure—This option updates the Virtual Connect modules and Onboard Administrator.
- Shared Infrastructure and Profiles – This option updates the managed devices in the enclosure and must be scheduled during a maintenance window where service outages are expected. If you select this option, server profiles specifying a firmware baseline updates the iLOs and BIOS firmware to match the new baseline however, system software and drivers are not updated.
- Onboard Administrators only – This option updates the firmware only on the Onboard Administrators.

After an enclosure is added from the Logical Interconnects page
This option is recommended to minimize service interruption. HPE OneView provides two modes of Virtual Connect interconnect firmware update:

- Update Firmware (stage + activate): This option copies and activates the firmware on members of the logical interconnect. Since service availability is interrupted based on the activation method selected, this method should be executed as part of the maintenance window. NIC teaming and storage MPIO redundancy should be configured to minimize service disruption.
- Stage firmware for later activation: This option copies the firmware image to the Virtual Connect modules, but it will not activate it. You then have the ability to individually activate the firmware on one interconnect at a time. On a fully redundant configuration (NIC teaming and storage MPIO setup) the impact of the firmware update on service availability is minimal since the network traffic is redirected to the adjacent module while the firmware is being activated.
- Activate only—Activates the firmware on members of the logical interconnect. Since service availability is interrupted as part of the activation process, this method should be executed as part of the maintenance window

After a server has been added, if a firmware baseline assigned to a Server Profile or Server Profile Template is modified
Finally, the last scenario allows you to specify a firmware and system software baseline (SPP) on the server profile or server profile template. For new servers assigned to a profile with a firmware baseline where the firmware is below the baseline, the firmware will be upgraded the next time the server boots. You can also edit the server profiles to assign an updated firmware baseline.

There are three installation options available for applying the SPP:

- Firmware and OS Drivers using HPE Smart Update Tools—This method uses the HPE Smart Update Tool service to stage, install and activate the firmware and system software contained in the assigned SPP.
- Firmware only using HPE Smart Update Tools – This method uses the HPE Smart Update Tool service to stage, install and activate the firmware contained in the assigned SPP.
- Firmware Only – This method reboots the server into Intelligent Provisioning to perform an offline firmware installation.

Note
Scheduling Firmware updates is not offered with the HPE OneView Advanced 2.0 release, but you can continue to use HPE SIM if you need this capability.

If your environment is composed of servers running ESX or Hyper-V workloads, HPE OneView Advanced supports online firmware and software updates through the HPE OneView for VMware vCenter and HPE OneView for Microsoft System Center integrations.

Hot Fix application
Hotfixes for firmware are sometimes released between SPP releases, and servers with existing baselines need to be changed. HPE OneView supports the creation of custom SPP baselines using HPE SUM. For any custom SPP you create, you must include iLO, OA, and Virtual Connect firmware. For OA, VC and iLO hotfixes, be sure to upload the .scexe version of the hotfix.

For more details on creating custom SPP baselines with HPE SUM, see the HPE SUM user guide at hpe.com/info/hpsum.

Use case – Online system software update

There are several options available to customers to perform system software updates, which are described in this section. Use one of the following scenarios to update system drivers/software as appropriate for you environment.

- Use HPE OneView 2.0 with HPE Smart Update Tools
- Use HPE OneView for VMware vCenter
- Use HPE OneView for Microsoft System Center
- Use HPE Systems Insight Manager
- Use HPE Smart Update Manager

Using HPE OneView 2.0 to Update System Software using HPE Smart Update Tools

New to HPE OneView 2.0 is the ability to perform online system software updates in an online, non-disruptive mechanism to stage and deploy firmware and operating system drivers.

HPE Smart Update Tools (HPE SUT) currently is supported on Windows and Linux systems and future support is planned for ESX operating environments. Running HPE SUT through OneView enables HPE SUT to run in the background on your production server to look for requests and process them appropriately. By default, this polling occurs every five minutes. Users can adjust the polling interval in minutes, which is used by HPE SUT to poll pending requests from HPE OneView. This can be done using the command line option provided by HPE SUT.

The modes available when running HPE SUT through OneView are:

Auto stage (autostage) – When a request is made by OneView, HPE SUT stages the components on the server in the temporary location. Any further action requires that you run the commands from the command line.

Auto deploy (autodeploy) – When a request is made by OneView HPE SUT stages and deploys the components, but does not activate them. Any further actions requires that you run the commands from the command line.

Auto deploy reboot (autodeployreboot) – When a request is made by HPE OneView, HPE SUT stages, deploys and reboots the server in order to move the firmware to an active state. HPE SUT polls for pending requests from HPE OneView. By default, this polling occurs every five minutes. Users can adjust the polling interval in minutes, which is used by HPE SUT to poll pending requests from HPE OneView. This can be done using the command line option provided by HPE SUT.

For more information on how to use HPE Smart Update tools to deploy firmware and system software, see the HPE Smart Update Tools documentation available at hpe.com/info/hpsut.

Using HPE OneView for VMware vCenter to update system software

HPE OneView for VMware vCenter is a single, integrated application for managing ProLiant servers and HPE storage systems running VMware. This integration requires the purchase of HPE OneView Advanced licenses. HPE OneView for vCenter provides firmware inventory and performs driver and online firmware updates for one or more VMware hosts using HPE SUM and the SPP.

For VMware environments, the SPP provides firmware and, starting with SPP version 2014.09.0, installation and update of driver components. Not every drivers available for VMware is included as a driver component in the SPP. Only drivers recommended in the VMware FW and Software recipe document on VMware vSphere 5 systems are included. To install other drivers and software not included in the SPP or the HPE Online Depot, use VUM or the VMware ESXCLI commands with the VMware software bundles obtained from other sources.

For more information on how to use HPE OneView for vCenter to gather firmware inventory and perform driver and online firmware updates, see the HPE OneView for vCenter information at hpe.com/info/ovvcenter.

Using HPE OneView for Microsoft System Center to update system software

HPE OneView Advanced integrates with Microsoft System Center to deliver powerful HPE hardware management capabilities directly from the System Center consoles for comprehensive system health, configuration management, and remote control. By integrating HPE converged management features into Microsoft System Center consoles, administrators can gain greater control of their technology environments. This

provides consistency for software deployment and updates and enables a faster response in the event of server failure, reducing the risk of downtime.

The HPE ProLiant Updates Catalog provides firmware and software from the SPP for the SCCM Software Updates feature and SCVMM Update Catalog feature. It consists of bundles that are a portion of the SPP and provides a simple and convenient mechanism for deploying firmware and software. Inside each bundle, HPE SUM is used to install the included firmware or software.

For more information on how to use HPE OneView for Microsoft System Center to deploy system software, see the HPE OneView for Microsoft System Center information at hpe.com/products/hpeovsc.

Using HPE SIM to update system software

HPE SIM provides a single view of the software status for managed ProLiant or Integrity servers and can be used to update software and firmware on those servers through its powerful query and task features. Software/Firmware Baselines are used to establish baseline on target systems. Updates can be scheduled and applied to specific sets of servers based on predetermined criteria, including applying updates only to systems that require an update.

Note

HPE recommends that the firmware baseline defined in HPE SIM (either the standard or the customized SPP) matches the firmware baseline defined in HPE OneView for the target systems.

For more information on using HPE SIM to deploy system software, refer to the "HPE Systems Insight Management User Guide" at hpe.com/info/hpsim/docs.

Using HPE Smart Update Manager to update system software

HPE SUM supports online deployments of firmware for Windows, Linux and VMware operating systems. Additionally, system software deployment is supported for Windows and Linux operating systems.

HPE SUM has an integrated hardware and software discovery engine that finds the installed hardware and current versions of firmware and software in use on nodes you identify. HPE SUM installs updates in the correct order and verifies that dependencies are met before deploying an update. HPE SUM prevents an installation if there are version-based dependencies that it cannot resolve.

For details and instructions on using HPE SUM, see HPE SUM documentation at hpe.com/info/hpsum.

Use case—Alert Notification

With HPE OneView, you can configure OneView to send email notifications when an alert is received from either OneView monitored or OneView managed resources. When an alert is received by HPE OneView it is compared against the filter search criteria that has been pre-specified and, if it matches, then an email message is sent to the recipients for the alert filter.

HPE OneView provides support for as many as 100 recipient and filter combinations, and there can be as many as 50 recipients in a single email notification. This flexibility enables you to fine-tune which alerts generate email notifications and to whom. The filters used in Alert Notifications follow the same syntax as that used by the Smart Search box in the Activity screen so you can copy and paste that information into the Filter text box when adding an Alert Email Filter.

The filter field accepts a combination of formal attributes and free text search. If you wanted to generate an email notification to server administrators when HPE OneView receives an alert with a "Critical" or "Warning" status, then you would use the following filter syntax:

```
physicalResourceType:server-hardware status:critical status:warning
```

The alert attribute "physicalResourceType" is used to specify which resources are going to be filtered. To select only critical or warning alerts, the attribute *status* was used. Similarly, a new filter could be created for a different "physicalResourceType" such as "interconnects". This filter could be used to send an email notification to the network administrator when a warning or critical alert was received for an interconnect (Table 4).

