

COMMAND

your infrastructure like a
visionary, not a functionary.

Easing System Management with OpenVMS

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Customer Programs



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

		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)	✓	✓			✓
	Capacity Advisor			✓	✓	
	v8.4	gWLM		✓		✓
Virtualization Manager			✓	✓		
Insight Control Power Management					✓	
GiCAP			✓			

OpenView Suite

OpenVMS Classic

HP Insight Software Portfolio



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



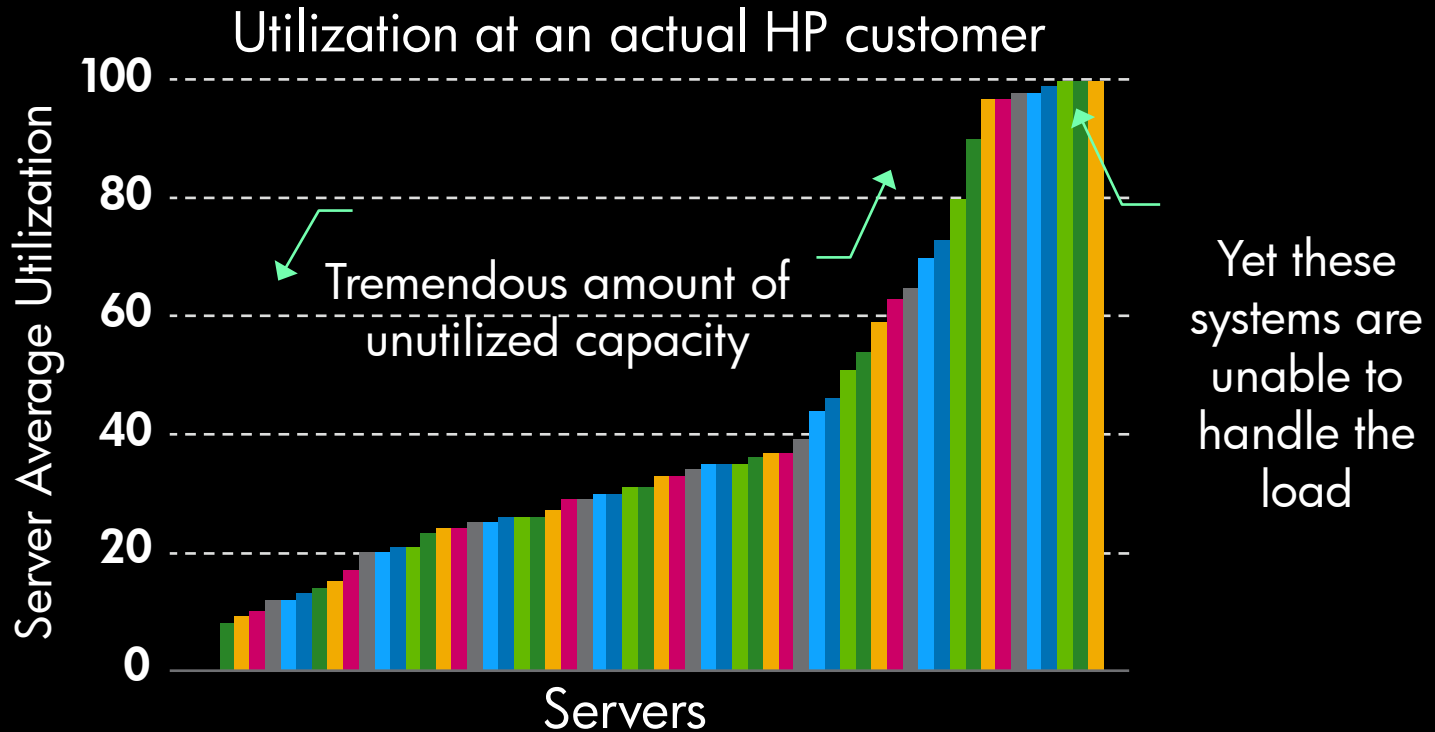
Too unpredictable?
Few servers have traditional high-availability clustering



