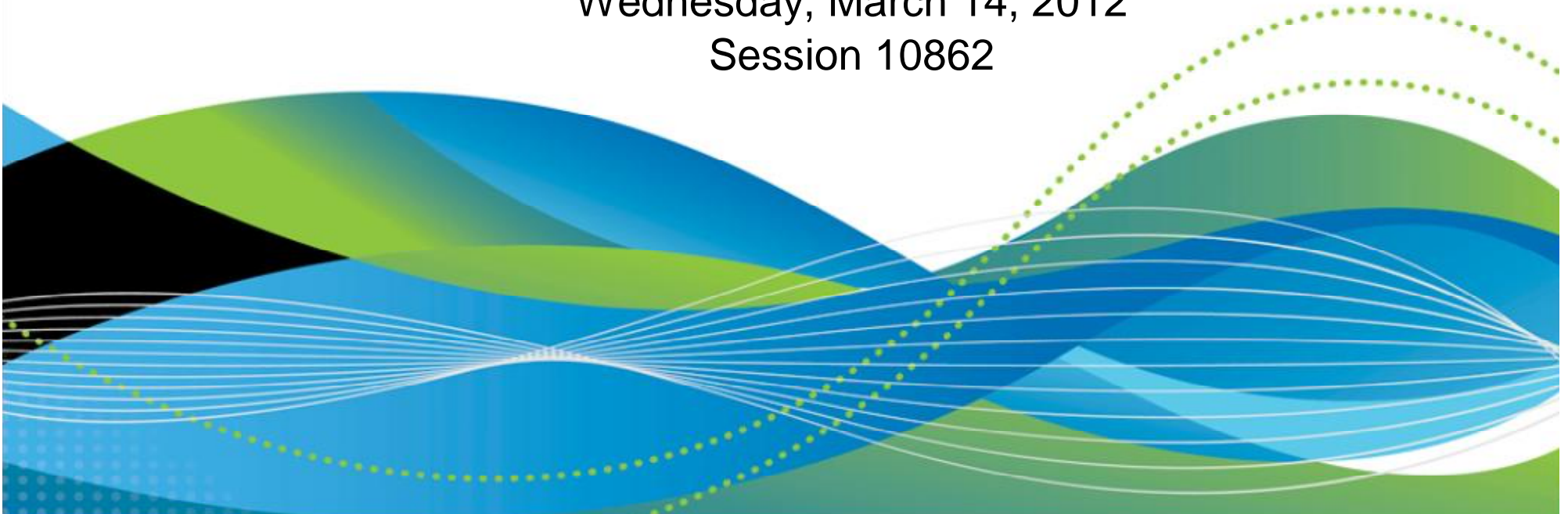


IBM zEnterprise zBX x86 Blade Integration and Unified Resource Manager Virtualization

Romney White / Carl Mayer
IBM Corporation

Wednesday, March 14, 2012
Session 10862



Agenda

- Introduction
- zEnterprise Unified Resource Manager
- zEnterprise zBX System x Blade Integration
- ‘Demo’
- Related SHARE Sessions

IBM zEnterprise System

Unifies IT for predictable service delivery



Unified management for a smarter system: **zEnterprise Unified Resource Manager**

- § Unifies management of physical and virtual resources
- § Provides hardware, platform, and workload management

The world's fastest and most scalable system:
IBM zEnterprise™ 196 (z196)

- § Ideal for large scale data and transaction serving and mission critical applications
- § Most efficient platform for Large-scale Linux® consolidation
- § Leveraging a large portfolio of z/OS® and Linux on System z applications
- § Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)



