

# Using HP Insight Software and HP Server Automation to Manage HP BladeSystem Servers

**Kathy Gannon**

**VSL Solutions Architect**

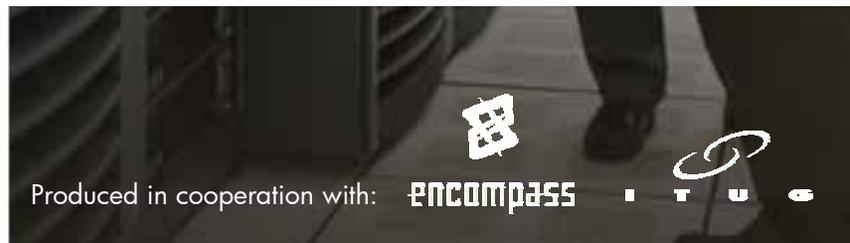
**June 16, 2008**



**get connected** PEOPLE. TECHNOLOGY. SOLUTIONS.

**HP Technology Forum & Expo 2008**

© 2008 Hewlett-Packard Development Company, L.P.  
The information contained herein is subject to change without notice



Produced in cooperation with:

**encompass**

**ITUG**

How should I manage my HP Servers?

**Insight Control**

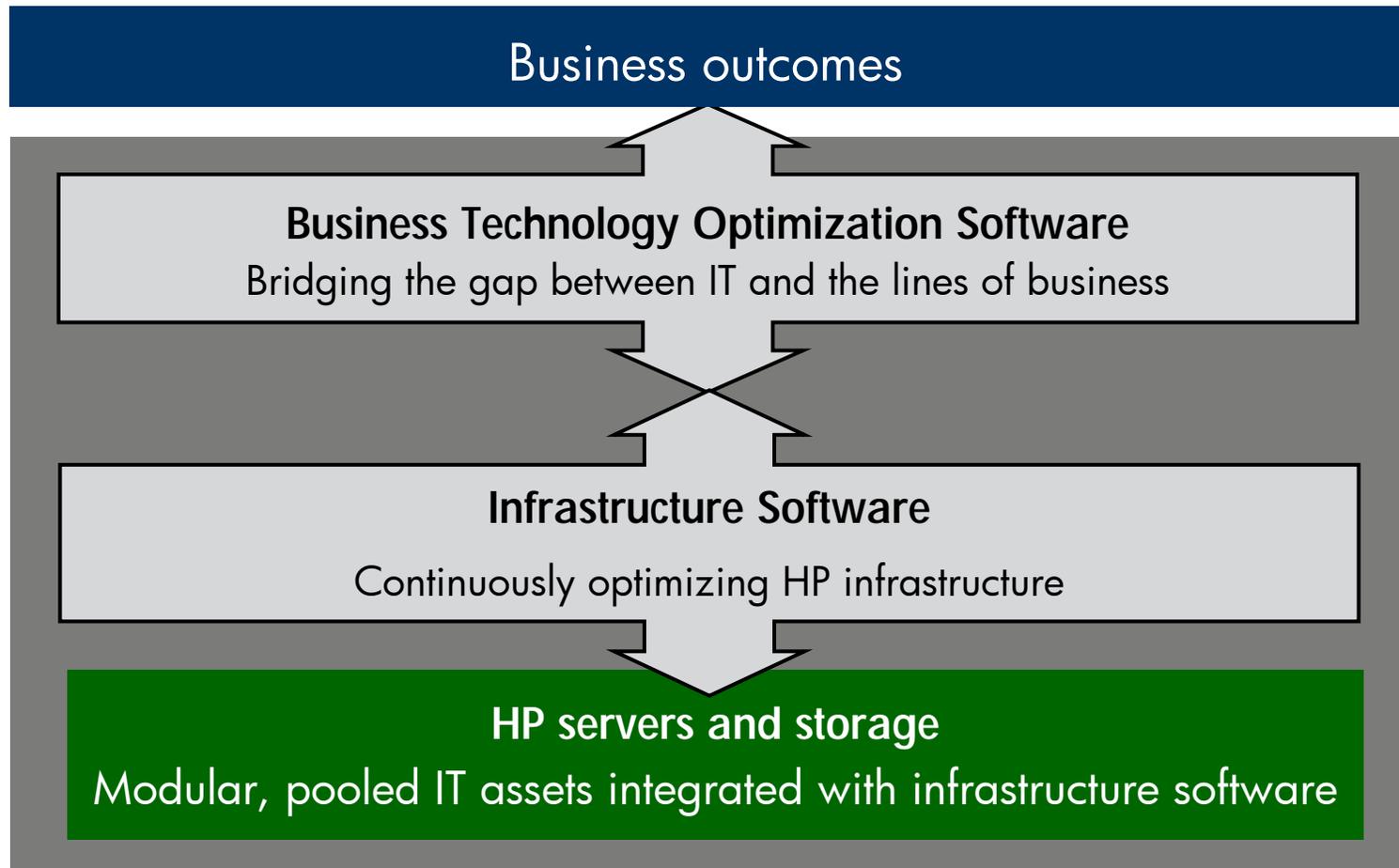
Insight Dynamics - VSE

**HP Server Automation**

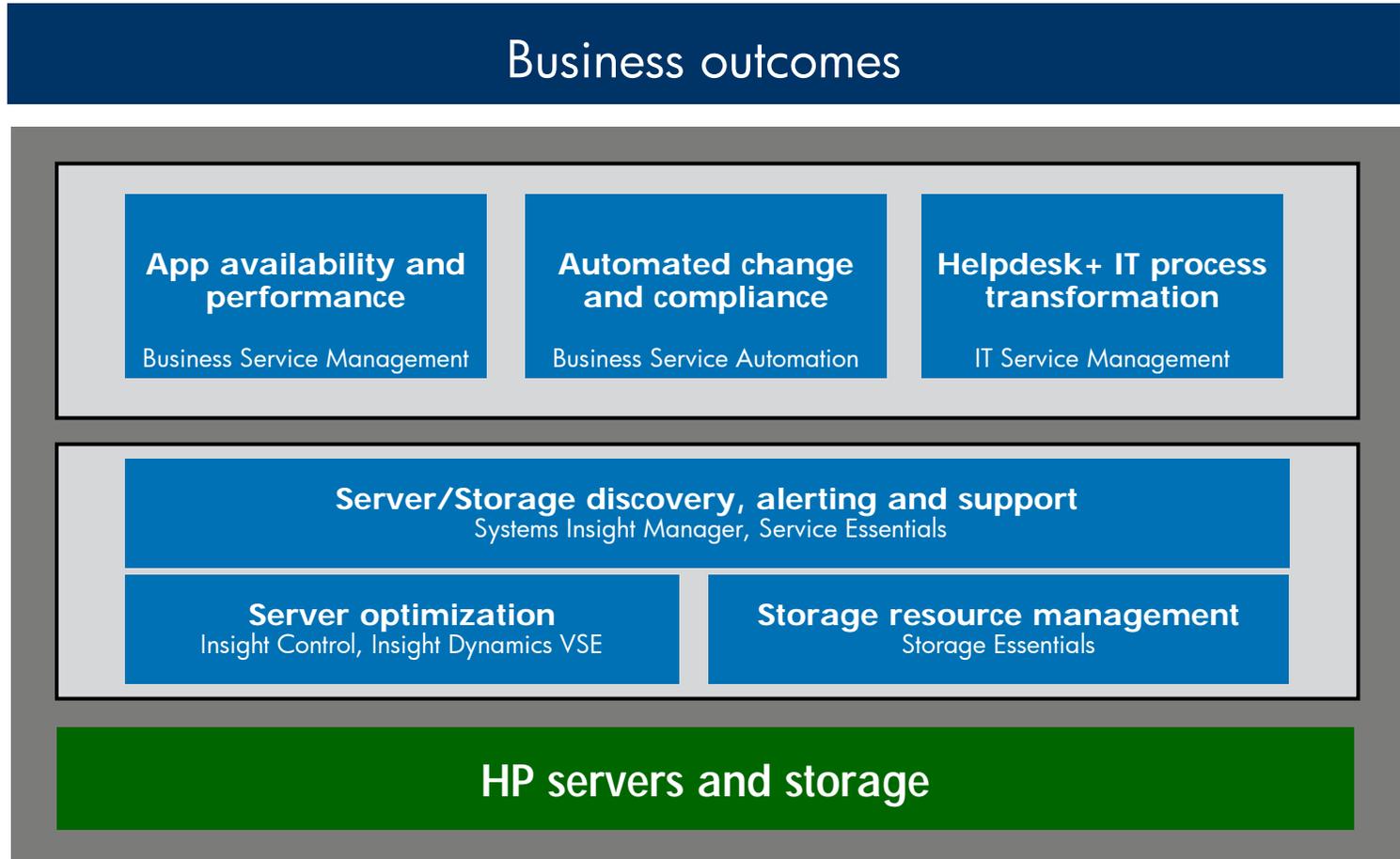


# Two Levels of Server Management

BTO software and Infrastructure software - unique from HP



# HP Software Solutions across BTO and Infrastructure Software



# Agenda

- Insight Software
- HP Server Automation
- Examples
  - Solving a CPU Performance Problem
  - Solving a Cooling Problem