Too energy hungry?
Data center electricity use has more than doubled since 2000

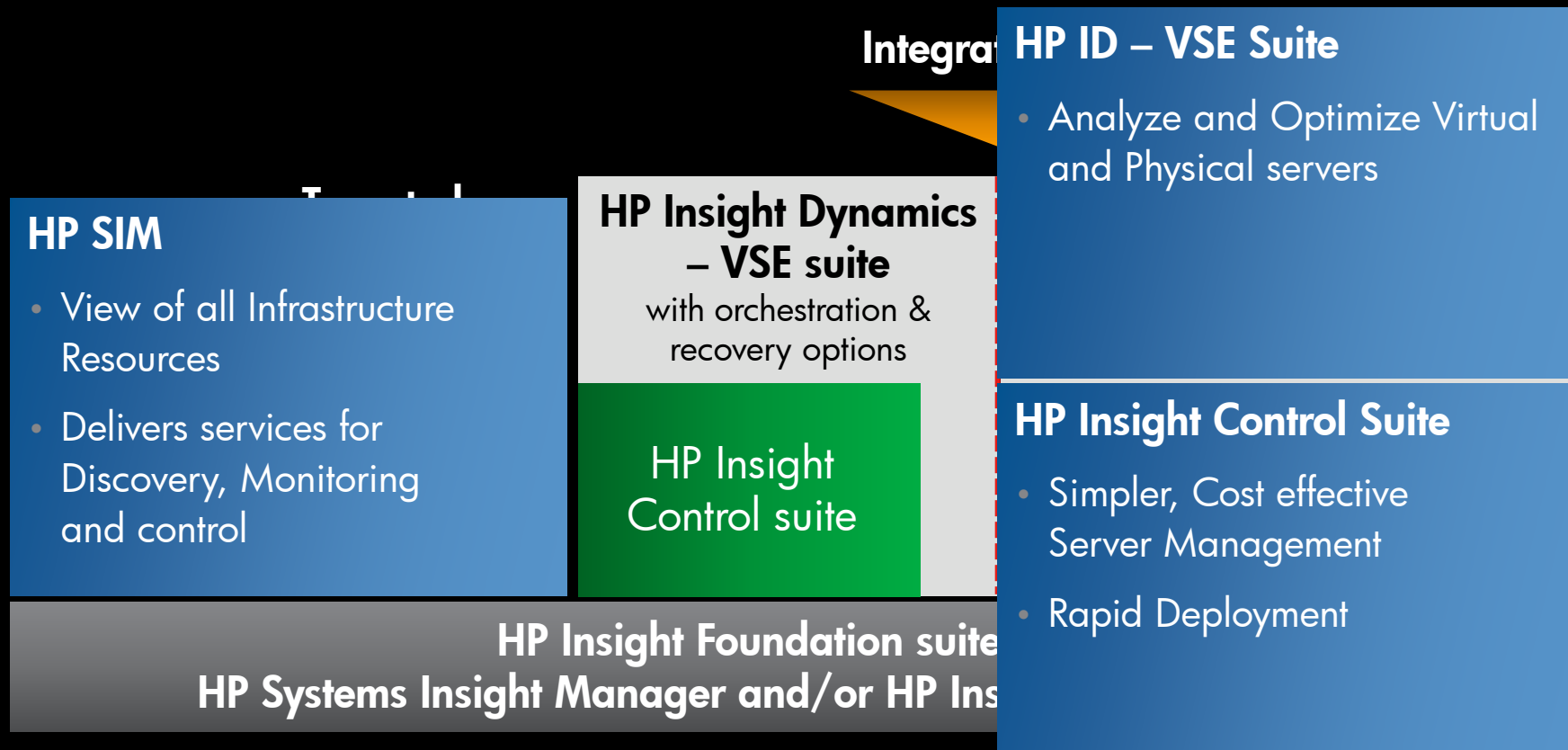
Challenges in infrastructure management

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



Most reports put average utilization at approximately 30%

HP Insight Software portfolio



Integrated capabilities & unified console

HP Systems Insight Manager



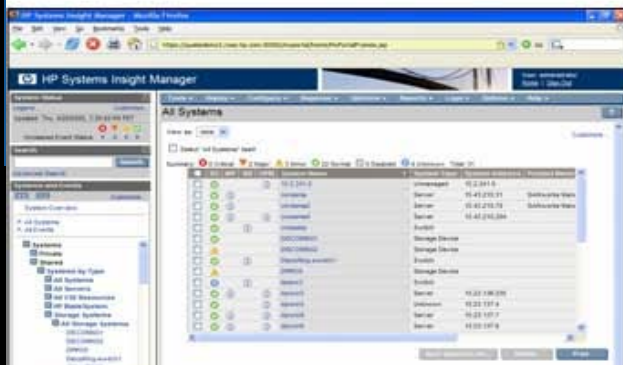
Central Management Server



Network Clients

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

Managed Systems



Enabling complete infrastructure management with HP SIM

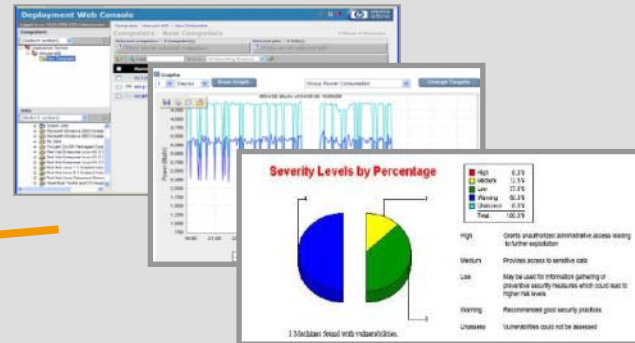
HP Systems Insight Manager



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 node¹

- 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

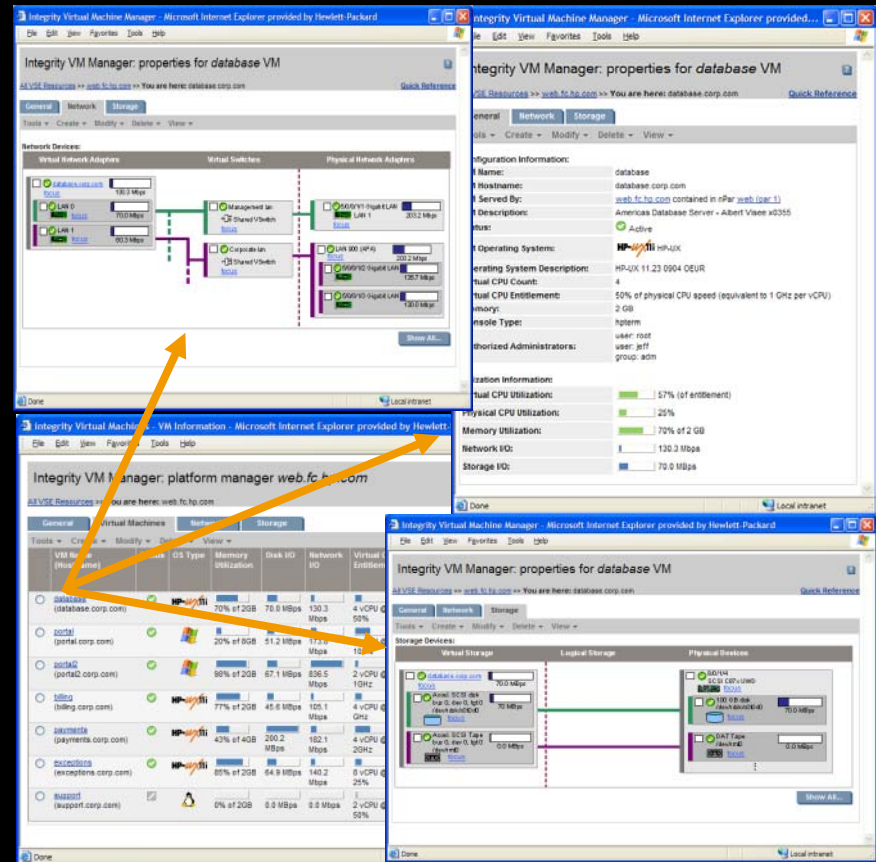
¹ Support with OpenVMS v8.4

² Support with v8.4 + Patch

Integrity Virtual Machine Manager (VMMGR)

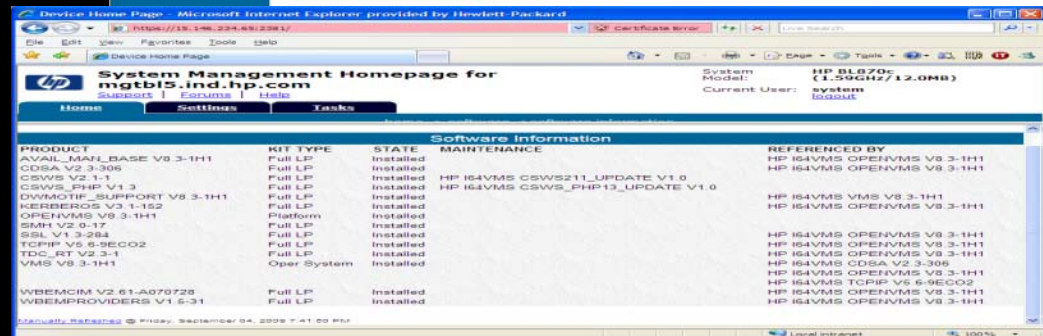
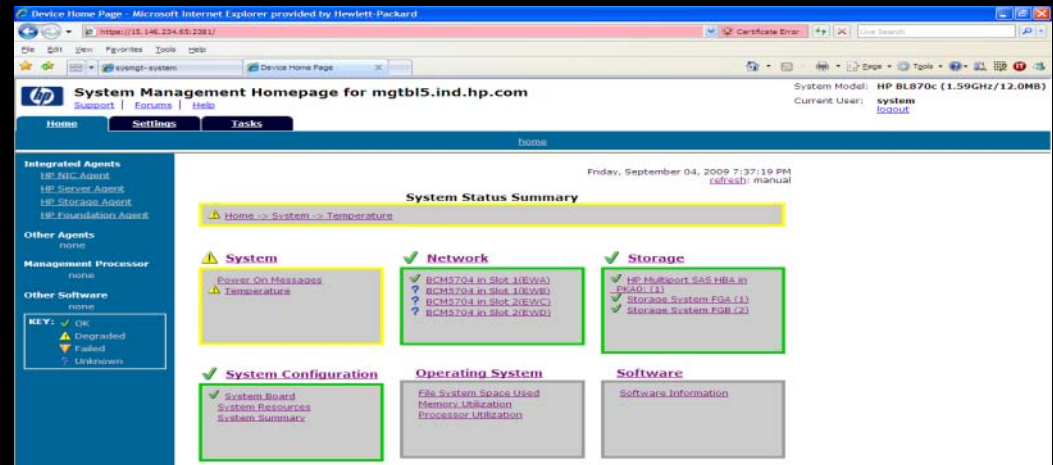
Key features

- 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

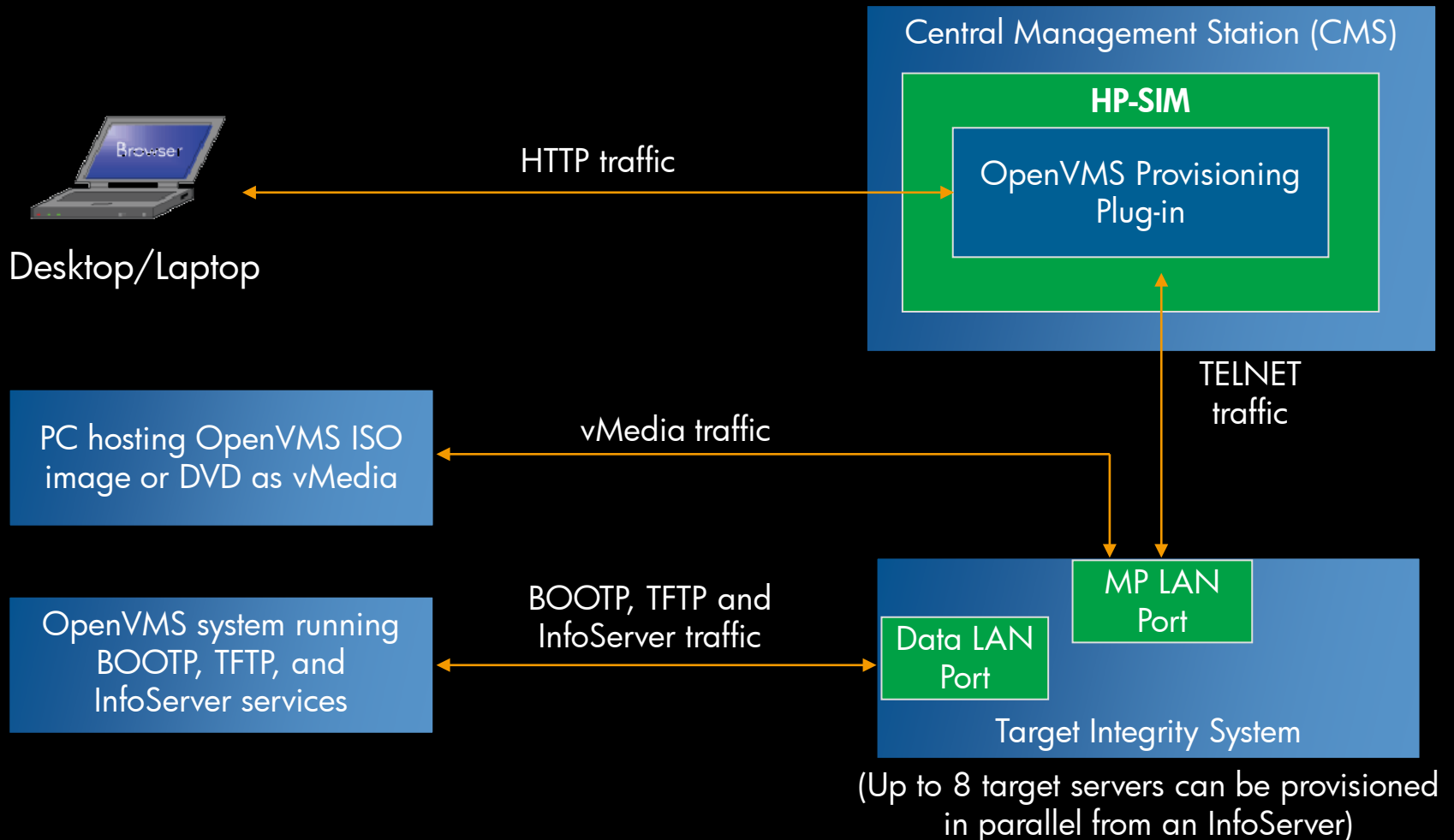
4.0

- 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

Install OpenVMS from InfoServer - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

Install OpenVMS from InfoServer

Install OpenVMS on selected system(s).

