

IBM zEnterprise™ 196

Unified Resource Manager Hands-On Lab

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IBM

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Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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agenda



1	Demo Setup
2	User & Roles Management
3	Ensemble Details
4	Manage Virtual Networks: Create Virtual Network
5	New Virtual Server
6	New Workload
7	Energy Management – Power Cap

zEnterprise hardware management and platform management

Hypervisor Management

- Integrated deployment and configuration of hypervisors
- Hypervisors (except z/VM) shipped and serviced as firmware.
- Management of ISO images.
- Creation of virtual networks.
- Manage and control communication between virtual server operating systems and the hypervisor.

Operational Controls

- Auto-discovery and configuration support for new resources.
- Cross platform hardware problem detection, reporting and call home.
- Physical hardware configuration, backup and restore.

Network Management

- Management of virtual networks including access control

Energy Management

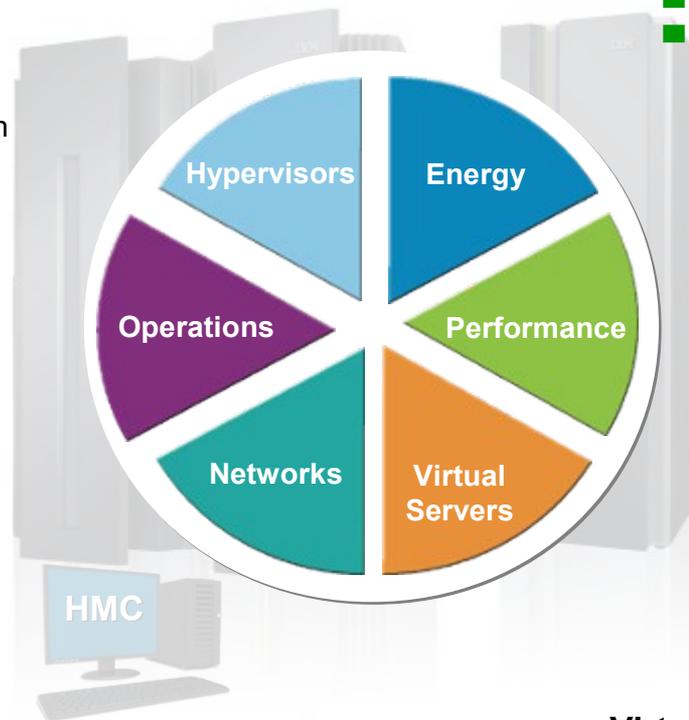
- Monitoring and trend reporting of energy consumption and environmental data.
- Ability to query maximum potential power.
- Power saving and capping controls

Workload Awareness and Platform Performance Management

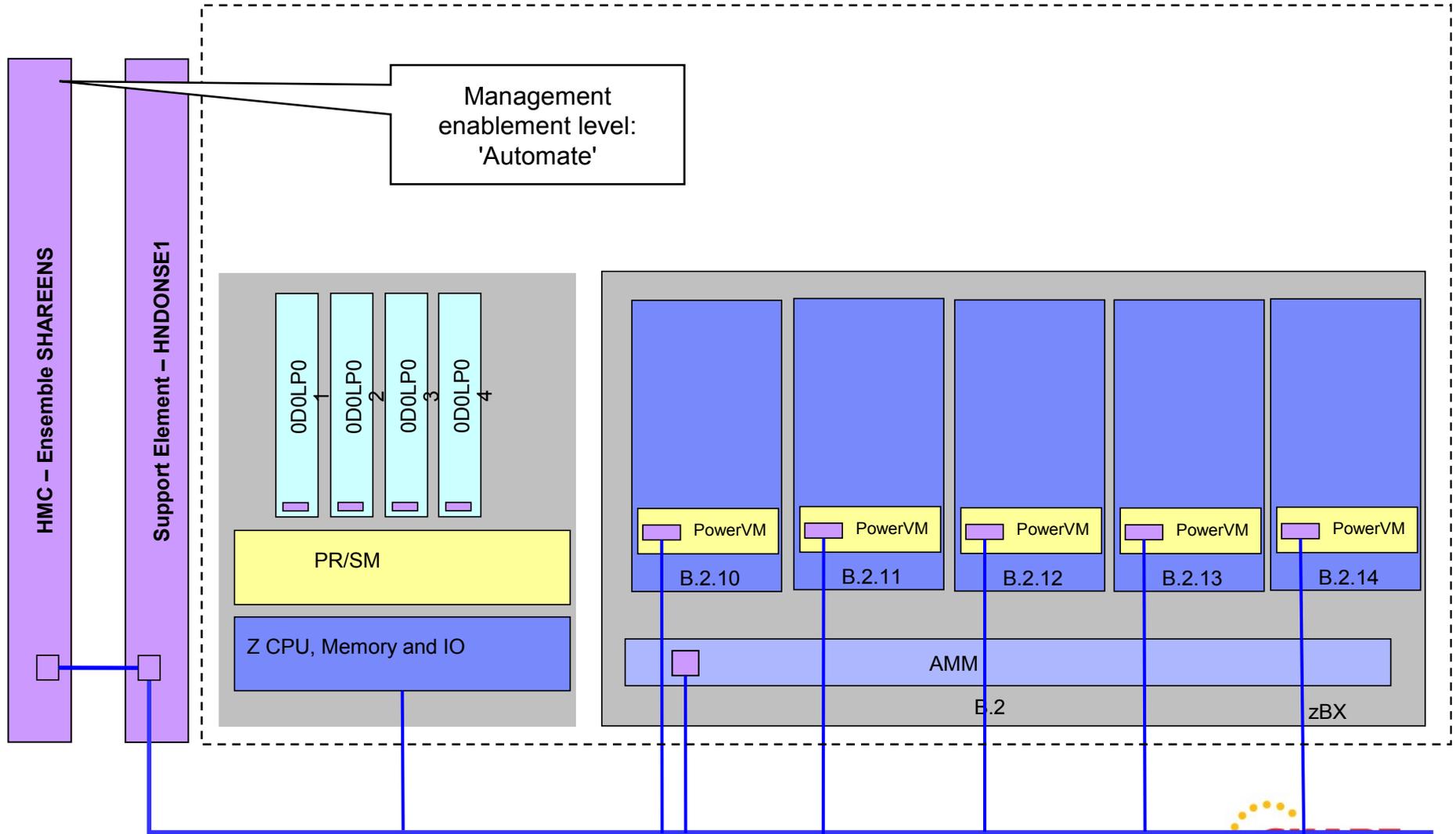
- Wizard-driven management of resources in accordance with specified business service level objectives
- HMC provides a single consolidated and consistent view of resources
- Monitor resource use within the context of a business workload
- Define workloads and associated performance policies

Virtual Server Lifecycle Management

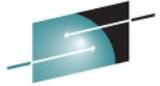
- Single view of virtualization across platforms.
- Ability to deploy multiple, cross-platform virtual servers within minutes
- Management of virtual networks including access control



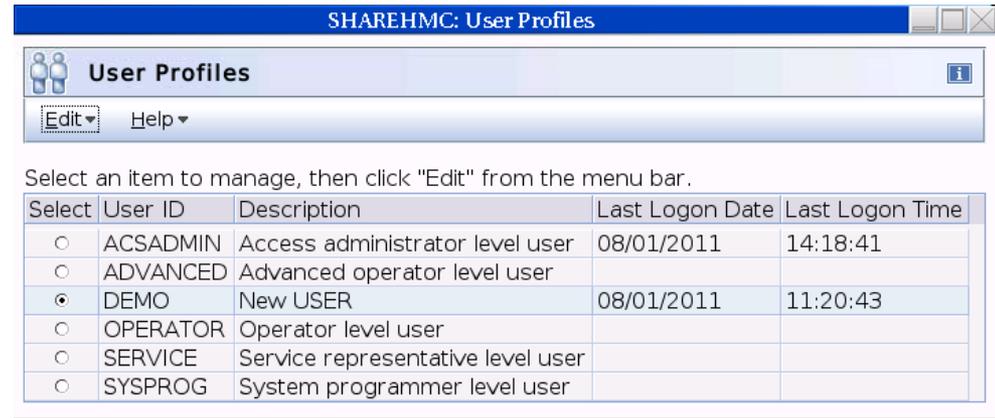
Lab Setup



User & Roles Management



- Login via
 - Userid: acsadmin,
 - Password: password
- Roles & User management
->HMC Management
 - >“User Profiles”
 - Open pre-defined user “DEMO” via “copy”
 - Adjust Userid, description
 - Set preferred password
 - Ensure that “Allow remote access via the web” is set
- Login to HMC as your own user
(backup: user: DEMO,
password: password)