Table 4. Warning or critical alert

EXAMPLE OF ADVANCED FILTERING SYNTAX	SEARCH RESULTS
By model name:	
model: "BladeSystem c7000 Enclosure G2"	Hardware that matches BladeSystem c7000 Enclosure G2
model: "ProLiant BL460c Gen8"	Hardware that matches ProLiant BL460c Gen8
model: "HPE VC 8Gb 20-Port FC Module"	Hardware that matches HPE VC 8Gb 20-Port FC Module
BY NAME OR ADDRESS:	
name:enclosure10	An enclosure with the name enclosure10
name:"192.0.2"	Physical machines whose IP addresses begin with 192.0.2
By health status:	
status: Critical	Resources that are in a critical state. Health status values include: Critical, Warning, Ok, Unknown and Disabled
By owner:	
owner: Administrator	Resources and messages owned by the Infrastructure administrator
By date	
created:<7d	Created within the last 7 days
Refine results by combining properties:	
A space character separating two of the same object operates as a logical OR.	
model: "ProLiant BL460c Gen8" model: "ProLiant BL460c Gen9"	ProLiant BL460c Gen8 and ProLiant BL460c Gen9 hardware.
status:Critical status:Warning	Resources that are in either a critical or a warning state.
A space character separating two dissimilar objects operates as an AND	
owner:Administrator firmware	Activities owned by the Administrator and related to firmware
NTP status:critical	Critical messages related to NTP
status:unknown state:locked owner:Administrator	Messages with unknown status, having a locked state, and owned by Administrator
Combining AND and OR operations	
name:host.example.com	Messages related to the resource "host.example.com"
name:host.example.com status:Critical status:Warning	Messages with either a Critical or Warning status and related to the resource "host.example.com"
NOT operation*	
status:Warning NOT model:"ProLiant BL465c G7"	Messages with a Critical status except those that apply to ProLiant BL465c G7 models

* NOTE: You can only use NOT once in a query. NOT operators that follow are treated as text.

Use case—Virtual Connect migration

As an alternative to the "monitor-only" mode possible in existing legacy VCM-managed environments, HPE OneView (v2.0 and later) gives you the option to migrate existing VCM-managed configuration and enclosure information to the HPE OneView management environment. You can see this option once the enclosure has been added to HPE OneView. Figure 8 tracks the migration process.

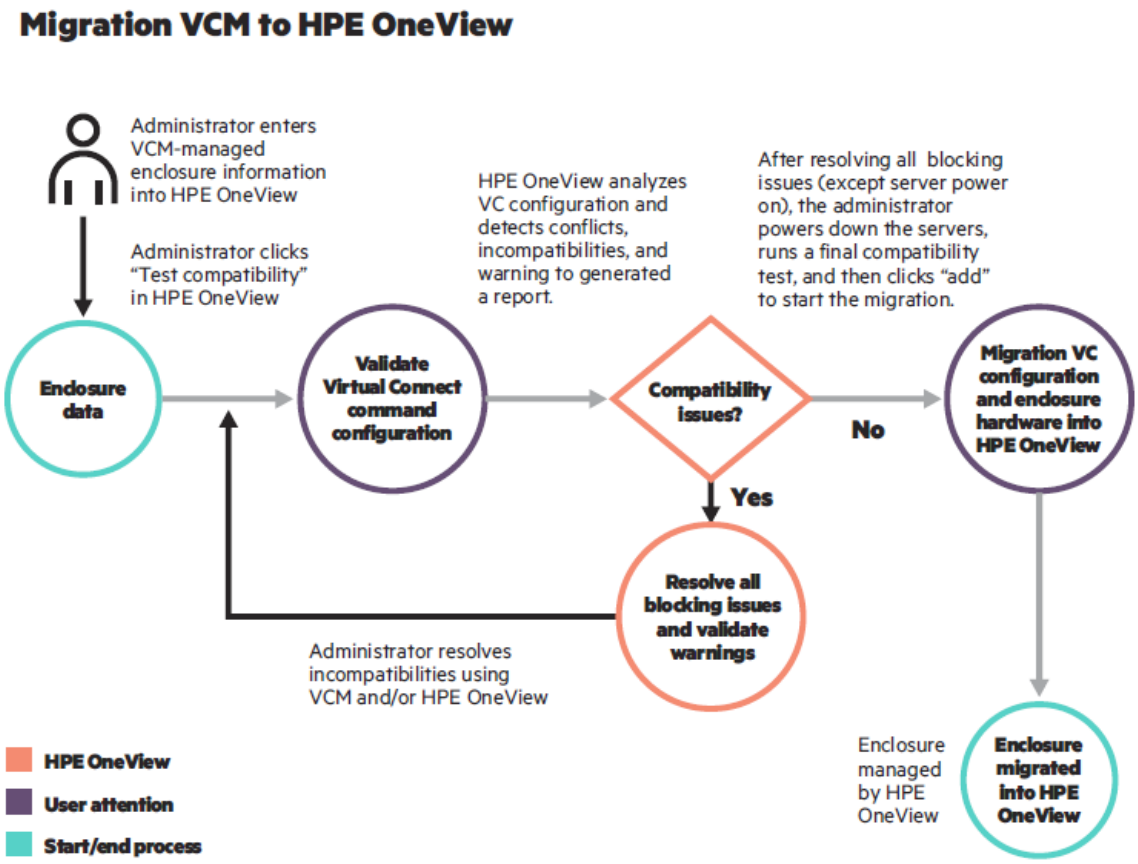

Figure 8. Migration from VCM to HPE OneView

You can also migrate VCEM-managed configuration and enclosure information to the HPE OneView management environment. This process requires that you first use the VCEM UI to manually remove the domain from the domain group. Then perform the migration within HPE OneView through the "Add Managed Enclosure" process, and follow the steps described in Figure 6.

Note

The migration process must be executed offline during a planned maintenance window. HPE strongly recommends that you perform a backup of your current VCM configuration before the migration occurs. For more information on VCM backups, see the Virtual Connect User Guide at hpe.com/info/virtualconnect/docs.

An enclosure can still be added as "monitored" instead of "managed". This enables you to view the status of the enclosure and its components but still use VCM to manage the Virtual Connect modules. Once an enclosure has been added as monitored, it can migrated back into the HPE OneView environment when you are ready for HPE OneView to manage rather than monitor the enclosure

Most VCM settings can be fully migrated to HPE OneView. The exceptions are discussed in Table 5. Refer to the HPE OneView User Guide for current supported features.

Table 5. VCM setting migration exceptions

CONFIGURATION INFORMATION	MIGRATION
Server hardware	**Status**
Virtual Connect domains settings	**Yes**- except for banner text, auto deployment settings, remote syslog, partially stacked single enclosure domains, module-specific DNS names. LLDP enhanced TLV "true" or "false" settings are migrated from VCM into HPE OneView 2.0.
Networks	**Yes-** for Ethernet networks and Fibre Channel fabrics. FCoE networks, QoS settings are migrated, **No** -VLAN ID mapping, labels and colors** will not be migrated.
Server profiles including the MACs and WWNs used in the Virtual Connect Manager server profiles*	**Yes**- except for iSCSI connections, iSCSI boot settings, network access groups, IGMP multicast filters, unassigned profiles, and profiles for unsupported servers.
User account-specific information such as certificates, LDAP, Radius, TACACS+, session timeout, and user role configuration	**No**
Port monitoring configuration	**No**- Port monitoring can be configured on each logical interconnect after the migration.
HPE Virtual Connect domain pools of MACs, WWNs, and serial numbers	**No**

* Any new network connections added to the server profile after migration will obtain the MAC and WWN addresses from the HPE OneView address pool.

** Labels and colors are a VCM feature allowing admins to better group and identify networks and multicast filter sets.

When you attempt to migrate an enclosure, HPE OneView analyzes and validate any potential compatibility issues. The ability to migrate existing Virtual Connect domains is an offline process, and not every features of Virtual Connect can be migrated. For detailed information, you can refer to the HPE "OneView User Guide", Chapter 9 "Planning for enclosure migration from VCM into HPE OneView" (hpe.com/hpsc/doc/public/display?docId=c04765114), and the "HPE OneView Deployment and Management Guide", the "Import/Migrate a Virtual Connect Managed Enclosure" section (hpe.com/hpsc/doc/public/display?docId=c04040086).

Table 6 shows some examples of possible issues and suggested resolutions.