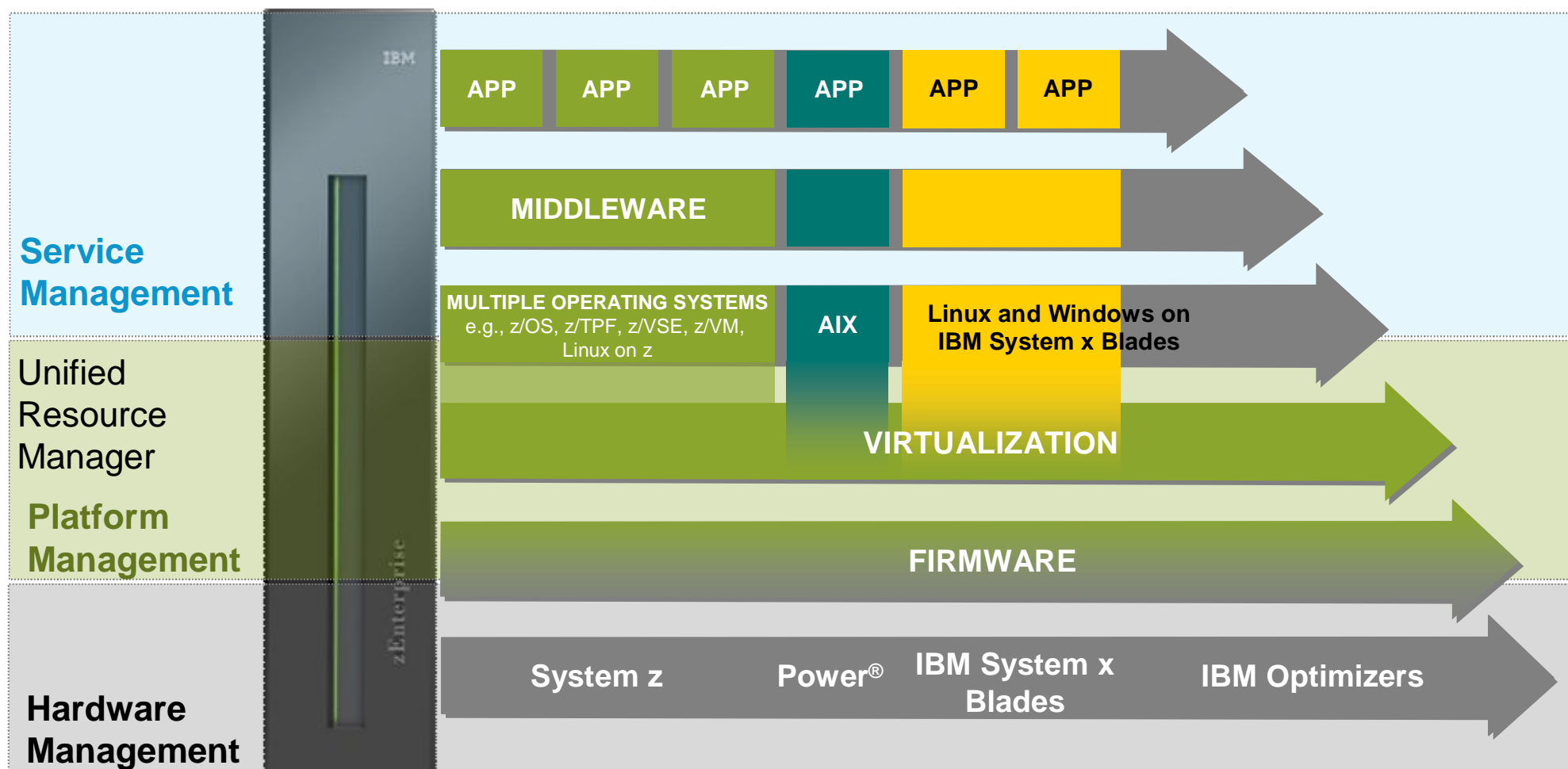
Scale out to a trillion instructions per second:
IBM zEnterprise BladeCenter® Extension (zBX)

- Selected IBM POWER7® blades and IBM System x® Blades for tens of thousands of AIX® and Linux applications
- High performance optimizers and appliances to accelerate time to insight and reduce cost
- Dedicated high performance private network