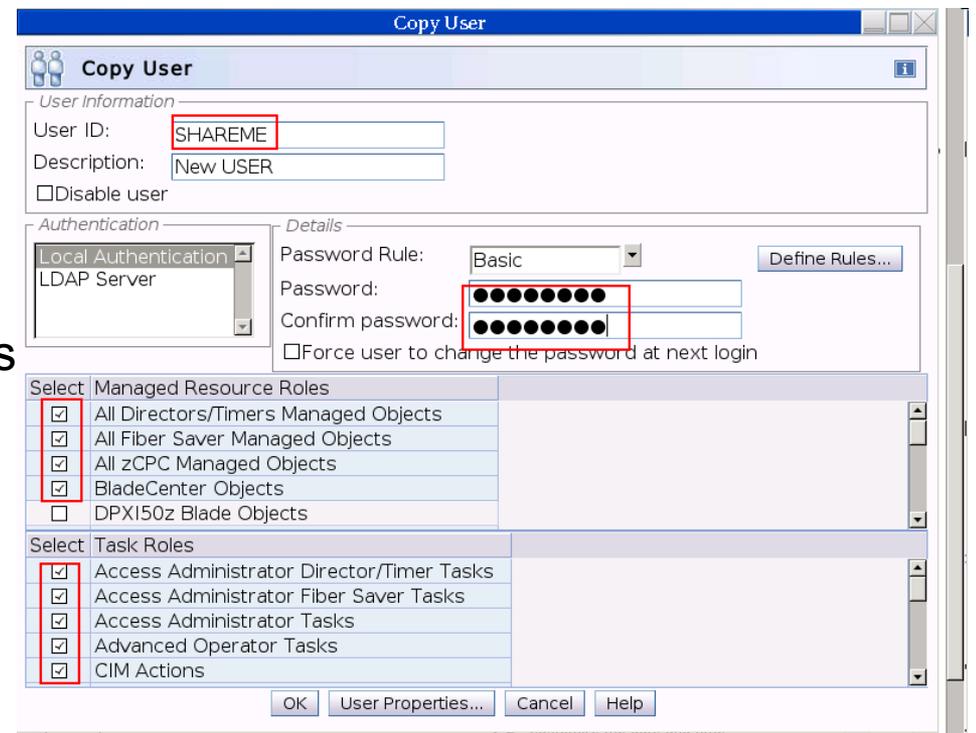


SHAREHMC: User Profiles

User Profiles

Select an item to manage, then click "Edit" from the menu bar.

Select	User ID	Description	Last Logon Date	Last Logon Time
<input type="radio"/>	ACSAADMIN	Access administrator level user	08/01/2011	14:18:41
<input type="radio"/>	ADVANCED	Advanced operator level user		
<input checked="" type="radio"/>	DEMO	New USER	08/01/2011	11:20:43
<input type="radio"/>	OPERATOR	Operator level user		
<input type="radio"/>	SERVICE	Service representative level user		
<input type="radio"/>	SYSPROG	System programmer level user		



Copy User

User Information

User ID: SHAREME
Description: New USER
 Disable user

Authentication

Local Authentication
LDAP Server

Details

Password Rule: Basic
Password: [masked]
Confirm password: [masked]
 Force user to change the password at next login

Select Managed Resource Roles

<input checked="" type="checkbox"/>	All Directors/Timers Managed Objects
<input checked="" type="checkbox"/>	All Fiber Saver Managed Objects
<input checked="" type="checkbox"/>	All zCPC Managed Objects
<input checked="" type="checkbox"/>	BladeCenter Objects
<input type="checkbox"/>	DPXI50z Blade Objects

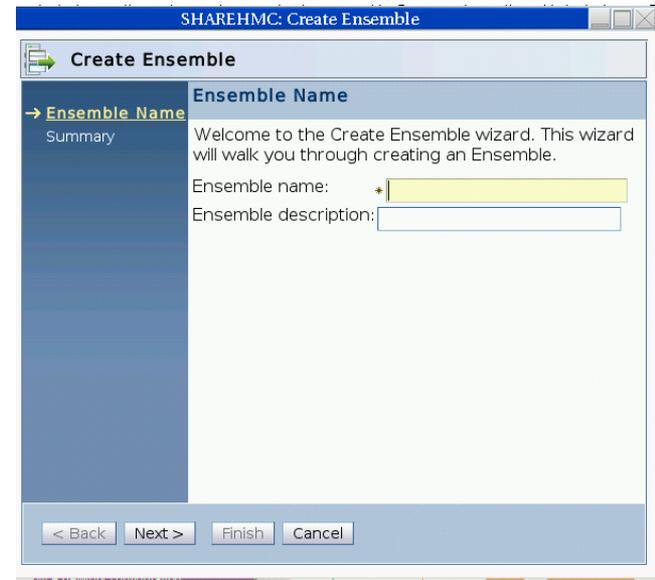
Select Task Roles

<input checked="" type="checkbox"/>	Access Administrator Director/Timer Tasks
<input checked="" type="checkbox"/>	Access Administrator Fiber Saver Tasks
<input checked="" type="checkbox"/>	Access Administrator Tasks
<input checked="" type="checkbox"/>	Advanced Operator Tasks
<input checked="" type="checkbox"/>	CIM Actions

OK User Properties... Cancel Help

Create Ensemble and Add Member to Ensemble

- Ensemble Management: Task “Ensemble Management Guide”
- Create your Ensemble



- Ensemble Management: Task “Add Member to Ensemble”

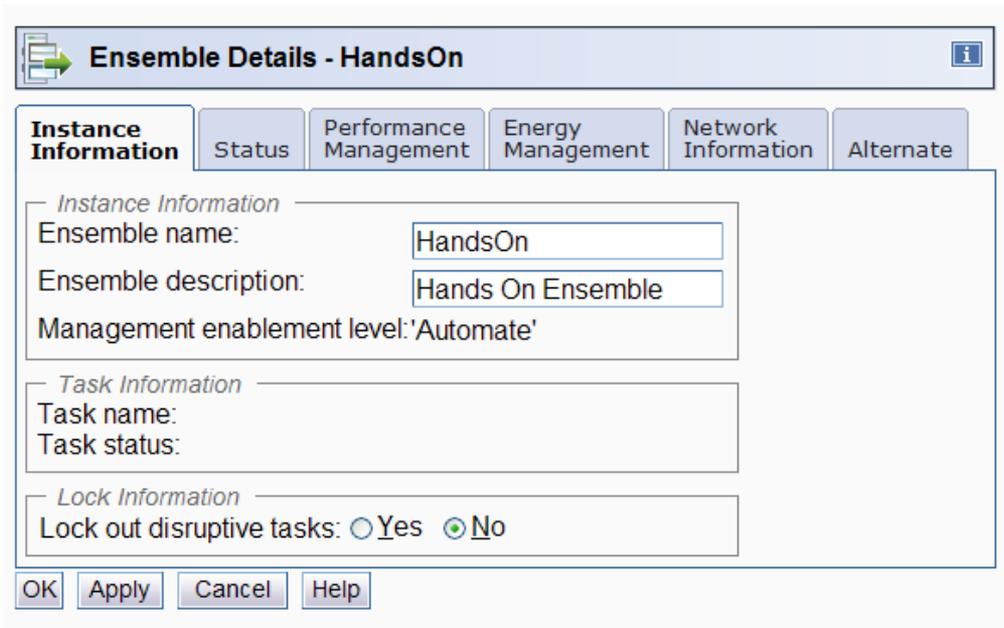
Configuration

- Add Member to Ensemble
- Delete Ensemble
- Manage Alternate HMC
- Manage Storage Resources
- Manage Virtual Networks
- New Virtual Server



Ensemble Details

- View Ensemble Details



The screenshot shows a dialog box titled "Ensemble Details - HandsOn". It features a tabbed interface with the following tabs: "Instance Information" (selected), "Status", "Performance Management", "Energy Management", "Network Information", and "Alternate".