Table 6. VCM setting potential compatibility issues and solutions

CONFIGURATION INFORMATION	MIGRATION
Sample issue	**Suggested resolution**
There is an enclosure group already configured with the same name {0}. Cannot create a new enclosure group using this name.	Rename or delete the existing enclosure group. For example, if the enclosure group in HPE OneView will be replaced with the migration or is no longer valid, delete the group in HPE OneView. If the existing enclosure group is a valid group, then select a different enclosure group or create a new group.
The Virtual Connect interconnect bay 4 is empty and does not match the Logical Interconnect Group configuration.	Install a module in Virtual Connect domain bay 4 or modify the Logical Interconnect Group configuration in HPE OneView to match the empty bay.
The provided credentials are empty.	Verify the provided login credentials and retry the operation.
The specified enclosure is managed by VCEM. It is not possible to migrate the specified enclosure while it is managed by VCEM.	Remove the Virtual Connect domain from the VCEM domain group and retry the operation.
A FC fabric without uplink ports is not supported in FC fabric San_A.	Add an uplink port to the FC fabric San_A before proceeding with the migration.
The server profile profile1 is assigned to an empty bay and is not imported to the appliance.	Assign the profile to a valid bay.
The Virtual Connect domain has IGMP No Flood enabled.	Disable the IGMP No Flood configuration in the Virtual Connect domain and retry the migration.
The enclosure is not part of a Virtual Connect domain.	Add the enclosure directly into HPE OneView since there is no domain configuration to migrate.
The Virtual Connect stacking mode is not configured to full. The appliance requires full stacking mode.	Configure the enclosure for full stacking mode.

For more details on the Migration process, see the HPE OneView user guide at hp.com/go/virtualconnect/docs

Use case—Reporting

HPE OneView 2.0 (both Standard and Advanced) provides a set of pre-defined reports that can be generated for both “monitor-only” systems (managed by VCM or VCEM, for instance) and HPE OneView-managed equipment:

- Alerts Report
- Enclosure Bay Inventory
- Enclosure Inventory
- Interconnect Inventory
- Server Firmware Inventory
- Server Inventory
- Server Profiles Inventory
- Users Report

These reports can be saved as csv files. Storage system reports are not included in the HPE OneView 2.0 release. For storage reporting, HPE SIM can still be used even if HPE OneView manages your storage systems.

If customized reports are needed for both systems managed by HPE OneView or HPE Insight Control, the reporting features of HPE SIM can be used for that purpose.

Use case—Power management

The basics of power management are captured in three concepts: measure, monitor, and control. Measurement from the hardware level provides the basis for good analysis – based on real data, not on estimates or heuristics. Monitoring leverages the ability of the solution to see problems as they develop in individual systems or across the collected group of systems. Finally, control over environmental aspects (power and thermals) provides logical analysis of the measurements and monitoring, and it manipulates specific hardware elements in the systems to maintain power/thermal margins.

Power monitoring and energy management that is designed to scale to the level of your datacenter requires a solution that covers three critical areas. These three critical areas for environmental management of the data center are:

- Thermal data visualization (via HPE Thermal Mapping with interactive displays),
- Power delivery infrastructure representation (via HPE Power Discovery Services) , and
- Physical asset location in 3D (via HPE Location Discovery Services).

Coexistence environments need to consider which aspects of power management are needed and are used in the data center. A comparison of power management capabilities between HPE Insight Control and HPE OneView Advanced is shown in Table 7 to better guide your decisions on which solution to use in coexistence scenarios.

Table 7. VCM setting potential compatibility issues and solutions

POWER MANAGEMENT FEATURES	HPE INSIGHT CONTROL 7.5 AND LATER	HPE ONEVIEW 2.0
Measurement		
Power /Thermal Metrics	**Yes**	Yes
Reports	**Yes** (graphical depiction w/ export; historical power utilization)	**Yes*** (power/thermal data via REST API; utilization reports)
Monitoring		
Monitor Power/Thermal	**Yes** (aggregate data from iLO; historical reports)	**Yes*** (interactive thermal/power mapping of datacenter)
Thermal Mapping	**Yes** (2D only)	**Yes** (2D and 3D, interactive display)
Power Discovery Services	**Yes**	**Yes** (3D, interactive display)
Location Discovery Services	**Yes**	**Yes** (3D, interactive display)
Control		
Power Regulation	**Yes**	**No**
Dynamic Power Capping	**Yes**	**No**
Data Center Power Control	**Yes**	**No**
Other		
Other Integration	Yes (import physical config from MS-Visio/MS-Excel; import inventory/topology from Nlyte software))	**No**

* Three years of aggregate data and metrics storage is available when an HPE iLO Advanced license is present.

The current releases of HPE Insight Control and HPE OneView contain similar capabilities for measurements and monitoring of power management. HPE OneView provides more integrated data displays with interactive 3D data center views. HPE Insight Control provides better control functions for power management than HPE OneView. However, HPE OneView administrators can use a configuration script when adding the enclosures to customize power settings.

HPE Insight Control can be used for power capping HPE OneView-managed systems, as long as those target systems are discovered in HPE SIM. Once HPE SIM defines the new power cap for a particular system, then the new power cap information is reflected in the HPE OneView console. For details on how to configure power capping, see the HP Insight Control Power Management 7.1 User Guide.

Use case—Performance management

Performance management between HPE OneView and HPE Insight Control presents the user with several choices. Performance metrics and data are available to HPE OneView users through the REST API. While HPE Insight Control includes basic performance analysis, the enhanced performance analyses for HPE OneView are available through "HPE Operations Analytics for HPE OneView", an optional licensed solution that provides "Big Data" analytics for your IT Operations. This HPE OneView solution leverages data from HPE OneView to provide real-time troubleshooting of your converged infrastructure, viewing of the overall health of the data center, and predictions of when infrastructure capacity may be exhausted. This solution spans capabilities from triage and diagnosis, to stakeholder analysis, to decision support. This software is separately licensed for use with HPE OneView Advanced on a 'per physical server' basis. You can see a comparison of these performance management options in Tables 8 and 9.

Table 8. Comparison of performance management options

PERFORMANCE MANAGEMENT FEATURES	HPE INSIGHT CONTROL 7.5 AND LATER	HPE ONEVIEW 2.0
Performance management		
Monitor Server Performance	Yes (set parameters/thresholds and data collection duration; bottlenecks; monitor VM guest performance)	Yes (access metrics through REST API; CPU usage and power/temperature changes via partner integrations)
Analyze Server Performance	Yes (online and offline analyses)	No (option: HPE Operations Analytics for HPE OneView)
Reports and Graphs	Yes (static analysis, systems summary, server availability)	No (option: HPE Operations Analytics for HPE OneView)

Table 9. Comparison of performance management and license options

PERFORMANCE MANAGEMENT FEATURES	HPE INSIGHT CONTROL 7.5 AND LATER	HPE OPERATIONS ANALYTICS FOR HPE ONEVIEW WITH HPE ONEVIEW ADVANCED 2.0
Product	Licensed product	Optional license to HPE OneView Advanced 2.0
Data collection sources	**Structured data**	**Structured and unstructured data**
Servers	**Yes** (CPUs, memory, disks, buses)	**Yes**
Enclosures	**Yes**	**Yes**
Power and cooling	**Yes** (via power management)	**Yes**
Hypervisor hosts	**Yes** (via virtual machine manager)	**No**
Storage arrays	**Yes**	**Yes**
Edge switches	**No**	**No**
LAN and SAN	Partial	**No**
HPE Network devices	**Partial** (network adapters)	**No**
Log data	**No**	**Yes**
Analytic tools		
Thresholds & Alerts	**Yes**	**Yes**
Operational Events	Yes (monitoring; set parameters/thresholds & data duration; bottlenecks; VM guest performance)	Yes (automated—search, learn, analyze, prioritize)
Performance Analysis	**Yes** (online and offline analyses)	**Yes** (predictive performance and availability)
Automated Log Analytics	**No**	**Yes**
Predictive Analytics	**No**	**Yes**
Topology Views	**No**	**Yes**
Guided Troubleshooting	**Partial** (recommendations)	**Yes** (root cause, time replays)
Consolidated Visual Analytics	**Graphs and Reports** (static analysis, systems summary, server availability)	**Yes** (flexible)

In coexistence environments, users might also consider using the performance management from HPE Insight Control for HPE OneView systems. HPE Insight Control performance management can be used with HPE OneView-managed hardware. The features of HPE Insight Control performance management can be used with HPE OneView-managed systems as long as those target systems are discovered in HPE SIM.

Using REST API to Integrate HPE OneView with external applications

HPE OneView is designed with an Open API and a State-Change Message Bus making it easy for you to include user applications as part of the management architecture. A single, consistent resource model is embodied in a new HTML5 user interface and the Representational State Transfer (REST) API. You can use the REST API to include, automate, and customize any operation you can perform from the UI using your favorite scripting or programming language.

