COMMAND

your infrastructure like a visionary, not a functionary.

Easing System Management with OpenVMS

Mandar Chitale, Global Lead, Office of Customer Programs

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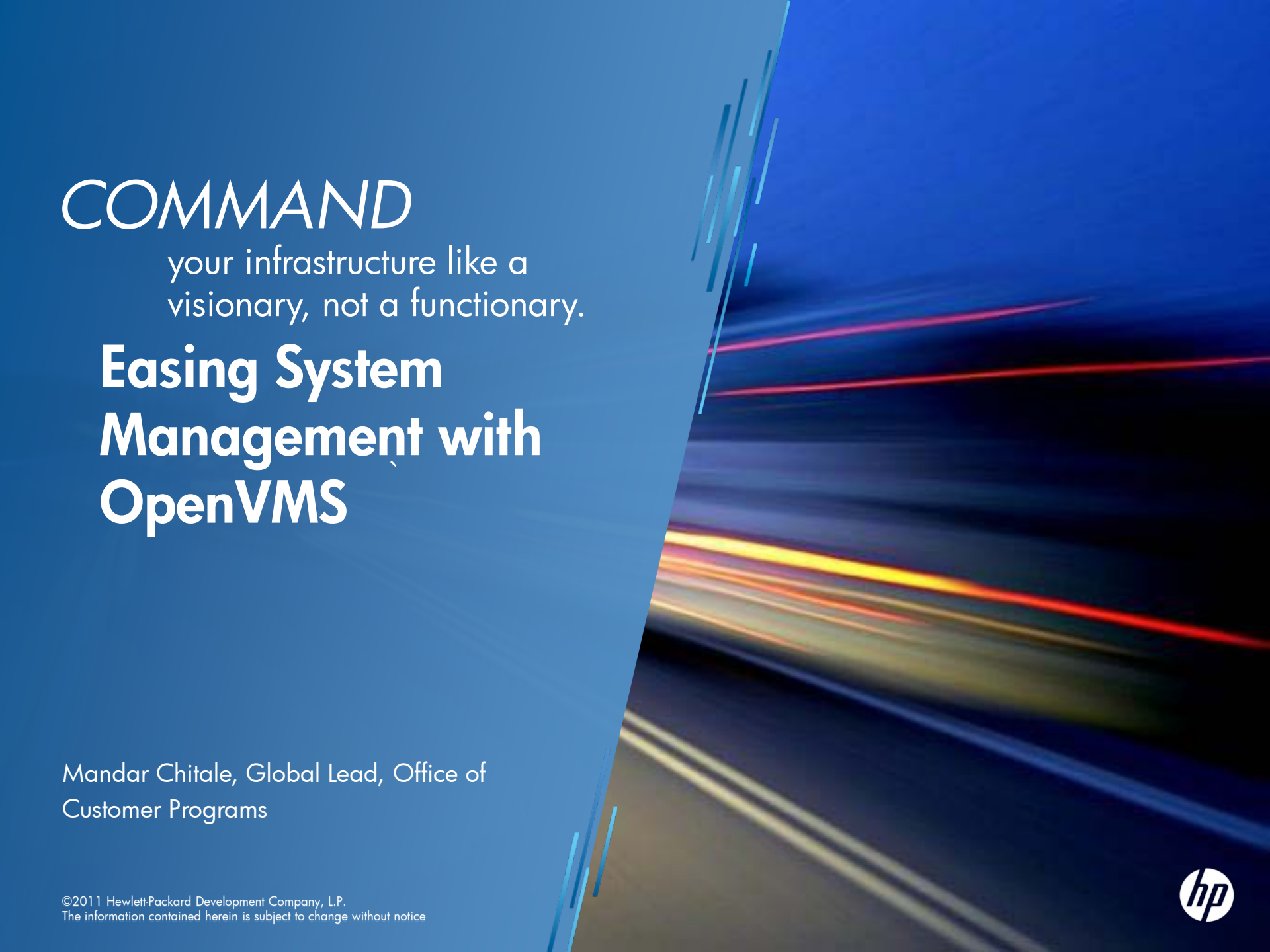


Agenda

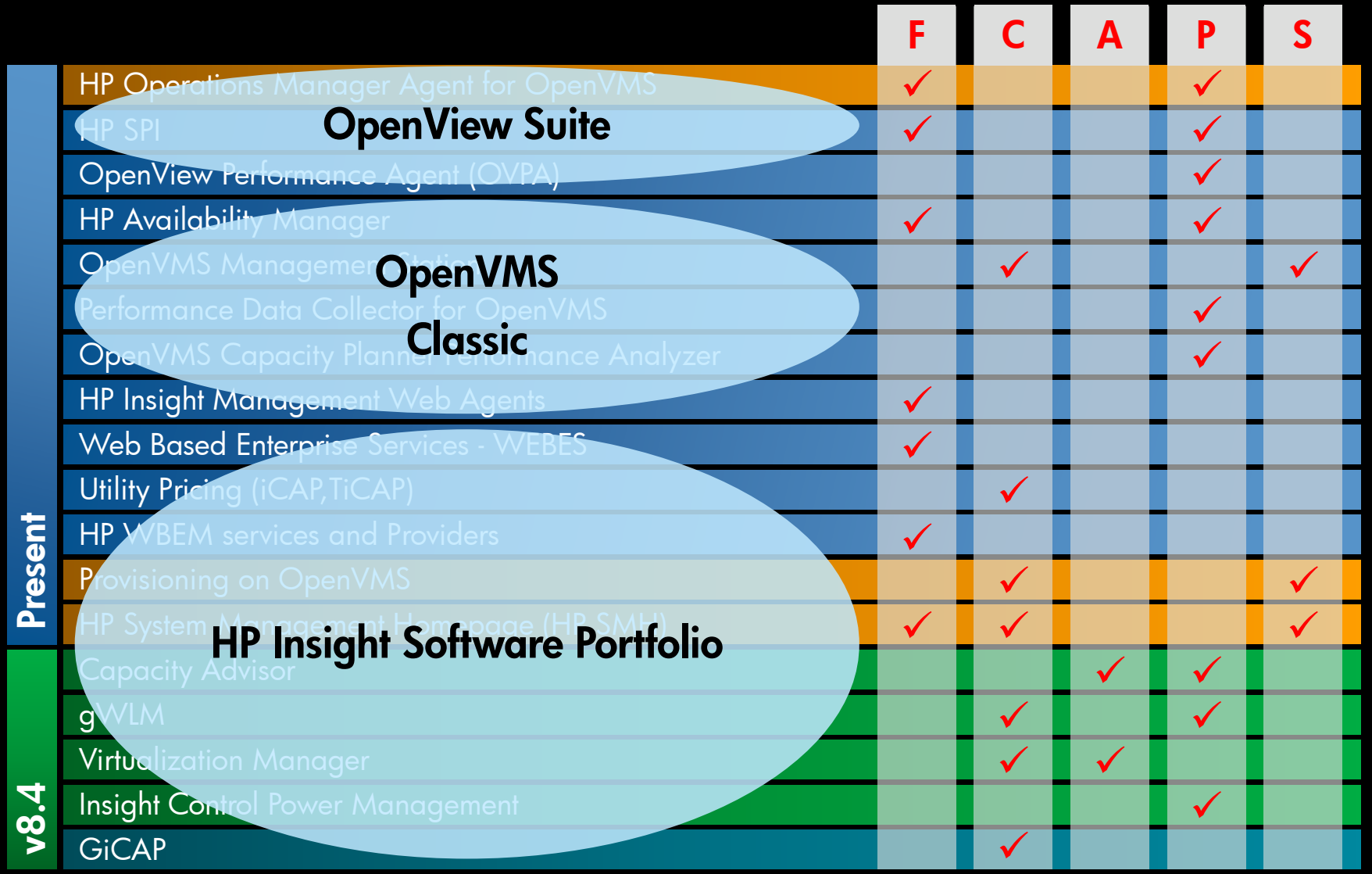
- Overview of System Management
- HP Insight Software Portfolio
- OpenVMS Classic Products
- OpenView Suite
- Interrelationships
- Summary
- Q&A

System Management FCAPS Framework

System Management FCAPS Framework

Fault Management	• Troubleshooting • Error Logging • Data Recovery
Configuration Management	• Hardware and Software Inventory • Provisioning, Software Deployment and Package management
Accounting Management	• Billing and Statistics Gathering
Performance Management	• Software Metering • Event and Metric Monitoring
Security Management	• Identity Management • Policy Management

System Management Portfolio on OpenVMS



HP Insight Software Portfolio

Challenges in infrastructure management

Too costly?

Sprawl is expensive – virtual servers are growing much faster than physical servers

Too time consuming?

73% of consolidations took a year or more

Too unpredictable?

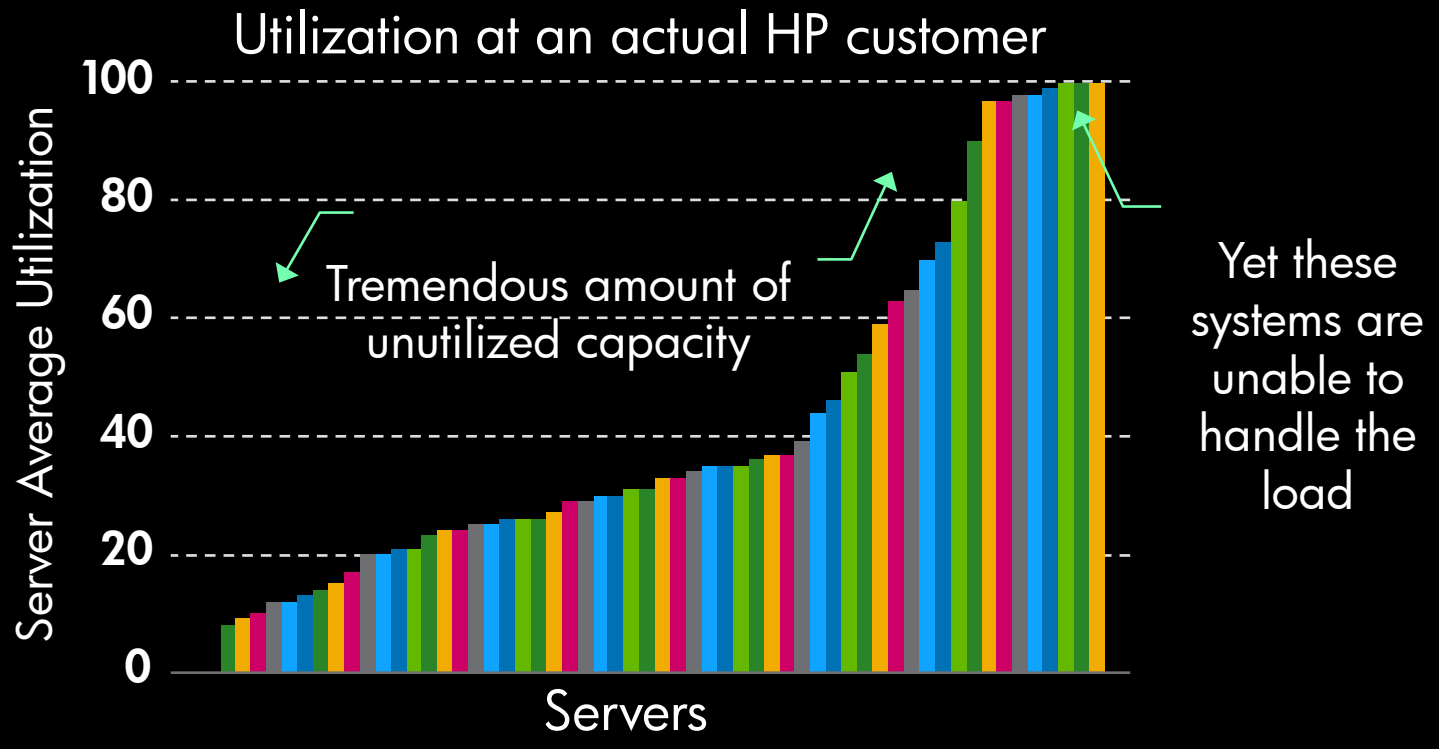
Few servers have traditional high-availability clustering

Too energy hungry?

Data center electricity use has more than doubled since 2000

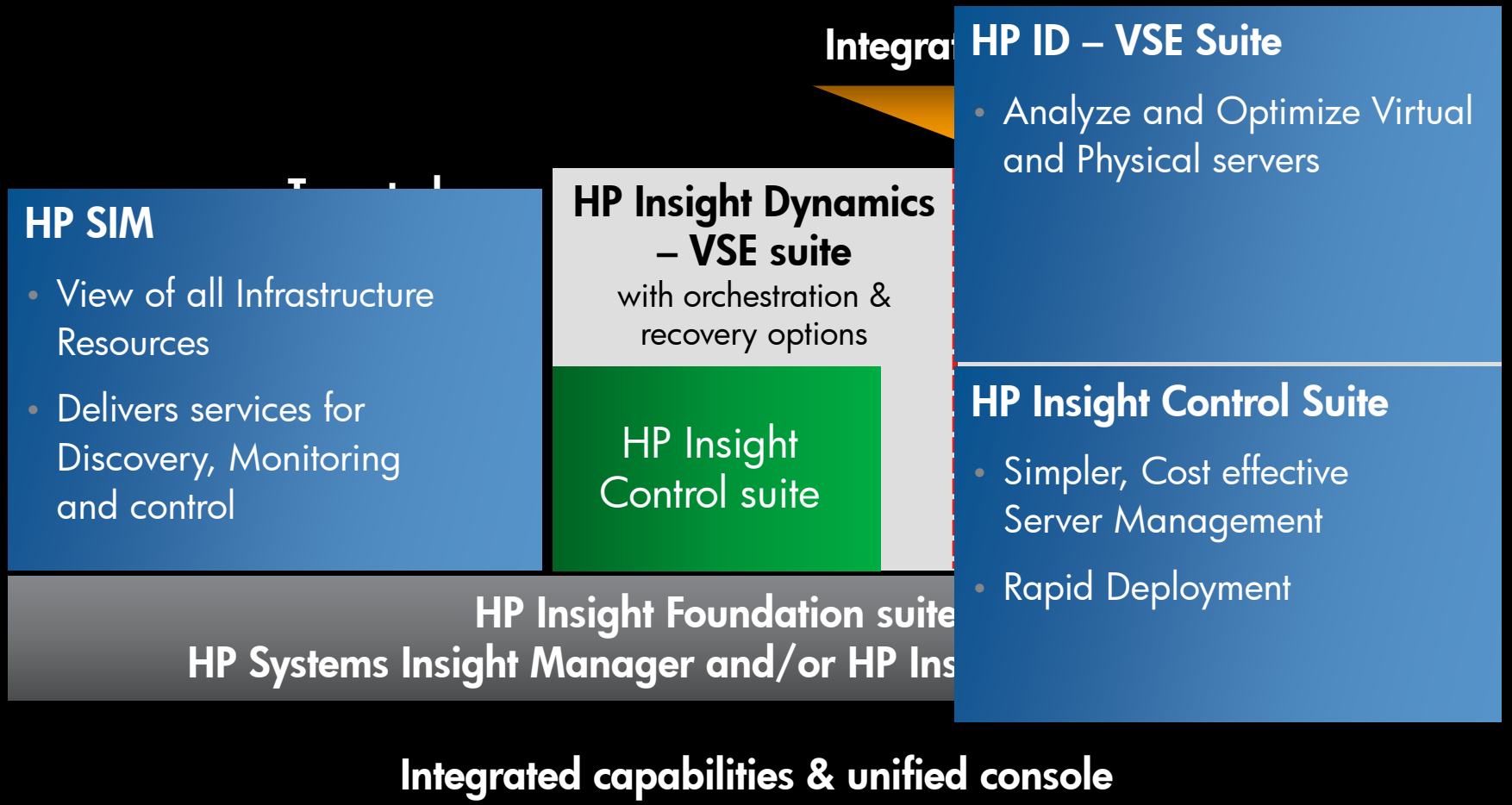
Challenges in infrastructure management

Enterprises have unused server capacity yet still can't meet demand



Most reports put average utilization at approximately 30%

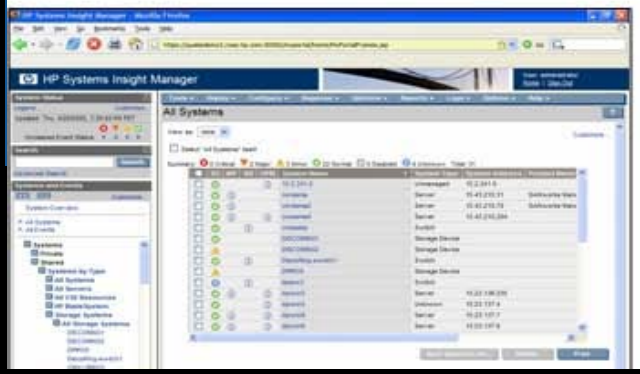
HP Insight Software portfolio



HP Systems Insight Manager

Central Management Server

Network Clients
https://<cms name>:50000



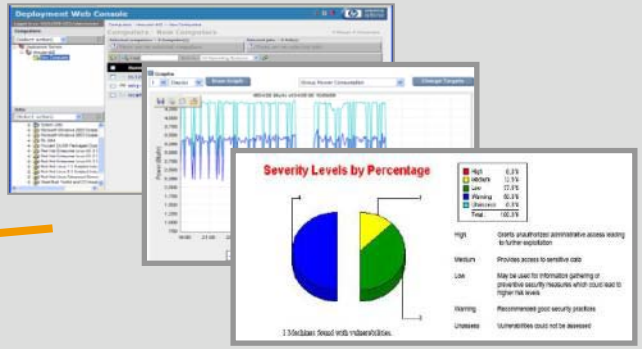
Managed Systems

Enabling complete infrastructure management with HP SIM

HP Systems Insight Manager

Embedded management

Insight Dynamics for Proliant



Insight Control management

Insight Dynamics – VSE for Integrity

HP Virtual Server Environment for HP OpenVMS Integrity Systems

Introducing OpenVMS as Virtual Server Environment (VSE) managed node[1]