IBM zEnterprise Unified Resource Manager

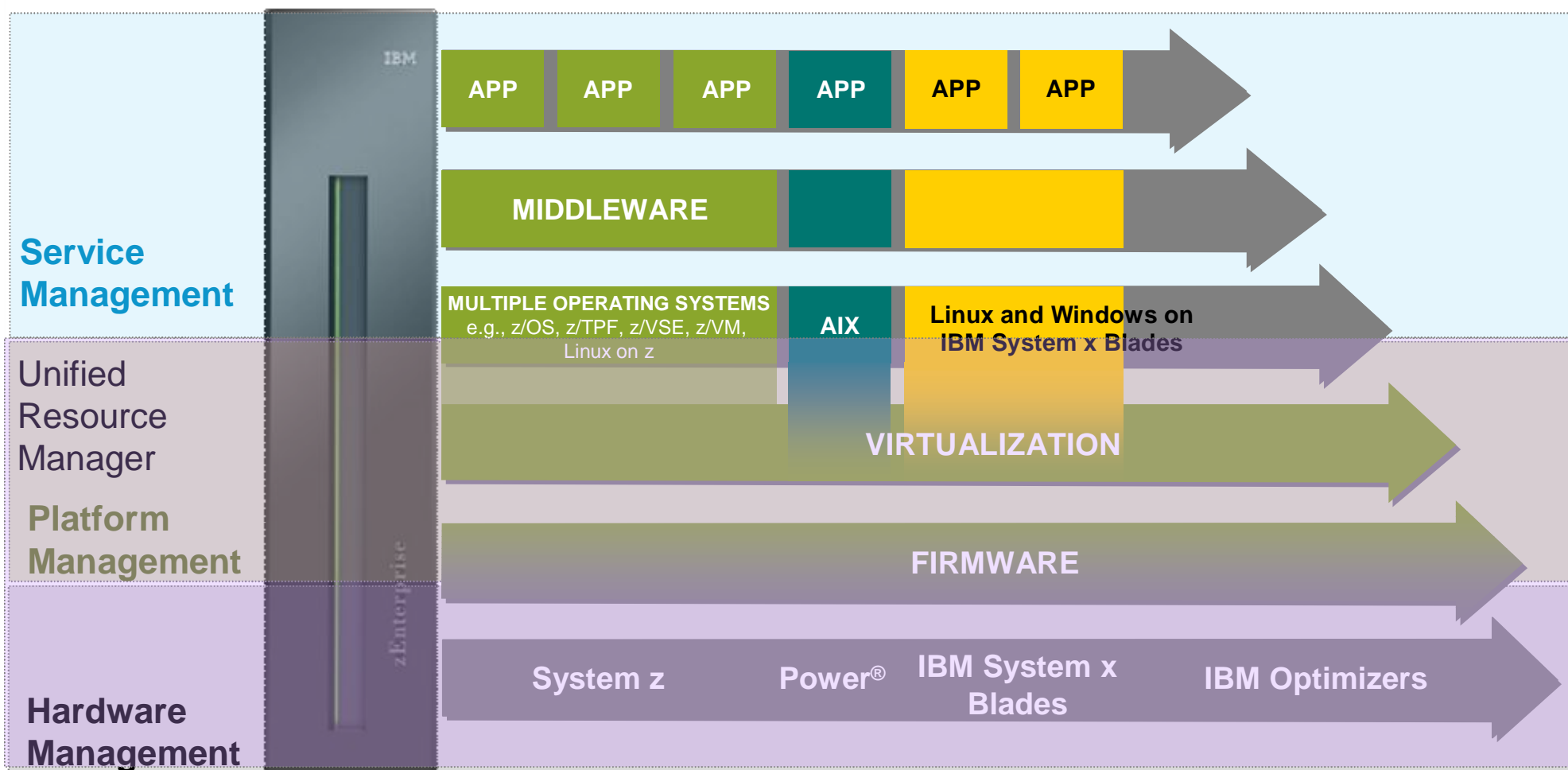
Building an architectural construct of hardware, software, services





IBM zEnterprise Unified Resource Manager

Building an architectural construct of hardware, software, services



zEnterprise Unified Resource Manager

Hardware 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.

Energy Management

- g Monitoring and trend reporting of CPU energy efficiency.
- p Static power savings
- n p Ability to query maximum potential power.

Operational Controls

- Auto-discovery and configuration support for new resources – including storage resources.
- Cross platform hardware problem detection, reporting and call home.
- Physical hardware configuration, backup and restore.
- Delivery of system activity using new user.