  - Server Consolidation

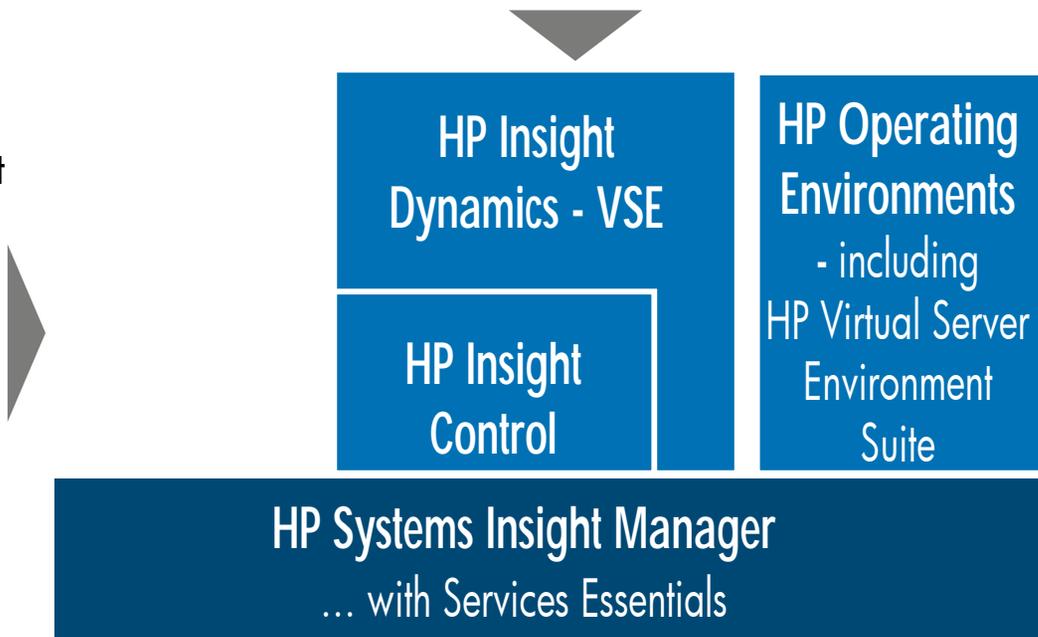


# HP Insight Software

## Managing the Infrastructure

- Logical servers
- Real-time capacity planning,
- Seamless physical & virtual mgmt

- OS deployment
- Migration
- Perf mgmt
- Remote mgmt
- Power mgmt



- Integrity virtual machine mgmt
- real-time capacity planning
- workload mgmt
- utility computing

- Discover, monitor, alert
  - Remote support
  - Common UI



# HP Insight Control: Time Smart Management

- Total control

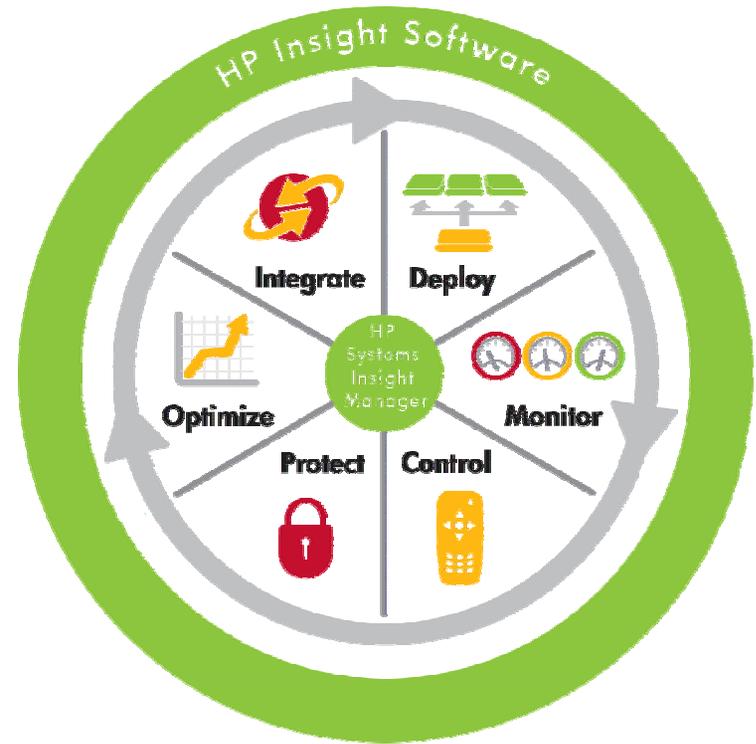
- Monitor with HP Systems Insight Manager (HP SIM)
- Control with HP Integrated Lights Out 2 (iLO 2)
- Protect with HP Vulnerability and Patch Management (VPM)

- Maximum flexibility

- Deploy with HP Remote Deployment Pack (RDP)
- Optimize with HP Performance Management Pack (PMP), Insight Power Manager (IPM) and Virtual Machine Manager (VMM)
- Integrate with Microsoft System Center