Instance Information

Ensemble name: HandsOn

Ensemble description: Hands On Ensemble

Management enablement level: 'Automate'

Task Information

Task name:

Task status:

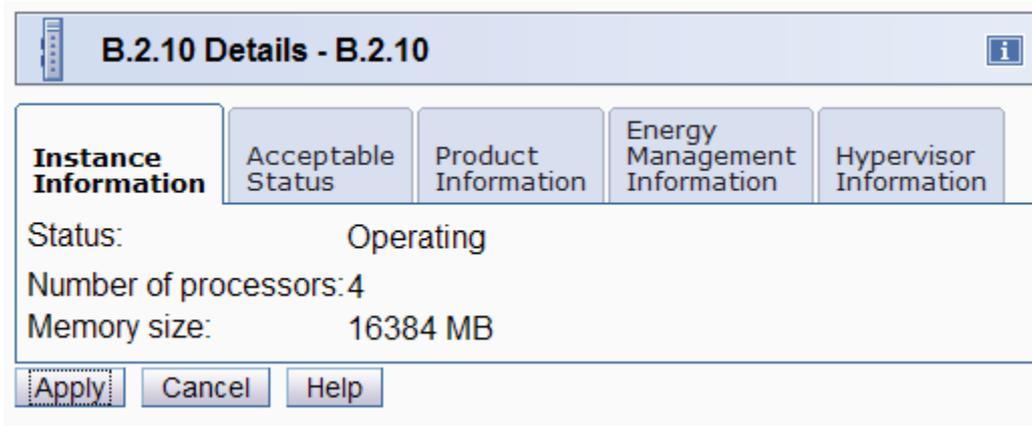
Lock Information

Lock out disruptive tasks: Yes No

Buttons: OK, Apply, Cancel, Help

View Details

- Blade Details

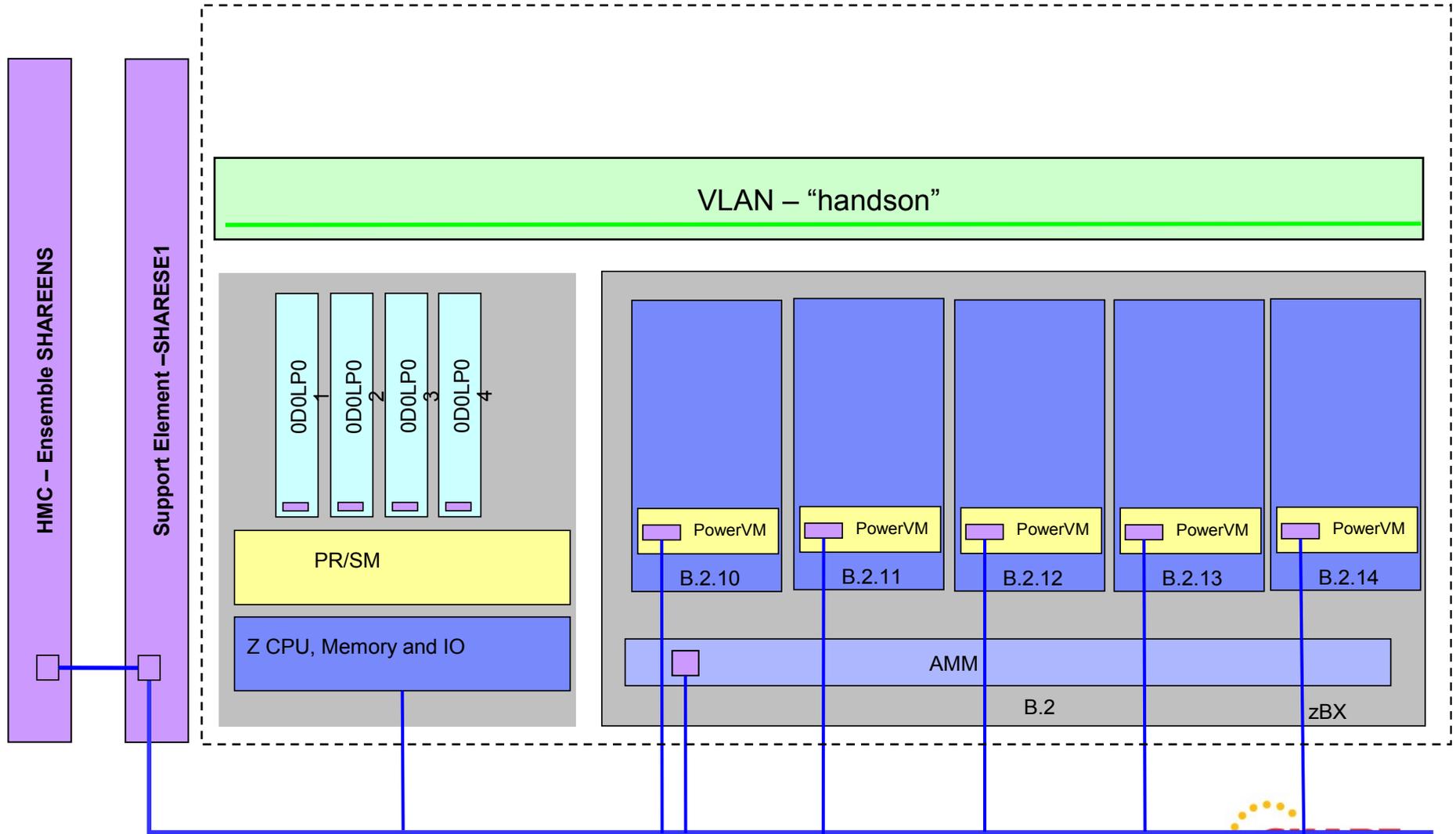


B.2.10 Details - B.2.10 ⓘ

Instance Information	Acceptable Status	Product Information	Energy Management Information	Hypervisor Information
Status: Operating				
Number of processors: 4				
Memory size: 16384 MB				

Apply Cancel Help

Manage Virtual Networks: Create Virtual Network



Create Virtual Network

Ensemble Management

Ensemble | Virtual Servers | Hypervisors | Blades | Topology | Getting Started

Filter

Select	Name	z/VM Processor Management	PowerVM Processor Management
<input checked="" type="checkbox"/>	SHAREENS		

Max Page Size: 500 | Total: 1 | Filtered: 1 | Selected: 1

Tasks: SHARENS

- Ensemble Details
- Toggle Lock

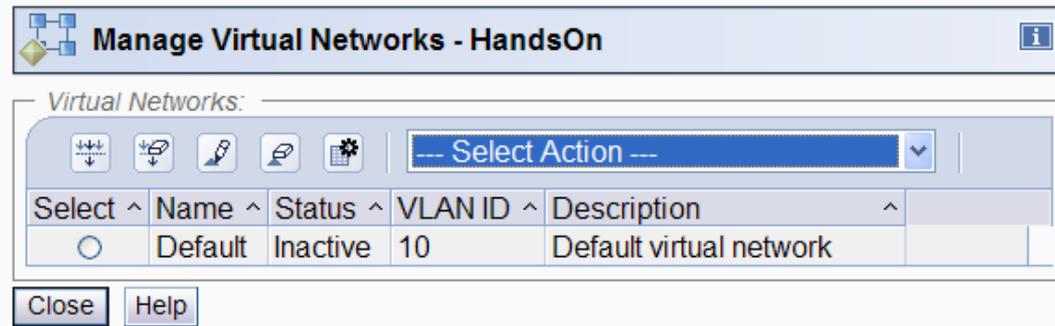
Configuration

- Add Member to Ensemble
- Delete Ensemble
- Manage Alternate HMC
- Manage Storage Resources
- Manage Virtual Networks**
- New Virtual Server
- New Workload