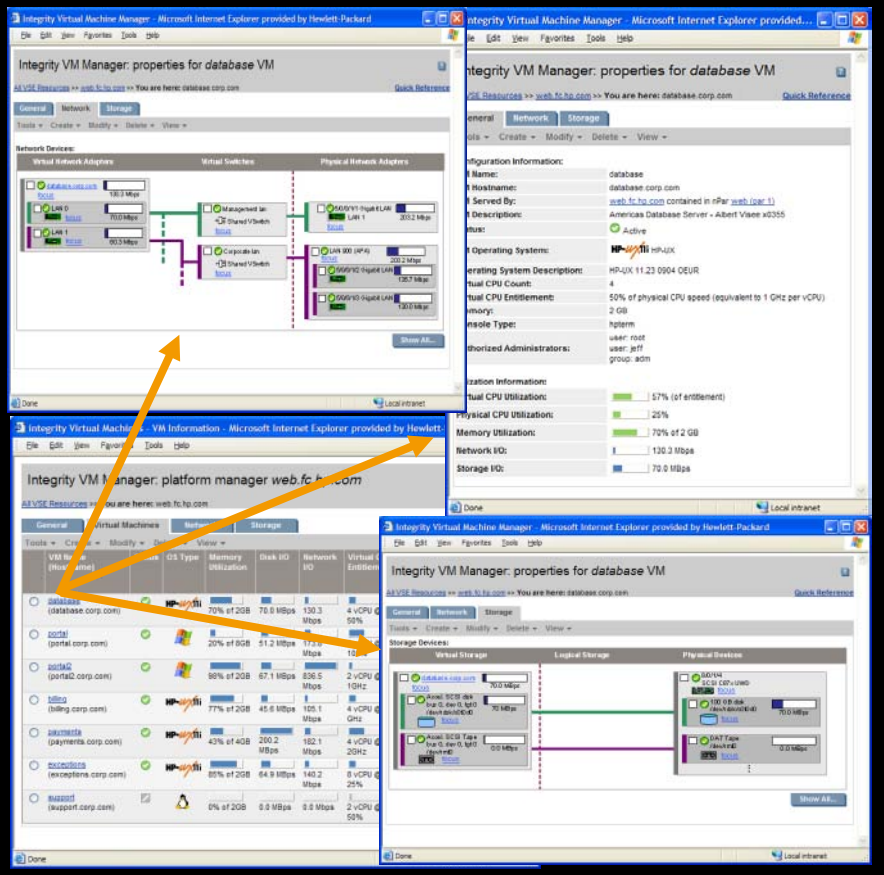
- Unlock the potential of your server infrastructure
  - Application peaks
  - Application Consolidation/Stacking
  - Share Spare Capacity
- Tools – Visualization, Capacity Planning, Workload Management
- Integrates with HP SIM
- Centralized Management
- Simplify Infrastructure Management

[1] Support with OpenVMS v8.4
[2] Support with v8.4 + Patch

Integrity Virtual Machine Manager (VMMGR)

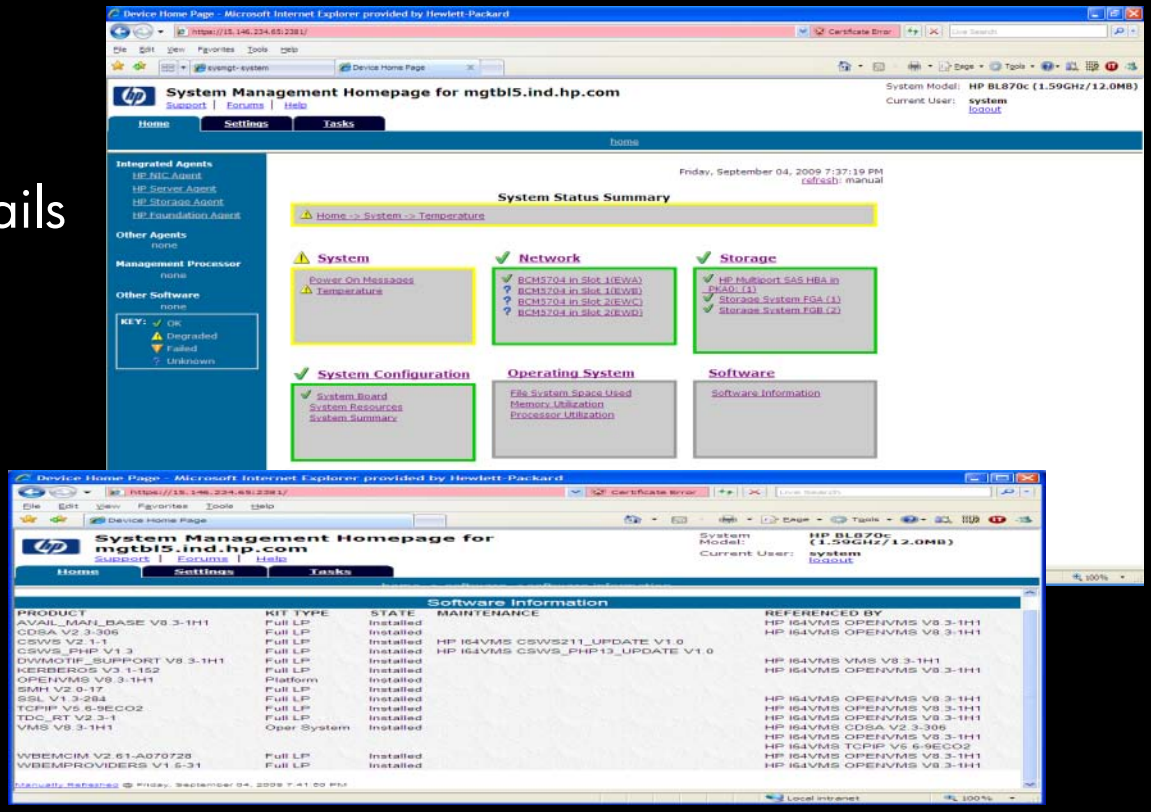
Key features

- Graphical view of virtual to physical network & storage
- VM configuration including create, start, reset, stop, & delete
- View all VMs in a host including utilization information
- Available from HP-UX host System Management Homepage (SMH)
- Seamless integration with Virtualization Manager (Vman)



System Management Homepage (SMH)

- Colour-coded status of system components
- Drill-down for more details
- Browser-based GUI
- Easy drill-down from HP SIM to SMH



Provisioning with HP SIM

Provisioning with HP SIM

- HP SIM can discover all Blades in the enclosure
- Can select Blade to run each Operating System
- Automatic provisioning of Blades or Integrity servers (Limited Support)
- Up to eight Systems at a time

Requires either:

- OpenVMS node running Infoserver software

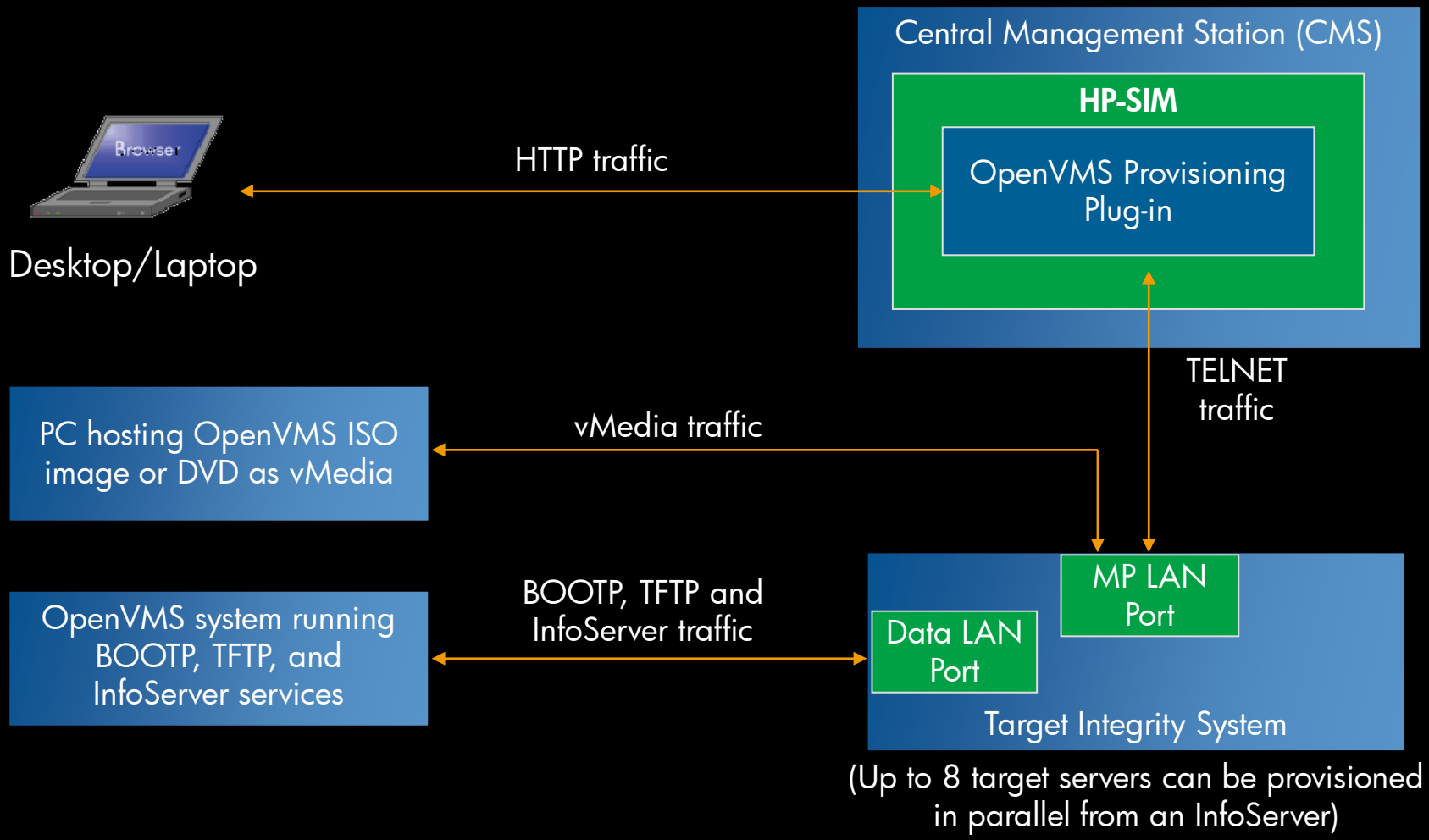
OR……..

- PC and vMedia to serve the DVD

What's new in provisioning?

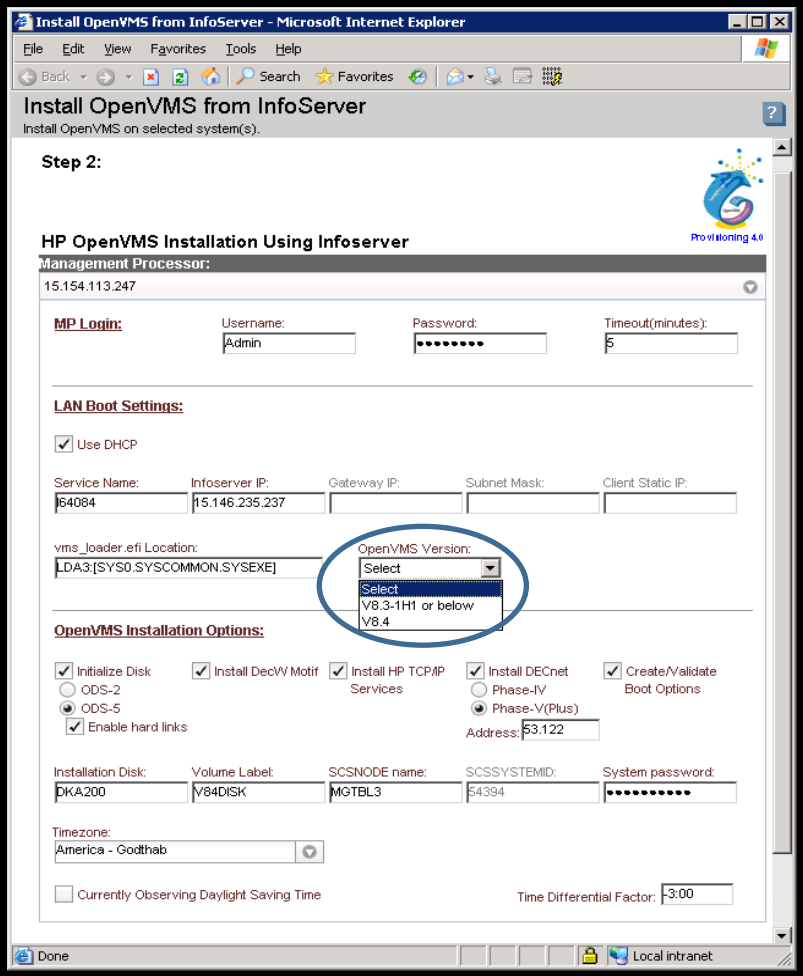
4.1	• Provision OpenVMS 8.4 on next generation HP Integrity BL8x0c i2 servers and rx2800 i2 servers • Requires HP SIM 6.1 for provisioning on BL8x0c i2 servers • Requires HP SIM 6.2 for provisioning on rx2800 i2 servers
4.0	• Provision OpenVMS 8.4 on currently supported servers • Configure HP OpenVMS TCP/IP on currently supported servers • Requires HP SIM 6.0
Pre-4.0	• Automated OpenVMS install or upgrade from InfoServer • Automated OpenVMS install or upgrade from vMedia • Automated OpenVMS license (PAK) install • Supported servers: rx3600, rx6600, BL860c, BL870c

Provisioning architecture



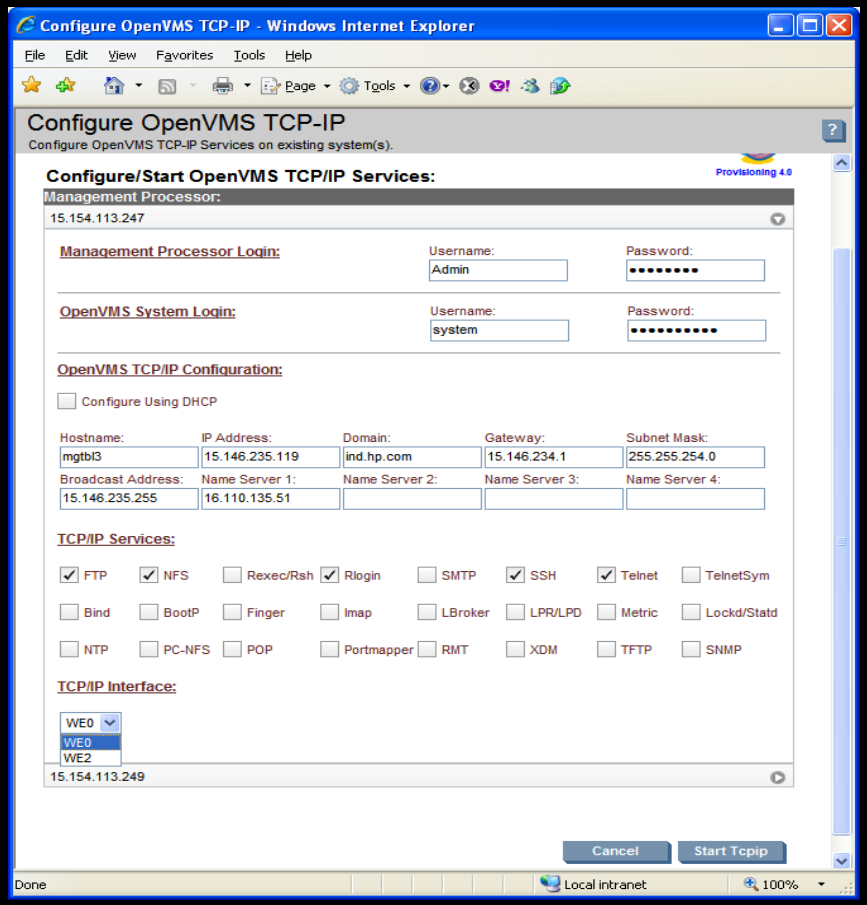
NOTE: OpenVMS InfoServer and the target server must be in the same LAN.