- Insight Control Environment

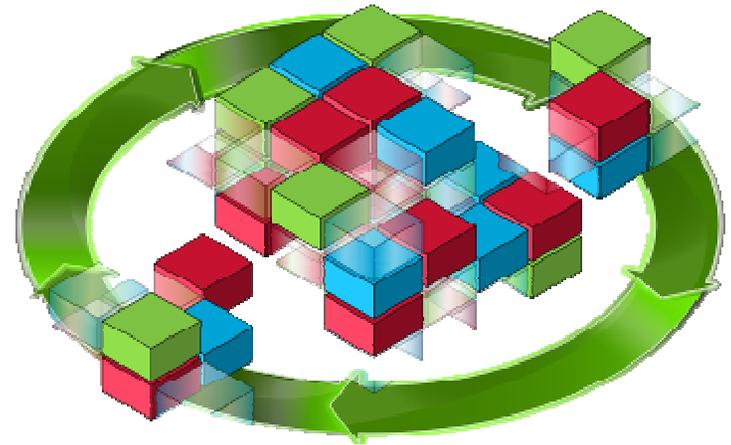
- Integrated installation and licensing bundle



# HP Insight Dynamics - VSE

Continuously analyze and optimize your infrastructure

- Bring the flexibility of virtualization to physical servers
- Real-time capacity planning for servers and power
- Control physical and virtual resources in the same way



Building on the value of  
HP Systems Insight Manager,  
Insight Control and  
Virtual Server Environment

**Addressing key data center issues:  
cost, speed, quality and energy**

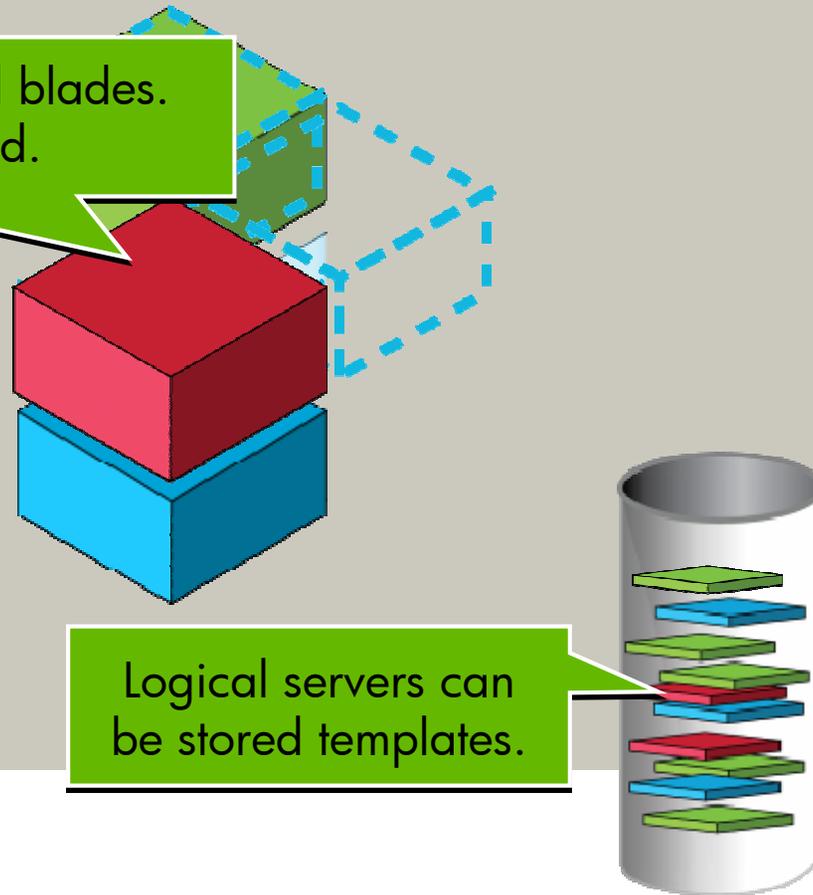
# HP Insight Dynamics - VSE: In action

- Logical server: A server profile that is easily created and freely moved across physical and virtual machines

Logical servers can be physical blades.  
They can be easily moved.

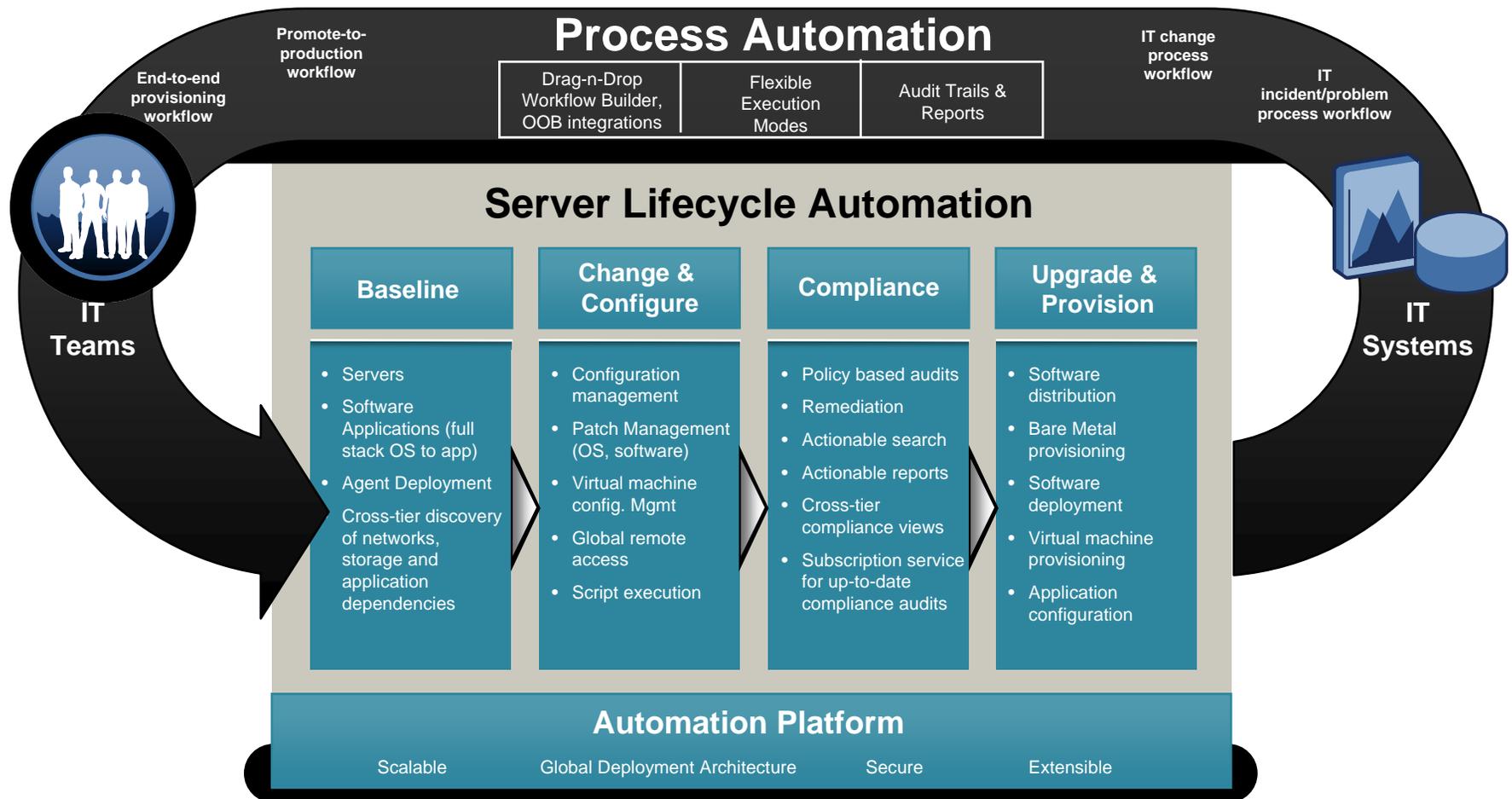
Logical servers can be  
virtual machines.

