Technical White Paper

X86 Virtualization Technology Evolution to HPE Cloud Optimizer

HPE Cloud Optimizer 3.02

Table of contents

Summary

With HPE Cloud Optimizer 3.02 release, existing HPE Operations Smart Plugin for Virtualization (VI SPI) and HPE OpsBridge Management Pack for Virtualization (VI Management Pack) users can start to use a monitoring only edition of HPE Cloud Optimizer for x86 virtualization technologies (VMware vSphere, Microsoft Hyper-V, KVM and Xen). For x86 virtualization technologies, you can continue to use the VI-SPI and VI Management Pack till the obsolescence of HPE Operations Agent 11.1x . For non-x86 virtualization technologies (HPVM, AIX, Solaris), you can continue to use the VI SPI and VI Management Pack.

Some of the key benefits that you get with the technology evolution to HPE Cloud Optimizer are:

- Improved scalability and interoperability
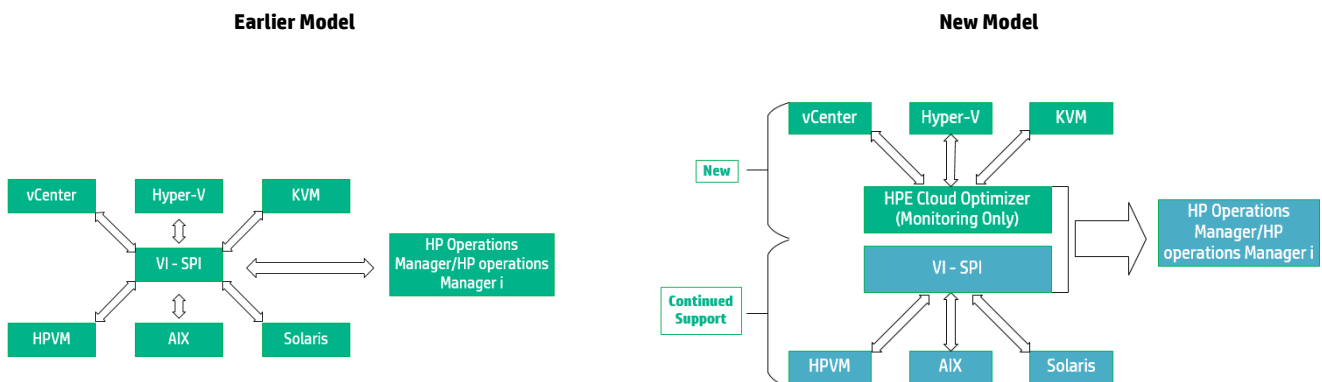
- Improved coverage of metrics

While the technology evolution entitles you to an equivalent capability replacement in HPE Cloud Optimizer, you can get enhanced performance troubleshooting and capacity optimization of physical, virtual and cloud technologies with the premium edition of HPE Cloud Optimizer.

Evolution Story

VI SPI enables you to manage and monitor virtual infrastructure on various technologies from an HPE Operations Manager (HPOM) and HPE Operations Manager i (OMi) console. VI SPI monitors the performance, capacity, utilization, availability, and resource consumption of the host machines, virtual machines, and resource pools.

HPE Cloud Optimizer is a web-based analysis and visualization tool that analyzes performance trends of elements in virtualized environments.

With the technology evolution of VI SPI to HPE Cloud optimizer, you can use the monitoring only edition of HPE Cloud optimizer for x86 virtualization technologies (VMware vSphere, Microsoft Hyper-V, KVM and Xen). For non-x86 virtualization technologies (HPVM, AIX, Solaris), you can continue to use the VI SPI and VI Management Pack.

Earlier Model

vCenter | Hyper-V | KVM

VI - SPI

HPVM | AIX | Solaris

HP Operations Manager/HP operations Manager i

New Model

vCenter | Hyper-V | KVM

New

HPE Cloud Optimizer (Monitoring Only)

VI - SPI

Continued Support

HPVM | AIX | Solaris

HP Operations Manager/HP operations Manager i

Comparing HPE Cloud Optimizer with VI-SPI

With VI-SPI technology evolution to HPE Cloud Optimizer you can experience improvements at various feature levels. The following table lists a comparative analysis of the features in HPE Cloud Optimizer and VI-SPI:

Table 1. Comparative Analysis of VI-SPI with HPE Cloud Optimizer

	VI SPI	HPE Cloud Optimizer (Monitoring Only)	HPE Cloud Optimizer (Premium)