The open inclusion of user applications can address a wide variety of user needs:

- Automating standard work flows and troubleshooting steps
- Automating inclusions (to the configuration management database
- Connecting to service desks
- Monitoring resources, collecting data, or mapping and modeling of systems
- Exporting data to formats that suit your needs
- Attaching custom databases, data warehouses, or 3rd party business intelligence tools
- Inclusion of in-house user customizations

The State-Change Message Bus (SCMB) is an interface that allows custom integration scripts to be notified of any changes to managed resources (both logical and physical resources) via asynchronous messaging. For example, integration scripts could be notified whenever new server hardware has been added to the managed environment or when the health status of physical resources has changed, without having to continuously poll for status through the REST APIs.

Open integration provides access to the full power of the management architecture, with appropriate permissions, through the REST API and State-Change Message Bus.

You can also use REST APIs for automation and integration tasks:

- Manage tasks at a SNMP level – For example, HPE OneView allows you to monitor the SCMB for critical alerts and then use the REST API to automatically open Service Manager incidents
- Automated event handling (such as scripting and filtering)—Handled by the SCMB and external tools.
- Reporting—Use REST API calls to report on inventory and asset configurations.
- Schedule tasks—Handled by the SCMB and external tools.

HPE PowerShell and Python libraries wrap the REST APIs for direct use in PowerShell and Python scripts. For information on how to access these libraries, see the HPE OneView online forum at hp.com/go/oneviewcommunity. You can also download the libraries directly from github.com/HewlettPackard/python-hpOneView.

Enterprise Partner integrations

Integrations to HPE OneView are available for several enterprise software partners. These integrations use the same interface that is available to HPE OneView users, namely, the REST API and State-Change Message Bus. Standard enterprise integrations are provided by HPE for VMware vCenter, Microsoft System Center, and Red Hat® Enterprise Virtualization (RHEV).

These standard integrations are free downloads with the purchase of HPE OneView Advanced licenses. Licenses for the partner's software must be purchased separately. These standard enterprise integrations are shown below along with other HPE OneView solution integrations:

- HPE OneView for VMware vCenter Server
  - HPE OneView for VMware vCenter Operations Manager (vCOM or vCOps)
  - HPE OneView for VMware vCenter Log Insight
- HPE OneView for Microsoft System Center
  - HPE Fabric Management Add-in for SCVMM**
  - HPE OneView Management Pack for SCOM**
- HPE OneView for Red Hat Enterprise Virtualization (RHEV)
- HPE Operations Analytics for HPE OneView
- HPE Virtualization Performance Viewer for HPE OneView
- Integration with HPE Operations Orchestration (OO)
- Integrations with Configuration Management Data Base (CMDB)

Enterprise partner integrations, similar to custom user integrations mentioned above, use the 'open integration' architecture of HPE OneView to both pull key information and to drive the management engine.

Comparing HPE OneView and HPE Insight Management

In addition to examining the components of these two management systems, it is important to consider each as complete solutions and what they offer with respect to efficiency/productivity in your working environment. Table 10 makes these comparisons.

Table 10. Comparison of performance management options

CHARACTERISTIC	HPE INSIGHT MANAGEMENT SIM, Insight Control, VCM, VCEM, iLO Advanced, iCMU	HPE OneView HPE OneView Advanced
Server Profiles	**Manual** (using many tools)	**Yes** (single configuration)
Enclosure Groups	**Manual** (via SIM and OA)	**Yes** (physical groups)
Logical Interconnect Groups	**Partial** (via VCEM Domain Groups)	**Yes**
Cluster deployment	**Partial/Manual** (using Insight Control and partner integration)	**Yes** (automated using partner integration)
Storage management	**Partial** (Storage health and monitoring)	**Partial** (Storage volume provisioning and SAN zoning, storage health and monitoring)
SAN Storage attachment & SAN Zoning	No	**Yes**
License Type	Various types	Integrated license (per server)—includes any needed Virtual Connect & iLO Advanced capabilities
• HPE SIM	None (free SW download)	
• HPE Insight Control	Separate license (per server)	
• HPE iLO Advanced	Separate license (per server)	
• HPE VCM	None (included with HW)	
• HPE VCEM	Separate license (per enclosure)	
Licensing Process	Manual & Multiple Parts	Integrated licensing—Automatically applied
Automation-ready	No	**Yes** (REST, PowerShell, Python)

Services

HPE Services lets you take command of your infrastructure to simplify server management from a single console with secure remote access for a more agile and intelligent data center. Whether you are considering HPE OneView coexistence as you transition at your own pace, or immediate HPE OneView deployment, HPE offers technical support and professional services around building and operating your HPE OneView environment (Table 11).

Table 11. Support and professional services

FUNCTION	HPE PROFESSIONAL SERVICES
Build	• HPE OneView Startup Service – Basic installation and configuration • HPE OneView Installation and BladeSystem c7000 Migration Service – Basic installation plus data migration from existing VCM/VCEM managed environment
Operate	• Licenses include three years of SW technical support, SW updates, and web-based education – Four year and five year support extensions options available • Proactive Care – Comprehensive HW and SW proactive advice – Enhanced call management from technical experts • Proactive Care Advanced – Features of Proactive Care plus assigned local resources and personalized technical collaboration • HPE Education • Hands on training courses

HPE OneView deployment and support services are delivered by HPE Technology Services support teams and can be purchased through our channel partners. These services include:

- Three years of software technical support and updates are included in the HPE OneView Management software purchase.
- HPE care packs to extend support to four and five years. If you choose to buy more than three years of hardware support, you can also buy HPE care packs to extend support to years four and five.
- Proactive Care for HPE OneView allows HPE to give exceptional call handling experience to customers new to the software. It also allows HPE to proactively provide advice and assistance on the information provided by the HPE OneView tools. As you deploy HPE OneView across production or revenue generating environments, it makes sense to have this higher level of interaction with HPE proactively and reactively.
- Proactive Care Advanced for HPE OneView provides the features of Proactive Care for HPE OneView plus access to local assigned resources and personalized technical collaboration to help keep IT at peak performance.
- HPE OneView Startup Service provides basic installation, tested verified configuration of the components, and customer orientation.
- HPE OneView Installation and BladeSystem c7000 Migration Service is a recommended alternative implementation service. It includes services in the startup service plus data migration from earlier HPE Management software tools (VCM, and VCEM). This alternative starts with the basic implementation above but goes to the next level by assisting with configuration data migration.
- HPE Education service provides hands-on training equipping your employees with the skills and knowledge to install, configure, and administer HPE OneView.

HPE offers a complete range of technical services and software support, many of which are provided to our customers at no additional charge. To explore these services go to hp.com/services/oneviewservices

HPE OneView licensing

The HPE OneView management appliance controls licenses. The same management appliance can be used for both HPE OneView Advanced licenses and for HPE OneView Standard. The user makes this choice when they initially add their system to the HPE OneView management appliance.

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. HPE OneView Standard can monitor G6, G7, Gen8, and Gen9 servers. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. An annual 9x5 support offering is available for an additional fee.

HPE OneView Advanced provides full-featured licenses, which can be purchased for managing Gen8 and Gen9 servers. The HPE OneView Advanced versions are licensed 'per physical server.' These licenses include three years of 24x7 Technical Support and Updates (TS&U) with web-based training (WBT) to build basic product proficiency. Full HPE OneView Advanced licenses also provide 'integrated licensing' rights-to-use HPE Insight Control at no additional charge. Trial versions of HPE OneView Advanced can be used for 60-days without charge.

HPE OneView Advanced licenses provide additional right-to-use (RTU) licenses so you can transition at your own pace:

- Rights-to-use HPE Insight Control with the purchase of a full HPE OneView Advanced license. [NOTE: Does not apply to upgrades.]
- Rights -to-use HPE Insight Control server provisioning, a separate download for those who plan to use this capability for multi-server, physical OS provisioning, and server configuration. HPE Insight Control server provisioning software is not included on HPE OneView media, but can be downloaded from hpe.com/info/insightupdates.
- Rights-to-use HP-supplied integrations for enterprise partner solutions. These partner integrations are from HP, but the partner software would still need to be purchased independently:
  - HPE OneView for VMware vCenter integration (previously known as 'HPE Insight Control for VMware vCenter Server') is a separate download and integrates HPE OneView capabilities into VMware vCenter Server with viewing from the VMware console. Other separate integrations are available for HPE OneView with VMware Operations Manager (VCOM) and VMware vCenter Log Insight. These integrations can be downloaded from hpe.com/info/ovvcenter.
  - HPE OneView for Microsoft System Center integration (previously known as 'HPE Insight Control for Microsoft System Center') is a separate download and integrates HPE OneView capabilities into Microsoft System Center with viewing from the System Center console. This integration can be downloaded from hp.com/go/ovsc.
  - HPE OneView for Red Hat Enterprise Virtualization (RHEV) integration (previously known as 'HPE Insight Control for Red Hat Enterprise Virtualization') is a separate download and integrates HPE OneView capabilities into Red Hat Enterprise Virtualization with viewing from the Red Hat console. This integration can be downloaded from hp.com/go/ovrhev.