Step 2:

HP OpenVMS Installation Using InfoServer

Provisioning 4.0

Management Processor:
15.154.113.247

MP Login:

Username: Admin Password: [masked] Timeout(minutes): 5

LAN Boot Settings:

Use DHCP

Service Name: 64084 InfoServer IP: 15.146.235.237 Gateway IP: Subnet Mask: Client Static IP:

vms_loader.efi Location: L:DA3:[SYS0.SYSCOMMON.SYSEXE]

OpenVMS Version: Select
Select
V8.3-1H1 or below
V8.4

OpenVMS Installation Options:

Initialize Disk Install DecV Motif Install HP TCP/IP Services Install DECnet Phase-V(Plus) Create/Validate Boot Options

ODS-2 ODS-5 Phase-IV Phase-V(Plus)

Enable hard links Address: 63.122

Installation Disk: DKA200 Volume Label: V84DISK SCSNODE name: MGTBL3 SCSSYSTEMID: 64394 System password: [masked]

Timezone: America - Godthab

Currently Observing Daylight Saving Time Time Differential Factor: -3:00

Done Local intranet

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

Configure OpenVMS TCP/IP using HP SIM

Configure OpenVMS TCP/IP - Windows Internet Explorer

File Edit View Favorites Tools Help

Configure OpenVMS TCP/IP
Configure OpenVMS TCP-IP Services on existing system(s).

Configure/Start OpenVMS TCP/IP Services: Provisioning 4.0

Management Processor:
15.154.113.247

Management Processor Login: Username: Admin Password: *****

OpenVMS System Login: Username: system Password: *****

OpenVMS TCP/IP Configuration:

Configure Using DHCP

Hostname:	IP Address:	Domain:	Gateway:	Subnet Mask:
mgtbl3	15.146.235.119	ind.hp.com	15.146.234.1	255.255.254.0
Broadcast Address:	Name Server 1:	Name Server 2:	Name Server 3:	Name Server 4:
15.146.235.255	16.110.135.51			

TCP/IP Services:

<input checked="" type="checkbox"/> FTP	<input checked="" type="checkbox"/> NFS	<input type="checkbox"/> Rexec/Rsh	<input checked="" type="checkbox"/> Rlogin	<input type="checkbox"/> SMTP	<input checked="" type="checkbox"/> SSH	<input checked="" type="checkbox"/> Telnet	<input type="checkbox"/> TelnetSym
<input type="checkbox"/> Bind	<input type="checkbox"/> BootP	<input type="checkbox"/> Finger	<input type="checkbox"/> Imap	<input type="checkbox"/> LBroker	<input type="checkbox"/> LPR/LPD	<input type="checkbox"/> Metric	<input type="checkbox"/> Lockd/Statd
<input type="checkbox"/> NTP	<input type="checkbox"/> PC-NFS	<input type="checkbox"/> POP	<input type="checkbox"/> Portmapper	<input type="checkbox"/> RMT	<input type="checkbox"/> XDM	<input type="checkbox"/> TFTP	<input type="checkbox"/> SNMP

TCP/IP Interface:

WEO
WEO
WE2

15.154.113.249

Cancel Start Tcpip

Done Local intranet 100%

- 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

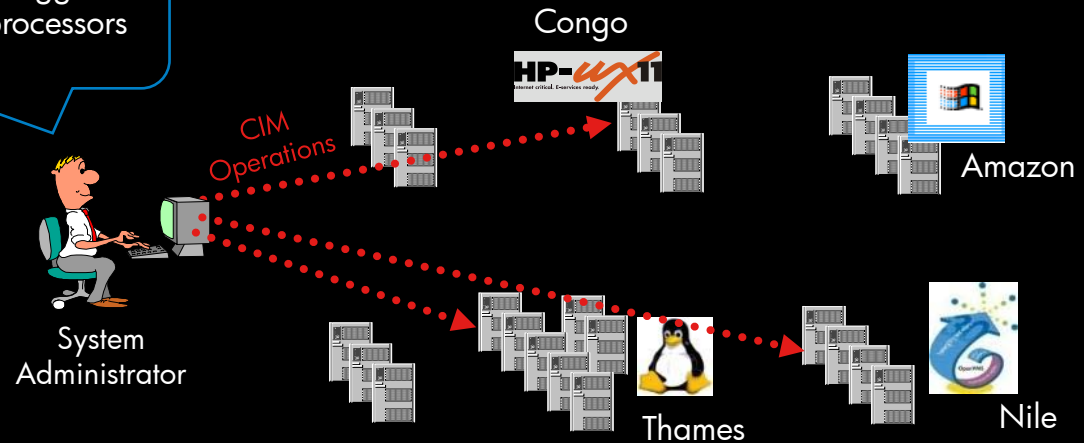
WBEM services and providers

- 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 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

How many processes are running on Congo? How many users are logged on to Thames? How many processors are available on Nile?



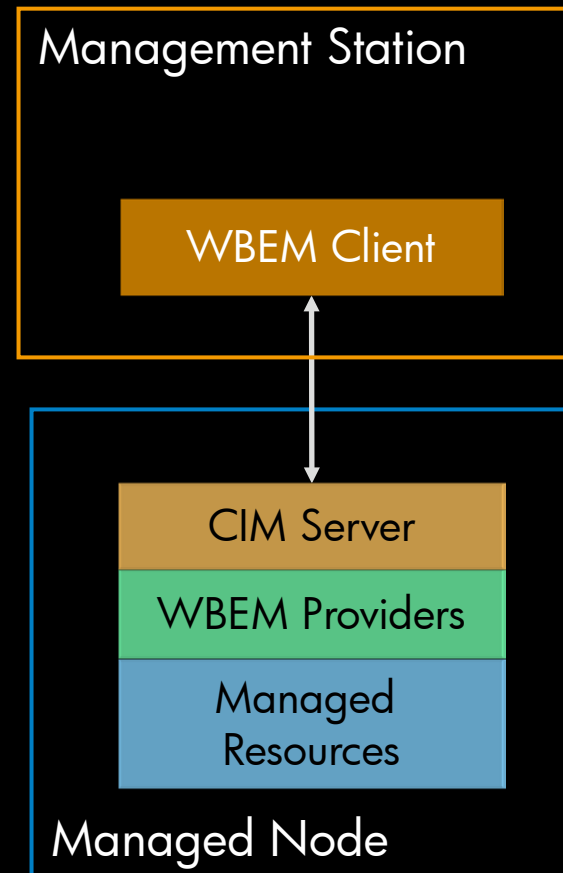
WBEM solutions for OpenVMS

- **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

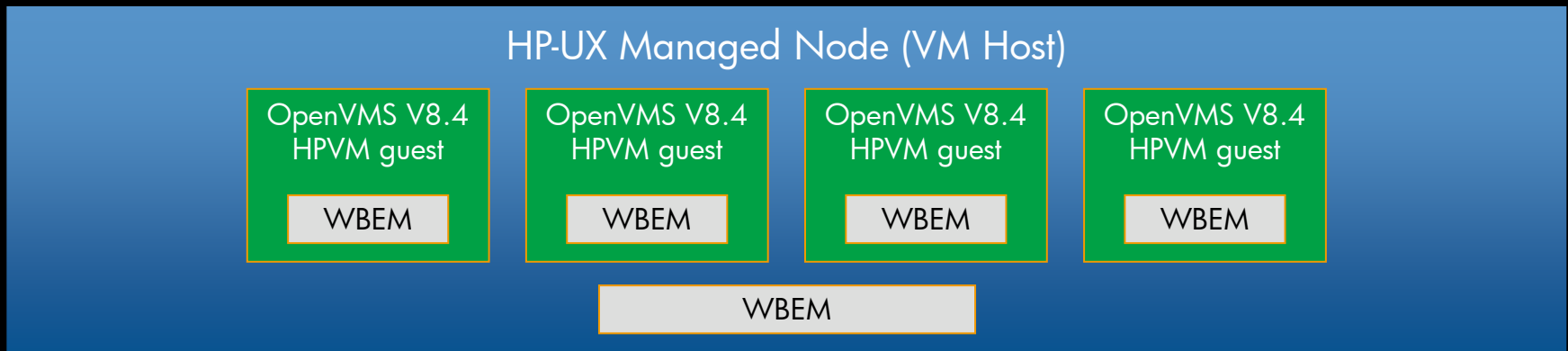
- WBEM Services 2.9-6
- WBEM Providers 2.0-4 (Adds support for cell-based systems, HPVM and single-partition systems rx1620, rx2600, rx4640)
- Requires HP SIM 6.0 or later
- Available with OpenVMS 8.4 OE media