Resource Workload Awareness and Platform Performance Management

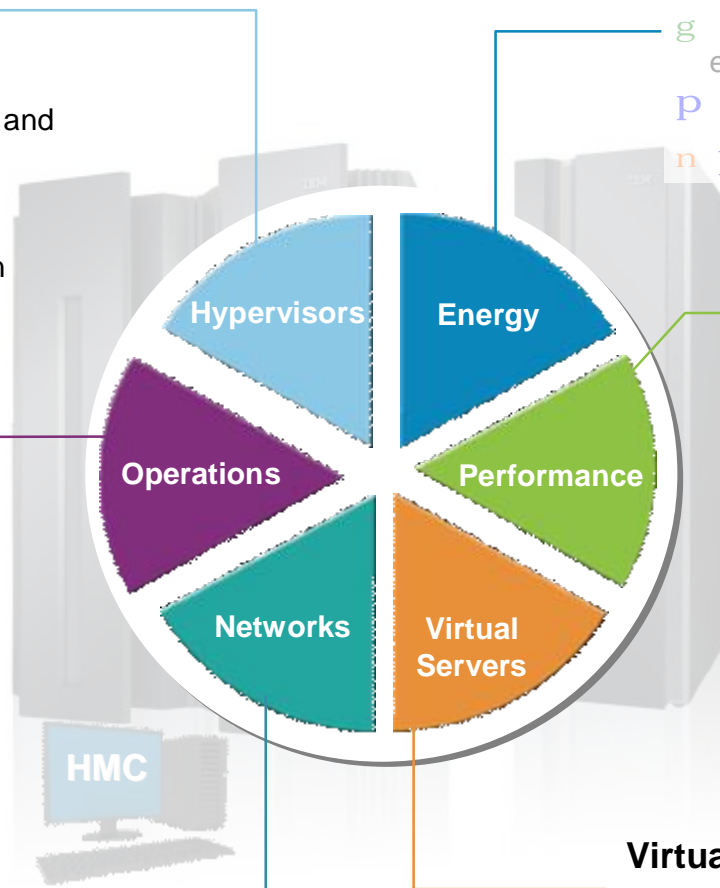
- g HMC provides a single consolidated and consistent view of resources
- n p Wizard-driven set up of resources in accordance with specified business process
- n p Ability to monitor and report performance
- p Manage to a performance policy