OpenVMS 8.4 deployment using HP SIM



NOTE: Provisioning OpenVMS 8.4 on HPVM will come in future.

Configure OpenVMS TCP/IP using HP SIM



- Configure DHCP client or with static IP address
- Configure 8 servers simultaneously
- Configure up to one LAN interface per system
- IPv4 supported at this time
- OpenVMS TCP/IP 5.6 or later to be installed

SNMP based management agents

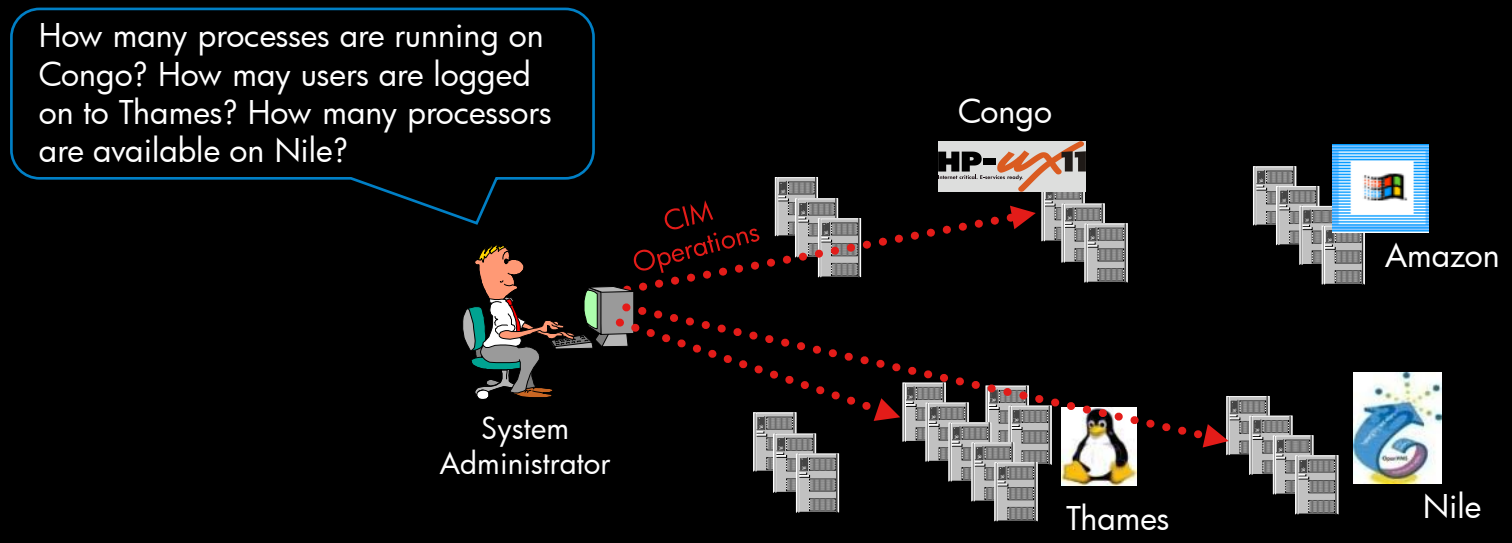
- Discovered by HP Systems Insight Manager (SIM)
- Provides information on
  - System
  - System board
  - System resources
  - Software inventory
  - NIC
  - LAN
  - Cluster
- Being replaced by WBEM services and providers

WBEM services and providers

- Providing WBEM services based on *Pegasus* open source implementation
  - WBEM Services = CIM server + providers
  - Providers available show the status of the different components

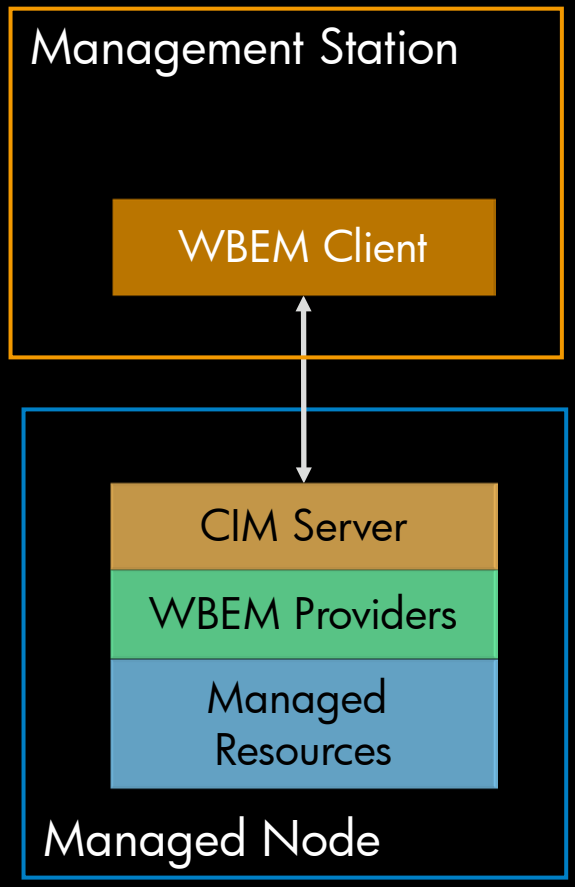
Web-based Based Enterprise Management (WBEM)

- Industry standard
- Management across multiple platforms and operating systems
- Common Information Model (CIM)
- Web-access to management data and managed elements
- Enables Management Applications



WBEM solutions for OpenVMS

- **WBEM Services**
  - Management Framework (CIM Server)
  - Built-in WBEM providers
- **WBEM Providers**
  - Monitors core hardware of the system
  - Monitors system event log
  - Monitors system resource utilization

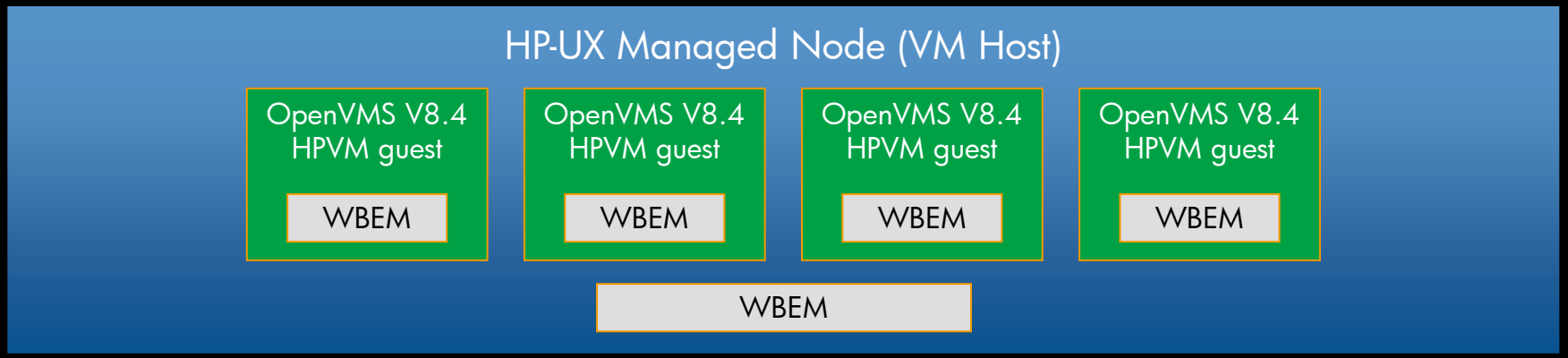


What's new in WBEM?

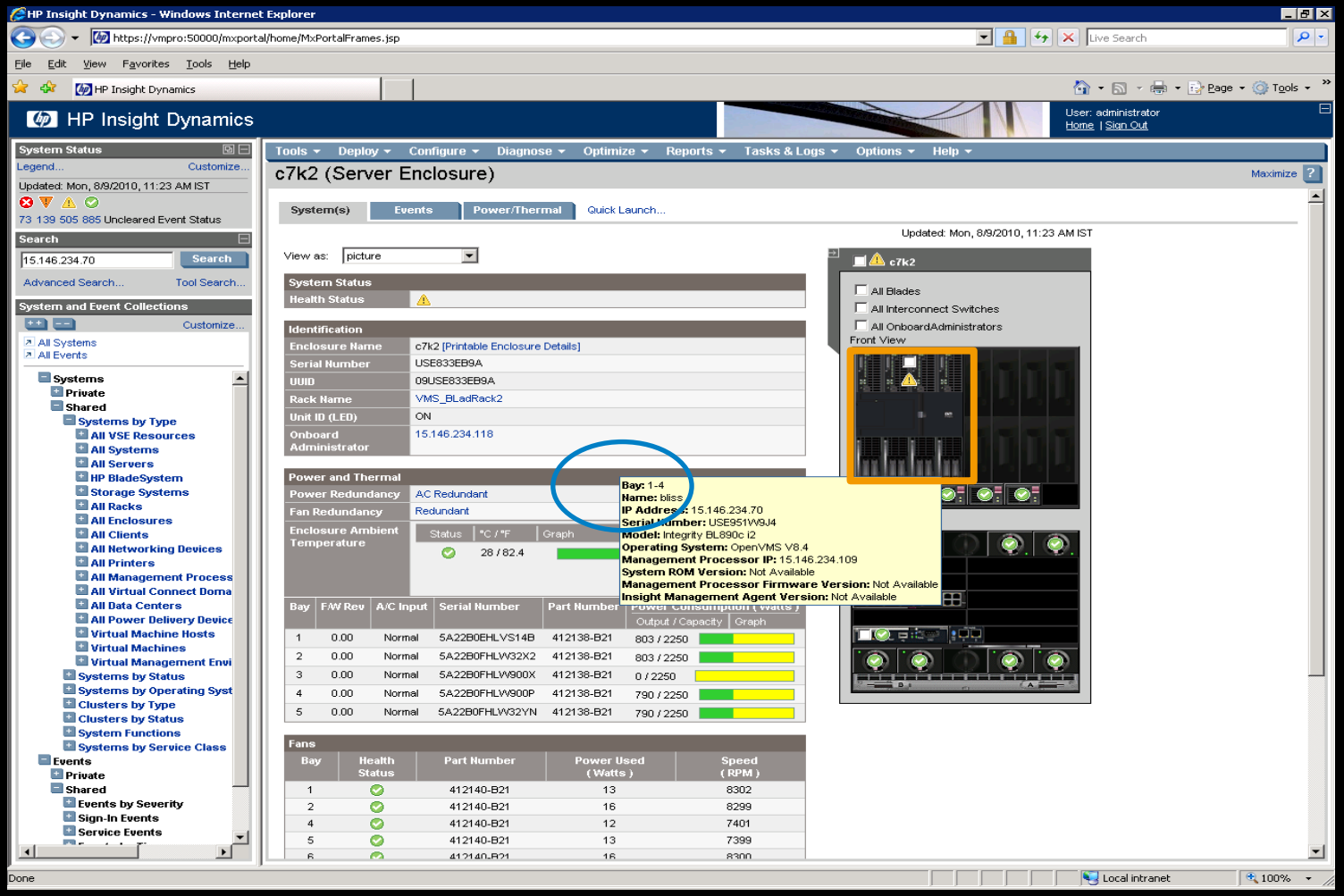
8.4 with i2 servers	• WBEM Services 2.9-9 and WBEM Providers 2.2-3 • Adds support for HP Integrity blades BL8x0c i2 servers and rx2800 i2 servers • Requires HP SIM 6.1 for BL8x0c i2 servers • Requires HP SIM 6.2 for rx2800 i2 servers
8.4	• WBEM Services 2.9-6 • WBEM Providers 2.0-4 (Adds support for cell-based systems, HPVM and single-partition systems rx1620, rx2600, rx4640) • Requires HP SIM 6.0 or later • Available with OpenVMS 8.4 OE media
8.3-1H1	• WBEM Services 2.9-1 • WBEM Providers 1.7-16 (Supports on BL860c, BL870c, rx3600, rx6600) • Requires HP SIM 5.2 or later

WBEM for OpenVMS V8.4 running on Integrity VM

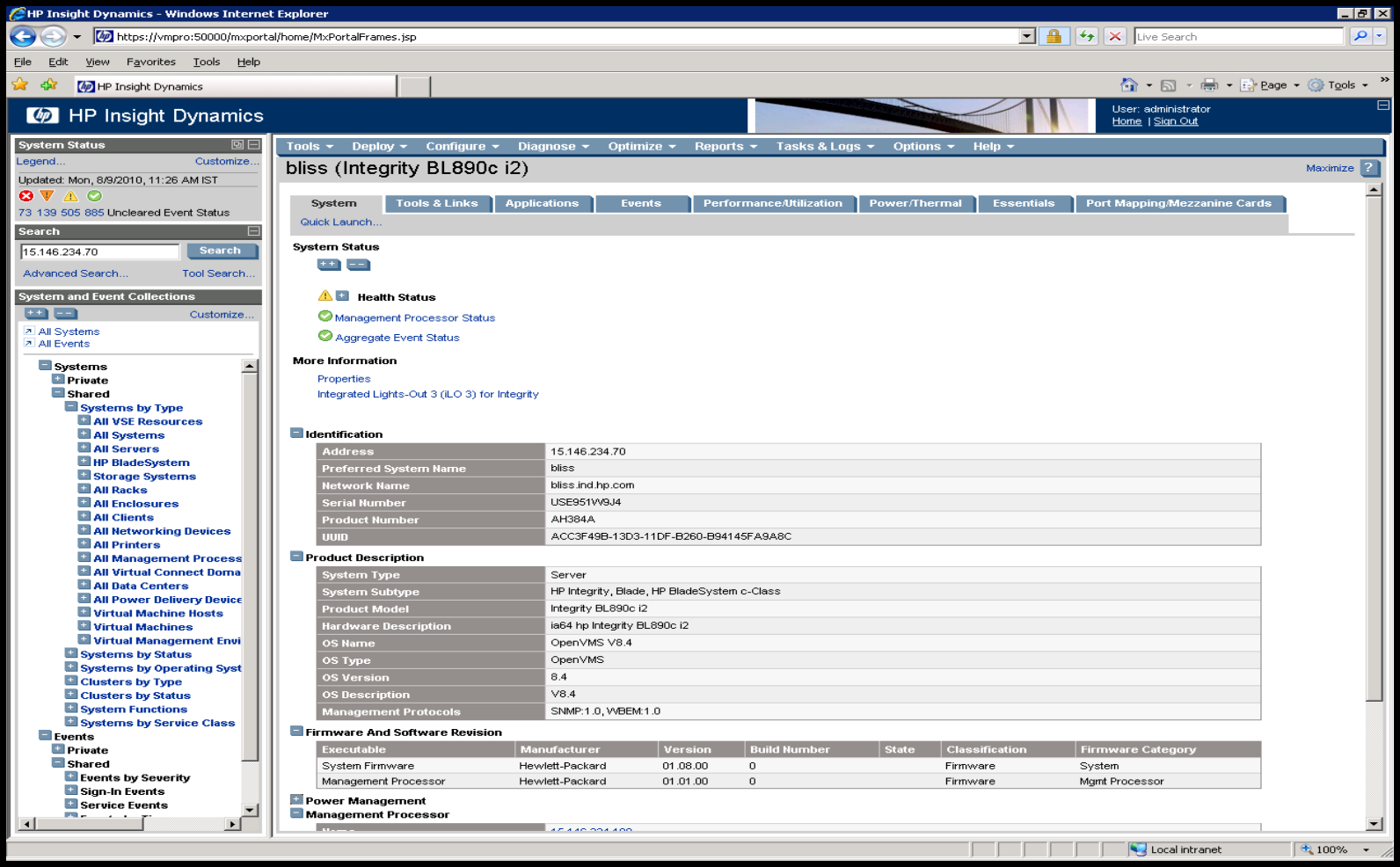
- OpenVMS V8.4 can run as a guest inside Integrity VM
- HP-UX WBEM Providers monitor core hardware on VM host
- WBEM Providers on VM host and VM guest required.
- VM Provider on HP-UX host needed to discover VM guests in HP SIM.