Logical servers can  
be stored templates.

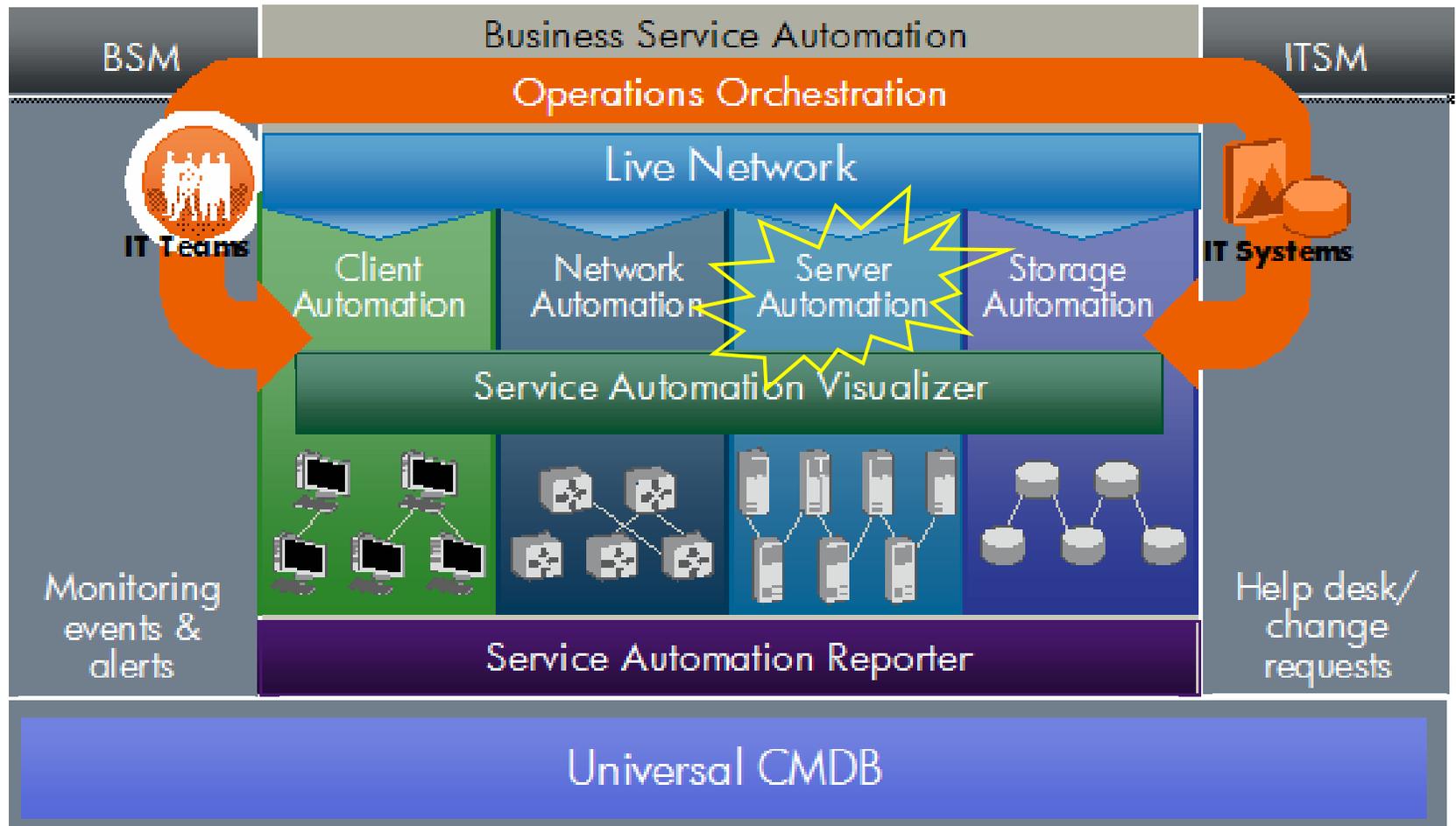


# Key Features of Server Automation

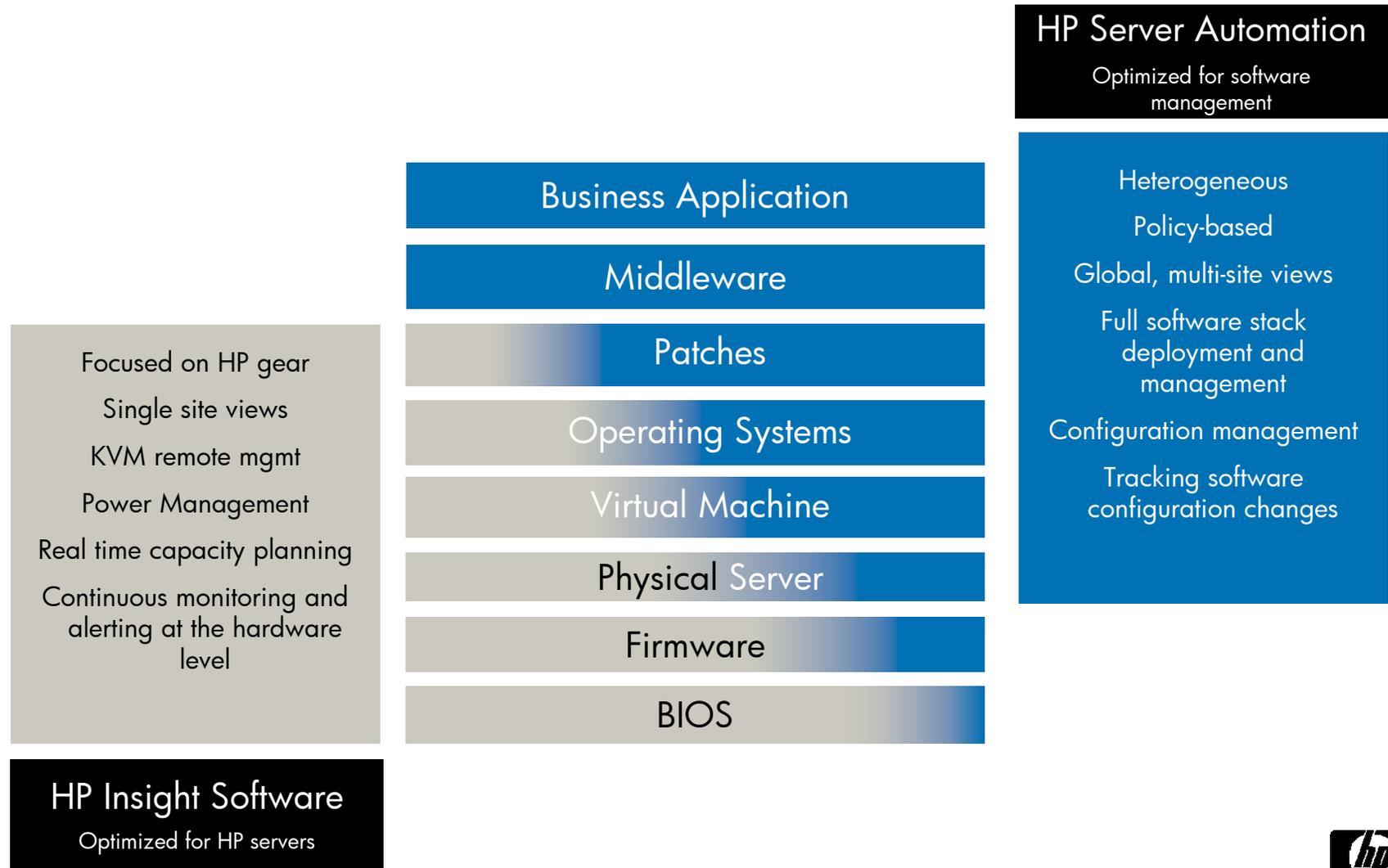
Deep automation for each lifecycle stage and fully integrated process management



# Business Service Automation



# HP Insight Software + Server Automation – manageability for the entire server stack



# Example 1: Solving a CPU performance problem



# Example: CPU Performance Alert

One of my Oracle Servers is using much more CPU than it usually does, causing service levels to degrade.