Network Management

- Management of virtual networks including access control

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

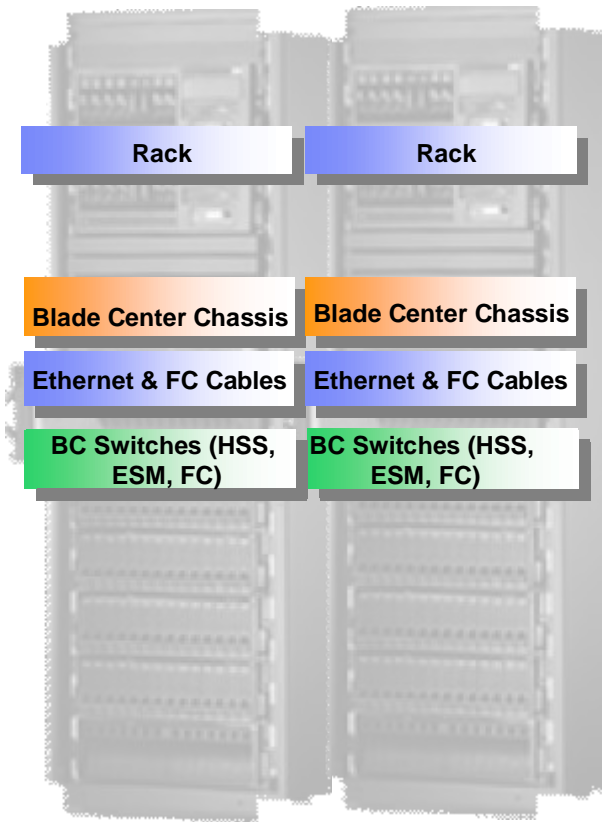


Key	
g	Manage suite
n	Adv Mgmt suite
p	Automate suite



IBM zEnterprise BladeCenter Extension

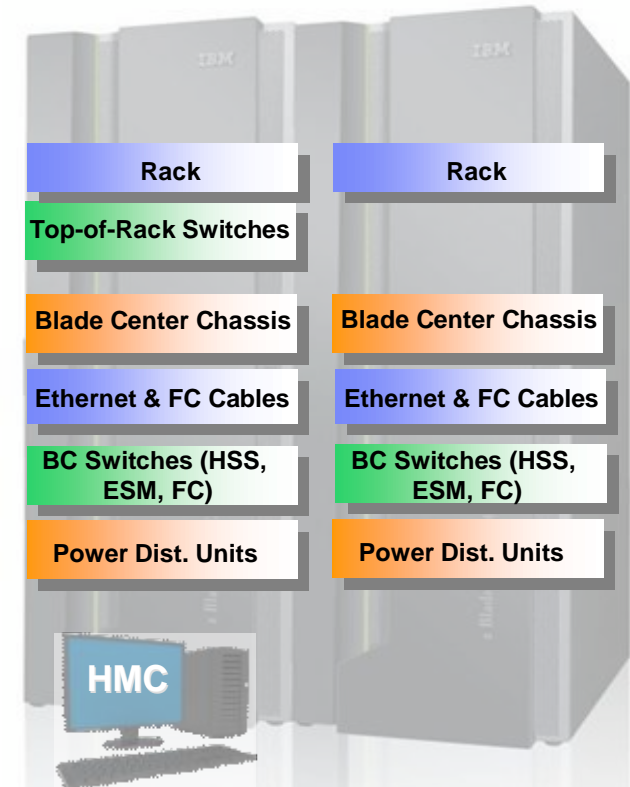
A Uniquely Configured Extension



Rack infrastructure hosting IBM BladeCenters

Looks like a rack with BladeCenters but much more...

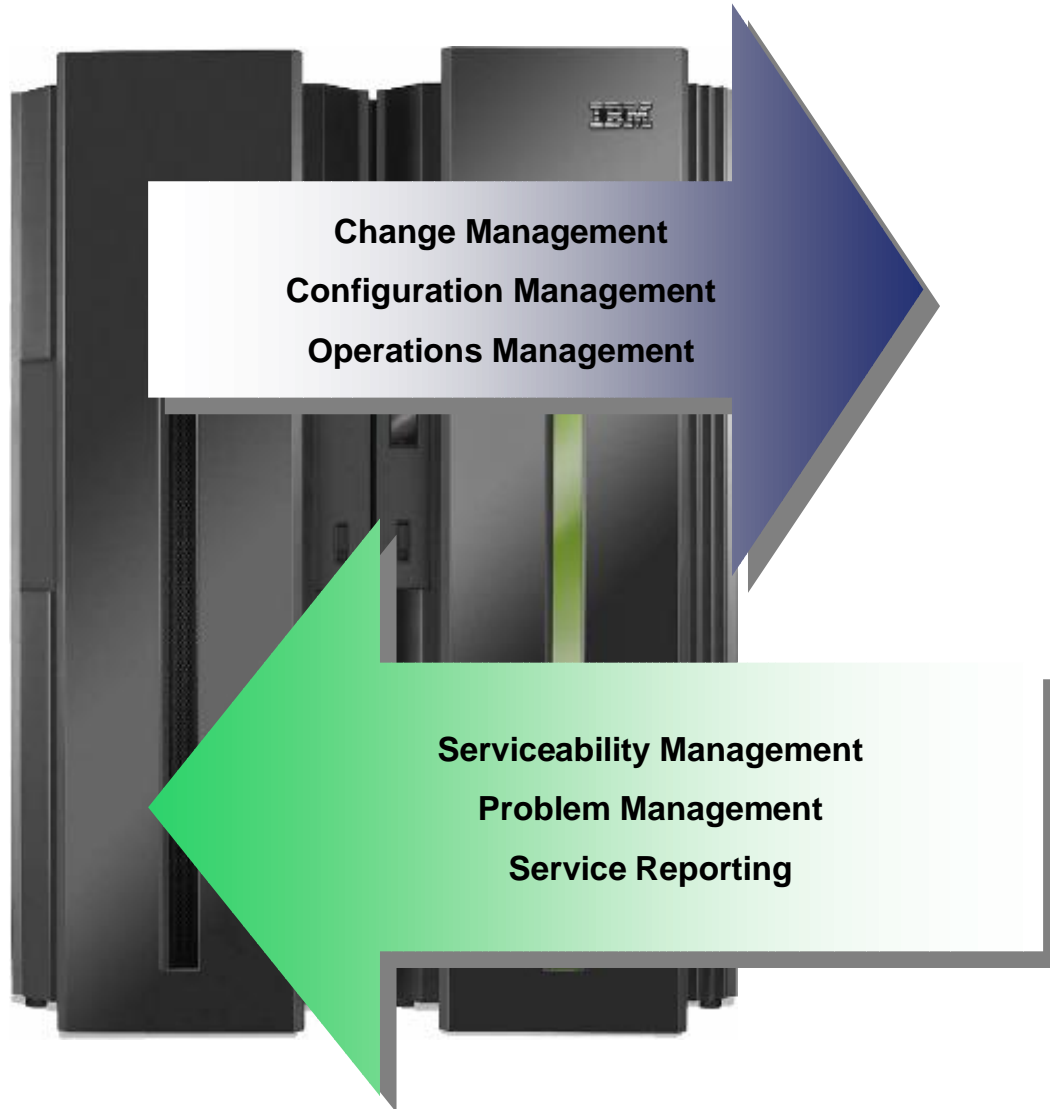
- § zBX is assembled and built at the IBM plant
 - ▶ All parts and microcode - tested and shipped as a completed package
- § zBX hardware redundancy provides improved availability
 - ▶ Redundant switches provide guaranteed connection between z196 and zBX
 - ▶ Redundant Power Distribution Units improve availability
 - ▶ Extra blowers manage heat dispersion/removal
- § zBX provides an isolated and secure network
 - ▶ Four top-of-rack switches for connection to the controlling z196
 - ▶ Traffic on user networks not affected
 - ▶ Provides the foundation for the Unified Resource Manager