The HPE OneView management appliance, which controls the licenses, can be obtained in two ways. You can download the software Open Virtual Appliance (OVA) file from HPE Software Depot (hp.com/go/oneview/download) at no charge, or Purchase the HPE OneView Media Kit (contains a USB flash drive).

HPE OneView Advanced management software licenses can be used for 60-days without charge. HPE OneView Standard management software can be used without charge.

HPE iLO4 licensing

Until the release of HPE OneView 2.0, HPE OneView SKUs shipped with the HPE iLO Advanced license included (except for the Upgrade SKU). HPE is unbundling iLO Standard and Advanced licensing to provide customers with increased flexibility. The following list details how the unbundling works when used with HPE ProLiant rackmount and blade servers:

- Only standalone and DL SKUs are being unbundled (four total)
- BL SKUs are not being unbundled
- HPE OneView SKUs that include HPE iLO Advanced is expected to still be available, but may change with future product release
- iLO Advanced Virtual Media for the sole purpose of SW/FW updates from HPE OneView are expected to continue to be available with the HPE OneView Advanced license, without the need for an iLO Advanced license

When you purchase HPE iLO Advanced with HPE OneView, these OneView-specific features are enabled:

- CPU and Thermal metrics collections – To better manage server health, HPE OneView collects and displays power and thermal metrics if HPE iLO Advanced is installed.
- Remote console (IRC app) – For management of remote servers, HPE OneView can launch the Integrated Remote Console if HPE iLO Advanced is installed. When HPE iLO Advanced is not installed, the customer can only use the Integrated Remote Console through system POST and will be prompted to install a license key when the server is running.
- Remote Syslog for centralized log – To enable datacenter management, HPE OneView configures systems to forward log messages to a Remote Syslog system.

If you purchase the HPE OneView SKUs without iLO Advanced, but also want to utilize HPE Insight Control, you should follow these steps:

- When you get the HPE OneView entitlement and activate it in the customer portal you will receive the OneView Key and Insight control key (2 separate keys).
- Download the binaries for HPE OneView and Insight Control (separate files) (software depot/or Update Center).
- Upload software and apply keys.
- Managed nodes can be managed either by HPE OneView or by Insight Control, but NOT managed by both at the same time.

Note
HPE recommends that you use HPE OneView across your environment. If you need the features that are only supported with HPE Insight Management products, you can use HPE Insight Control but you must purchase an HPE iLO Advanced license in order to enable iLO functionality.

Summary

HPE OneView is the path forward for converged management of servers, storage, and networking in physical and virtual environments. This powerful integrated solution provides a common set of tools and interfaces to makes administrators more productive when working across organizational boundaries in these converging IT environments. This modern architecture is designed to simplify, integrate, and automate IT in today's complex data centers and to provide foundations for hybrid cloud environments.

Transitioning from your existing management tools to this new architecture requires careful assessment of the current uses and the future directions of your management functions. Coexistence of old and new management environments may be possible; however, transitioning to the new management architecture may achieve significantly greater business value. This information and these examples can help guide your infrastructure management choices. When converged management becomes your direction, HPE OneView can help you make the transition at your own pace.

Appendix A: HPE OneView and legacy comparisons

Hardware compatibility

Table A-1 lists the hardware compatible with HPE OneView. HPE recommends that you check the HPE OneView 2.0 Support Matrix for the current compatibility information.

Table A-1. HPE OneView-compatible hardware

HARDWARE TYPE	HARDWARE COMPATIBILITY (BY HPE ONEVIEW LICENSE TYPE)
Servers	HPE OneView Advanced • HPE BladeSystem ProLiant Gen8 and Gen9 server blades • HPE BladeSystem ProLiant G7 server blades (monitoring, partial server profiles, connectivity profiles for using Virtual Connect) • HPE ProLiant Gen8 and Gen9 DL rack servers (monitoring, alerts, reports, server profiles for FW, BIOS, boot order)
	HPE OneView Standard • HPE BladeSystem ProLiant G6, G7, Gen8, and Gen9 server blades (inventory, monitoring, alerts, reports) • HPE ProLiant G6, G7, Gen8, and Gen9 DL rack servers (inventory, monitoring, alerts, reports)
Enclosures	HPE OneView Standard and Advanced HPE BladeSystem c7000 enclosures
Virtual Connect modules	HPE OneView Advanced • HPE Virtual Connect FlexFabric-20/40 F8 Module • HPE Virtual Connect FlexFabric 10Gb/24-Port Module • HPE Virtual Connect Flex-10/10D Module • HPE Virtual Connect Flex-10 10Gb Ethernet Module • HPE Virtual Connect 8Gb 20-port Fibre Channel Module • HPE Virtual Connect 8Gb 24-port Fibre Channel Module • HPE Virtual Connect 16Gb 24-port Fibre Channel Module (unmanaged support)
Network adapters	HPE OneView Standard and Advanced Flex-10, FlexFabric Flexible LOM Blade (FLB), Mezzanine adapters (non-Flex adapters cannot be used on blades).

See HPE OneView Support Matrix for details at hpe.com/info/oneview/docs

There are some environments where legacy management tools are required. For example, you can use HPE Insight Control and HPE VCEM for HPE hardware that is not managed by HPE OneView. The following list identifies HPE hardware not managed by HPE OneView today. HPE recommends that you continue to use HPE Insight Control and HPE VCEM (where applicable) if managing the following hardware:

- HPE ProLiant G6 Blade servers and earlier
- HPE ProLiant DL G7 servers and earlier
- HPE ProLiant ML servers
- HPE ProLiant SL servers
- HPE Integrity Servers
- HPE BladeSystem c3000 Enclosure

HPE SIM 7.5 and later and HPE OneView Standard 2.0 comparison

Table A-2 summarizes feature availability in both HPE SIM and HPE OneView 2.0.

Table A-2. Summarizes feature availability in both HPE SIM and HPE OneView 2.0.

FEATURES	HPE SIM 7.5 AND LATER	HPE ONEVIEW STANDARD 2.0
Discovery / Import*	**Yes (ping sweep, host files)**	Yes
Bring devices under monitoring (Import & Licensing)	**Piecemeal /Multiple steps**	Streamlined
Inventory	**Yes**	Yes
Health monitoring and alerts	**Yes**	Yes (automated configuration)
Action on events (such as WBEM,SNMP,WMI)		
Sending email	**Yes**	Yes
Trap forwarding	**Yes (with filtering)**	Yes
Running script	**Yes**	Yes (notification through SCMB messaging)
Roles & security*	**Yes (role-based, LDAP, SSL)**	Yes (role-based, LDAP, SSL)
Dynamic configuration	**Yes**	Yes
Firmware updates and baseline	**Yes (using Integrated HPE SUM)**	No (requires HPE OneView Advanced)
Server profiles	**Yes**	No
System software updates (OS, drivers, etc.)	**Yes**	No
Reports	**Yes (basic, advanced, and custom reports)**	Yes (basic reports; custom reports via REST API)
Remote support integration	**Yes**	No
IPv6	**Yes (v7.3 and up)**	No (IPv6 for access to VMs only)
Custom Integration (tools, access, control)	**Yes (limited)**	Yes (REST API, and customizable dashboard)
Automation-ready (integrate, automate, customize)	**No**	Yes (REST, PowerShell, Python)
Scalability (physical servers)	**5000****	640

* Features differ between HPE OneView and HPE SIM. For product details, consult the user guides.

** HPE SIM today supports federated search, allowing the user to monitor systems managed by seven CMS's

Table A-2 notes

- Discovery and Inventory: HPE SIM employs both discovery and inventory of managed systems. Use HPE SIM for hardware not currently managed by HPE OneView.
- Inventory only: HPE OneView employs inventory of managed systems.
- Health monitoring and alerts: Both HPE SIM and HPE OneView provide active health monitoring and alerting of events in the data center. Use HPE SIM health monitoring and alerts functionality for hardware not compatible with HPE OneView.
- Action on events: Both HPE SIM and HPE OneView have the ability to use custom tools and scripts.
  - HPE SIM allows you to create custom tools and run scripts within the context of HPE SIM. For more details, refer to the HPE SIM user guide at: hp.com/go/insightmanagement/docs.
  - HPE OneView State-Change Message Bus (SCMB) interface allows custom scripts/integrations to be notified of any changes to managed resources (both logical and physical resources) through asynchronous messaging. HPE OneView has rich list of REST APIs that can be invoked from PowerShell or Python scripts. For more details, refer to the HPE OneView API guide at: hpe.com/info/oneview/docs

HPE Insight Control 7.5 and later and HPE OneView Advanced 2.0 feature comparison

If the managed environment consists of hardware compatible with both HPE OneView Advanced 2.0 and HPE Insight Control 4, you can effectively manage the hardware using both HPE Insight Control and HPE OneView based on the applicable features. HPE OneView Advanced 2.0 coexists with HPE Insight Control 7.4 and the management features in Table A-3.