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

HP Insight Dynamics - Windows Internet Explorer

https://vmp:50000/mxportal/home/MxPortalFrames.jsp

HP Insight Dynamics

User: administrator
Home | Sign Out

c7k2 (Server Enclosure)

Updated: Mon, 8/9/2010, 11:23 AM IST

View as: picture

System Status: Health Status ⚠

Identification

Enclosure Name	c7k2 [Printable Enclosure Details]
Serial Number	USE833EB9A
UUID	D9USE833EB9A
Rack Name	VMS_BladRack2
Unit ID (LED)	ON
Onboard Administrator	15.146.234.118

Power and Thermal

Power Redundancy: AC Redundant

Fan Redundancy: Redundant

Enclosure Ambient Temperature: ✔ 28 / 82.4

Bay 1-4: Bay 1-4

Bay 1-4 Details:

- Name: Miss
- IP Address: 15.146.234.70
- Serial Number: USE951W9U4
- Model: Integrity BL890c i2
- Operating System: OpenVMS V8.4
- Management Processor IP: 15.146.234.109
- System ROM Version: Not Available
- Management Processor Firmware Version: Not Available
- Insight Management Agent Version: Not Available

Bay	F/W Rev	A/C Input	Serial Number	Part Number	Output / Capacity	Graph
1	0.00	Normal	SA22B0EHLV514B	412138-B21	803 / 2250	<div style="width: 100%; height: 10px; background-color: green;"></div>
2	0.00	Normal	SA22B0FHLW32X2	412138-B21	803 / 2250	<div style="width: 100%; height: 10px; background-color: yellow;"></div>
3	0.00	Normal	SA22B0FHLW900X	412138-B21	0 / 2250	<div style="width: 100%; height: 10px; background-color: yellow;"></div>
4	0.00	Normal	SA22B0FHLW900P	412138-B21	790 / 2250	<div style="width: 100%; height: 10px; background-color: yellow;"></div>
5	0.00	Normal	SA22B0FHLW32YN	412138-B21	790 / 2250	<div style="width: 100%; height: 10px; background-color: green;"></div>

Bay	Health Status	Part Number	Power Used (Watts)	Speed (RPM)
1	✔	412140-B21	13	8302
2	✔	412140-B21	16	8299
4	✔	412140-B21	12	7401
5	✔	412140-B21	13	7399
6	✔	412140-B21	16	8300

Front View

Legend: All Blades, All Interconnect Switches, All Onboard Administrators

Done

Local intranet 100%

Example: Integrity BL890c i2 home page in HP SIM

The screenshot displays the HP Insight Dynamics web interface in a Windows Internet Explorer browser. The browser address bar shows the URL: <https://vmpro:50000/mxportal/home/MxPortalFrames.jsp>. The page title is "HP Insight Dynamics".

The main content area is titled "bliss (Integrity BL890c i2)". It features a navigation menu with tabs: System, Tools & Links, Applications, Events, Performance/Utilization, Power/Thermal, Essentials, and Port Mapping/Mezzanine Cards. The "System" tab is active.

The "System Status" section shows a "Health Status" with three indicators: Management Processor Status (green), Aggregate Event Status (green), and System Status (yellow). Below this, the "More Information" section lists properties, including "Integrated Lights-Out 3 (LO 3) for Integrity".

The "Identification" section provides the following details:

Address	15.146.234.70
Preferred System Name	bliss
Network Name	bliss.ind.hp.com
Serial Number	USE951W9J4
Product Number	AH384A
UUID	ACC3F49B-13D3-11DF-B260-B94145FA9A8C

The "Product Description" section provides the following details:

System Type	Server
System Subtype	HP Integrity, Blade, HP BladeSystem c-Class
Product Model	Integrity BL890c i2
Hardware Description	1a64 hp Integrity BL890c i2
OS Name	OpenVMS V8.4
OS Type	OpenVMS
OS Version	8.4
OS Description	V8.4
Management Protocols	SNMP:1.0, WBEM:1.0

The "Firmware And Software Revision" section provides the following details:

Executable	Manufacturer	Version	Build Number	State	Classification	Firmware Category
System Firmware	Hewlett-Packard	01.08.00	0		Firmware	System
Management Processor	Hewlett-Packard	01.01.00	0		Firmware	Mgmt Processor

The "Power Management" section is partially visible, showing "Management Processor" with a value of "15.146.234.70".

The left sidebar contains a "System and Event Collections" tree with categories like "All Systems", "All Servers", "All Racks", "All Enclosures", "All Clients", "All Networking Devices", "All Printers", "All Management Processors", "All Virtual Connect Domains", "All Data Centers", "All Power Delivery Devices", "Virtual Machine Hosts", "Virtual Machines", "Virtual Management Environments", "Systems by Status", "Systems by Operating System", "Clusters by Type", "Clusters by Status", "System Functions", and "Systems by Service Class".

The bottom right corner of the browser shows "Local intranet" and a zoom level of "100%".

Example: OpenVMS Guests hosted on VM Host

The screenshot displays the HP Insight Dynamics web interface. The left sidebar shows a tree view of system collections, with 'XEN Hosts' expanded to show a list of hosts. The main content area shows the details for the host 'hpux (ia64 hp Integrity BL860c i2)'. The details are organized into several sections: Identification, Product Description, Firmware And Software Revision, Power Management, Management Processor, and Associations. Two blue circles highlight specific data points: one around the host list in the sidebar and another around the 'Associations' table.

System Status
Updated: Mon, 8/9/2010, 12:40 PM IST
67 137 448 890 Uncleared Event Status

Search
15.146.234.70

System and Event Collections
All Systems
All Events

XEN Hosts
hp integrity hosts
15.146.238.106
dccb1861
hpux
15.146.235.178
15.146.235.181
15.146.235.182
15.146.235.183
15.146.235.185
15.146.235.187
15.146.235.188
15.146.235.189
15.146.235.192
15.146.235.193
15.146.235.195
15.146.235.196
15.146.235.197
15.146.235.198
15.146.235.199
hpux_ovms15
human
ovms4
mgtbl2
s6937264

hpux (ia64 hp Integrity BL860c i2)
Properties
Integrated Lights-Out 3 (ILO 3) for Integrity

Identification

Address	15.146.235.177
Preferred System Name	hpux
Network Name	hpux
Serial Number	USE007XLE6
Product Number	00000701
UUID	38ACB0FB-34A4-11DF-87DE-8F9D1608310D

Product Description

System Type	Server
System Subtype	HP Integrity Virtual Machine Host, Blade, HP Integrity, HP BladeSystem c-Class
Product Model	ia64 hp Integrity BL860c i2
Hardware Description	ia64 hp Integrity BL860c i2
OS Name	HP-UX B.11.31
OS Type	HP-UX
OS Version	11.31
OS Description	HP-UX B.11.31 U
Management Protocols	HTTP, SNMP:1.0, WBEM:1.0, SSH:SSH-1.99-OpenSSH_5.3p1+stfpfilecontrol-v1.3-hpn13v5, SMH:2.0

Firmware And Software Revision

Power Management

Management Processor

Associations

Guest Name	15.146.235.178
Guest Name	human
Guest Name	15.146.235.181
Guest Name	15.146.235.182
Guest Name	15.146.235.183
Guest Name	15.146.235.187
Guest Name	15.146.235.188
Guest Name	15.146.235.189
Guest Name	15.146.235.193
Guest Name	15.146.235.198
Guest Name	15.146.235.192
Guest Name	15.146.235.197
Guest Name	hpux_ovms15
Guest Name	15.146.235.195
Guest Name	15.146.235.196
Guest Name	15.146.235.199
Guest Name	ovms4



Example: HP-UX System hosting OpenVMS Guest

The screenshot displays the HP Insight Dynamics web interface in a Windows Internet Explorer browser. The main content area shows the details for a system named 'ovms4 (ia64 hp server Integrity Virtual Machine)'. The interface includes a navigation menu on the left, a search bar, and a main content area with tabs for System, Tools & Links, Applications, Events, and Essentials. The System Status section shows green checkmarks for Health Status, Virtual Machine Management Status, and Aggregate Event Status. The More Information section includes Identification and Product Description details.

System Status

Updated: Mon, 8/9/2010, 12:46 PM IST

67 137 448 890 Uncleared Event Status

Search: 15.146.234.70

System and Event Collections

- All Systems
- All Events
- XEN Hosts
- HP Integrity Hosts
 - 15.146.238.106
 - dccl1861
 - hpux
 - 15.146.235.178
 - 15.146.235.181
 - 15.146.235.182
 - 15.146.235.183
 - 15.146.235.185
 - 15.146.235.187
 - 15.146.235.188
 - 15.146.235.189
 - 15.146.235.192
 - 15.146.235.193
 - 15.146.235.195
 - 15.146.235.196
 - 15.146.235.197
 - 15.146.235.198
 - 15.146.235.199
 - hpux_ovms15
 - human
- ovms4
- mgbl2
- s6937264
- Virtual Machines
- Virtual Management Environments
- Systems by Status
- Systems by Operating System
- Clusters by Type
- Clusters by Status
- System Functions
- Systems by Service Class

ovms4 (ia64 hp server Integrity Virtual Machine)

System | Tools & Links | Applications | Events | Essentials | Quick Launch...