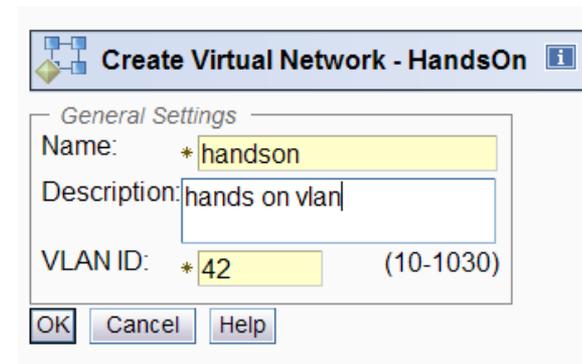
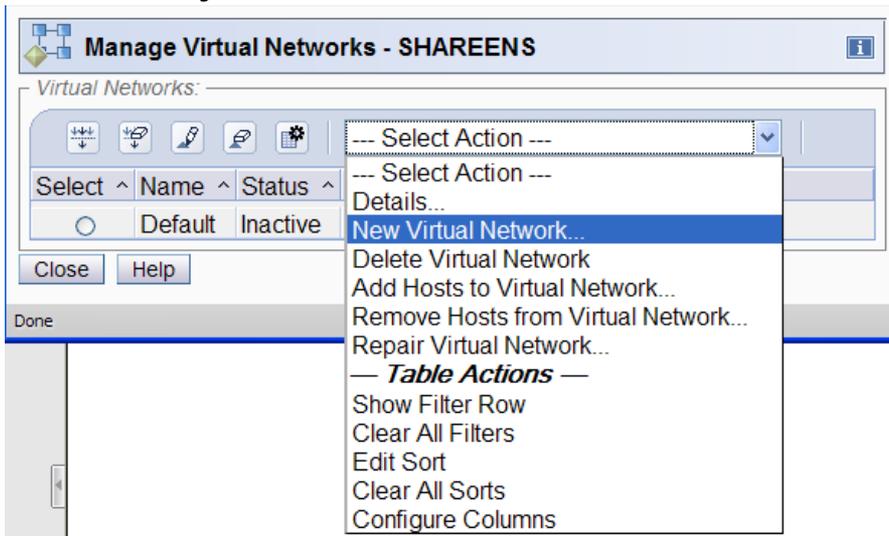
Monitor

Create Virtual Network

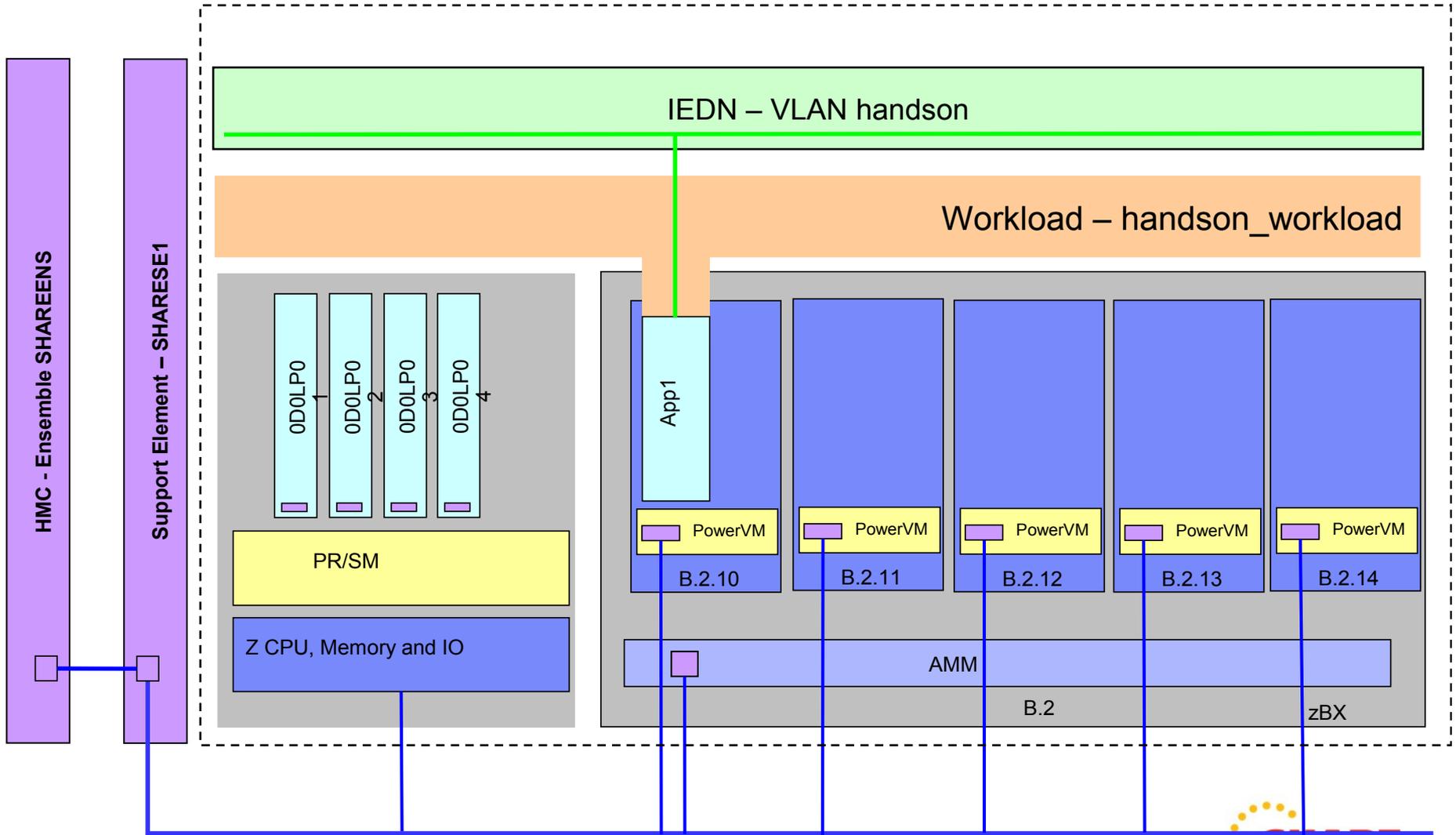
- Manage Virtual Networks



- Create your own virtual network with VLAN ID:42



Create Virtual Servers



New Workload

- New Workload

Ensemble Management > SHAREENS > Workloads

Workloads | Topology

Filter Tasks ▾ Views ▾

Select ^	Name ^	Virtual Servers ^	Performance Policy ^	Performance Policy Status ^	Performance Policy Business Importance ^
<input type="checkbox"/>	 Default	10	Default	Active	Medium

Max Page Size: Total: 1 Filtered: 1 Selected: 0

Tasks: Workloads   

Configuration Monitor

New Workload

New Workload

- New Workload



Workload Name
Enter a name, description, and category for the workload.

Name: *

Description:

Category: ▼

New Workload - Summary

New Workload - HandsOn
i

- ✓ [Welcome](#)
- ✓ [Workload Name](#)
- ✓ [Select Virtual Servers](#)
- ✓ [Create Performance Policy](#)
- Create Service Class
- Service Class Goal
- Classification Rule
- Manage Service Classes
- Manage Performance Policies
- Activate Policy
- [Summary](#)

Summary

Click Finish to create the workload, its performance policies and their service classes and activate the selected policy.