# Example: CPU Performance Alert

## Step 1: Monitor with HP Systems Insight Manager

HP SIM is configured to send a pager alert when certain events, like crossing a CPU performance threshold, happen. I just received a CPU alert from my Oracle server.

The screenshot displays the HP Systems Insight Manager (SIM) interface. The top navigation bar includes menus for Tools, Deploy, Configure, Diagnose, Optimize, Reports, Tasks & Logs, Options, and Help. The user is logged in as 'administrator'. The main content area is titled 'All Servers' and shows a summary of system health: 0 Critical, 3 Major, 2 Minor, 4 Normal, 2 Disabled, and 0 Unknown, totaling 11 systems. Below the summary is a table listing servers with columns for System Name, System Type, System Address, Product Name, and OS Name. Each row includes a set of status icons for various components: HS (Health Status), MP (Memory Performance), PF (Power Failure), VM (Virtual Machine), VPM (Virtual Machine Performance), SW (Software), and ES (Event Status). The 'rdp-server' entry shows a red 'X' icon under the SW column, indicating a software-related issue.

	HS	MP	PF	VM	VPM	SW	ES	System Name	System Type	System Address	Product Name	OS Name
<input type="checkbox"/>								bimaster	Server	192.168.1.1	ProLiant DL360 G4	Microsoft Windows Serv.
<input type="checkbox"/>								C-Class_10-FRONT in Encl. C-Class	Server		ProLiant BL460c G1	
<input type="checkbox"/>								C-Class_5-FRONT in Encl. C-Class	Server		ProLiant BL465c G1	
<input type="checkbox"/>								esxserver1 in Encl. C-Class	Server	192.168.1.4	ProLiant BL460c G1	Linux - VMware ESX Ser.
<input type="checkbox"/>								esxserver2 in Encl. C-Class	Server	192.168.1.5	ProLiant BL460c G1	Linux - VMware ESX Ser.
<input type="checkbox"/>								rdp-server Hosted by bimaster	Server	192.168.1.30	VMware Virtual Platfor...	Microsoft Windows NT S.
<input type="checkbox"/>								tuxdemo1 in Encl. C-Class	Server	192.168.1.7	ProLiant BL685c G1	Linux - Red Hat Enterp...
<input type="checkbox"/>								usm63808my in Encl. C-Class	Server	192.168.1.103	ProLiant BL460c G1	Linux - Red Hat Enterp...
<input type="checkbox"/>								virtualserver in Encl. C-Class	Server	192.168.1.2	ProLiant BL480c G1	Microsoft Windows Serv.
<input type="checkbox"/>								vm-w2003-2 Hosted by virtualserver	Server	192.168.1.16	Virtual Machine	Microsoft(R) Windows(R).
<input type="checkbox"/>								windemo3	Server	192.168.1.106	ProLiant DL360	Microsoft Windows 2000.



# Example: CPU Performance Alert

Step 2: Use Performance Management Pack to verify

I launch PMP from HP SIM to see what's happening. Looks like this is an ongoing problem. Better take action.

The screenshot displays the HP Performance Management Pack interface. On the left, the 'System Details' section shows the server name 'blmaster', operating system 'Microsoft Windows Server 2003, Enterprise Edition Service', and IP address '192.168.1.1'. Below this, the 'Server Configuration' section lists components like Processors, Memory, Network Connections, Storage, and Host Buses, all with green checkmarks indicating they are monitored.

The main 'Online Analysis' section is titled 'ProLiant DL360 G4' and shows a graph of performance metrics. The graph has a blue line for Average Processor Utilization% and several green lines for other metrics. A red dashed horizontal line is drawn at approximately 15% utilization. The blue line fluctuates between 80% and 100%.

Below the graph is a table of counters:

<input checked="" type="checkbox"/>	Counters	Key	Scale	Last	Average	Minimum	Maximum
<input checked="" type="checkbox"/>	Average Processor Utilization%	Blue	1	85.5	87.917	84.5	100
<input checked="" type="checkbox"/>	Available MBytes	Red	0.01	1495	1498	1495	1500
<input checked="" type="checkbox"/>	Page Faults/Sec	Green	0.1	450	402	153	603
<input checked="" type="checkbox"/>	Network MBytes/Sec	Yellow	100	0.0071	0.0096	0.0071	0.0141
<input checked="" type="checkbox"/>	Storage MBytes/Sec	Magenta	1	0.293	0.1557	0.0737	0.293
<input checked="" type="checkbox"/>	Host Bus MBytes/Sec	Cyan	1	0.3001	0.1653	0.0814	0.3001

A 'View' button is located at the bottom right of the table.



# Example: CPU Performance Alert

## Step 3: Check compliance with HP Server Automation

Looking at HP Server Automation's compliance dashboard, I notice that this server is out of compliance. After checking with the database administrator that the correct policies are configured, I press "Remediate" to correct the configuration.

The screenshot displays the Opsware Server Automation System interface. The main window is titled "All Managed Servers" and shows a list of servers with their compliance status. The "View" is set to "Compliance". The table below shows the compliance status for various servers:

Name	Software	App Config	Patch	Audit
blade52	●	●	●	●
competitive9	●	●	●	●
cupux01	✘	●	●	✘
cupux08	●	●	-	●
cupwin50	●	●	□	●
va00np00.zko.hp.com	●	✘	-	✘
va00np10.zko.hp.com	●	●	-	●
va00vm01	●	●	-	●
va00vm02	●	●	-	●
va00vm03	●	●	■	●
va01sv	●	●	-	●

The detailed view for the selected server, **va00np00.zko.hp.com**, shows the following compliance issues:

Status	Policy Type	Compliance Summary	Actions
●	Software	Compliant	Details   Scan Now   Remediate...
✘	App Config	1 failures	Details   Scan Now   Remediate...
-	Patch	Not Applicable	
✘	Audit	1 failures	Details   Run Audit...   Show Results

The interface also includes a search bar, a navigation pane on the left with "All Managed Servers" selected, and a bottom status bar showing "1 item selected" and the user "advancedUser".



# Example: CPU Performance Alert

Step 4: Verify problem is solved with PMP

Running Performance Management Pack again, I can see that the CPU usage has returned to normal.