System Status

- Health Status
- Virtual Machine Management Status
- Aggregate Event Status

More Information

Properties

Identification

Address	15.146.235.180
Preferred System Name	ovms4
Network Name	ovms4
Serial Number	VM01016003
UUID	AEFAAD92-4B30-11DF-8C00-002264FEEAD2

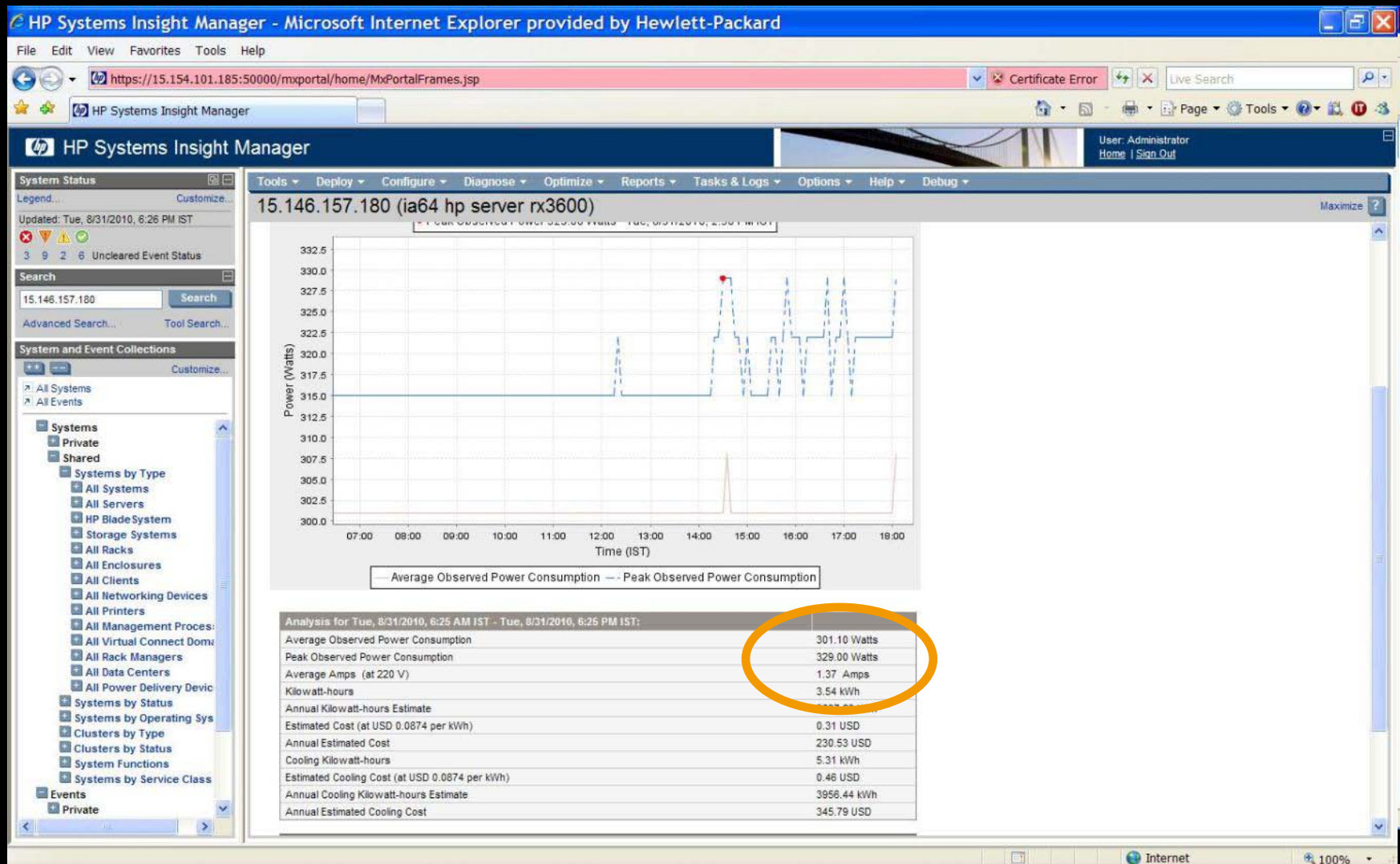
Product Description

System Type	Server
System Subtype	HP Integrity Virtual Machine Guest, HP Integrity
Product Model	ia64 hp server Integrity Virtual Machine
Hardware Description	ia64 hp server Integrity Virtual Machine
OS Name	OpenVMS V8.4
OS Type	OpenVMS
OS Version	8.4
OS Description	V8.4
Management Protocols	WBEM:1.0

Associations

Hosted By	hpux
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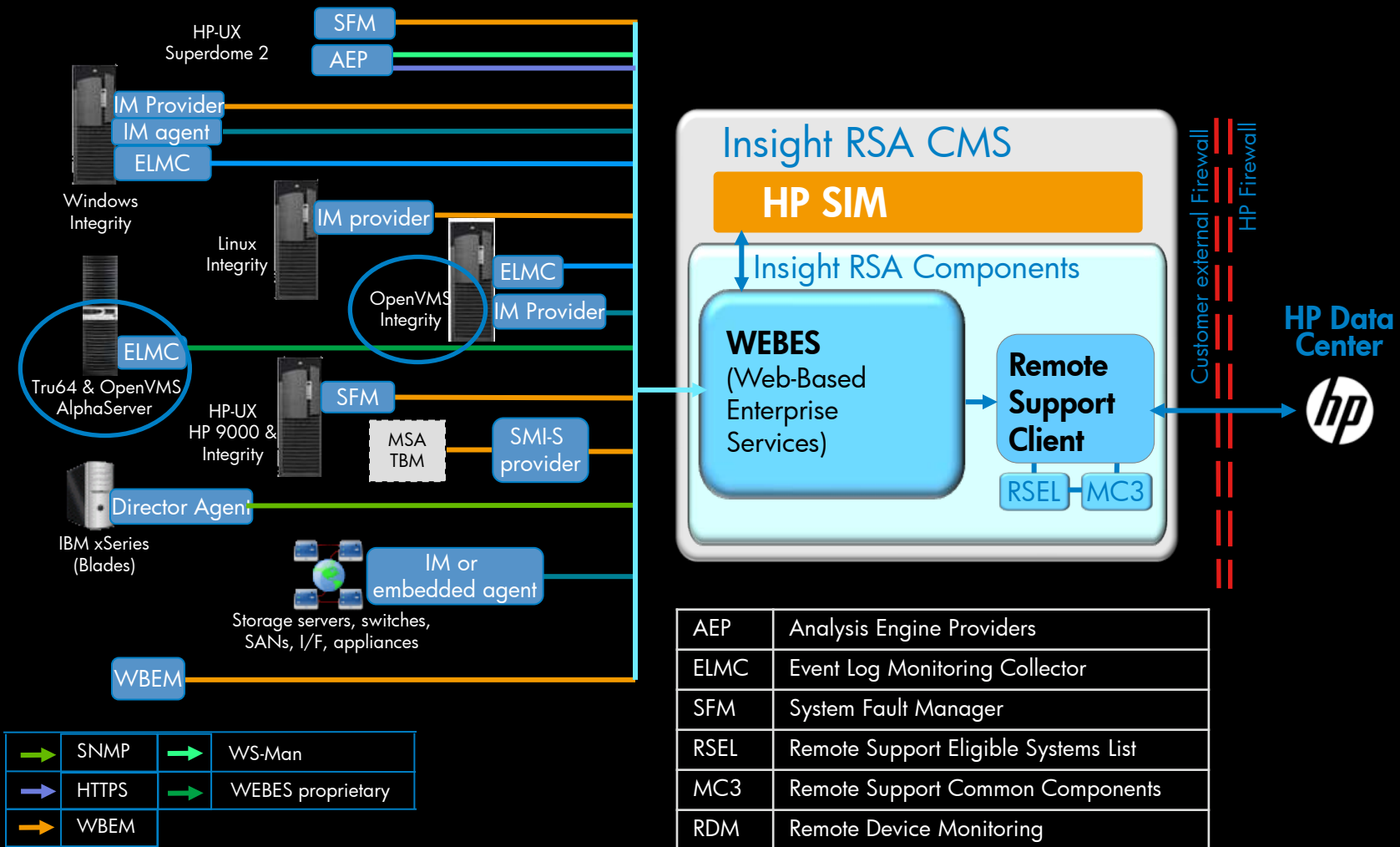
Insight Control Power Management (IPM)



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



Storage essentials (SE)

The screenshot displays the HP Storage Essentials SRM web interface within a Microsoft Internet Explorer browser. The browser's address bar shows the URL: `https://maranello/servlet.html?page=AppExplorer`. The page title is "HP Storage Essentials SRM".

The interface includes a navigation menu on the left with the following items:

- Applications
 - Microsoft Exchange
 - Oracle
 - ORACLE9I on Host vanagon
 - SRMDB1 on Host calais.ind.hp.com**
 - Path Events
 - SQLServer
 - Sybase
 - Caché
 - File Servers
 - Virtual Applications

The main content area is titled "Oracle Instance SRMDB1" and features a "Navigation" tab. Below the title, there are input fields for "Business Cost (per hour) \$" and "Custom Name", followed by a "Save" button.