Workload

Name: handson_workload
 Active performance policy: Default
 Description: HandOn Demo Workload
 Category: handson
 Virtual servers:
 Custom groups:

Performance Policies

Default

Description: The default workload performance policy
 Business importance: Medium

Service Classes

Default

Description: The default workload performance policy service class.
 Performance goal: Velocity - Moderate
 Business importance: Medium
 Classification rule: .* == ".*"

< Back
Next >
Finish
Cancel
Help

New Virtual Servers

- Task: Create New Virtual Server “app1” on Blade B.2.10

Ensemble Management > SHAREENS

Ensemble Resources Virtual Servers **Hypervisors** Blades Top

Select	Name	Member	Status	Processors
<input type="checkbox"/>	SHARESE1		Operating	
<input type="checkbox"/>	B.2.10	SHARESE1	Operating	
<input type="checkbox"/>	B.2.11	SHARESE1	Operating	
<input type="checkbox"/>	B.2.12	SHARESE1	Operating	
<input type="checkbox"/>	B.2.13	SHARESE1	No Power	
<input type="checkbox"/>	B.2.14	SHARESE1	No Power	

Max Page Size: 500 Total: 6 Filtered: 6

Ensemble Management > SHAREENS

Ensemble Resources Virtual Servers Hypervisors Blades Topology

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start
<input type="checkbox"/>	SHARESE1		Operating			PR/SM	
<input checked="" type="checkbox"/>	B.2.10	SHARESE1	Operating	4	16,384	PowerVM	
<input type="checkbox"/>	B.2.11	SHARESE1	Operating	4	16,384	PowerVM	
<input type="checkbox"/>	B.2.12	SHARESE1	Operating	4	16,384	PowerVM	
<input type="checkbox"/>	B.2.13	SHARESE1	No Power	4	16,384	PowerVM	
<input type="checkbox"/>	B.2.14	SHARESE1	No Power	4	16,384	PowerVM	

Max Page Size: 500 Total: 6 Filtered: 6 Selected: 1

Tasks: B.2.10

zBX Blade Details
Daily

Service

Energy Management

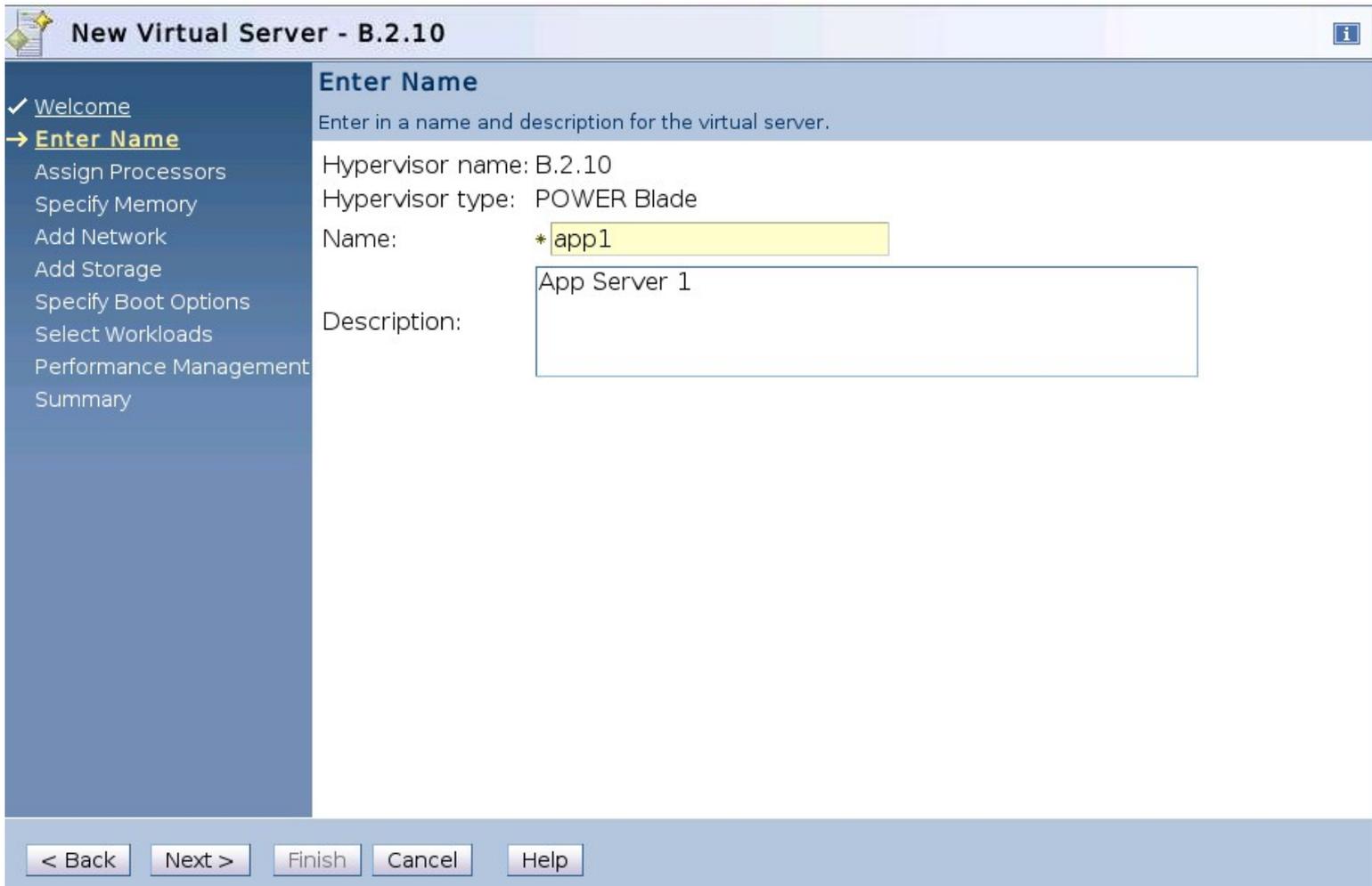
Configuration

Manage Storage Resources

New Virtual Server

New Virtual Servers

- Task: Create New Virtual Server “app1” on Blade B.2.10



New Virtual Server - B.2.10

Enter Name
Enter in a name and description for the virtual server.