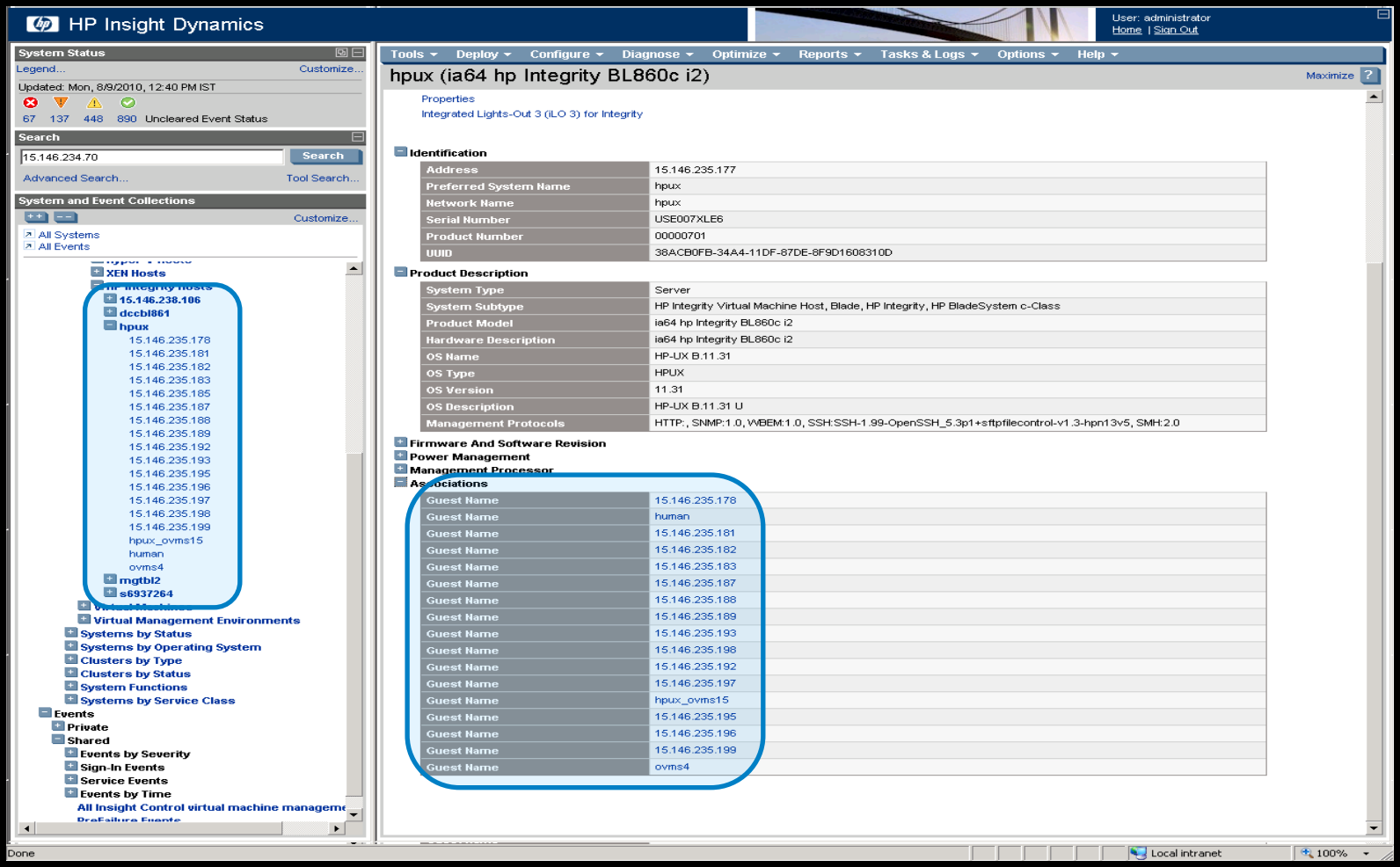
Example: Enclosure with BL890c i2 in HP SIM



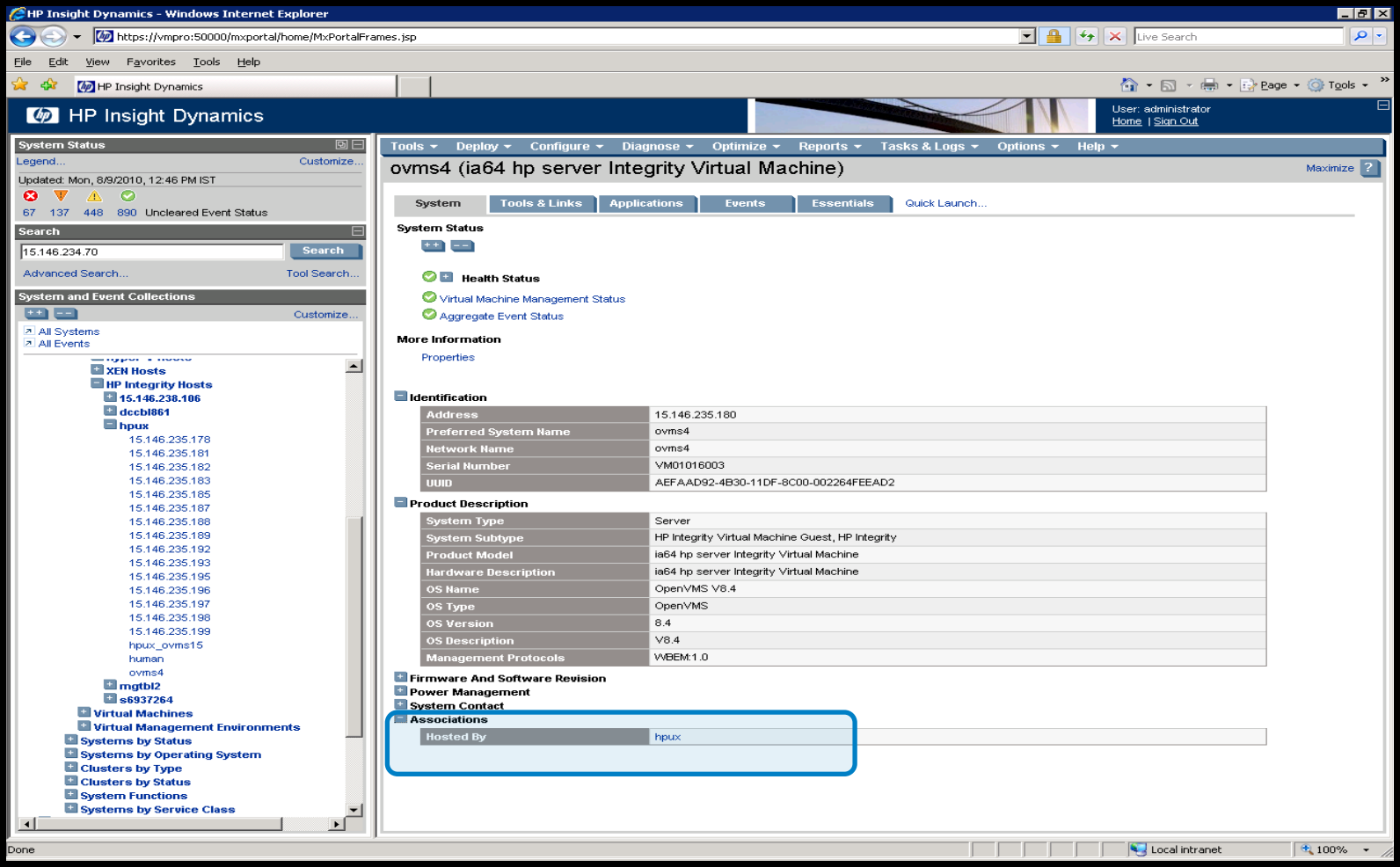
Example: Integrity BL890c i2 home page in HP SIM



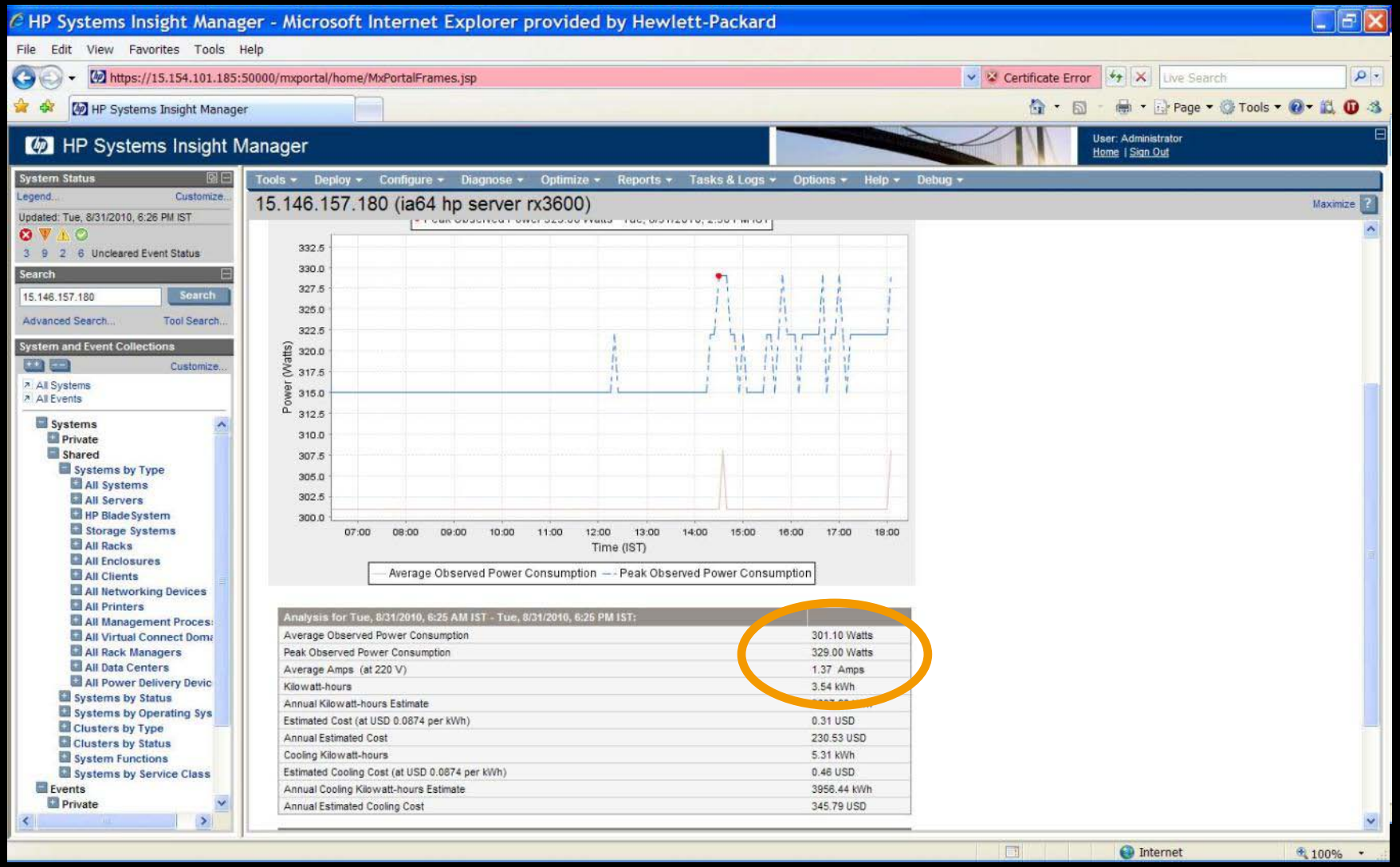
Example: OpenVMS Guests hosted on VM Host



Example: HP-UX System hosting OpenVMS Guest



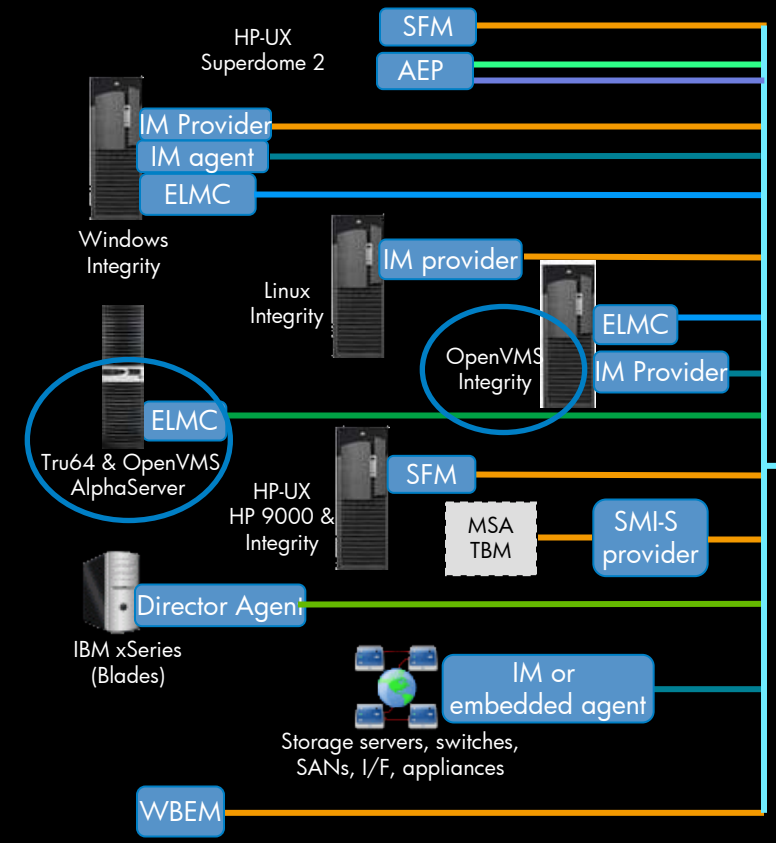
Insight Control Power Management (IPM)