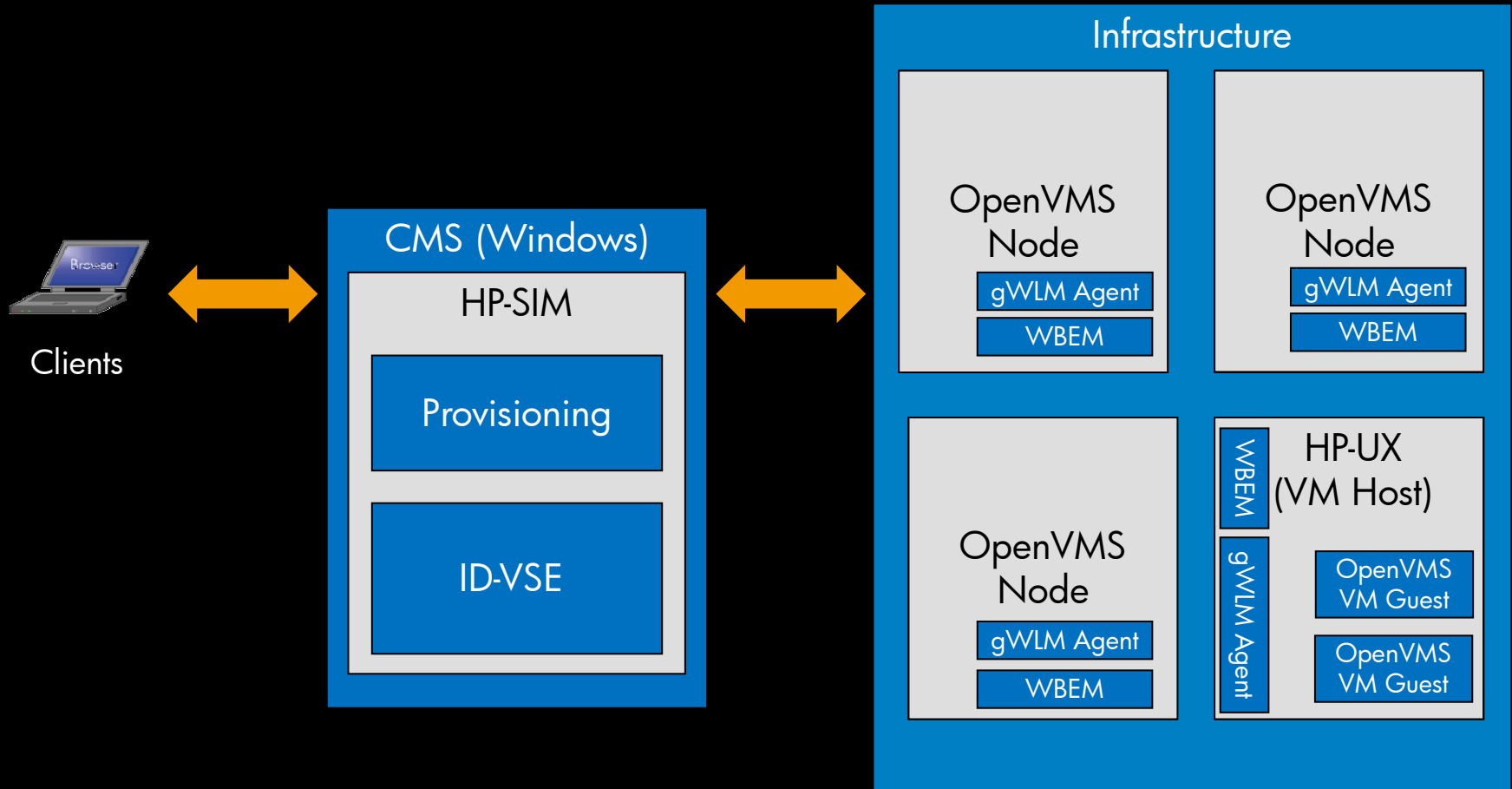
A table of properties is displayed below:

Type	Undefined	Serial Number	
Cluster	false	Identification Code	SRMDB1
Port	1521	Build Number	
Description	Oracle Database Instance	Version	10.2.0.4.0
Automatic Storage Management (ASM)	No	Target Operating System	OpenVMS
Product Name	ORACLE	Contacted	2009-07-28 15:22
Discovery Status	Contacted	Vendor	Oracle Corporation
Record Created	2009-07-28 15:22	Name Detected	SRMDB1
Host	calais.ind.hp.com		

At the bottom of the main content area, there is a "Databases" section with a list containing "SRMDB".

The browser's status bar at the bottom shows "Done" and "Local intranet".

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

Operations Manager Agent



Smart Plug-Ins



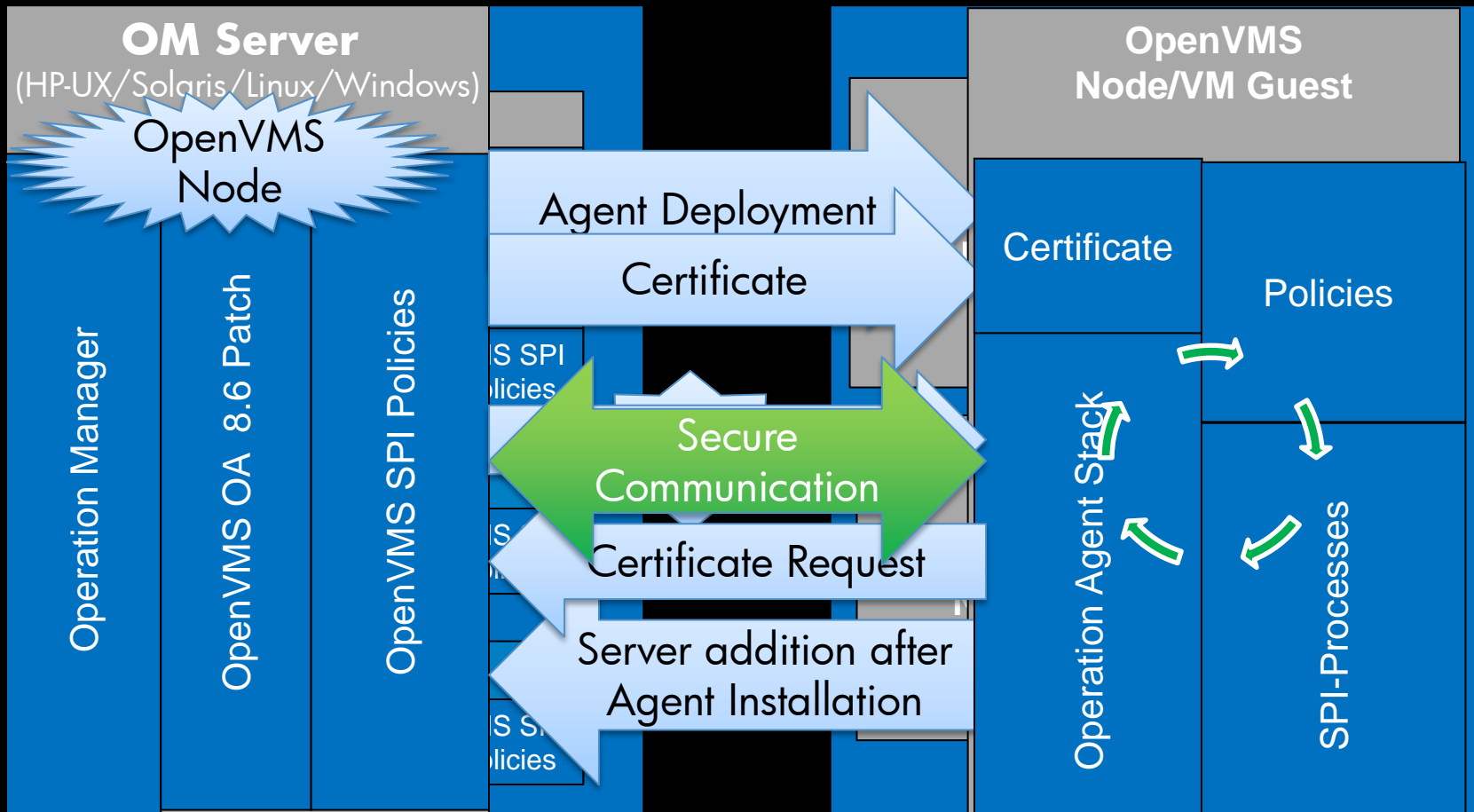
OpenView Performance Agent (OVPA)