Hypervisor name: B.2.10
Hypervisor type: POWER Blade

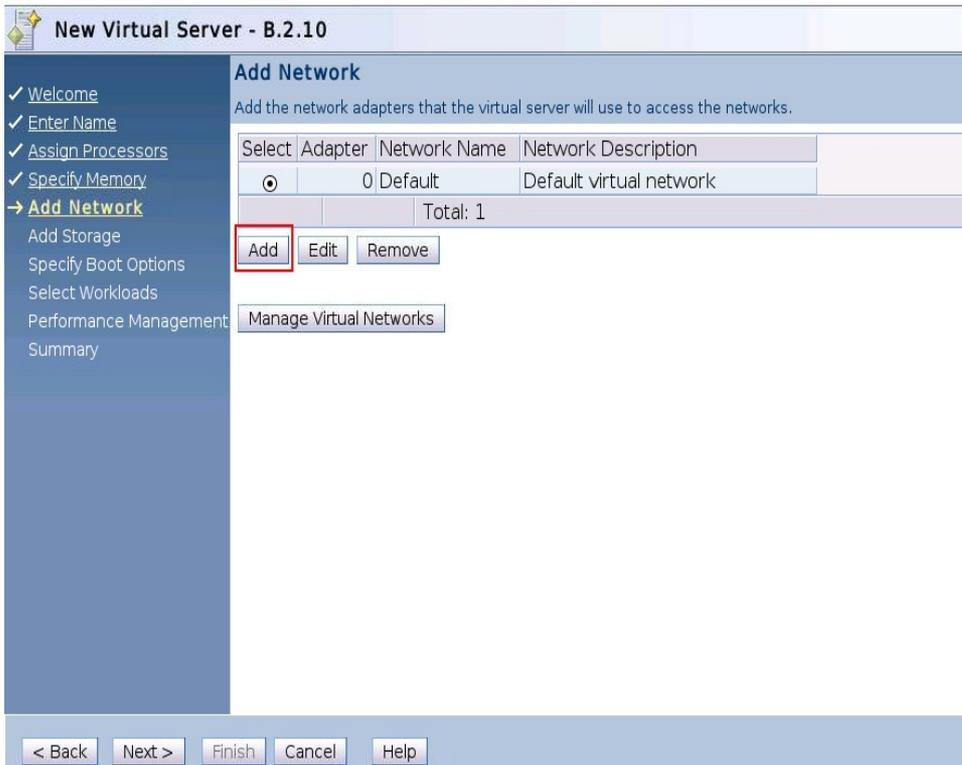
Name: * app1

Description: App Server 1

< Back Next > Finish Cancel Help

New Virtual Servers

- Task: Add virtual network 'handson' to 'app1' virtual server



New Virtual Server - B.2.10

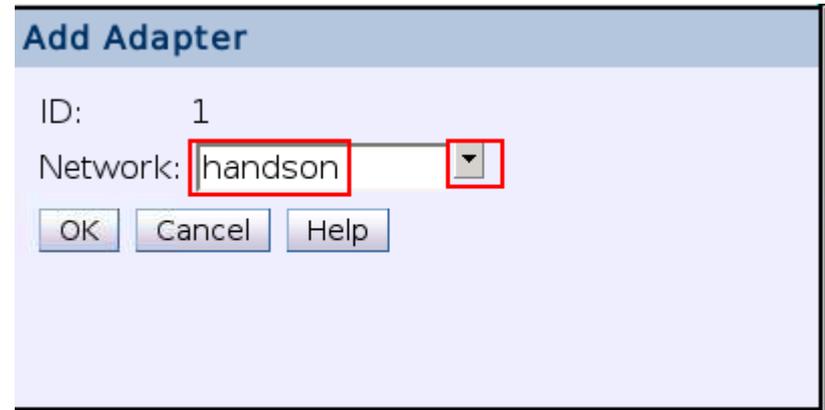
✓ Welcome
✓ Enter Name
✓ Assign Processors
✓ Specify Memory
→ **Add Network**
Add Storage
Specify Boot Options
Select Workloads
Performance Management
Summary

Add Network
Add the network adapters that the virtual server will use to access the networks.

Select	Adapter	Network Name	Network Description
<input type="radio"/>	0	Default	Default virtual network

Total: 1

< Back Next > Finish Cancel Help



Add Adapter

ID: 1

Network: handson

New Virtual Server

- Finalize Virtual Server

New Virtual Server - B.2.10

Summary

Verify the information below before completing the wizard.

Name:	app1
Description:	App Server 1
Initial virtual processors:	8
Assigned dedicated memory:	5 GB
Network Devices:	0: Default, Default virtual network 1: handson, hands on vlan
Storage Devices:	
Boot source:	Network Adapter (ID 0)
Workloads:	Default
Processor management:	Enabled

< Back Next > **Finish** Cancel Help

Explore Virtual Server Details

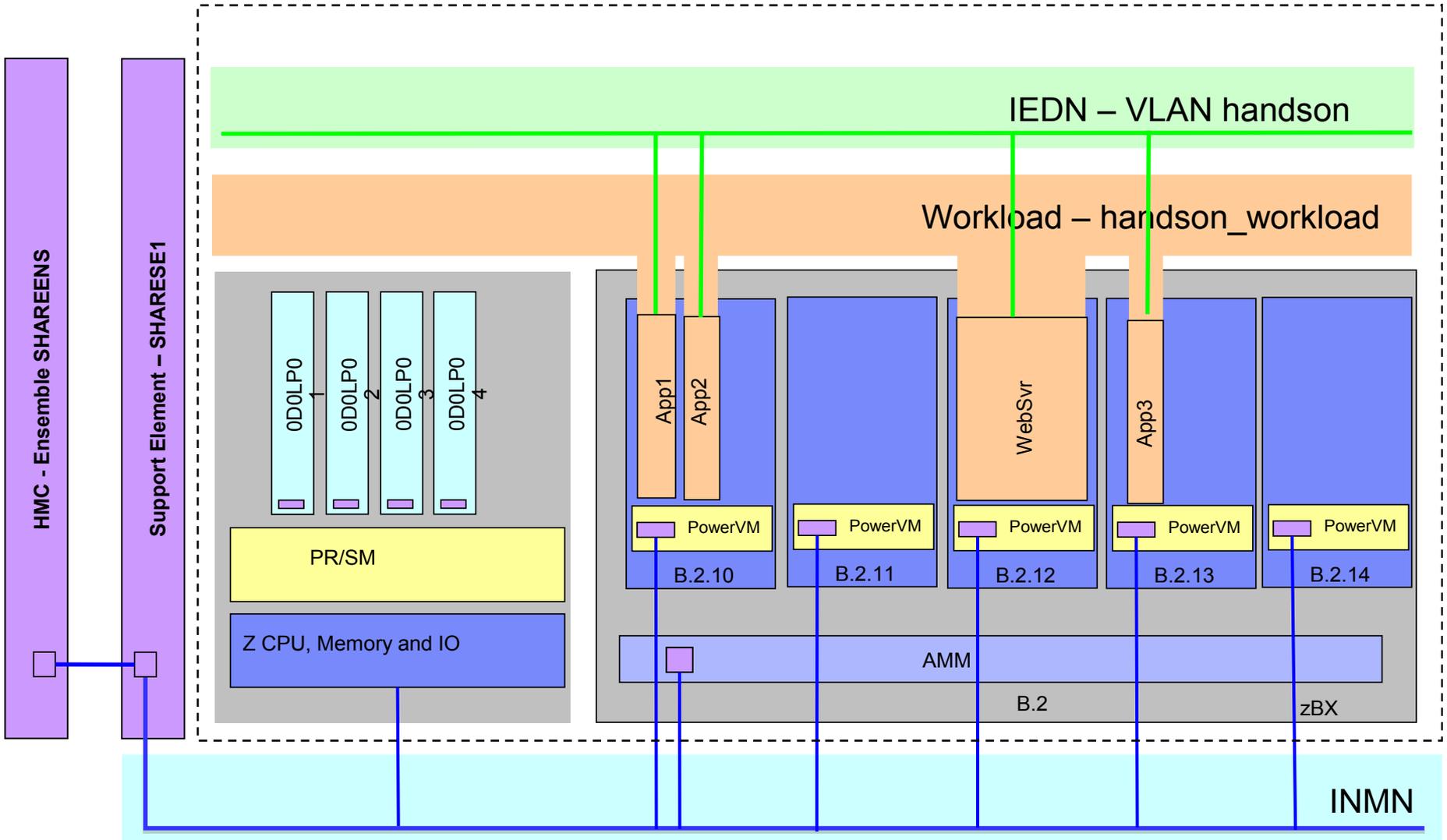
Virtual Server Details - app1 

Name **Status** **Processors** **Memory** **Network** **Storage** **Options** **Workloads** **Performance**

Hypervisor name: B.2.10
Hypervisor type: POWER Blade
UUID: fb4a2c2a-bef4-11e0-94fa-020000000028
Name: *app1
Description: App Server 1
 Lock out disruptive tasks