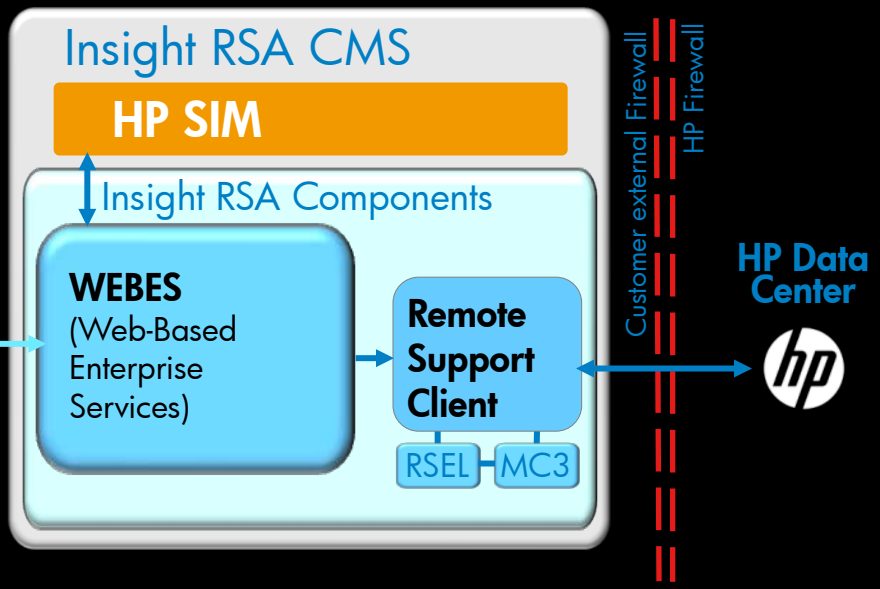
Web Based Enterprise Services – WEBES

- Rules based diagnostic tool
  - Proactive diagnosis of failing hardware
  - Automatic indication of failing hardware
  - Electronic “phone home” capabilities
- Event Log Monitoring Collector (ELMC) on OpenVMS

Web Based Enterprise Services – WEBES

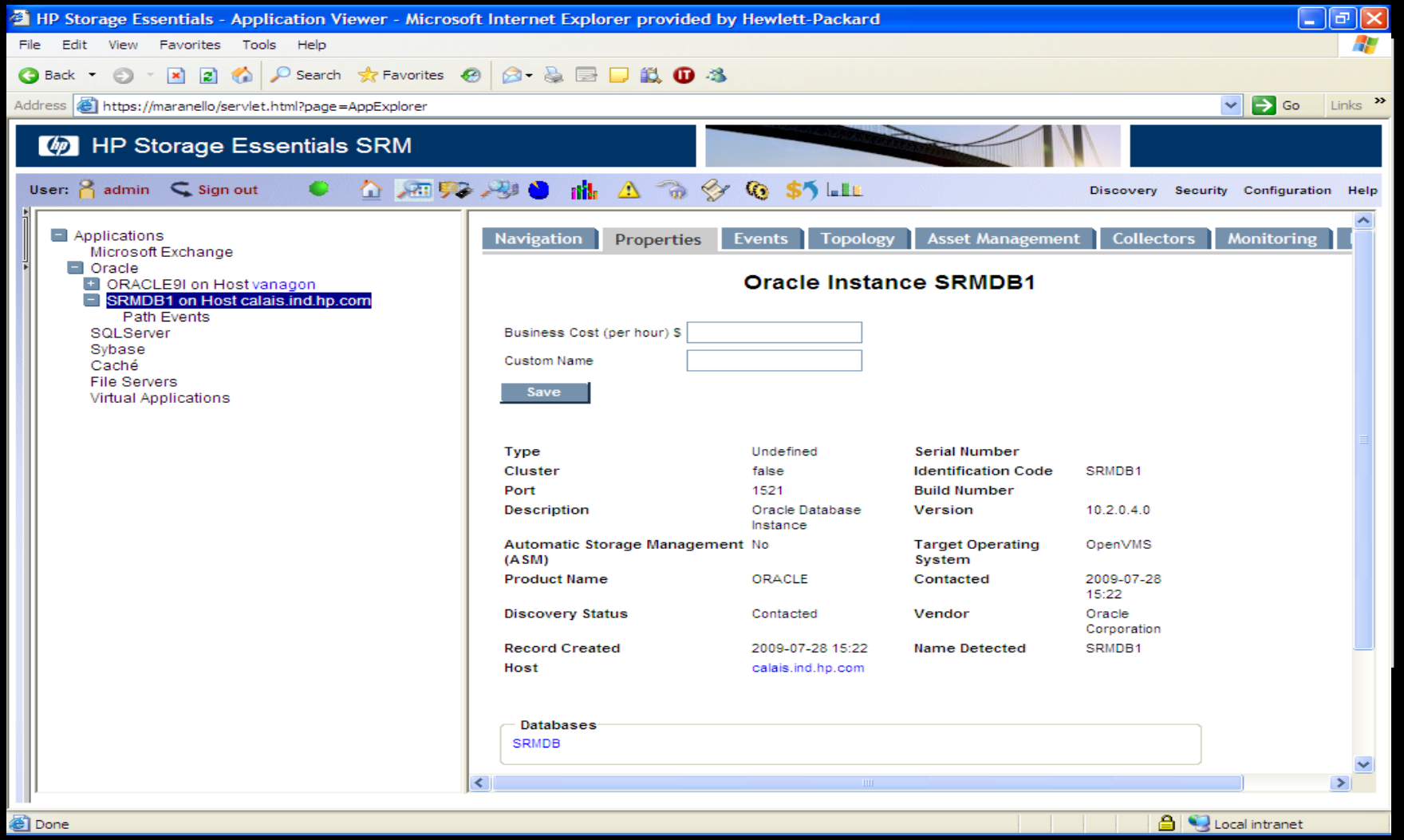


→	SNMP	→	WS-Man
→	HTTPS	→	WEBES proprietary
→	WBEM		

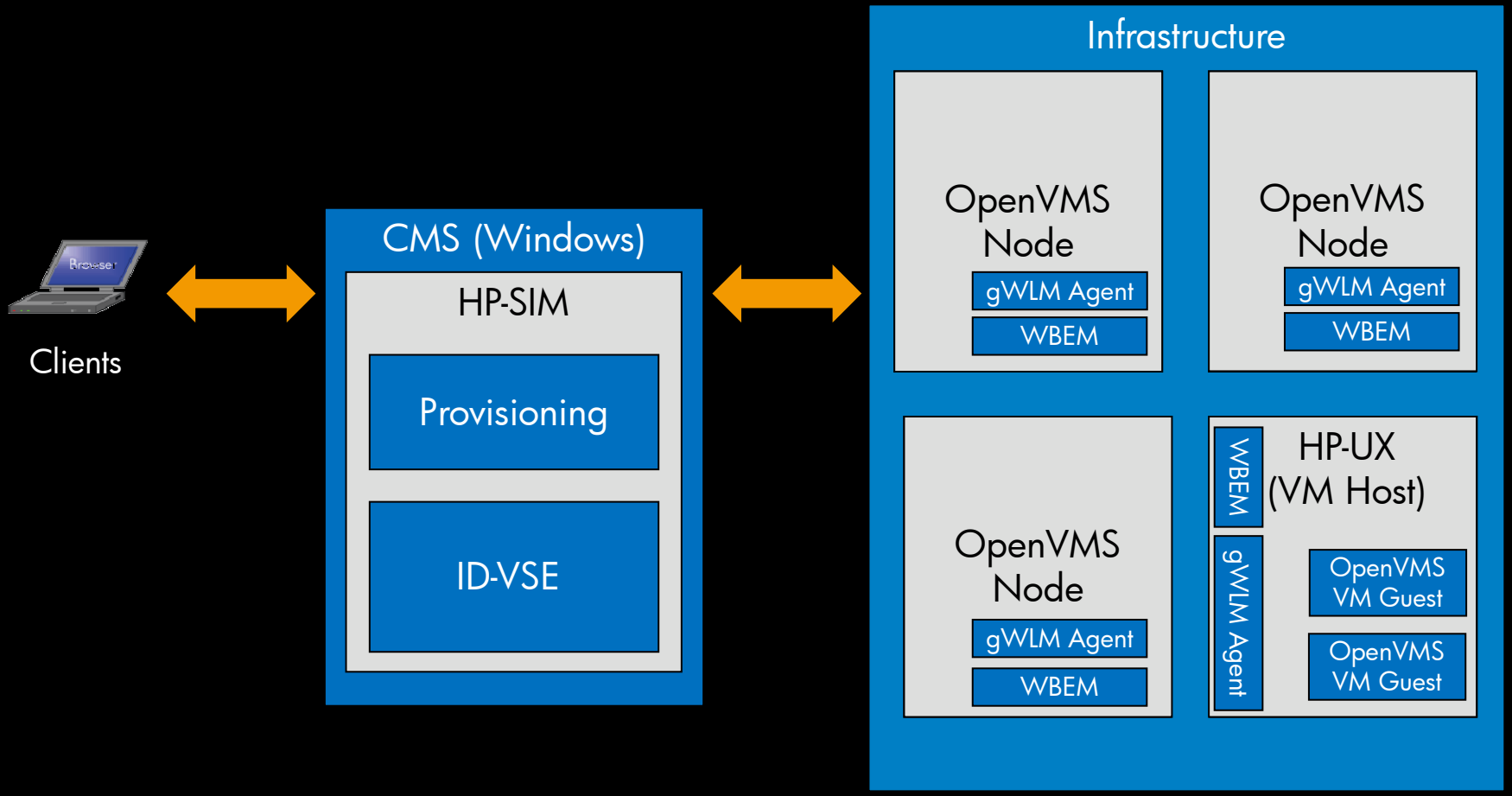


AEP	Analysis Engine Providers
ELMC	Event Log Monitoring Collector
SFM	System Fault Manager
RSEL	Remote Support Eligible Systems List
MC3	Remote Support Common Components
RDM	Remote Device Monitoring

Storage essentials (SE)



HP Insight Software – Quick recap



OpenVMS Classic products

OpenVMS classic products

Availability Manager

- Performance and resource analysis in Real-time
- Data Collector, Server and Analyzer
- Support for WAN and Clusters using IPCI
- Support for 32 bit Windows 7 and Windows server 2008

Performance Data Collector (TDC)

- Native Data Collector
- Support for Multiple agents

ECP Performance Analyzer

- Data Collector (VAX and Alpha only)
- Performance Analyzer
- Historical Performance Analysis

Management Station

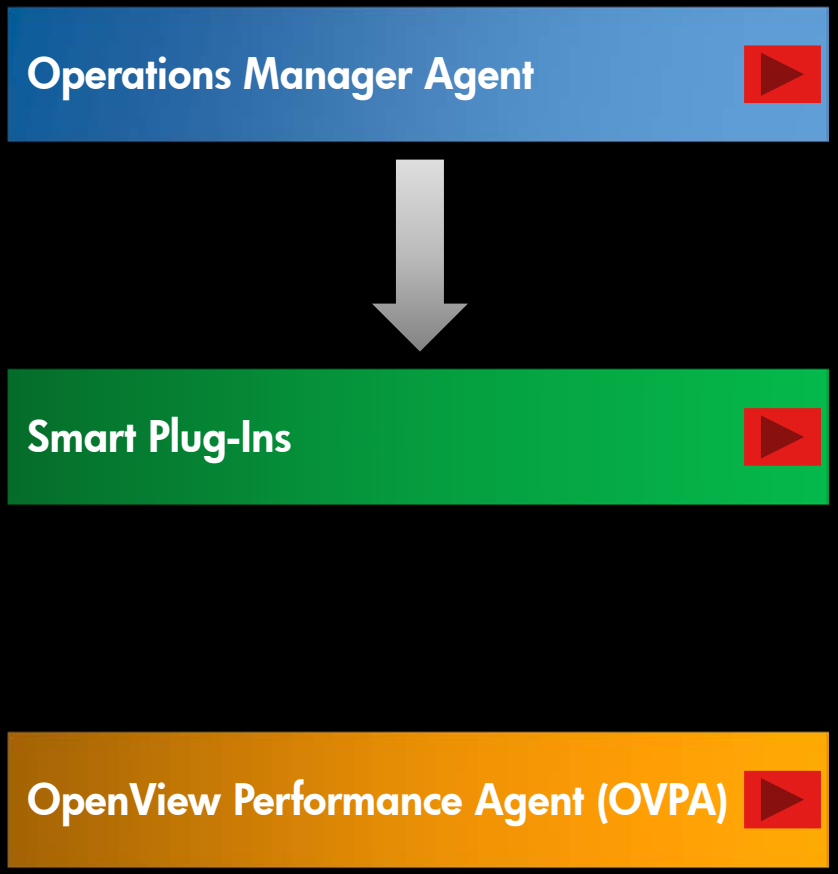
- Single GUI based system administration
- Ability to manage multiple OpenVMS systems/clusters

CockPitMgr for OpenVMS

Monitors the entire OpenVMS production environment (systems, clusters, network, storage, logfiles,…)
Runs on a dedicated OpenVMS system
Features
- System Monitor (processes, disks, shadow sets, queues….)
- SNMP-based monitoring tools for network and storage devices
- Security event monitor
- Performance degradation monitor
- Configuration and change management
- Job scheduler
- Event notification via event console, GUI, SMS, and web browser

OpenView product suite

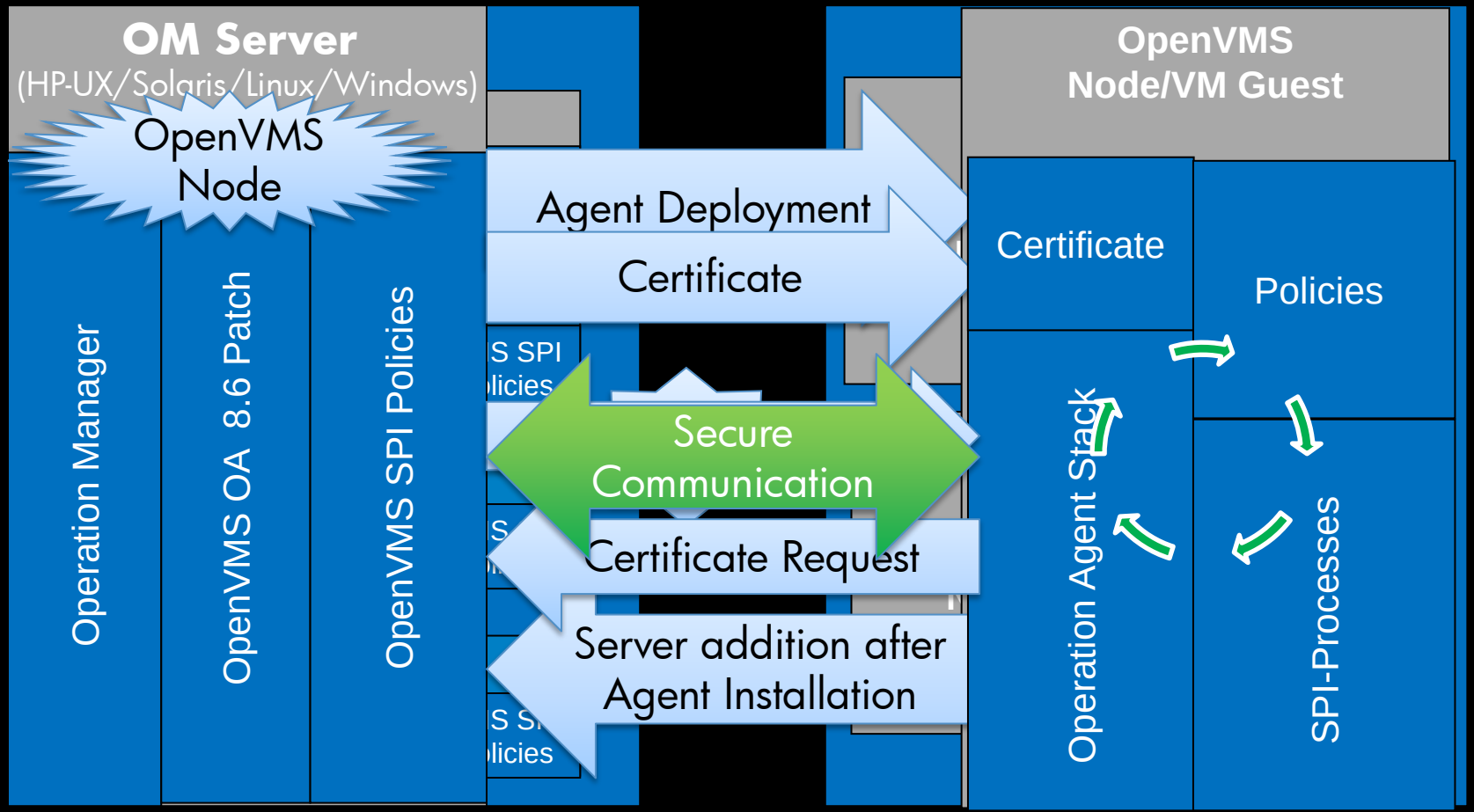
HP OpenView Suite



OpenView Performance Agent (OVPA)