Table A-3. Summarizes feature availability in both HPE SIM and HPE OneView Advanced 2.0.

FEATURES	HPE INSIGHT CONTROL 7.5 AND LATER	HPE ONEVIEW ADVANCED 2.0
Licensing	Manual licensing & Multiple parts	Integrated licensing—Automatically applied
Remote control	**Yes** (iLO Advanced required)	**Yes** (with iLO Advanced)
Provisioning & Deployment	**Yes** (HPE Insight Control server provisioning)	**Yes** (HPE Insight Control server provisioning)
Power management*		
Monitoring Power/Thermal	**Yes** (aggregate data from iLO; historical reports)	**Yes**** (interactive thermal/power map of datacenter)
Reporting	**Yes** (graphical depiction w/ export; historical power utilization)	**Yes**** (power/thermal data via REST API; utilization reports)
Thermal Mapping	**Yes** (2D only)	**Yes** (2D and 3D)
Power Discovery Services	**Yes**	**Yes** (3D, interactive display)
Location Discovery Services	**Yes**	**Yes** (3D, interactive display)
Power Regulation	**Yes**	**No**
Dynamic Power Capping	**Yes**	**No**
Data Center Power Control	**Yes**	**No**
Other Integration	Yes (import physical config from MS-Visio/MS-Excel; import inventory/topology from nlyte sw)	**No**
Performance management	**Yes (basic, advanced, and custom reports)**	Yes (basic reports; custom reports via REST API)
Monitoring server performance	**Yes**	No
Analyze server performance	**Yes (v7.3 and up)**	No (IPv6 for access to VMs only)
Reports	**Yes (limited)**	Yes (REST API, and customizable dashboard)
Server profiles	**No**	Yes (REST, PowerShell, Python)
Server migrations (physical to physical)	**5000****	640
Scalability (physical servers)		
Partner Integrations		
VMware	HPE Insight Control with VMware vCenter Server	HPE OneView for VMware vCenter
	NA	• VMware Operations Manager
	NA	• VMware Log Insight
Microsoft System Center	HPE Insight Control with Microsoft System Center	HPE OneView for Microsoft System Center
	NA	• HPE Fabric Management Add-in for SCVMM***
	NA	• HPE OneView Management Pack for SCOM***
Red Hat Enterprise Virtualization	HPE Insight Control with Red Hat Enterprise Virtualization (RHEV)	HPE OneView for Red Hat Enterprise Virtualization (RHEV)
HPE Operations Analytics	NA	HPE Operations Analytics for HPE OneView
HPE Operations Orchestration	NA	Integration with HPE Operations Orchestration (OO)
Configuration Mgmt DB (CMDB)	Integration with Universal CMDB (via HPE SIM)	Integration with CMDB

Automation-ready (integrate, automate, customize)	**No**	Yes (REST, PowerShell, Python)

* Power management features provide capabilities to view and control power/thermal data from a central location.

** No aggregate data storage. iLO Advanced is required for Blades.

*** Integrations for Microsoft System Center: Add-in for SCVMM provides enhanced provisioning using server profiles. Management Pack for SCOM provides health monitoring/alerting of managed devices (currently Virtual Connect and enclosures).

Power management features in Table 3A provide capabilities to view and control power/thermal data from a central location.

- Power Regulation: Conserves power without performance impact on one or more servers.
- Dynamic Power Capping: Uses the power measurement history to safely limit power usage. Data can also be used to understand the cost of powering and cooling servers.
- Facilities Integration: Enables integration with partner products for facilities planning, such as Nlyte Software and Eaton Forseer.
- Data Center Power Control: Allows use of predefined rules and scripts that can reduce power consumption during critical times.
- Reports: Power and thermal data reports can be scheduled and e-mailed on a weekly (or other periodic) basis.

HPE OneView Features: Standard and Advanced

Table A-4 compares Standard and Advanced HPE OneView 2.0 features

Table A-4. Compares Standard and Advanced HPE OneView 2.0 features.

FEATURES	HPE ONEVIEW STANDARD	HPE ONEVIEW ADVANCED*
Partner Integrations		**X**
Software-defined infrastructure (profiles, groups, sets,)		**X**
Storage provisioning and SAN zoning		**X**
Virtual Connect advanced management		**X**
Firmware management		**X**
Power Management (3D visualization)		**X**
OS provisioning		**X**
Remote management		**X**
Map View**	**X**	**X**
Smart Search, Activity View, Dashboard	**X**	**X**
Monitoring	**X**	**X**
Inventory	**X**	**X**
Reporting	**X**	**X**
REST API access	**X**	**X**
Technical support and software updates	1-year 9x5 support (option)	3-year 24x7 support (standard)

* HPE OneView Advanced with HPE iLO Advanced

** HPE OneView-Standard Map View functionality limited compared to HPE OneView-Advanced Map View.

Appendix B: HPE OneView, SIM, and Insight RS Coexistence

Coexistence between HPE OneView and Insight RS is possible due to the management technologies and protocols used by these management products with their respective devices. HPE OneView uses the SNMP protocol for alerts and status of managed devices. Insight RS monitors health status using Embedded Remote Support (ERS) technology provided by the HPE Integrated Lights-Out (iLO) on ProLiant Gen8/Gen9 and

by HPE BladeSystem c7000 enclosures. Insight RS supports other management protocols and devices; see the Insight Remote Support Release Notes and Insight RS Monitored Devices Configuration Guide for details.

A Customer Case Study

As in this customer case study, customers may need HPE Systems Insight Manager for its reporting or inventory features. Insight RS provides a SIM adapter, that when enabled, forwards IRS processed events to SIM. HPE SIM can be configured to collect alerts and configuration data from monitored devices. This can be useful in compiling inventory reports, event summaries, etc. HPE SIM uses a variety of protocols, including SNMP for OA and iLO devices, and WBEM for OS data. See the HPE SIM User Guide for additional configuration details. Figure B-1 illustrates the coexistence of HPE OneView with HPE SIM and Insight RS in the datacenter. It represents a typical customer environment with HPE BladeSystem c7000 enclosures and ProLiant BL Gen8/Gen9 servers.

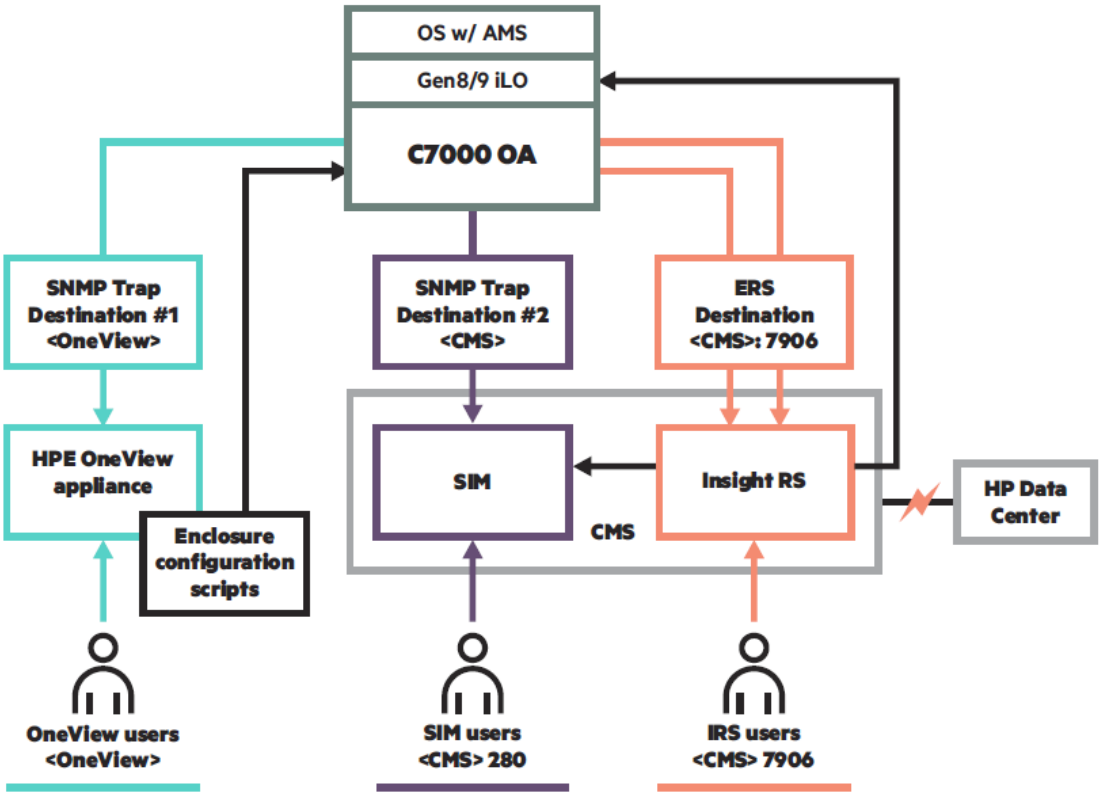

Figure B-1. HPE OneView/SIM/IRS coexistence overview

The Embedded Remote Support (ERS) capability is provided by the c7000 Onboard Administrator and ProLiant Server Integrated Lights Out. Embedded Remote Support allows the server to be registered with an Insight Remote Support centralized hosting server (as shown here running alongside SIM on the CMS) or directly to the HPE Support Center using Insight Online.