OK Apply Cancel Help

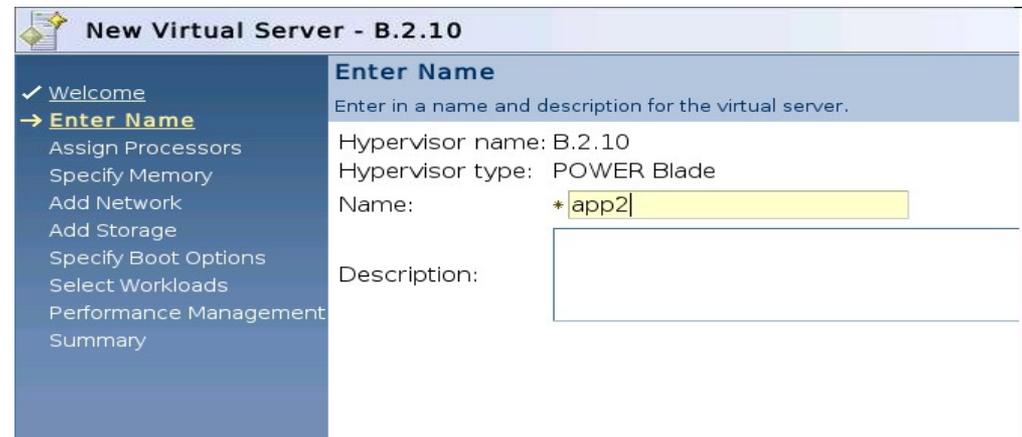
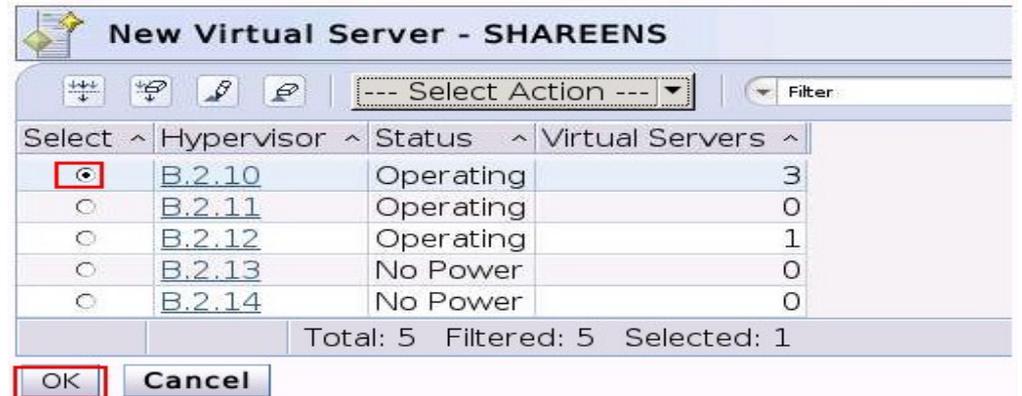
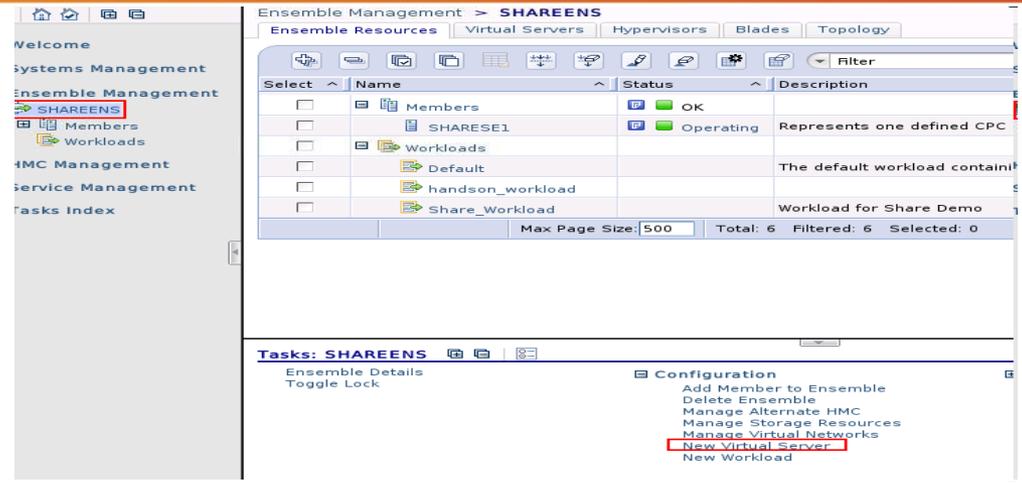
Add more Virtual Server to Workload



New Virtual Servers

Using the task “New Virtual Server”

- Create Virtual Server ‘app2’ on B.2.10
- Create Virtual Server WebSvr on B.2.12
- Create Virtual Server ‘app3’ on B.2.13



Workload Details

Ensemble Management > SHARENS > Workloads

Workloads | Topology

Filter: [] Tasks: [] Views: []

Select	Name	Virtual Servers	Performance Policy	Performance Policy Status	Performance Policy Business Importance	Category
<input type="checkbox"/>	Default		8 Default	Active	Medium	
<input checked="" type="checkbox"/>	handson_workload		4 Default	Active	Medium	
<input type="checkbox"/>	Share_Workload		4 ShareWkld_Policy	Active	Highest	

Max Page Size: 500 Total: 3 Filtered: 3 Selected: 1

Tasks: handson_workload

- Workload Details
- Daily
- Operational Customization
 - Activate Performance Policy
 - Customize Scheduled Operations
- Configuration
 - Delete Workload
 - New Performance Policy
 - New Workload
- Monitor
 - Service Classes Report
 - Virtual Servers Report
 - Workload Resource Adjustments Report
 - Workloads Report

Workload Details - handson_workload ⓘ

General | **Virtual Servers** | Performance Policies

--- Select Action --- | Filter: []

Select	Name	Hypervisor	Type	Performance Policy	Performance Policy Status
<input type="checkbox"/>	app1	B.2.10	POWER	Default	Activated
<input type="checkbox"/>	app2	B.2.10	POWER	Default	Activated
<input type="checkbox"/>	app3	B.2.13	POWER		<input type="text"/>
<input type="checkbox"/>	WebSvr	B.2.12	POWER	Default	Activated

Page 1 of 1 Total: 4 Filtered: 4 Displayed: 4 Selected: 0

OK Apply Print View Cancel Help

Virtual Server Details

Virtual Server Details - app3 i

Name **Status** Processors Memory Network Storage Options Workloads Performance

Status: **Not Operating**
GPMP Status: **Not Operating**

Acceptable Status:

<input checked="" type="checkbox"/> Operating	<input type="checkbox"/> Not Operating
<input type="checkbox"/> Communications not active	<input type="checkbox"/> Exceptions
<input type="checkbox"/> Status Check	<input type="checkbox"/> Migrating
<input type="checkbox"/> Starting	<input type="checkbox"/> Stopping

Migrate Virtual Server

- Migrate Virtual Server App3 to Blade B.2.10

Ensemble Management > **SHAREENS**

Ensemble Resources | Virtual Servers | Hypervisors | Blades | Topology

Filter

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout
<input type="checkbox"/>	SHARESE1		Operating			PR/SM		
<input type="checkbox"/>	B.2.10	SHARESE1	Operating	4	16,384	PowerVM	—	300
<input type="checkbox"/>	B.2.11	SHARESE1	Operating	4	16,384	PowerVM	—	300
<input type="checkbox"/>	B.2.12	SHARESE1	Operating	4	16,384	PowerVM	—	300
<input type="checkbox"/>	B.2.13	SHARESE1	No Power	4	16,384	PowerVM	—	300
<input checked="" type="checkbox"/>	app3	SHARESE1	Not Operati	1	1,024	PowerVM	—	
<input type="checkbox"/>	B.2.14	SHARESE1	No Power	4	16,384	PowerVM	—	300

Max Page Size: 500 | Total: 7 | Filtered: 7 | Selected: 1

Tasks: app3

Virtual Server Details
Toggle Lock
Daily

Service
Operational Customization

Configuration
Delete Virtual Server
Migrate Virtual Server
Mount Virtual Media
New Virtual Server Based On
Open Text Console
Monitor

Migrate Virtual Server

- Migrate Virtual Server App3 to Blade B.2.10

SHAREHMC: Migrate Virtual Server

Migrate Virtual Server - app3

Select the target hypervisor to migrate the following virtual server.

Virtual server: [app3](#)
 Hypervisor: B.2.13
 Status: Not Operating

Hypervisors

Select ^	System ^	Hypervisor ^	Status ^	Virtual Servers ^
<input type="radio"/>	SHARESE1	B.2.10	Operating	2
<input type="radio"/>	SHARESE1	B.2.11	Operating	0
<input type="radio"/>	SHARESE1	B.2.12	Operating	0
<input type="radio"/>	SHARESE1	B.2.14	No Power	0
Total: 4 Filtered: 4 Selected: 0				