- Data collection, logging and alarming component
- Detects alarm conditions on resources across the system
- Provides response time measurements
- Support Network and Database measurements
- Uses Performance Data Collector (TDC)

HP Operation Manager with OpenVMS Operation Agent



System management tools – Usage and interrelationships

System management framework

System Management

Infrastructure Management

Data Center Management

Enterprise Management

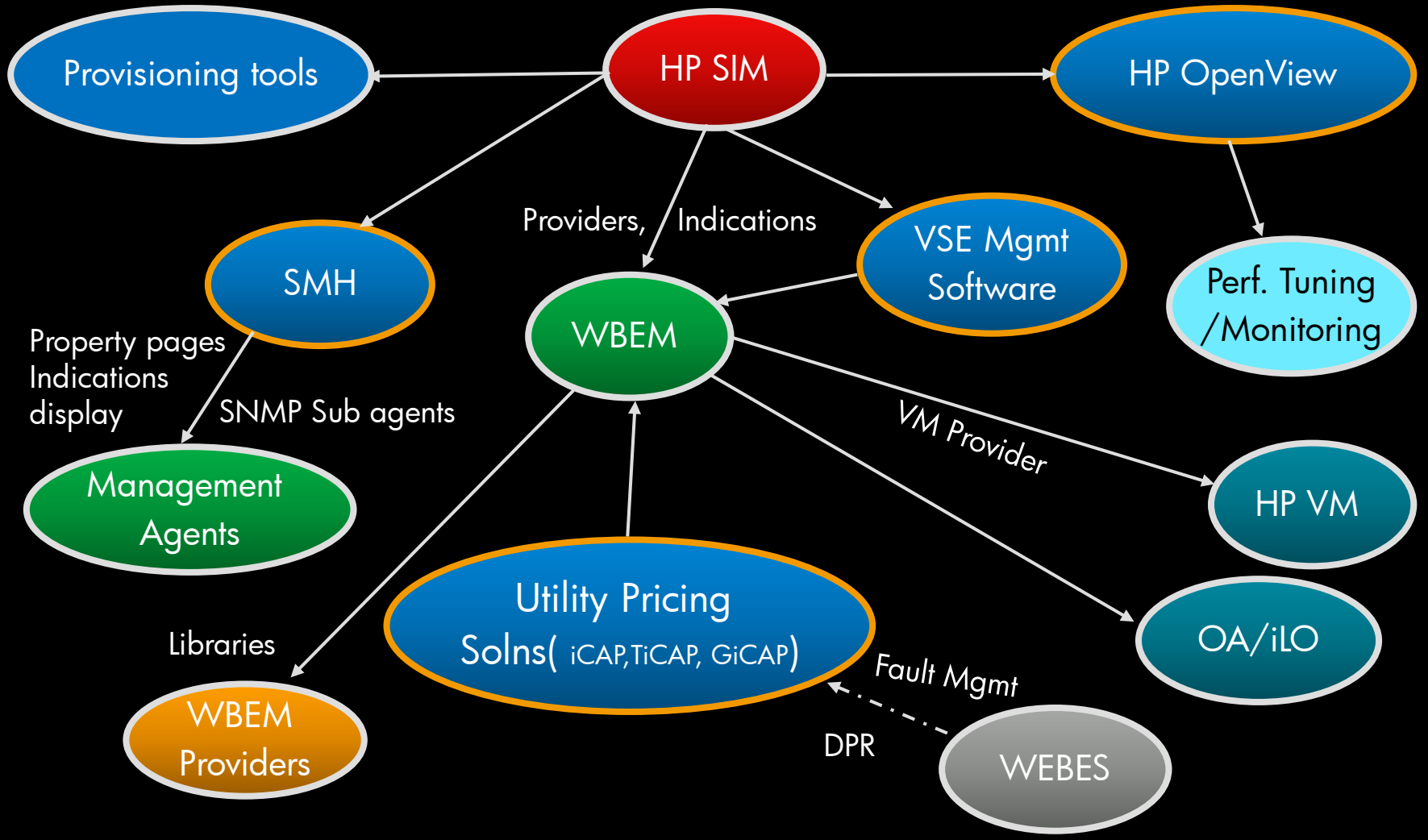
Enterprise Management

- Manage Large heterogeneous environments
- Manage every critical resource
- Optimize system/network availability
- Improve overall performance and predict system outages

OpenVMS Offering

- HP Insight Software Portfolio
- OpenView Suite
  - HP HTTPS Operations Agent for OpenVMS
  - HP OV Performance Agents (OVPA)
  - HP SPI Oracle Rdb VMS
- Partner with CA and BMC

System management tools interrelationships



Summary

- System Management tools are available to cater to different types of Customer Environments
- There are continued enhancements in this space
  - VSE Suite
  - OpenView Suite
- Better integrated with HP Offerings on other Operating systems
- Currently planning for v.Next

Resources

For any further queries contact:

- Product Manager
  - Ashok Kumar (ashok.kumar13@hp.com)

Or

- Office of OpenVMS Programs (openvms.programs@hp.com)

Q&A

THANK YOU

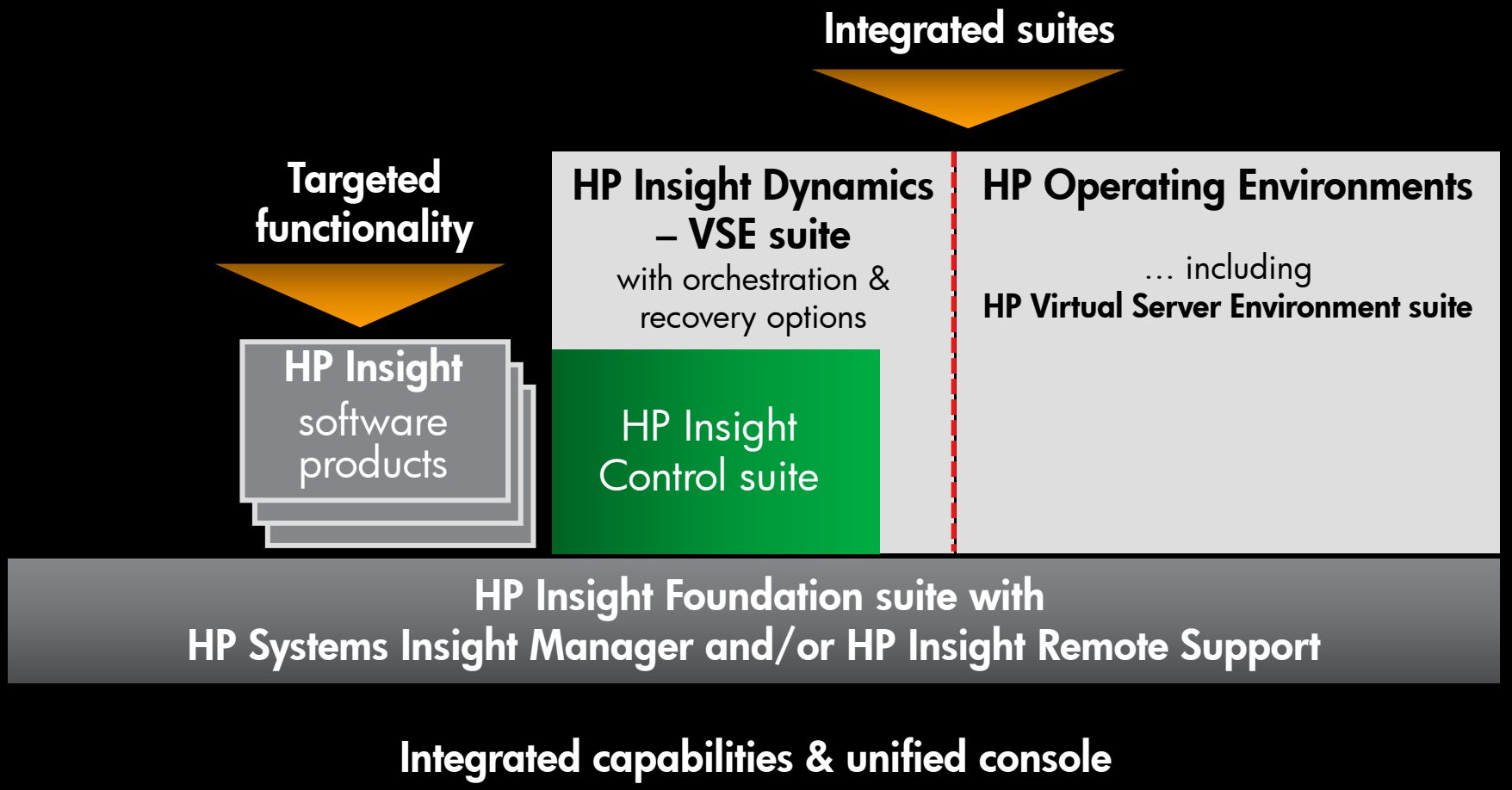
Virtual Server Environment views

- Visualization
  - Perspectives for Physical, Virtual, Logical, Blades, Events
  - Physical, Virtual, and Logical Server Management operations*
- Workload
  - Simple server-wide workload summary
  - gWLM partition-specific or process(es) or applications
- Shared Resource Domains
  - gWLM – Real-time, policy-based resource allocation for workloads within, among, or across partitioned domains
- Capacity Advisor
  - VSE-aware advising and scenario analysis tools
  - Detailed utilization data

System Management Portfolio on OpenVMS

		F	C	A	P	S
Present	HP Operations Manager Agent for OpenVMS	✓			✓	
	HP SPI	✓			✓	
	OpenView Performance Agent (OVPA)				✓	
	HP Availability Manager	✓			✓	
	OpenVMS Management Station		✓			✓
	Performance Data Collector for OpenVMS				✓	
	OpenVMS Capacity Planner Performance Analyzer				✓	
	HP Insight Management Web Agents	✓				
	Web Based Enterprise Services - WEBES	✓				
	Utility Pricing (iCAP,TiCAP)		✓			
	HP WBEM services and Providers	✓				
	Provisioning on OpenVMS		✓			✓
	HP System Management Homepage (HP SMH)	✓	✓			✓
v8.4	Capacity Advisor			✓	✓	
	gWLM		✓		✓	
	Virtualization Manager		✓	✓		
	Insight Control Power Management				✓	
	GiCAP		✓			

HP Insight Software portfolio



HP Systems Insight Manager

HP Systems Insight Manager

- Asset management
- Event & fault management
- Distributed task management
- Monitoring & reporting
- Role based access
- Remote support

Supported OSs and virtualized environments

HP-UX 11i NonStop

vmware Microsoft CITRIX

HP SIM users see real results

- Server to administrator ratio doubled
- Administration costs declined by 29%
- Downtime reduced 77%

Platform-specific plug-ins

Deployment

Workload management

Others

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HP Virtual Server Environment - OpenVMS

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- Share Spare Capacity
- Tools - Visualization, Capacity Planning, Workload Management
- Integrates with HP SIM
- Centralized Management
- Simplify Infrastructure Management