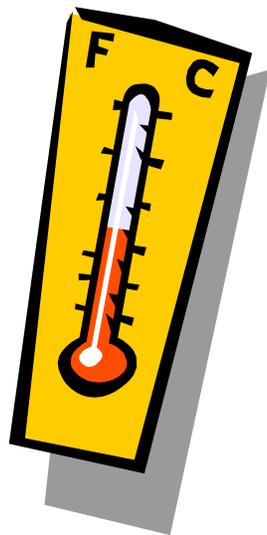
**Success**

# Example 2: Solving a cooling problem



# Example: Cooling Problem

- Several blades in an enclosure, including one running a critical Oracle RAC application, are running too hot.
- Until I can troubleshoot the problem, I need to quickly bring down the load on that blade so the CPUs will run at a lower speed and generate less heat.



# Example: Cooling Problem

## Step 1: View HP SIM BladeSystem view

Upon receiving pager alerts from HP SIM regarding the temperature on several blade servers, I look at the BladeSystem view to see if I can spot the problem.

The screenshot displays the HP Systems Insight Manager (SIM) interface. The main window shows the 'c7000-Enclosure1 (Server Enclosure)' view. The 'System Status' section indicates a 'Health Status' with a warning icon. The 'Identification' section provides details for the enclosure, including its name, serial number, UUID, rack name, and on-board administrator. The 'Power and Thermal' section shows the enclosure ambient temperature at 40°C / 104°F, with a status icon indicating a problem. A table below lists the power consumption for each bay, showing that bay 1 is at 625/2250 Watts, bay 2 is at 0/2250, bay 3 is at 0/2250, bay 4 is at 625/2250, bay 5 is at 0/2250, and bay 6 is at 0/2250. On the right side, there are two views of the enclosure: 'Front View' and 'Rear View'. The 'Front View' shows the enclosure with several warning icons on the blades, and the 'Rear View' shows the enclosure with several warning icons on the fans.

HP Systems Insight Manager

User: asiapacific/subraaru  
Home | Sign Out

Tools Deploy Configure Diagnose Reports Tasks & Logs Options Help Debug

c7000-Enclosure1 (Server Enclosure)

System(s) Events Quick Launch...

Updated: Wed, 2/20/2008, 4:23 PM IST

View as: picture

**System Status**  
Health Status

**Identification**  
Enclosure Name: c7000-Enclosure1 [Printable Enclosure Details]  
Serial Number: USE7355WWMK  
UUID: 09USE7355WWMK  
Rack Name: EB2219  
Unit ID (LED): OFF  
Onboard Administrator: 15.154.109.180

**Power and Thermal**  
Power Redundancy: Non Redundant  
Fan Redundancy: Redundant  
Enclosure Ambient Temperature: Status °C / °F: 40 / 104  
38 | 43

Bay	F/W Rev	A/C Input	Serial Number	Part Number	Power Consumption ( Watts )	
					Output / Capacity	Graph
1	0.00	Normal	5A22B0EHLUX0T3	412138-B21	625 / 2250	
2	0.00	Normal	5A22B0EHLUX0T2	412138-B21	0 / 2250	
3	0.00	Normal	5A22B0EHLUX1ZU	412138-B21	0 / 2250	
4	0.00	Normal	5A22B0EHLUX1ZT	412138-B21	625 / 2250	
5	0.00	Normal	5A22B0EHLUX0SW	412138-B21	0 / 2250	
6	0.00	Normal	5A22B0EHLUX0SR	412138-B21	0 / 2250	

**Front View**  
All Blades  
All Interconnect Switches  
All Onboard Administrators

**Rear View**

# Example: Overheating Blades

Step 2: Use Virtual Connect Enterprise Manager to create a second Oracle instance

Until I can solve the problem, I want to use a spare blade in a different enclosure to add another server to the Oracle RAC cluster.

This should lower the average CPU usage per server and help the cooling problem in the overheated enclosure.

VCEM lets me use a server profile to quickly bring up the additional server.

The screenshot shows the HP Systems Insight Manager (HP SIM) interface. The top navigation bar includes 'Tools', 'Deploy', 'Configure', 'Tasks & Logs', 'Options', and 'Help'. The main title is 'Virtual Connect Enterprise Manager (VCEM)'. The left sidebar contains 'System Status' (Updated: Mon, 12/10/2007, 4:46 PM CST), 'Search', and 'System and Event Collections'. The main content area is divided into three sections: 'Administration' (gear icon), 'Domain Management' (server rack icon), and 'Profile Management' (server blade icon). The 'Administration' section lists: Configure a pool of MAC addresses, Configure a pool of World Wide Names, View all jobs, View running jobs, and View completed jobs. The 'Domain Management' section lists: Manage VC Domain Groups, Manage VC Domains, Define a VC Domain Group, and View all bays. The 'Profile Management' section lists: Manage profiles and Define a profile. The bottom status bar shows 'Local intranet'.



# Example: Cooling Problem

Step 3: Use HP Server Automation to verify operating system and applications on new blade.

The server blade profile is configured to boot the server from a pre-existing SAN-based boot partition that contains an image of the desired operating system and application. Need to verify with HP SA that this image is still in compliance before I add the new system to the cluster.

The screenshot displays the Opware Server Automation System interface. The main window is titled "All Managed Servers" and shows a table of server compliance status. The table has columns for Name, Software, App Config, Patch, and Audit. The server va00np00.zko.hp.com is highlighted, indicating a compliance issue. Below the table, a detailed view for va00np00.zko.hp.com shows a compliance summary with four rows: Software (Compliant), App Config (1 failures), Patch (Not Applicable), and Audit (1 failures). Each row has buttons for Details, Scan Now, and Remediate... (or Run Audit... and Show Results for Audit).

Name	Software	App Config	Patch	Audit
blade52	●	●	●	●
competitive9	●	●	●	●
cupux01	✘	●	●	✘
cupux08	●	●	-	●
cupwin50	●	●	□	●
va00np00.zko.hp.com	●	✘	-	✘
va00np10.zko.hp.com	●	●	-	●
va00vm01	●	●	-	●
va00vm02	●	●	-	●
va00vm03	●	●	■	●
va01.sv	●	●	-	●

Status	Policy Type	Compliance Summary	Actions
●	Software	Compliant	Details   Scan Now   Remediate...
✘	App Config	1 failures	Details   Scan Now   Remediate...
-	Patch	Not Applicable	
✘	Audit	1 failures	Details   Run Audit...   Show Results



# Example: Cooling Problem

## Step 4: Figure out root cause

Now that I know the Oracle RAC application is running OK, I can figure out what is causing the overtemp condition.

I look at the server logs and verify the temperature records for the computer room. I can't see what could be causing the problem, so I go into the computer room and look.

Someone has left some boxes blocking the airflow intake vents for the enclosure. Moving the boxes lets the cool air flow again and solves the problem.

# Success

# Example 3: Server Consolidation



# Example: Server Consolidation



- My company has decided to consolidate 200 physical servers onto virtual machines. Applications will be brought up to the latest revision at the same time.
- I need to develop a plan for distributing the VMs across the new blade servers.
- I want to complete the moves as much as possible.



# Example: Server Consolidation

Step 1: Use HP Server Automation to determine which applications are currently running on which servers.

The screenshot displays the HP Server Automation interface. The main window is titled "Software Policy: TBH Storefront Application\*". The left sidebar shows a tree view with "Policy Items" selected. The main area shows a list of policy items with columns for "Name" and "Location". The item "ASP.NET 2.0 Runtime IIS Filter" is expanded, showing sub-items like "LM", "W3SVC", and "Filters". The "ASP.NET\_2.0.50727.42" sub-item is selected, and its details are shown in the "Windows IIS Metabase : ASP.NET\_2.0.50727.42" pane. This pane contains a table with columns for ID, Type, Data, Attributes, Bytes, and User Type.