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

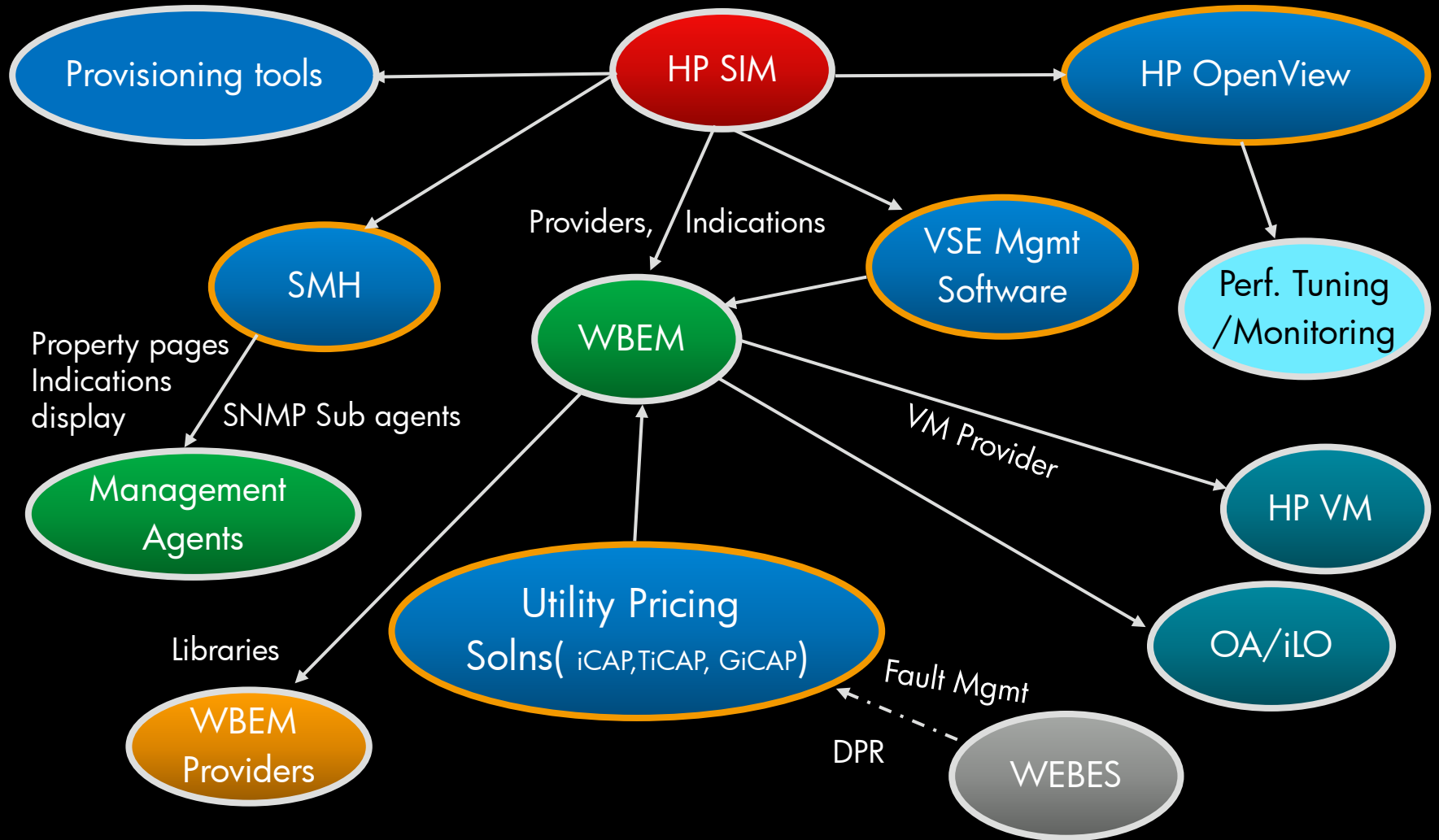
Enterprise Management

- 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

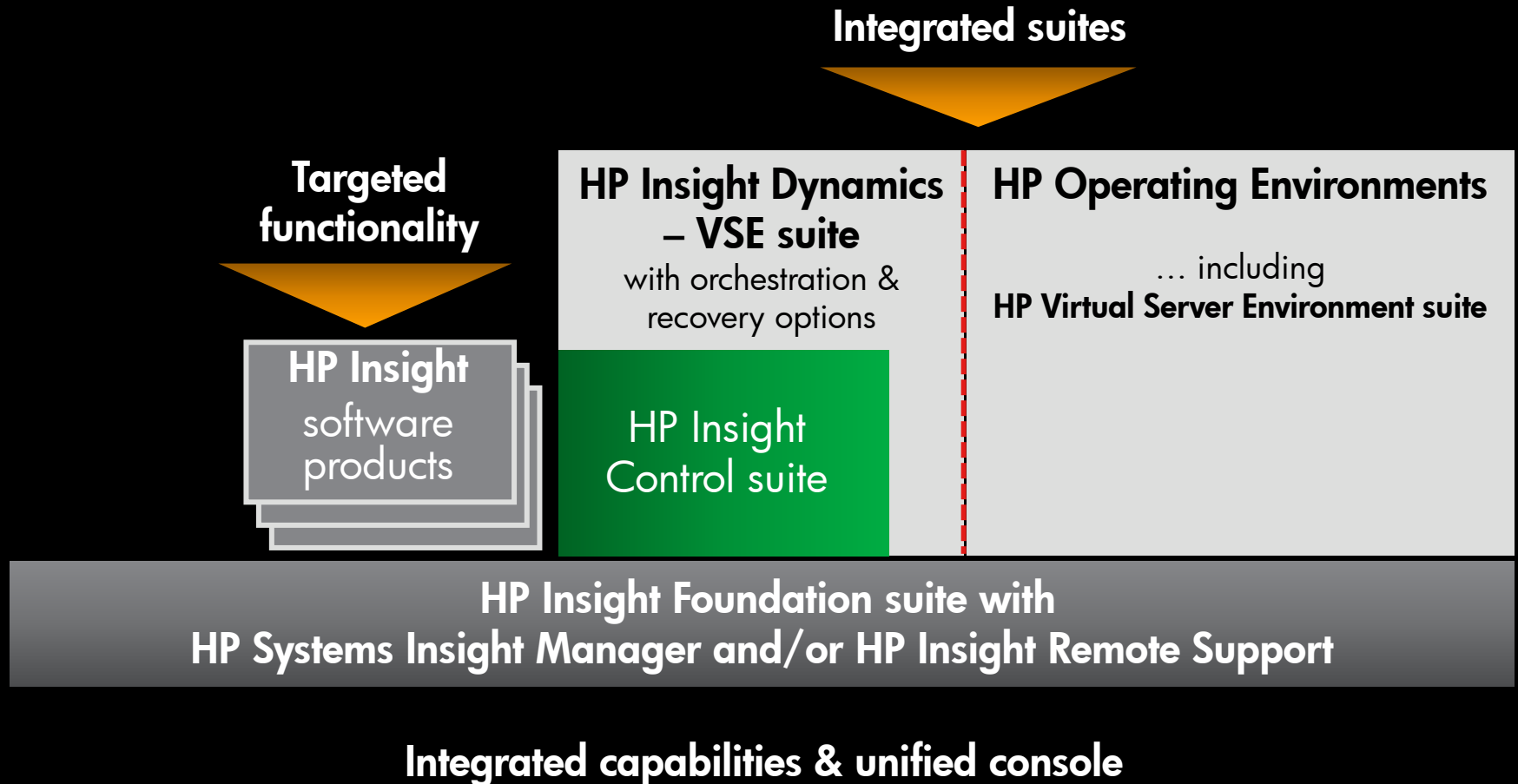
- VSE-aware advising and scenario analysis tools
- Detailed utilization data



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

HP SIM users see real results

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

Supported OSs and virtualized environments



HP-ux11i
NonStop



vmware
Microsoft

CITRIX

Platform-specific plug-ins

Deployment

Workload management

Others

HP Virtual Server Environment for HP OpenVMS Integrity Systems

Introducing OpenVMS as Virtual Server Environment (VSE) managed node¹

HP Virtual Server Environment - OpenVMS

- 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

² Support with v0.4.1 Patch

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

Visualization Workload **Shared Resource Domain** Capacity Advisor

Tools ▾ Create ▾ Modify ▾ Delete ▾ Configure ▾ Policy ▾ Report ▾

Re

Displaying: Page 1 of 2 (results 1 - 50 of 58) 1 | 2 Next >>

<input type="checkbox"/>	Name	Type	Contained In	Policy Name	CPU Utilization	Memory Utilization	Network I/O	Disk
<input type="checkbox"/>	15.146.157.37	Server	15.146.157.37	---	<input type="text" value="1 %"/>	<input type="text" value="50 %"/>	<input type="text" value="19 Mb/s"/>	<input type="text" value="208 KB/s"/>
<input type="checkbox"/>	15.146.157.37.OTHER	Workload	15.146.157.37	---	<input type="text" value="0 %"/>	<input type="text" value="3 %"/>		
<input type="checkbox"/>	15.146.234.65	Server	15.146.234.65	---	<input type="text" value="0 %"/>	<input type="text" value="5 %"/>	<input type="text" value="0 Kb/s"/>	<input type="text" value="3 KB/s"/>
<input type="checkbox"/>	mqtb2.ind.hp.com	Server	mqtb2.ind.hp.com	---	<input type="text" value="0 %"/>	<input type="text" value="25 %"/>	<input type="text" value="0 Kb/s"/>	<input type="text" value="114 KB/s"/>
<input type="checkbox"/>	15.146.157.172.2	Integrity VM	15.146.157.221	---	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>
<input type="checkbox"/>	15.146.157.190	nPartition	15.146.157.190	---	<input type="text" value="No Perm."/>	<input type="text" value="No Perm."/>	<input type="text" value="No Perm."/>	<input type="text" value="No Perm."/>
<input type="checkbox"/>	15.146.157.202	nPartition	15.146.157.202	---	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>	<input type="text" value="No Data"/>