[1] Suppor
[2] Support with

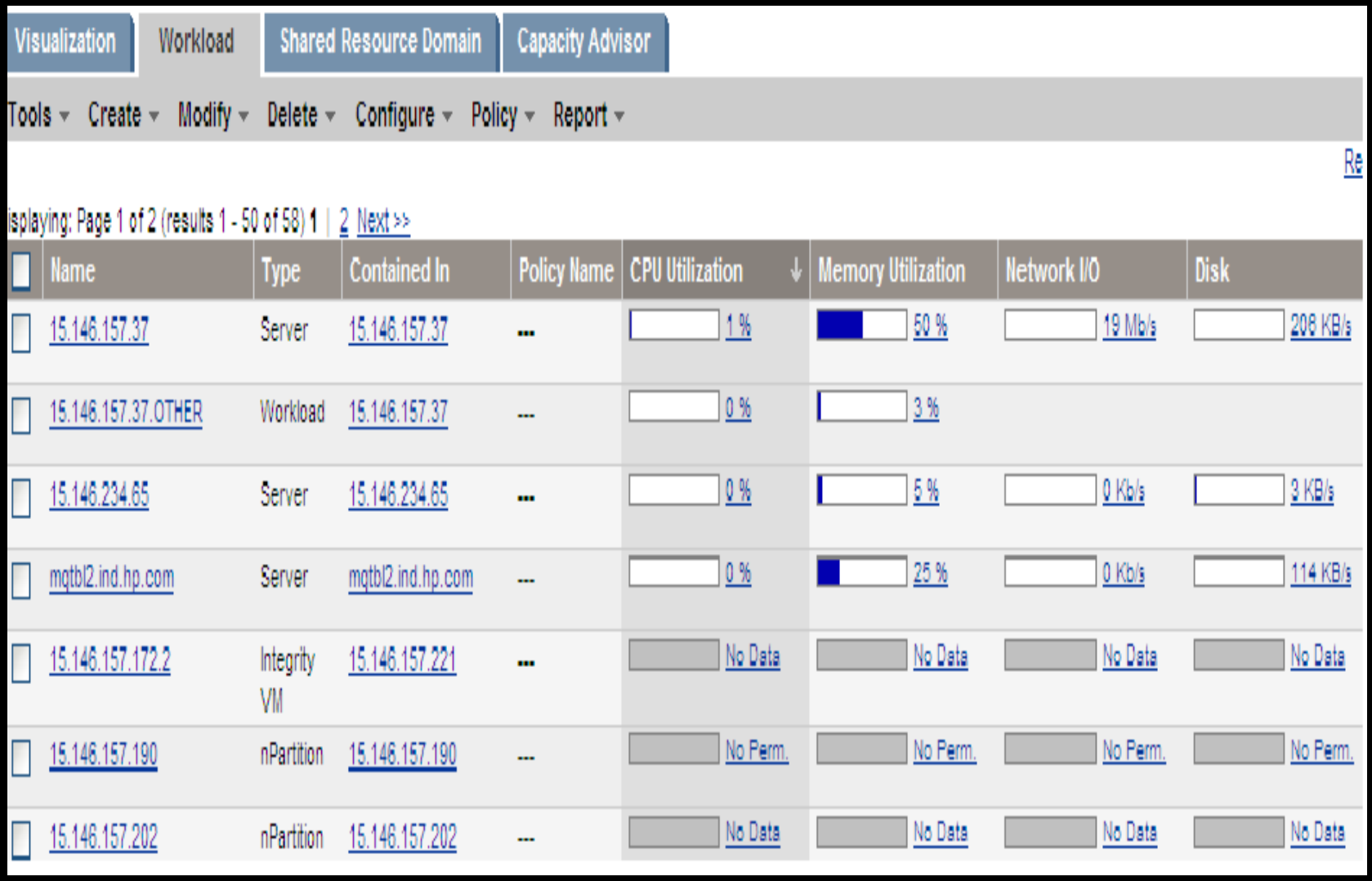
Virtual server environment views

The Virtualization Manager presents four views

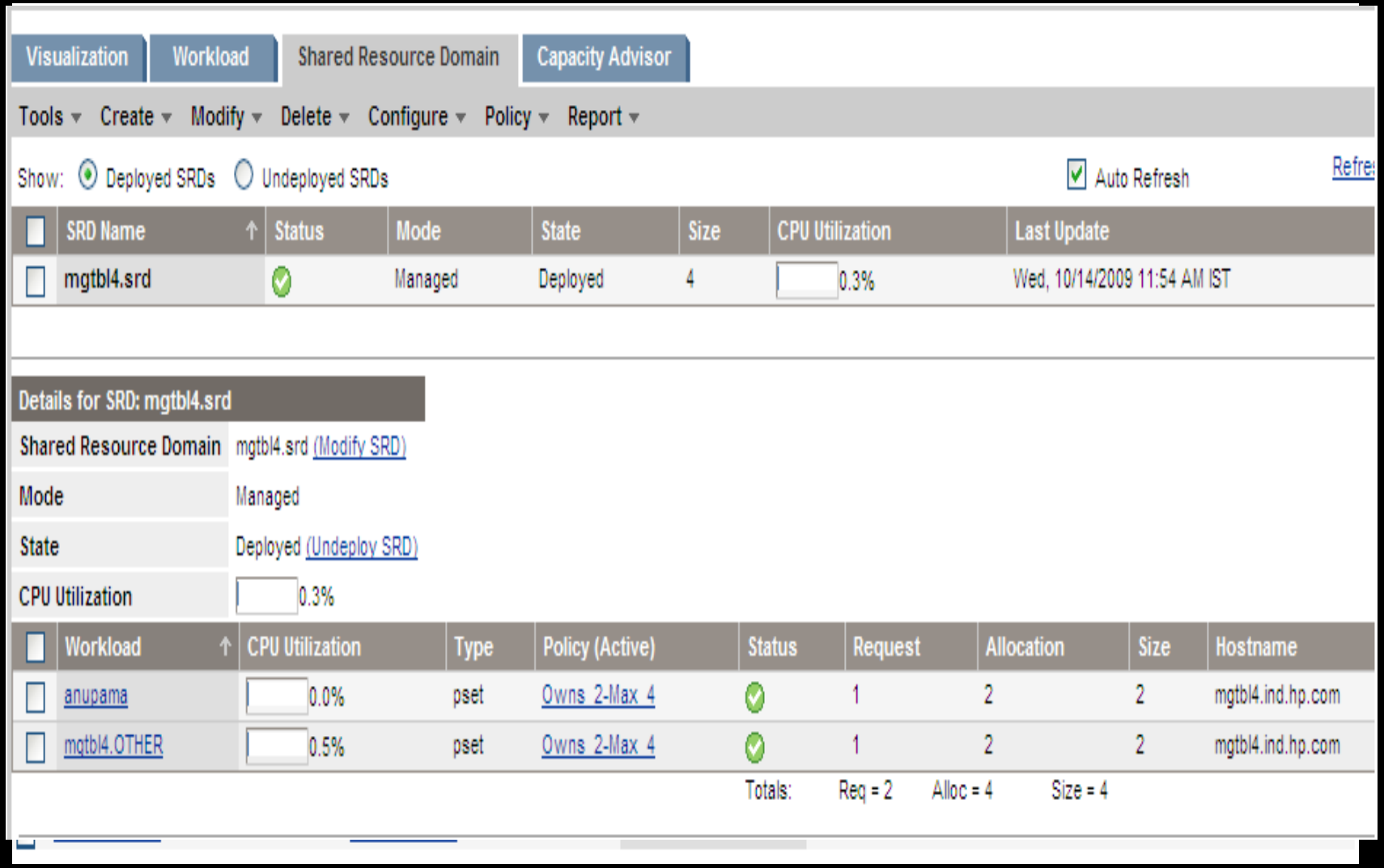
- **Visualization**
  - Perspectives for Physical, Virtual, Logical, Blades, Events
  - Physical, Virtual, and Logical Server Management operations*
- **Workload**
  - Simple server-wide workload summary
  - gWLM partition-specific or process(es) or applications
- **Shared Resource Domains**
  - gWLM – Real-time, policy-based resource allocation for workloads within, among, or across partitioned domains
- **Capacity Advisor**
  - VSE-aware advising and scenario analysis tools
  - Detailed utilization data

* Logical Server Management is not supported for OpenVMS v8.4

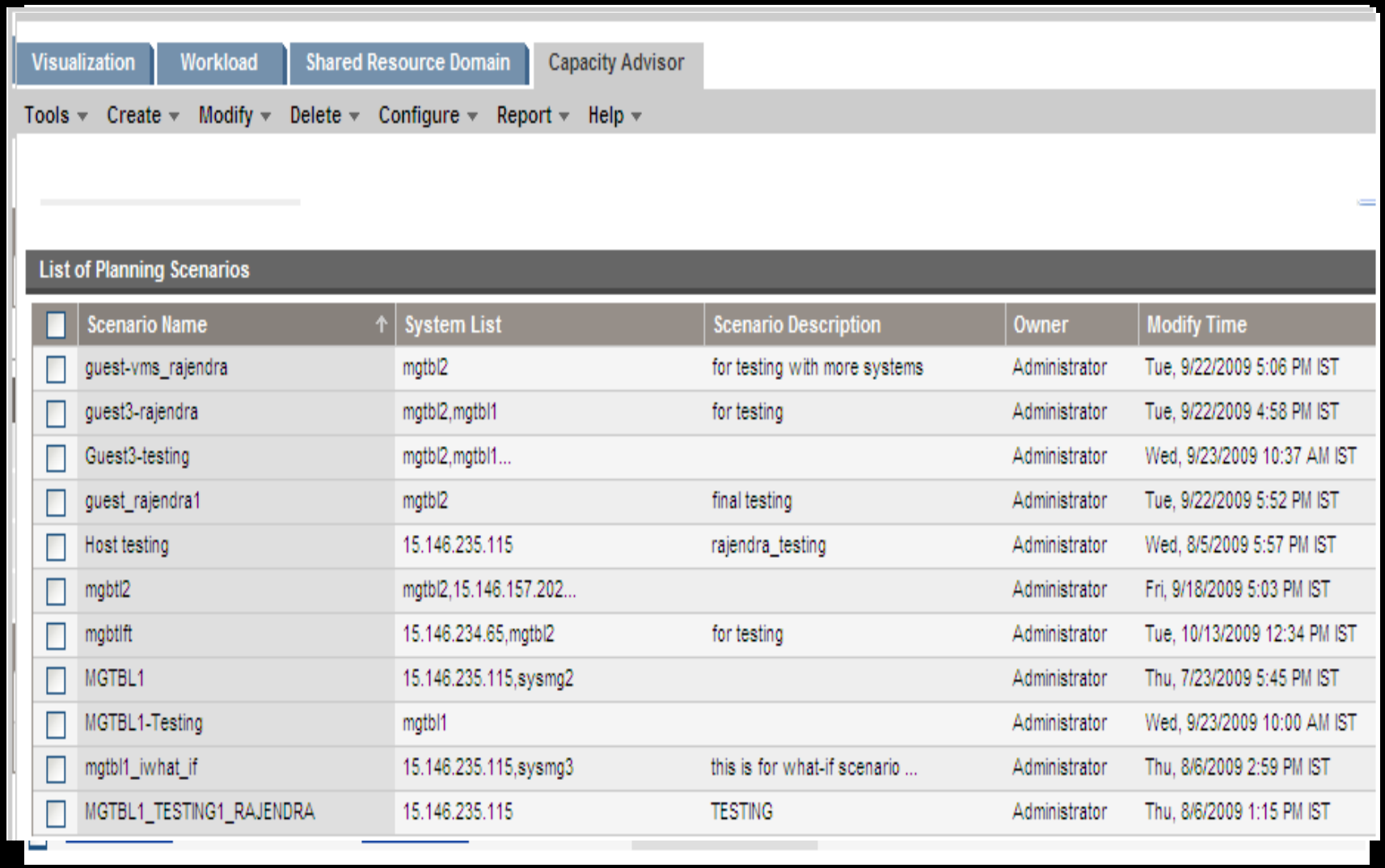
Virtual server environment views



Virtual server environment views



Virtual server environment views



Scenario Name	System List	Scenario Description	Owner	Modify Time
guest-vms_rajendra	mgtbl2	for testing with more systems	Administrator	Tue, 9/22/2009 5:06 PM IST
guest3-rajendra	mgtbl2,mgtbl1	for testing	Administrator	Tue, 9/22/2009 4:58 PM IST
Guest3-testing	mgtbl2,mgtbl1...		Administrator	Wed, 9/23/2009 10:37 AM IST
guest_rajendra1	mgtbl2	final testing	Administrator	Tue, 9/22/2009 5:52 PM IST
Host testing	15.146.235.115	rajendra_testing	Administrator	Wed, 8/5/2009 5:57 PM IST
mgbtl2	mgtbl2,15.146.157.202...		Administrator	Fri, 9/18/2009 5:03 PM IST
mgbtlft	15.146.234.65,mgtbl2	for testing	Administrator	Tue, 10/13/2009 12:34 PM IST
MGTBL1	15.146.235.115,sysmg2		Administrator	Thu, 7/23/2009 5:45 PM IST
MGTBL1-Testing	mgtbl1		Administrator	Wed, 9/23/2009 10:00 AM IST
mgtbl1_iwhat_if	15.146.235.115,sysmg3	this is for what-if scenario ...	Administrator	Thu, 8/6/2009 2:59 PM IST
MGTBL1_TESTING1_RAJENDRA	15.146.235.115	TESTING	Administrator	Thu, 8/6/2009 1:15 PM IST

What does GWLM do?

- **Monitors** the CPU resource demands of managed workloads
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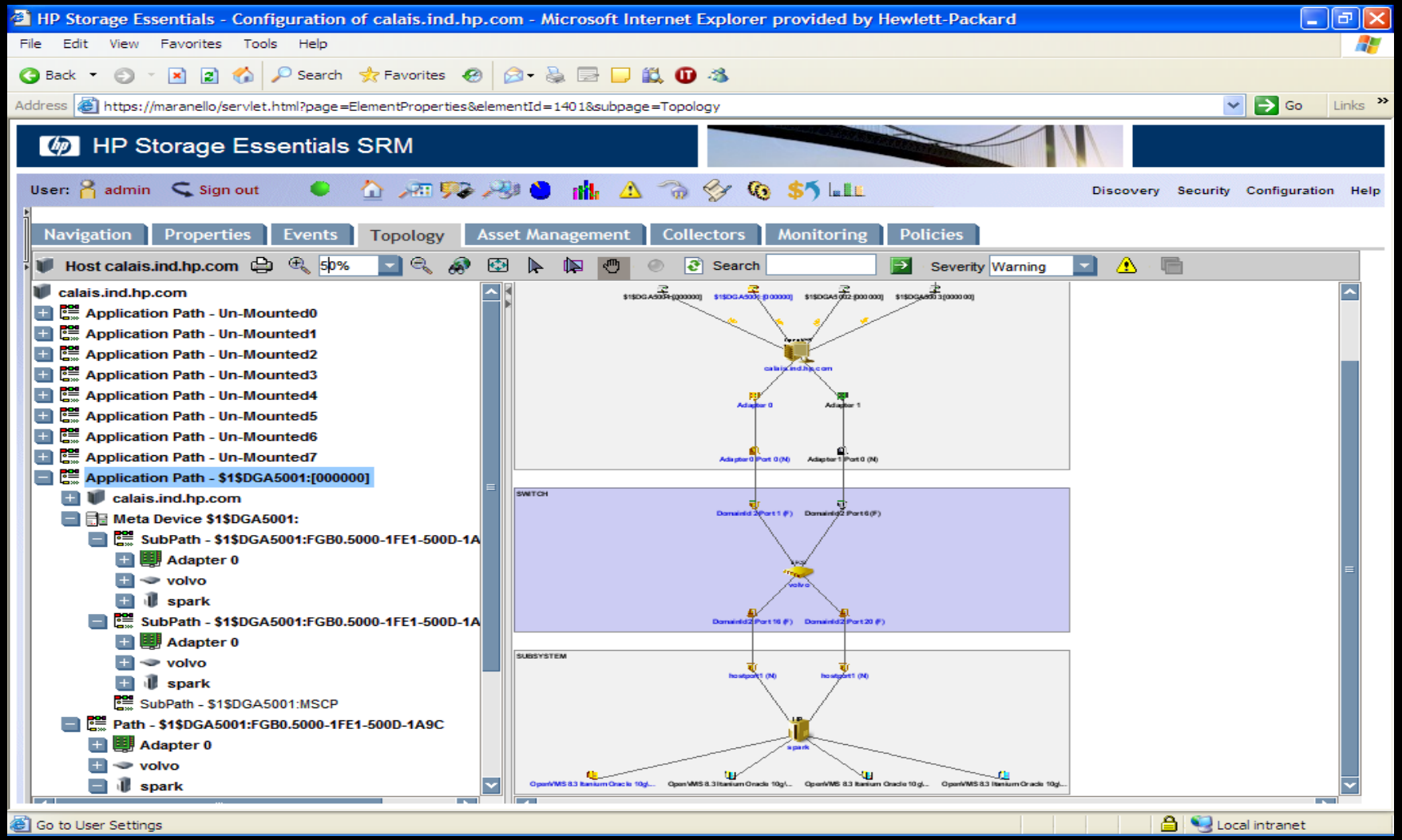
Storage Essentials (SE)

- SE CIM Extension (CIME) on OpenVMS Host
  - Read Only Agent – No Host Management
- SE Database Viewers
  - Oracle DB
  - Cache DB

- Host topology
- Host details
  - HBA, HBA ports and target Mappings
  - File system
  - Processor and memory
  - Disk drives, partitions and multipathing
- Capacity manager
- Performance manager
- Application viewer

Storage essentials (SE)



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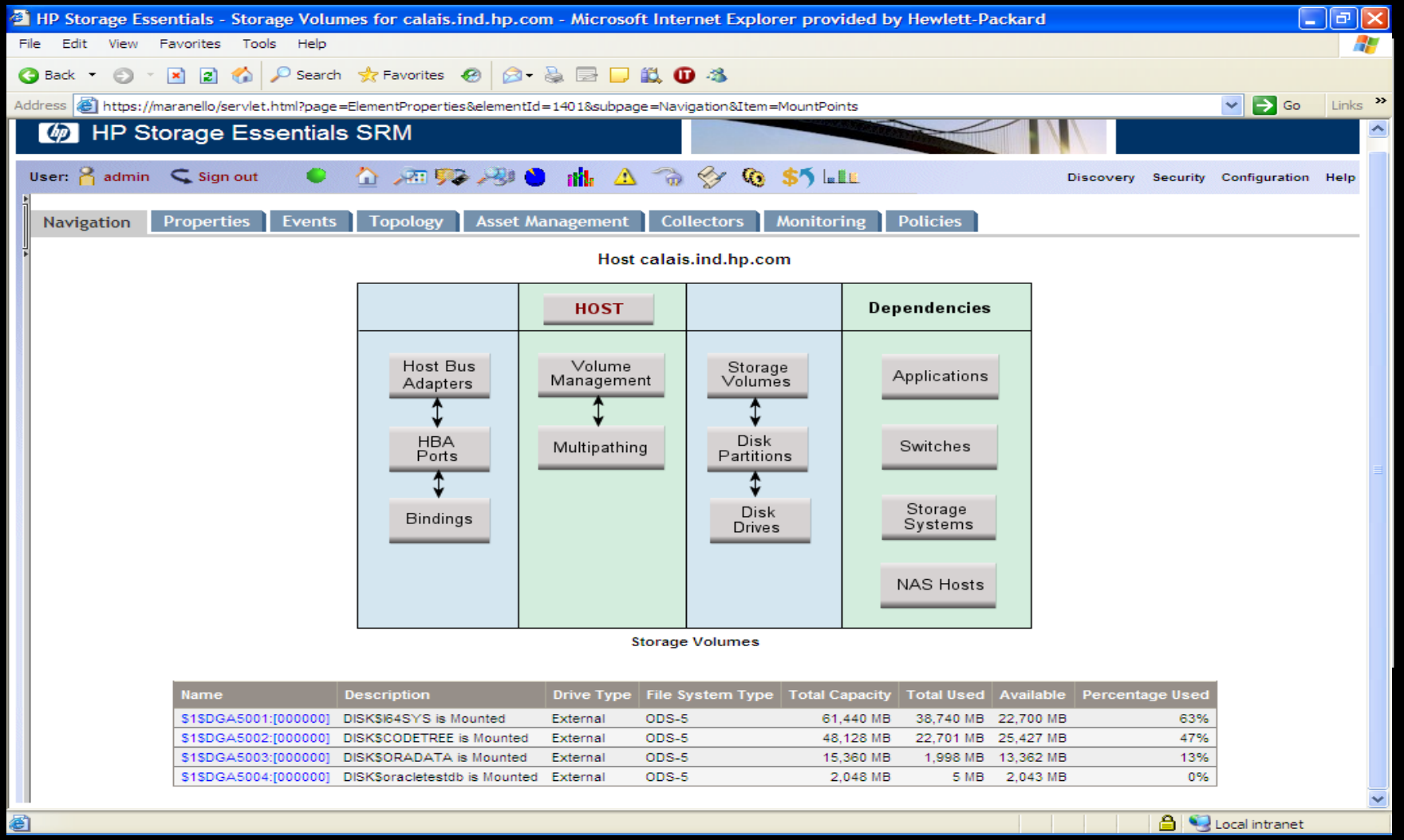