HPE OneView configures OA and iLO SNMP settings, among others, when the c7000 enclosure is imported. It sets iLO4 SNMP monitoring to "Agentless Management" and add a SNMP trap destination referencing the HPE OneView management appliance.

Insight RS configures iLO4 devices with a named credential (an iLO user account) for the RIBCL protocol, along with a monitoring schedule and discovery address range. The ERS target is the CMS IP address and port 7906 (<CMS IP>: 7906). The c7000 Onboard Administrator ERS host information is manually configured with the same target IP address and port (<CMS IP>:7906). An SNMP credential is also configured in Insight RS for the OA. In addition, an optional enclosure configuration script can be used to automatically configure the ERS target parameters on the OA and blade iLOs. This configuration script is executed when OneView imports the enclosure.

If using HPE SIM, then the same device discovery ranges used by Insight RS should be used. An SNMP public community string is required to properly discover OA and iLO devices. This SNMP string can be the same as used by HPE OneView. A SNMP trap destination will be added referencing the CMS. This results in at least two trap destinations being specified on the managed device: OneView and the SIM CMS. iLO4 SNMP monitoring should remain as "Agentless Management".

The use and configuration of the various management protocols is summarized in the following sections.

OneView Protocols

- HPE OneView uses SNMP to configure devices and report system events.
- OneView configures a SNMP string for OA and iLO devices.
- OneView sets iLO4 SNMP settings to "Agentless Management"
- The OneView SNMP string can be automatically generated by the appliance or a customer specified string can be used.
- The SNMP trap destination is automatically set to the OneView appliance.

IRS Protocols

- IRS uses the RIBCL protocol and credentials to discover and configured iLO4 devices. If enabled in IRS, IRS also uses RIBCL to initiate periodic configuration (aka “L2”) collections and periodic AHS collections.
- iLO4 devices are configured using Embedded Remote Support (ERS) referencing the Insight RS hosting server IP address and port number. If Insight RS is collocated with HPE System Insight Manager, this IP address is that of the CMS.
- iLO4 should be configured for Agentless Management (as previously setup by OneView).
- The OA is manually configured for ERS. Insight RS also uses a SNMP credential for the OA.

SIM Protocols

- HPE SIM uses various protocols to discover and monitor devices.
- To successfully discover OA and iLO, the SNMP string from OneView is used; a new SNMP trap destination referencing to the SIM CMS is added.
- SIM is able to collect some host-based data through iLO Agentless Management Service providers running on the OS.
- SIM can also use WBEM providers to collect and report additional information not supplied by AMS.
- IRS requires AMS to be installed and running in order to collect sufficient information to enable certain Proactive Care services

Configuration Details

These guidelines are intended for HPE OneView coexistence environments with HPE SIM 7.x and Insight RS 7.x in the datacenter featuring the BL ProLiant Gen8/Gen9 servers with embedded HPE iLO capabilities.

Adding a device—OA

Per the IRS Device Configuration Guide, this is performed on the OA. In the following B-2 diagram, the host IP address and port is that of the SIM CMS that also is running Insight RS.

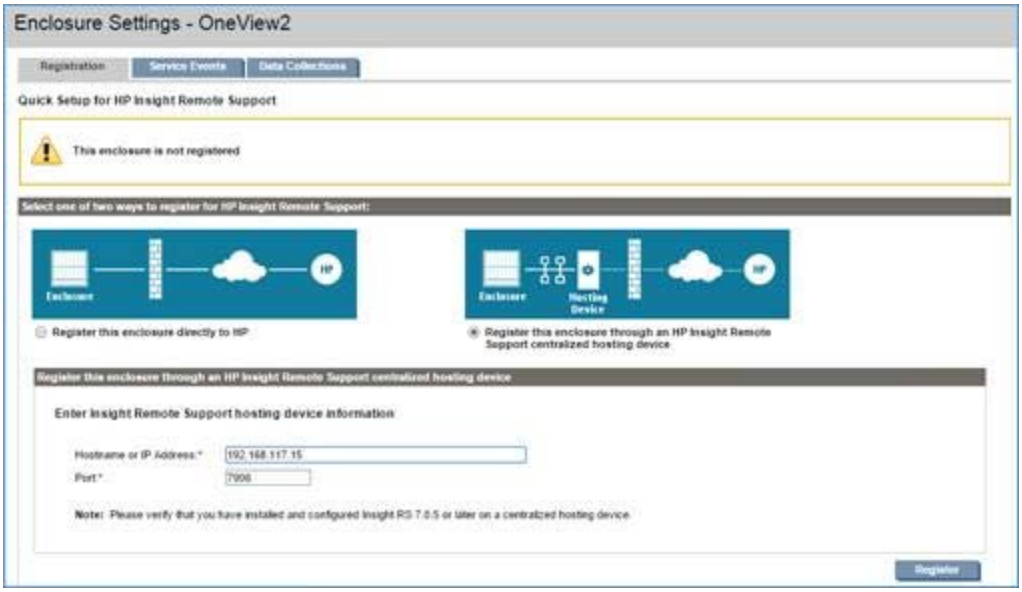

Figure B-2. Host IP address and port is that of the SIM CMS

Adding a device – iLO

Registering iLO with Insight RS can be done automatically through discovery, or scripted by the OneView enclosure configuration script. In the following diagram, the host IP address and port is that of the SIM CMS that also is running Insight RS.

Figure B-3. Host IP address and port is that of the SIM CMS

iLO SNMP Settings

Note the two SNMP trap destinations in the iLO configuration. HPE OneView automatically defines a SNMP string and trap destination. HPE SIM can use the same SNMP string for its discovery. The SIM CMS is added a secondary trap destination.

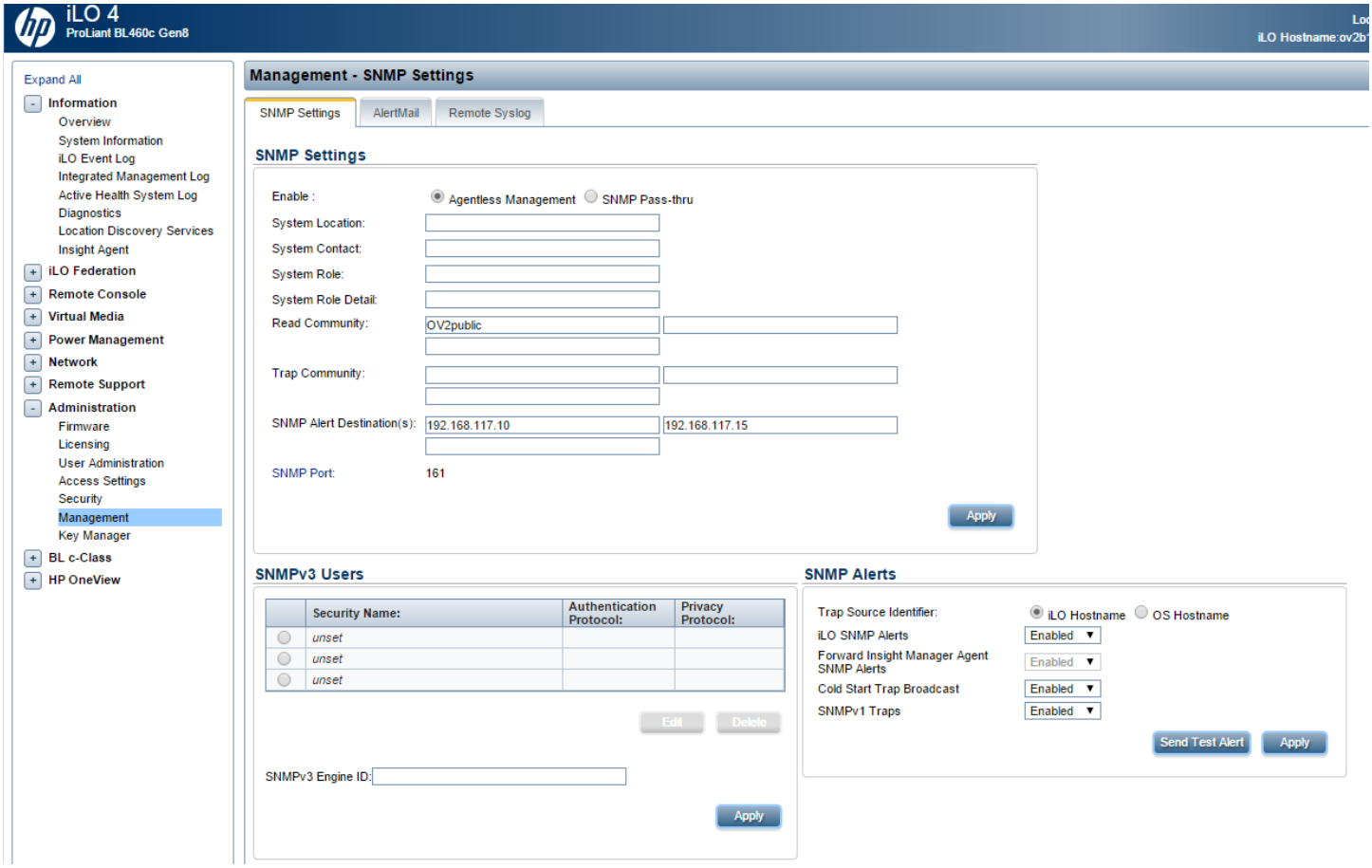

Figure B-4. HPE OneView automatically defines a SNMP string and trap destination

OA SNMP Settings

Note the two SNMP trap destinations in the OA configuration. HPE OneView automatically defines a SNMP string and trap destination. HPE SIM can use the SNMP string for discovery. The SIM CMS is added a secondary trap destination.