Virtual server environment views

[Visualization](#) | [Workload](#) | [Shared Resource Domain](#) | [Capacity Advisor](#)

Tools ▾ Create ▾ Modify ▾ Delete ▾ Configure ▾ Policy ▾ Report ▾

Show: Deployed SRDs Undeployed SRDs Auto Refresh [Refresh](#)

<input type="checkbox"/>	SRD Name	↑	Status	Mode	State	Size	CPU Utilization	Last Update
<input type="checkbox"/>	mgtbl4.srd			Managed	Deployed	4	<input type="text" value="0.3%"/>	Wed, 10/14/2009 11:54 AM IST

Details for SRD: mgtbl4.srd

Shared Resource Domain: [mgtbl4.srd \(Modify SRD\)](#)
 Mode: Managed
 State: Deployed ([Undeploy SRD](#))
 CPU Utilization: 0.3%

<input type="checkbox"/>	Workload	↑	CPU Utilization	Type	Policy (Active)	Status	Request	Allocation	Size	Hostname
<input type="checkbox"/>	anupama		<input type="text" value="0.0%"/> 0.0%	pset	Owns 2-Max 4		1	2	2	mgtbl4.ind.hp.com
<input type="checkbox"/>	mgtbl4.OTHER		<input type="text" value="0.5%"/> 0.5%	pset	Owns 2-Max 4		1	2	2	mgtbl4.ind.hp.com
Totals:							Req = 2	Alloc = 4	Size = 4	



Virtual server environment views

Visualization Workload Shared Resource Domain Capacity Advisor

Tools Create Modify Delete Configure Report Help

List of Planning Scenarios

<input type="checkbox"/>	Scenario Name	↑ System List	Scenario Description	Owner	Modify Time
<input type="checkbox"/>	guest-vms_rajendra	mgtbl2	for testing with more systems	Administrator	Tue, 9/22/2009 5:06 PM IST
<input type="checkbox"/>	guest3-rajendra	mgtbl2,mgtbl1	for testing	Administrator	Tue, 9/22/2009 4:58 PM IST
<input type="checkbox"/>	Guest3-testing	mgtbl2,mgtbl1...		Administrator	Wed, 9/23/2009 10:37 AM IST
<input type="checkbox"/>	guest_rajendra1	mgtbl2	final testing	Administrator	Tue, 9/22/2009 5:52 PM IST
<input type="checkbox"/>	Host testing	15.146.235.115	rajendra_testing	Administrator	Wed, 8/5/2009 5:57 PM IST
<input type="checkbox"/>	mgtbl2	mgtbl2,15.146.157.202...		Administrator	Fri, 9/18/2009 5:03 PM IST
<input type="checkbox"/>	mgtblft	15.146.234.65,mgtbl2	for testing	Administrator	Tue, 10/13/2009 12:34 PM IST
<input type="checkbox"/>	MGTBL1	15.146.235.115,sysmg2		Administrator	Thu, 7/23/2009 5:45 PM IST
<input type="checkbox"/>	MGTBL1-Testing	mgtbl1		Administrator	Wed, 9/23/2009 10:00 AM IST
<input type="checkbox"/>	mgtbl1_iwhat_if	15.146.235.115,sysmg3	this is for what-if scenario ...	Administrator	Thu, 8/6/2009 2:59 PM IST
<input type="checkbox"/>	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
- **Reallocates** CPU resources in accordance with user assigned policies
- **Migrates** CPU resources per the allocation using the capabilities of HP partitioning technologies

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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)

HP Storage Essentials - Configuration of calais.ind.hp.com - Microsoft Internet Explorer provided by Hewlett-Packard

File Edit View Favorites Tools Help

Address https://maranello/servlet.html?page=ElementProperties&elementId=14018&subpage=Topology

HP Storage Essentials SRM

User: admin Sign out Discovery Security Configuration Help

Navigation Properties Events Topology Asset Management Collectors Monitoring Policies

Host calais.ind.hp.com Search Severity Warning

calais.ind.hp.com

- + Application Path - Un-Mounted0
- + Application Path - Un-Mounted1
- + Application Path - Un-Mounted2
- + Application Path - Un-Mounted3
- + Application Path - Un-Mounted4
- + Application Path - Un-Mounted5
- + Application Path - Un-Mounted6
- + Application Path - Un-Mounted7
- Application Path - \$1SDGA5001:[000000]
- + calais.ind.hp.com
- Meta Device \$1SDGA5001:
 - SubPath - \$1SDGA5001:FGB0.5000-1FE1-500D-1A
 - + Adapter 0
 - + volvo
 - + spark
 - SubPath - \$1SDGA5001:FGB0.5000-1FE1-500D-1A
 - + Adapter 0
 - + volvo
 - + spark
 - SubPath - \$1SDGA5001:MSCP
 - Path - \$1SDGA5001:FGB0.5000-1FE1-500D-1A9C
 - + Adapter 0
 - + volvo
 - + spark

The diagram illustrates a storage network topology. At the top, four host adapters (labeled \$1SDGA5001:[000000]) are connected to two intermediate adapters (Adapter 0 and Adapter 1). These adapters connect to a central SWITCH (Volvo) through Domain 3 and Domain 2 ports. The SWITCH is connected to a SUBSYSTEM (spark) through Inoutport 1 ports. The SUBSYSTEM is further connected to four storage volumes (OpenVMS 8.3 Itanium Oracle 10g...).

Go to User Settings Local intranet

Storage essentials (SE)

HP Storage Essentials - Storage Volumes for calais.ind.hp.com - Microsoft Internet Explorer provided by Hewlett-Packard

Address: https://maranello/servlet.html?page=ElementProperties&elementId=14018&subpage=Navigation&Item=MountPoints

HP Storage Essentials SRM

User: admin Sign out

Discovery Security Configuration Help

Navigation Properties Events Topology Asset Management Collectors Monitoring Policies

Host calais.ind.hp.com

Storage Volumes

Name	Description	Drive Type	File System Type	Total Capacity	Total Used	Available	Percentage Used
\$1SDGA5001:[000000]	DISK\$164SYS is Mounted	External	ODS-5	61,440 MB	38,740 MB	22,700 MB	63%
\$1SDGA5002:[000000]	DISK\$CODETREE is Mounted	External	ODS-5	48,128 MB	22,701 MB	25,427 MB	47%
\$1SDGA5003:[000000]	DISK\$ORADATA is Mounted	External	ODS-5	15,360 MB	1,998 MB	13,362 MB	13%
\$1SDGA5004:[000000]	DISK\$oraclertestdb is Mounted	External	ODS-5	2,048 MB	5 MB	2,043 MB	0%

Local intranet

Storage essentials (SE)

HP Storage Essentials - Capacity Manager - Microsoft Internet Explorer provided by Hewlett-Packard

Address: https://maranello/servlet.html?page=CapacityExplorer

User: admin Sign out Discovery Security Configuration Help

HP Storage Essentials SRM

Normal

Home Application Viewer Backup Manager System Manager Capacity Manager Performance Manager Event Manager Provisioning Manager Policy Manager Business Tools Chargeback Manager Reporter

100% Search Severity Warning

List Path Utilization Domain A Utilization

List View

- Domain A
 - 10:00:00:05:1E:03:1
 - 20:01:00:0D:EC:07:1
 - unknown
 - Host Clusters
 - Application Clusters
 - All Elements

SRMDB 1

OpenVMS

calais.ind.hp.com Host_1218 Host_1197 Host_1212 Host_1254 Host_1248 Host_1257

Capacity Data Capacity Chart

calais.ind.hp.com

Capacity Summary

Capacity Summary		Capacity	
Total Capacity		126,976.00 MB	
Total Used		63,443.99 MB	
Available		63,532.01 MB	
Unmounted Volume		126,976.00 MB	
Percentage Used		49.97 %	

Storage Volume	Total Capacity	Total Used	Available	% Used
\$1SDGA5001:[000000]...	61,440.00 MB	38,740.23 MB	22,699.77 MB	63.05 %
\$1SDGA5002:[000000]...	48,128.00 MB	22,700.88 MB	25,427.12 MB	47.17 %
\$1SDGA5003:[000000]...	15,360.00 MB	1,997.71 MB	13,362.29 MB	13.01 %
\$1SDGA5004:[000000]...	2,048.00 MB	5.17 MB	2,042.83 MB	0.25 %

Capacity

- Total Used
- Available
- Unmounted Storage

Local intranet

Storage essentials (SE)

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Domain A Utilization

List View

- Domain A
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 - unknown
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calais.ind.hp.com

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Local intranet

HP OpenView Suite

Operations Manager Agent



Smart Plug Ins



OpenView Performance Agent (OVPA)



HP OpenView Suite

Operations Manager Agent



Smart Plug-Ins



OpenView Performance Agent (OVPA)



Smart Plug-Ins (SPI)

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

HP OpenView Suite

Operations Manager Agent



Smart Plug-Ins



OpenView Performance Agent (OVPA)



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

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