Migrate Cancel Help

Hypervisor view

- Virtual Server States

Ensemble Management > **SHAREENS**

Ensemble Resources | Virtual Servers | **Hypervisors** | Blades | Topology

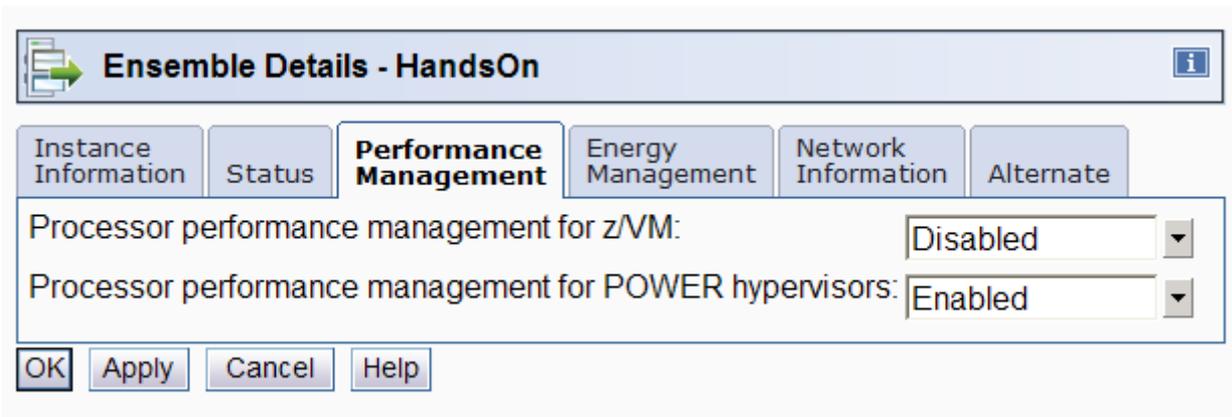
Filter: Tasks Views

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout
<input type="checkbox"/>	SHARESE1		Operating			PR/SM		
<input type="checkbox"/>	B.2.10	SHARESE1	Operating	4	16,384	PowerVM	-	300
<input type="checkbox"/>	app1	SHARESE1	Operating	1	1,024	PowerVM	-	
<input type="checkbox"/>	app2	SHARESE1	Operating	1	1,024	PowerVM	-	
<input type="checkbox"/>	app3	SHARESE1	Operating	1	1,024	PowerVM	-	
<input type="checkbox"/>	B.2.11	SHARESE1	Operating	4	16,384	PowerVM	-	300
<input type="checkbox"/>	B.2.12	SHARESE1	Operating	4	16,384	PowerVM	-	300
<input type="checkbox"/>	B.2.13	SHARESE1	No Power	4	16,384	PowerVM	-	300
<input type="checkbox"/>	B.2.14	SHARESE1	No Power	4	16,384	PowerVM	-	300

Max Page Size: Total: 9 Filtered: 9 Selected: 0

Enable Performance Management

- Enable Performance Management in the Ensemble Details



The screenshot shows a dialog box titled "Ensemble Details - HandsOn". It has a tabbed interface with the following tabs: Instance Information, Status, Performance Management (selected), Energy Management, Network Information, and Alternate. The Performance Management tab is active and displays two settings:

- Processor performance management for z/VM: Disabled
- Processor performance management for POWER hypervisors: Enabled

At the bottom of the dialog box, there are four buttons: OK, Apply, Cancel, and Help.

Energy Management – Power Cap

- Limit BladeCenter max power consumption to 4 kW.

Ensemble Management > **SHAREENS**

Ensemble Resources Virtual Servers Hypervisors **Blades** Topology

Filter Tasks Views

Select ^	Name ^	Member ^	Status ^	Power Usage (W) ^	Location ^	Machine Type - Model ^	Serial Number ^
<input checked="" type="checkbox"/>	B.2	SHARESE1	■ Operating		B01B	8852 - 4XG	99C1934

Max Page Size: 500 Total: 1 Filtered: 1 Selected: 1

Tasks: B.2

zBX BladeCenter Details

Daily

Energy Management

- Set Power Cap**
- Set Power Saving

Energy Management – Power Cap

- Limit BladeCenter max power consumption to 4 kW.

SHAREHMC: Set Power Cap

Set Power Cap - B.2

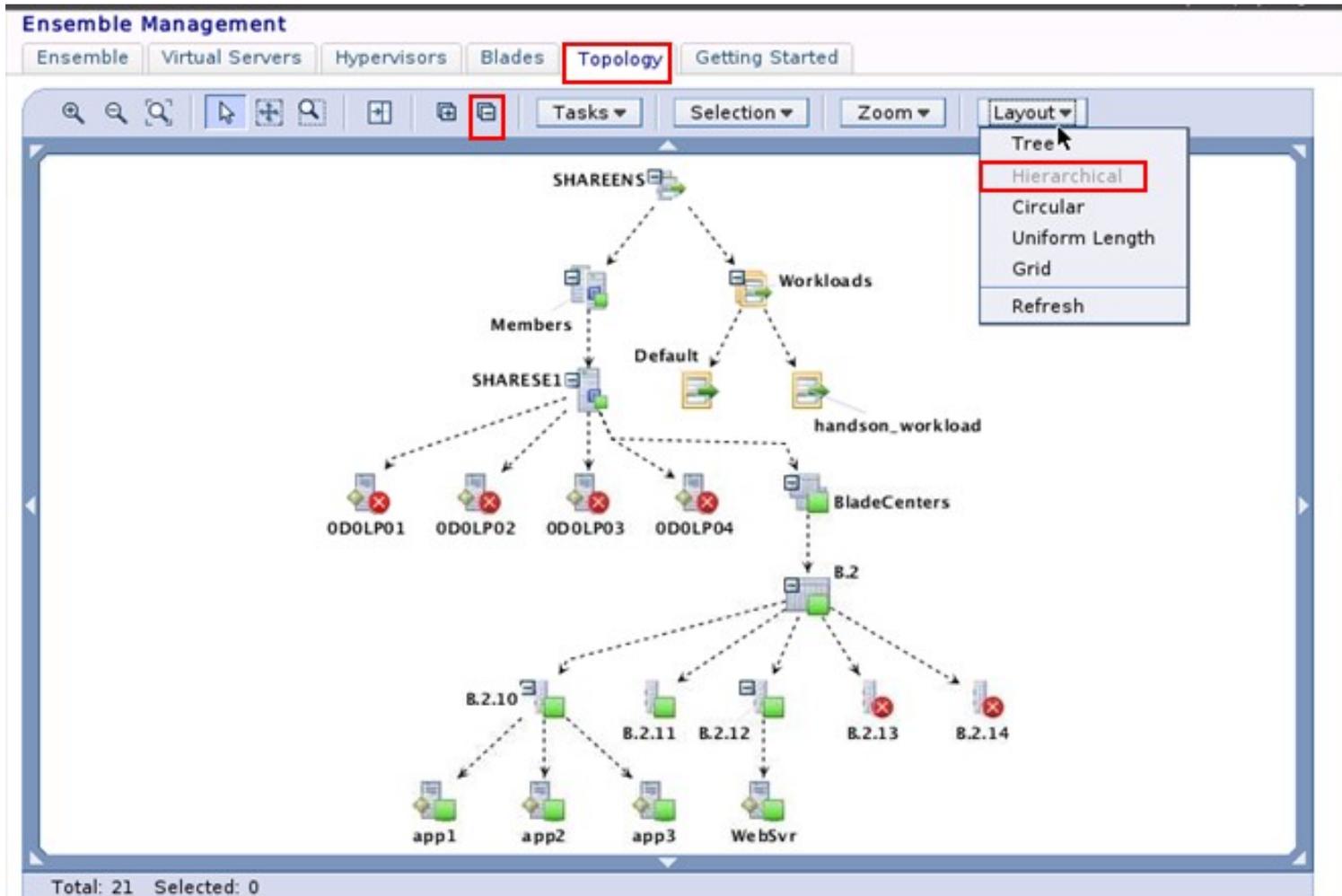
Select a resource from the table below to configure power capping.

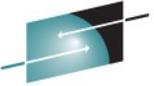
Name ^	Type ^	Power Capping ^	Cap Value (Watts) ^	Cap Value Range (Watts) ^
SHARESE1	CPC	Disabled	115050	18999-115050
zCPC	zCPC	Disabled	27400	9014-27400
B.2	BladeCenter	Custom	4000	3905-9444
B.2.10	POWER Blade	Disabled	382	277-382
B.2.11	POWER Blade	Disabled	382	277-382
B.2.12	POWER Blade	Disabled	382	277-382
B.2.13	POWER Blade	Not Supported	350	350-350
B.2.14	POWER Blade	Not Supported	350	350-350

Total: 8 Filtered: 8

OK Apply Cancel Help

Topology View





SHARE
Technology · Connections · Results

Thank You