Ease of configuration	Need to deploy multiple policies to nodes for basic alert generation.	Need to deploy only a limited set of policies when HPE Cloud Optimizer is integrated with HPE Operations Manager/HPE Operations Manager i (HPE OM/OMi). These policies are used to forward HPE Cloud optimizer topology and alerts to HPE OM/OMi.	Need to deploy only a limited set of policies when HPE Cloud Optimizer is integrated with HPE Operations Manager/HPE Operations Manager i (HPE OM/OMi). These policies are used to forward HPE Cloud Optimizer topology and alerts to HPE OM/OMi.
Scale (OS instances)	VMware - 2000 Hyper-V - ~40 KVM – ~20	Unlimited	VMware – 6000 Hyper-V – 500 KVM – 500
Depth of Metrics	250 (VMware)	409 (VMware) 61 (KVM) 51 (Xen)	409 (VMware) 61 (KVM) 51 (Xen)
Data Retention	8 days	8 days	90 days
User Interface for Data Source Management	Command Line	HTML5	HTML5
Database	SQLite	HPE Vertica	HPE Vertica
Alert Generation	• Alerting analysis happens at scheduled intervals. • Only thresholds are used for alert generation. • Only utilization based sizing and saturation detection at Guest and Host levels only. • All instances processed individually. • Have some noisy policies like GuestIOLatency monitor, SimpleCpuUtilMonitor, and so on.	• Real-time analysis for alert generation. • Real-time baselining used in addition to thresholds for alert generation. • Demand based sizing and saturation detection at Guest, Host, and Cluster levels. • Efficient processing of multiple instances –all instances processed together. • Improved information quality in alerts –less noisy.	• Real-time analysis for alert generation. • Real-time baselining used in addition to thresholds for alert generation. • Demand based sizing and saturation detection at Guest, Host, and Cluster levels. • Efficient processing of multiple instances –all instances processed together. • Improved information quality in alerts –less noisy.
Alert Customization	• Each alert policy parameter needs to be set individually. • Alert customization and enrichment possible by modifying the policy at OM.	• Easy alert customization using alert sensitivity setting. • Alert customization and enrichment possible by modifying the opcmsg policy at OM.	• Easy alert customization using alert sensitivity setting. • Alert customization and enrichment possible by modifying the opcmsg policy at OM.
Sizing Alerts	No sizing alerts.	Sizing alerts for CPU and Memory	Sizing alerts for CPU and Memory
Topology Discovery Speed	• Topology creation is slow – takes 30 mins for 2000 instances. • Very slow addition of nodes using OM server CLI –takes 3~4 hours for 2000 nodes.	• Fast topology creation –takes 15 mins for 6000 instances. • Fast addition of nodes for VMs and Hosts in OM Server using discovery XML – addition of 6000 nodes takes 70 mins.	• Fast topology creation –takes 15 mins for 6000 instances. • Fast addition of nodes for VMs and Hosts in OM Server using discovery XML – addition of 6000 nodes takes 70 mins.
vMotion	vMotion topology changes are not reflected in HPE OM/OMi.	vMotion topology changes are reflected in HPE OM/OMi.	vMotion topology changes are reflected in HPE OM/OMi.
Self Monitoring	Self monitoring policies generate alerts.	No self monitoring alerts. HPE Cloud Optimizer VM's health is monitored like any other VM.	No self monitoring alerts. HPE Cloud Optimizer VM's health is monitored like any other VM.
Integrations	OM, OMi, SHR	OM, OMi, SHR	OM, OMi, BSM, OneView, SHR

Comparing Alerts in HPE Cloud Optimizer and VI SPI

Alerts are messages that enable you to quickly identify and troubleshoot problems in the virtualized environments. With VI-SPI technology evolution to HPE Cloud Optimizer, the overall alerting experience for x86 virtualization technologies is enhanced at various levels. The key highlights are:

- Real time alert generation
- Easy alert customization using Low, High, Medium, or Custom sensitivity configurations
- Demand based sizing and saturation alerts

The following table lists a comparative analysis of the alerts generated in HPE Cloud Optimizer and VI-SPI:

Table 2. Comparative Analysis of alerts in VI-SPI with HPE Cloud Optimizer

Entity	Condition	HPE Cloud Optimizer (Monitoring Only)	VI SPI
Host	CPU Saturation	Yes	Yes
	CPU Utilization	Yes	Yes
	Memory Saturation	Yes	Yes
	Memory Utilization	Yes	Yes
VM	CPU Saturation	Yes	No
	CPU Utilization	Yes	Yes
	CPU Oversize	Yes	No
	CPU Undersize	Yes	No
	Memory Saturation	Yes	No
	Memory Utilization	Yes	Yes
	Memory Oversize	Yes	No
	Memory Undersize	Yes	No
Cluster (only VMWare)	CPU Saturation	Yes	No
	CPU Utilization	No	Yes
	Memory Saturation	Yes	No
	Memory Utilization	No	Yes
Datastore	Disk Space Utilization	Yes	Yes
	Kernel Latency (Only VMware)	Yes	No

Note

Only utilization alerts are available for the KVM domain.

Comparing Virtualization Use Cases in HPE Cloud Optimizer and VI SPI

The VI-SPI technology evolution to HPE Cloud Optimizer entitles you to an equivalent capability replacement in HPE Cloud Optimizer. However, you can get enhanced performance troubleshooting and capacity optimization of physical, virtual and cloud technologies with the premium edition of HPE Cloud Optimizer. The following table provides a comparative analysis of the key virtualization use cases in HPE Cloud Optimizer and VI-SPI:

Table 3. Comparative Analysis of virtualization use cases in VI-SPI with HPE Cloud Optimizer

Persona	Use Case	HPE Cloud Optimizer	VI SPI
Virtualization Subject Matter Expert	Does Performance Triaging	Provides guided troubleshooting workflows with Treemap and Workbench.	PMi Graphs

		Provides realtime Guest-OS drilldown.	
Operator	Gets saturation and bottleneck alerts	Provides saturation and bottleneck alerts for Guests, Hosts and Clusters using baselines and thresholds with additional context for analysis.	Provides saturation and bottleneck alerts for Guests and Hosts only using thresholds.
Capacity Planner	Gets capacity optimization recommendations	Provides right-sizing recommendations	Not Available
	Gets utilization forecasts	Provides forecasts for CPU, memory and storage utilization with auto-selected best fit curve	Not Available
	Does capacity modeling and simulation	Provides what-if scenario modelling to find adequacy of capacity	Not Available
Cloud Consumer	Right-sizes workload to save cost and improve efficiency	Provides sizing reports for tenants	Not Available
	Plans future resource needs using utilization forecasts	Provides utilization forecasts for tenants	Not Available
	Triages performance issues	Provides workbench and realtime Guest-OS drill down for tenants	Not Available
Cloud Provider	Does intelligent workload placement	Provides placement suggestions through UI and REST APIs.	Not Available
	Analyzes utilization per cloud tenant	Provides business grouping to group infrastructure by tenant organizations.	Not Available

Learn more at
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