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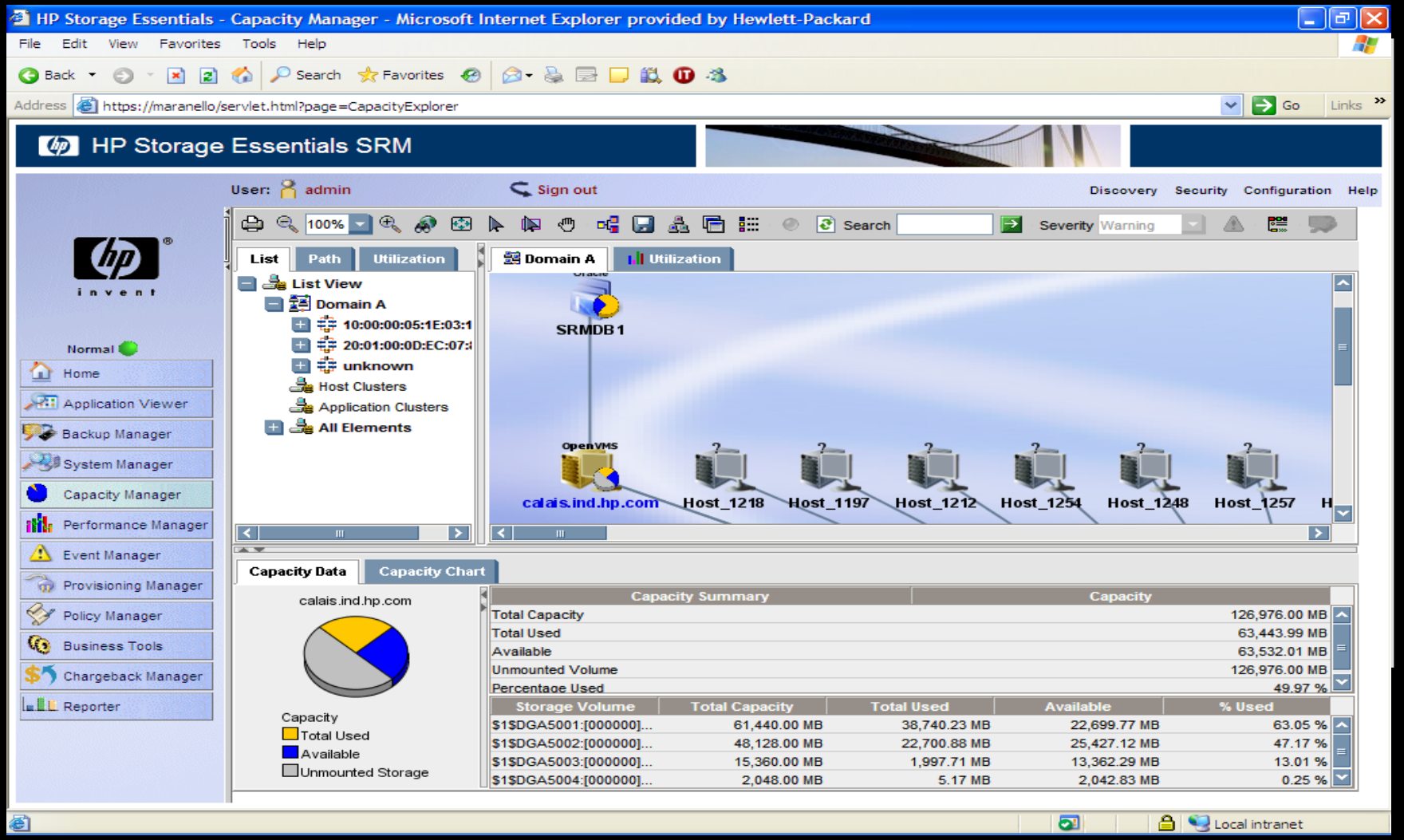

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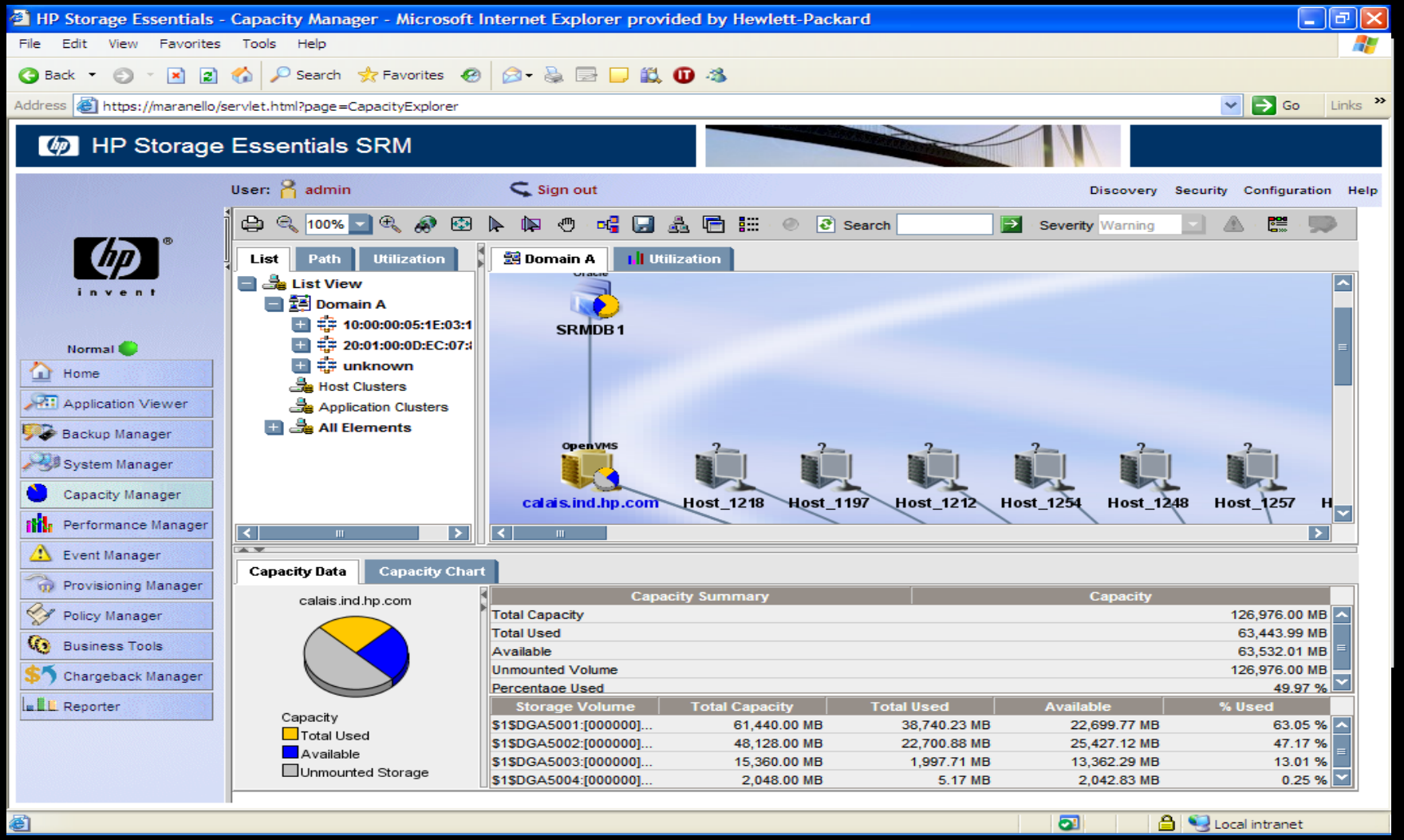
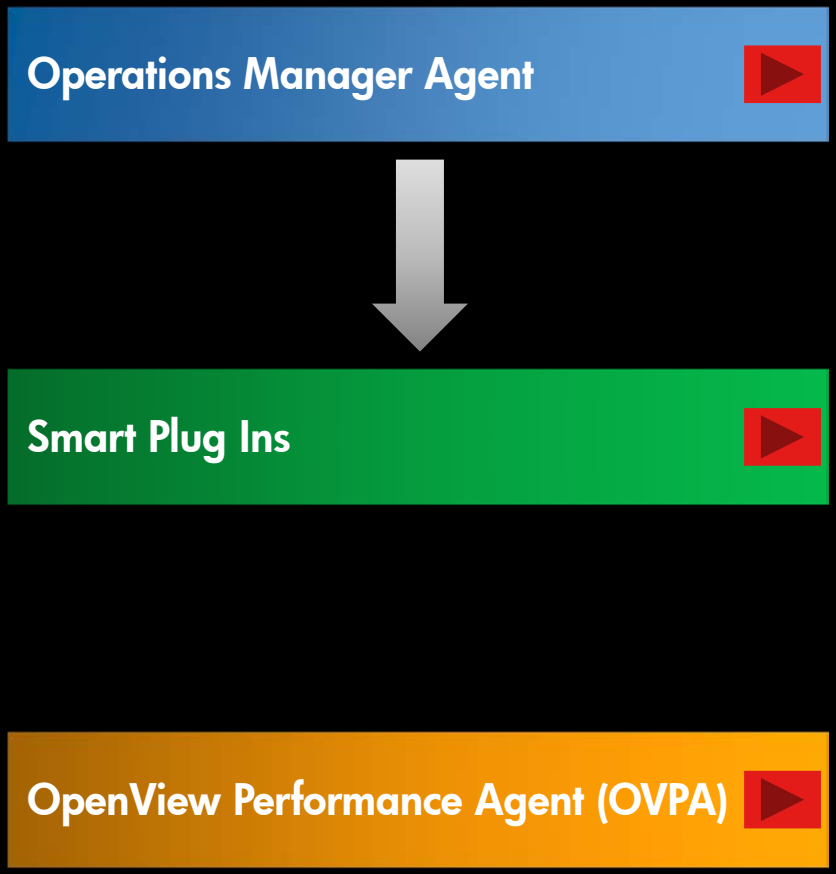


HP OpenView Suite



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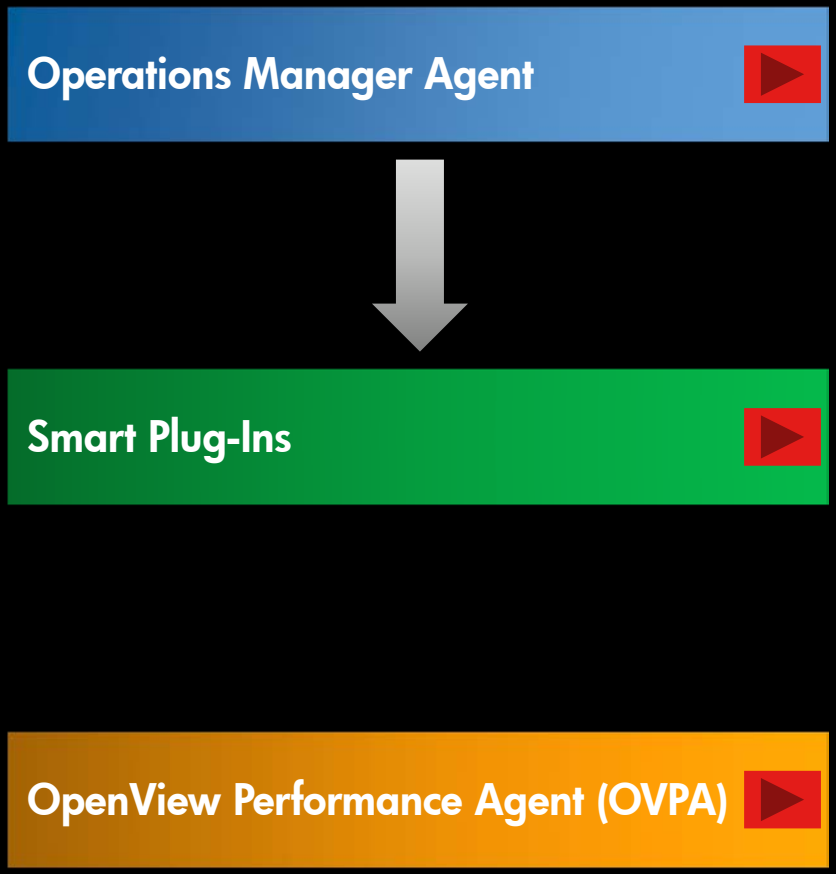
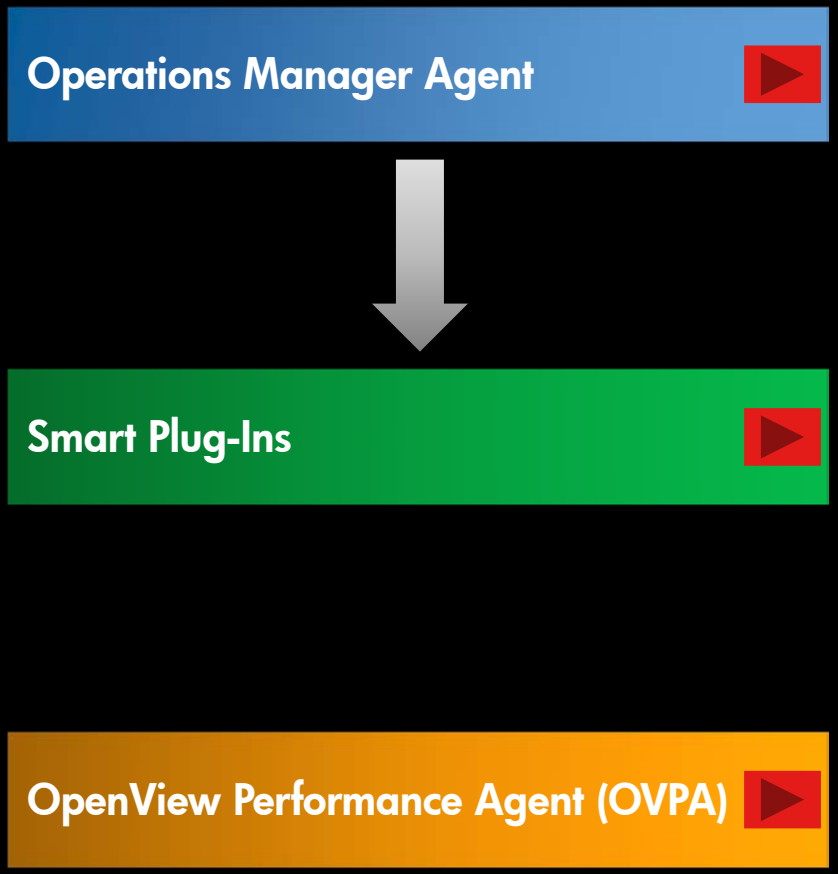


Smart Plug-Ins (SPI)

- VMS SPI
  - Security SPI
  - System SPI
  - Performance SPI
- RTR SPI
- Rdb SPI

HP OpenView Suite



OpenView Performance Agent (OVPA)

- Data collection, logging and alarming component
- Detects alarm conditions on resources across the system
- Provides response time measurements
- Support Network and Database measurements
- Uses Performance Data Collector (TDC)

System management framework

System Management

Infrastructure Management

Data Center Management

Enterprise Management

Infrastructure Management

- Management from a single point of control
- Hardware and software inventory
- Detect, isolate, and report hardware failures
- Install/Upgrade OpenVMS

OpenVMS Offering

- HP Insight Software Portfolio
  - Provisioning using HP SIM
  - SNMP-based Management Agents
  - HP WBEM solutions
    - WBEM services
    - WBEM providers

System management framework

System Management

Infrastructure Management

Data Center Management

Enterprise Management

Data Center Management

- Control/monitoring of medium to large OpenVMS environments
- Monitoring of
  - System health
  - Consoles
  - Performance
  - Scheduling/workloads
  - Network
  - Storage

OpenVMS Offering

- HP Insight Software Portfolio
  - Capacity Advisor
  - Utility Pricing Solutions
  - gWLM
  - Virtualization Manager
- OpenView Suite
- 3rd party products

System management framework

System Management

Infrastructure Management

Data Center Management

Enterprise Management

Enterprise Management

- Manage Large heterogeneous environments
- Manage every critical resource
- Optimize system/network availability
- Improve overall performance and predict system outages

OpenVMS Offering

- HP Insight Software Portfolio
- OpenView Suite
  - HP HTTPS Operations Agent for OpenVMS
  - HP OV Performance Agents (OVPA)
  - HP SPI Oracle Rdb VMS
- Partner with CA and BMC