ID	Type	Data	Attributes	Bytes	User Type
1000	DWord	4294967295	33		10 Server
1002	String	IISFilter	0		9 Server
1013	DWord	120	33		3 Server
1014	DWord	4294967295	33		10 Server
1021	DWord	1	33		1 Server
1099	DWord	0	16		1 Server
2041	String	C:\WINDOWS\Microso...	0		63 Server
2042	DWord	1	0		1 Server
2044	DWord	151552	0		6 Server
2045	String	ASP.NET Cookieless S...	0		33 Server
2046	DWord	1	0		1 Server
2060	String	/isadmpwd/achq.asp	33		19 Server



# Example: Server Consolidation

Step 2: Use Insight Dynamics "Smart Solver" to determine placement of VMs based on historical performance data

The screenshot displays the 'Capacity Advisor: Automated System Consolidation to VMs' interface. The main window is titled 'Capacity Advisor: Automated System Consolidation to VMs (Step 2 of 2)'. It features a navigation bar with 'File', 'Edit', 'View', 'Favorites', 'Tools', and 'Help'. Below the navigation bar, there are several sections:

- Consolidate the specified systems onto virtual machines:** Includes fields for 'Scenario Name' (HR consolidation), 'Simulation Interval' (Week), 'Scenario Description', and 'Metric View Selection' (Peak).
- Define destination system(s) to host the VM guests:** Three radio button options: 'Use a host template for workload placement', 'Use existing hardware for workload placement', and 'Use existing hardware for workload placement and use host templates for overflow'.
- Define the template for the destination host(s):** A form with fields for 'System Name Prefix' (HR08p), 'Model Description' (DL380), 'Specify VM Host Platform' (HP Virtual Machine), 'Number of CPU cores' (4), 'CPU Core speed (GHZ)' (3), 'System memory (GB)' (16), 'Disk IO Capacity (MBs)' (50), 'Network IO Capacity (Mbs)' (50), and 'VMHost hypervisor memory overhead (GB)' (0.73).
- Workload Modifier for Virtualization Overhead:** A field for 'CPU Virtualization Overhead' (20).

On the right side, a panel titled 'Capacity Advisor: Automated System Consolidation to VMs (Step 2 of 2)' shows the results of the 'HP Smart Solver'. It includes a summary of the solution and a table of suggested placement results.

**Automated Solution Results (use +/- to expand/collapse)**

The HP Smart Solver has completed. Run time: 13 Seconds

**Automated Solution Summary**

Aggregate Headroom Rating	Not Implemented Yet
Number of VM Hosts	7
Number of VM Guests	18
Number of Template Systems Used	7
Change Description	Automated System Consolidation to VMs

**Suggested Solution Results (use +/- to expand/collapse)**

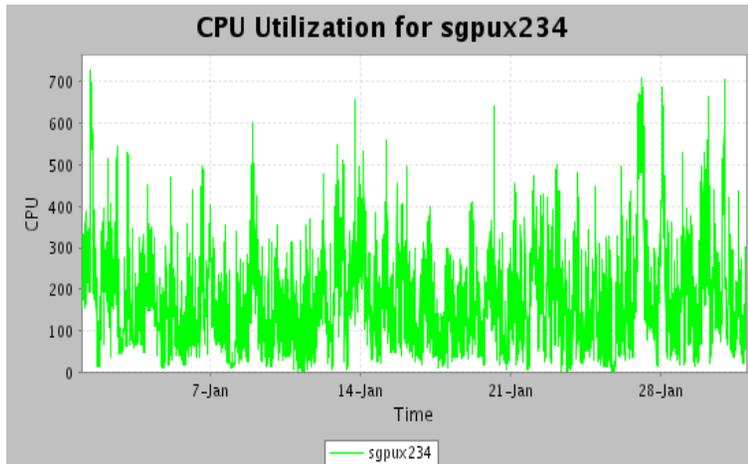
Placement suggested by the HP Smart Solver

System Name	Headroom Rating	CPU Utilization	Memory Utilization	Network I/O Utilization	Disk I/O Utilization	Utilization Limits	Platform	System Type
workload								
Server_2_1	5.0	41.37%	35.22%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_1.OTHER						80.0% / 80.0%		
• legacy12								
• legacy03								
Server_2_2	5.0	26.30%	41.47%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_2.OTHER						80.0% / 80.0%		
• legacy02								
• legacy08								
• legacy05								
Server_2_3	5.0	28.49%	28.97%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_3.OTHER						80.0% / 80.0%		
• legacy11								
• legacy04								
Server_2_4	5.0	36.28%	47.72%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_4.OTHER						80.0% / 80.0%		
• legacy18								
• legacy13								
• legacy07								
• legacy20								
Server_2_5	5.0	32.15%	28.97%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_5.OTHER						80.0% / 80.0%		
• legacy19								
• legacy14								
Server_2_6	5.0	18.42%	35.22%	N/A	N/A	70.0% / 100.0%	VMWARE_ESX_VMHOST BL480c	VM Host
• Server_2_6.OTHER						80.0% / 80.0%		
• legacy16								
• legacy09								



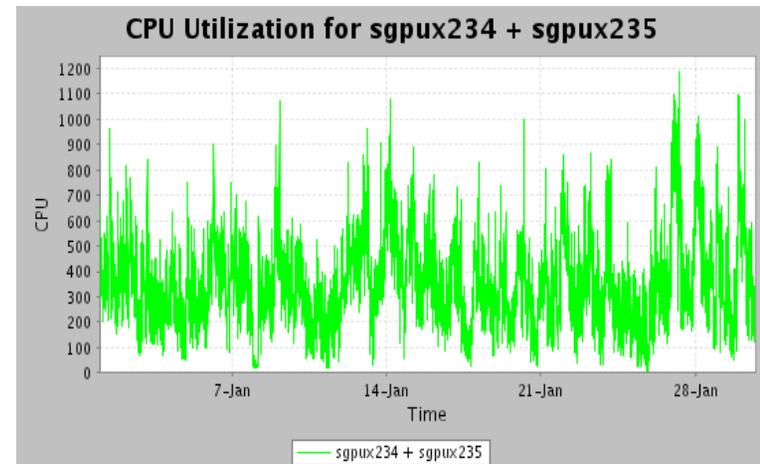
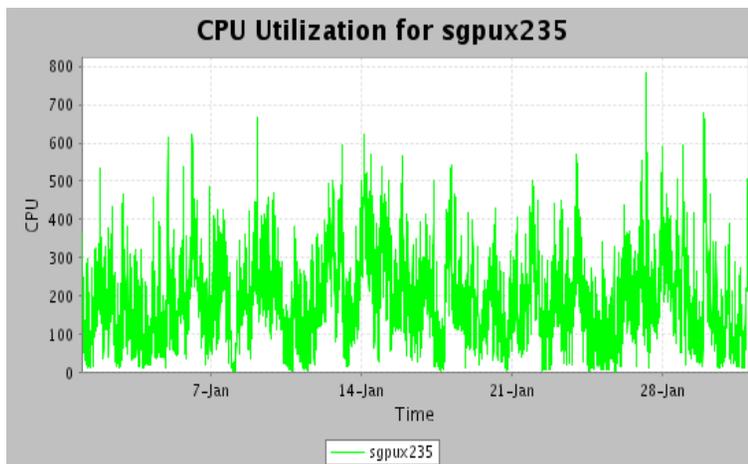
# Example: Server Consolidation

## Trace based simulation



+

=



- Peaks for different workloads do not all happen at the same time

- Two workloads each have an 8 CPU peak demand but the peak of their sum is 12 CPUs

# Example: Server Consolidation

Step 3: Use Remote Deployment Pack to do bare-metal deployment of host

The screenshot displays the HP ProLiant Essentials Rapid Deployment Pack interface. The main window shows a tree view of computers and jobs. A dialog box titled "Schedule Computers for Job - (Write ProLiant ML/DL/BL System and Array Configurati..." is open, allowing the user to schedule a job. The dialog box includes options for scheduling (Do not schedule, Run this job immediately, Schedule this job) and a table of job details.