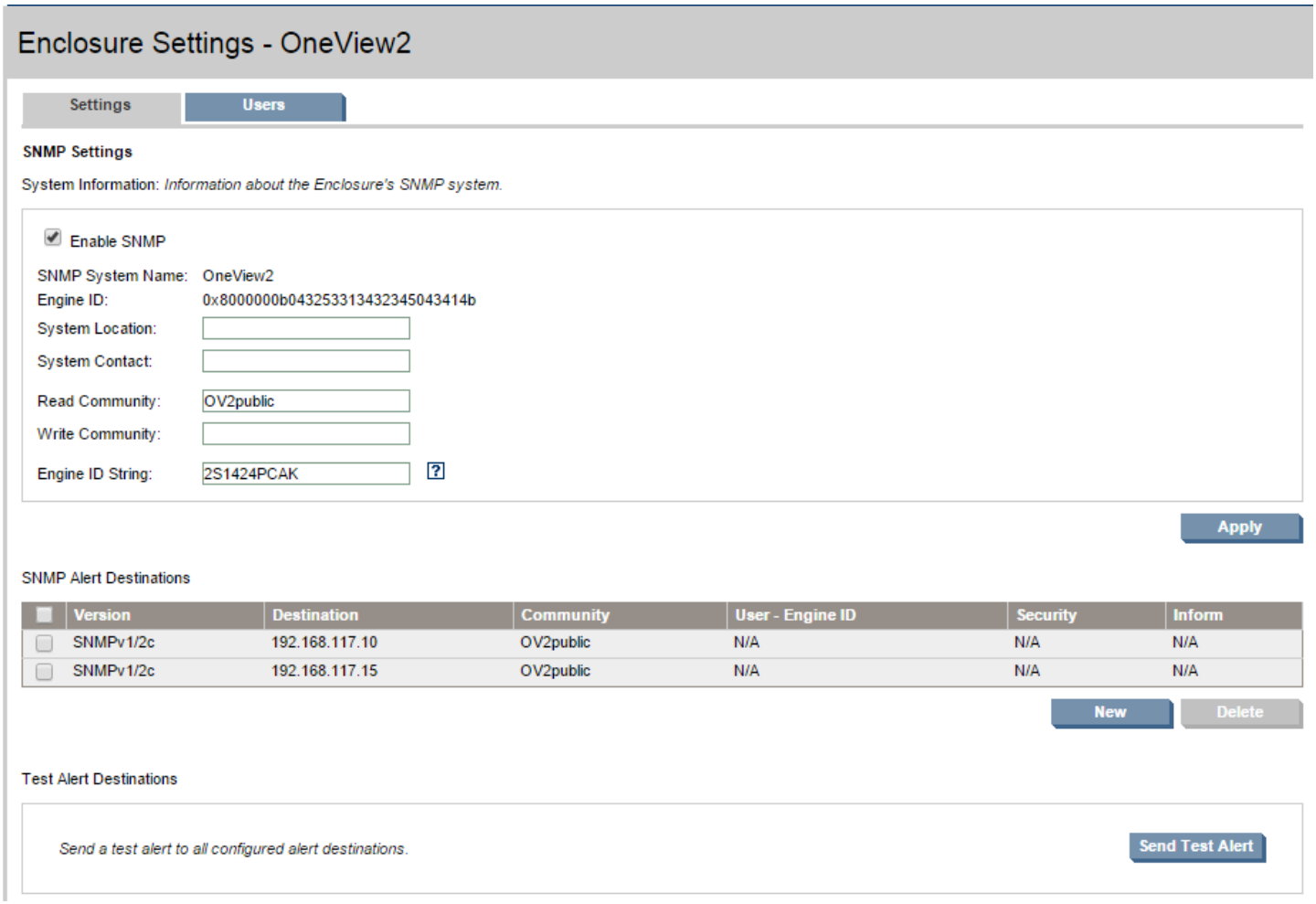

Figure B-5. Host IP address and port is that of the SIM CMS

HPE OneView Enclosure Configuration Script

For the customer's convenience, the following OA script is run when OneView imports a c7000 enclosure. The customer desired to have SIM and Insight RS parameters automatically set. Note that some commands (lines 1-3) configure the OA, others ("hponcfg" block) configure iLO devices.

In this example script, the IP address for the SIM/Insight RS CMS is 192.168.117.15. The Insight RS TCP port is 7906. The OneView SNMP string is defined as "OV2public".

Enclosure script description

Line 1: Configure OA for ERS.

Lines 2-3: Configure OA for SIM.

Lines 7 –14: Configure iLO for SIM Single-Sign-On.

Lines 16 – 20: Configure iLO SNMP string for SIM.

Lines 21 – 25: Configure iLO Remote Support target IP and port.

```
01      ENABLE REMOTE_SUPPORT IRS 192.168.117.15 7906
02      ADD SNMP TRAPRECEIVER "192.168.117.15" "OV2public"
03      DOWNLOAD HPSIM CERTIFICATE 192.168.117.15
04      hponcfg all << endmarker
05      <RIBCL VERSION="2.20">
06       <LOGIN USER_LOGIN="adminname" PASSWORD="password">
07       <SSO_INFO MODE="write">
08          <MOD_SSO_SETTINGS>
09                      <!-- Set SSO trust mode to Certificate : -->
10            <TRUST_MODE VALUE="CERTIFICATE"/>
11          </MOD_SSO_SETTINGS>
12                     <!-- Import SIM certificate into ILO for SSO: -->
13          <SSO_SERVER IMPORT_FROM="http://192.168.117.15:280/GetCertificate"/>
14       </SSO_INFO>
15       <RIB_INFO MODE="write">
16              <MOD_SNMP_IM_SETTINGS>
17               <!-- To set SNMP IP & Read community string for SIM : -->
18          <SNMP_ADDRESS_2 value="192.168.117.15"/>
19          <SNMP_ADDRESS_2_ROCOMMUNITY value="OV2public"/>
20        </MOD_SNMP_IM_SETTINGS>
21        <SET_ERS_IRS_CONNECT>
22              <!-- Register ILO to IRS server -->
23          <ERS_DESTINATION_URL value="192.168.117.15"/>
24          <ERS_DESTINATION_PORT value="7906"/>
25        </SET_ERS_IRS_CONNECT>
26       </RIB_INFO>
27       </LOGIN>
28      </RIBCL>
29      endmarker
```

Resources

Converged Infrastructure Management
hpe.com/info/oneview

HPE OneView 2.0 documentation (including Support Matrix)
hpe.com/info/oneview/docs

HPE OneView Datasheet
hp.com/V2/GetPDF.aspx%2F4AA4-6214ENW.pdf

HPE OneView 2.0 QuickSpecs
hp.com/h20195/v2/GetPDF.aspx%2Fc04111367.pdf

HPE Systems Insight Manager
hpe.com/info/hpsim

HPE Insight Control
hpe.com/info/insightcontrol

HPE services
hp.com/us/en/business-services/it-services.html?compURI=1078353

HPE data migration services
hp.com/us/en/business-services/it-services.html?compURI=1078353

HPE ProLiant server information
hp.com/go/ProLiant

HPE Virtual Connect Enterprise Manager
hpe.com/info/vcem

HPE Insight Cluster Management Utility
hpe.com/info/icmu

HPE Integrated Lights Out
hpe.com/info/ilo

Transitioning a Virtual Connect configuration to HP OneView
hp.com/V2/GetPDF.aspx/4AA5-0351ENW.pdf

Technical white papers
hpe.com/docs/servertechnology

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4AA5-6605ENW, June 2016, Rev. 2