**Job Details Table:**

Job	Folder	Scheduled At	Status
✓ iLO Config for C-Class-Slot2	1-Setup iLO	4/9/2007 6:17 PM	Script execution complete
✓ Deploy ESXSERVER2 in C-class Sl...	3-Deploy System Images	4/9/2007 6:28 PM	Script execution complete
✓ 1a-Read WWN for ESXServer (d...	5-Configure MSA1000	4/11/2007 11:44 AM	Script execution complete
✓ 5- Restart esxserver2 to see ne...	5-Configure MSA1000	4/11/2007 10:53 PM	Power Management task complete

**Schedule Job Dialog Box Details:**

- Run job immediately or schedule it for a later time or interval.
- Job Schedule: 7 Computer(s) Selected | 1 Job(s) Selected
- Do not schedule. Select this option to unschedule the selected items.
- Run this job immediately. Schedule for immediate execution.
- Schedule this job. Schedule this job to run at a later time or interval.
- Date: 12/11/2007 | Time: 7:08 AM
- Repeat this job every 1 day(s)
- Allow this job to be deferred for up to 5 minute(s)
- Schedule in batches of 5 computers at 25 minute intervals



# Example: Server Consolidation

Step 4: Use Server Automation for policy-based VM creation and application installation

The screenshot shows a window titled "Job: 1110100 (Remediate)". The window is divided into several sections:

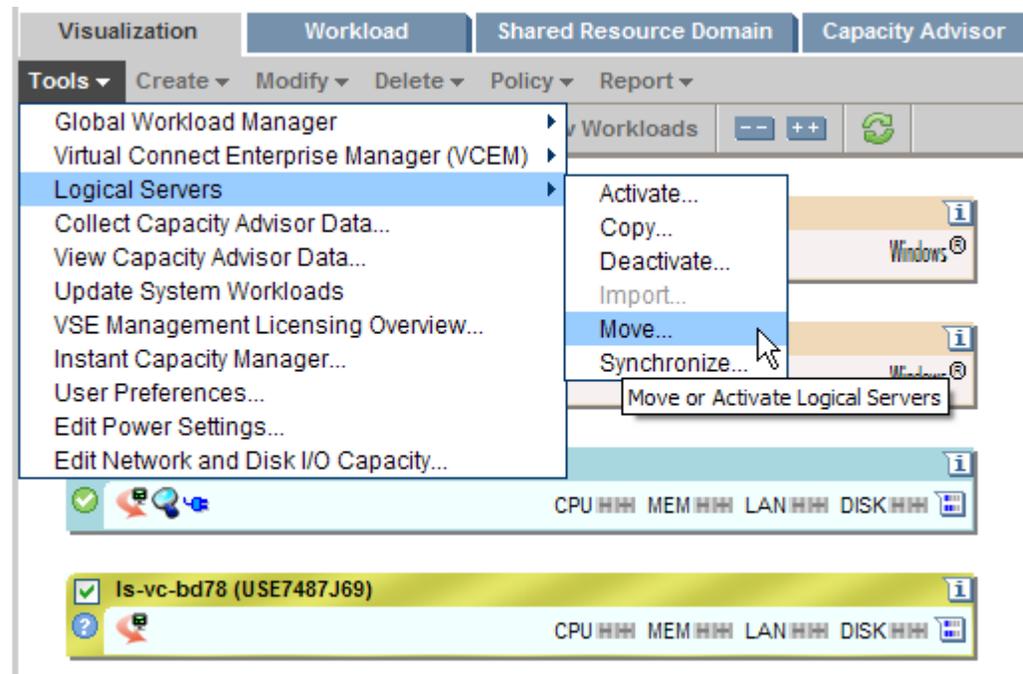
- Steps:** A list of steps from 1 to 7. Step 7, "Job Status", is selected and highlighted in blue.
- Help:** A section titled "Job Status" with the text "Select individual actions to get more detailed information about that action and its results." and a link "More help...".
- Job Status:** A section with a progress bar showing "1 of 1 completed". Below the progress bar is a table of actions and their status.
- Output/Errors:** A section with tabs for "Output" and "Errors", currently showing an empty text area.
- Buttons:** At the bottom of the window are three buttons: "Back", "End Job", and "Close".

Action	Status
-cupwin50.OPENVIEW.CUP_HP.COM	Completed
- Download ismtool-3.4.0 (Windows 2...	Completed
- Install ismtool-3.4.0 (Windows 2003)	Completed
- Registration	Completed
- Software Compliance	Completed

# Example: Server Consolidation

Step 5: Create logical servers in Insight Dynamics - VSE to enable mobility in the future.

- Logical Servers make it easy to move workloads between physical and virtual servers, or even between different types of virtual servers. Create them for both VM hosts and guests by importing.
- Creating Logical Servers automatically creates Virtual Connect profiles. Virtual Connect allows you to manage sets of network and storage connections for a blade enclosure without constant interaction with network and storage administrators.
- Shorten maintenance windows by rapidly moving server profiles.



# Example: Server Consolidation

My server consolidation project went smoothly because:

- I created a plan for migrating and stacking my existing servers onto VMs on blade servers, using HP Server Automation for application inventory, and the recommendations of the Insight Dynamics™ Smart Solver™ for placement.
- I used Remote Deployment Pack and HP Server Automation to install the VM hosts, VMs and applications. HP Server Automation policies will ensure that my servers stay in compliance.
- I created Logical Servers in Insight Dynamics – VSE to enable me to quickly migrate VMs when I need to do maintenance.

**SUCCESS**

# Summary



Better together !

**Insight Control**



Insight Dynamics - VSE



**HP Server Automation**



# For more information

- HP BladeSystem: <http://www.hp.com/go/bladesystem>
- HP Insight Control: <http://www.hp.com/go/insightcontrol>
- HP Insight Dynamics: <http://www.hp.com/go/insightdynamics>
- HP Server Automation: <http://www.hp.com/go/hpsa>
- White paper on which this presentation was based:  
<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c01415112/c01415112.pdf>



# Got questions? Get answers!

Make the most of your infrastructure

[www.hp.com/go/TechForumInsight](http://www.hp.com/go/TechForumInsight)

## Learn more

about the Insight Software you've seen here at Tech Forum with white papers, podcasts, and videos



## Register

for our online customer community to get tips, tricks, forums, and special webinars

Use Customer Connect Access Code "TechForum08"  
and be entered into a drawing (grand prize: Nintendo Wii)