**IBM zEnterprise BladeCenter Extension (zBX)
2458 - Model 002**

zEnterprise BladeCenter Extension

Hardware Management and Controls



10 GbE Switch (2X)



1000BASE-T Switch (2X)



8 Gbps FC Switch (2X)



Advanced Management Module (2X)



Top-of-Rack Switch (2X)



BladeCenter



System x Blade



IBM POWER7 and System x Blades

General purpose processors under one management umbrella



What is it?

The zBX infrastructure can host select IBM POWER7 and IBM System x blades. Each blade comes with an installed hypervisor that offers the possibility of running an application that spans z/OS, Linux on System z, AIX on POWER®, Linux or Microsoft® Windows® on System x but have it under a single management umbrella.



IBM BladeCenter PS701



IBM BladeCenter HX5 (7873)

How is it different?

- § **Complete management:** Advanced management brings operational control and cost benefits, improved security, workload management based on goals and policies.
- § **Virtualized and Optimized:** Virtualization means fewer resources are required to meet peak demands with optimized interconnection. Multiple resources (both blade types and optimizers) can reside in a single zBX.
- § **Integrated:** Integration with System z brings heterogeneous resources together that can be managed as one.
- § **Transparency:** Applications certified to run on AIX 5.3 or 6.1 on POWER7 blades and those certified to run on supported releases of Linux on System x or Windows on the System x blades will run on those blades in a zBX. No changes to deployed guest images.
- § **More applications:** Brings larger application portfolio to System z.



zEnterprise BladeCenter Extension

Flexibility for Workload Deployment and Integration



§ IBM System x Blades

- IBM BladeCenter HX5 7873 dual-socket 16-core blades
- Four supported memory configurations for zBX – 64 GB, 128 GB, 192 GB, 256 GB

§ IBM POWER7 Blades

- IBM BladeCenter PS701 8-core processor 3.0GHz
- Three configurations supported in zBX - 32 GB, 64 GB, 128 GB

§ Flexibility in ordering – acquired through existing channels, including IBM

§ Unified Resource Manager will install hypervisor on blades in the zBX

- Integrated hypervisor (KVM-based) for System x blades
- PowerVM Enterprise Edition for POWER7 blades

§ Up to 112 Blades supported on zBX

- Ability to mix and match blades in the same chassis
- Number of blades supported varies by type

§ Blades assume System x warranty and maintenance when installed in the zBX

IBM zEnterprise BladeCenter Extension (zBX) Machine Type: 2458 Mod 002

Optimizers

- IBM WebSphere DataPower Integration Appliance XI50z for zEnterprise

Select IBM Blades

- IBM BladeCenter PS701 Express
- IBM BladeCenter HX5 (7873)

**One to four – 42u racks –
capacity for up to 112 blades**

- Up to 112 PS701 Power blades
- Up to 28 HX5 System x blades
- Up to 28 DataPower XI50z blades (double-wide)

zEnterprise BladeCenter Extension Operating System Support



§ Support for Linux and Windows environments on System x blades in zBX

- 64-bit version support only
- Linux: RHEL 5.5, 5.6, 6.0 & Novell SUSE SLES 10 (SP4) and SLES 11 SP1
- Microsoft Windows Server 2008 R2 and Microsoft Windows Server 2008 (SP2) (for either we recommend Datacenter Edition)

§ Support of AIX environments on POWER7 blades in zBX

- AIX: AIX 5.3 Technology Level 12 or higher, AIX 6.1 Technology Level 5 or higher, AIX 7.1

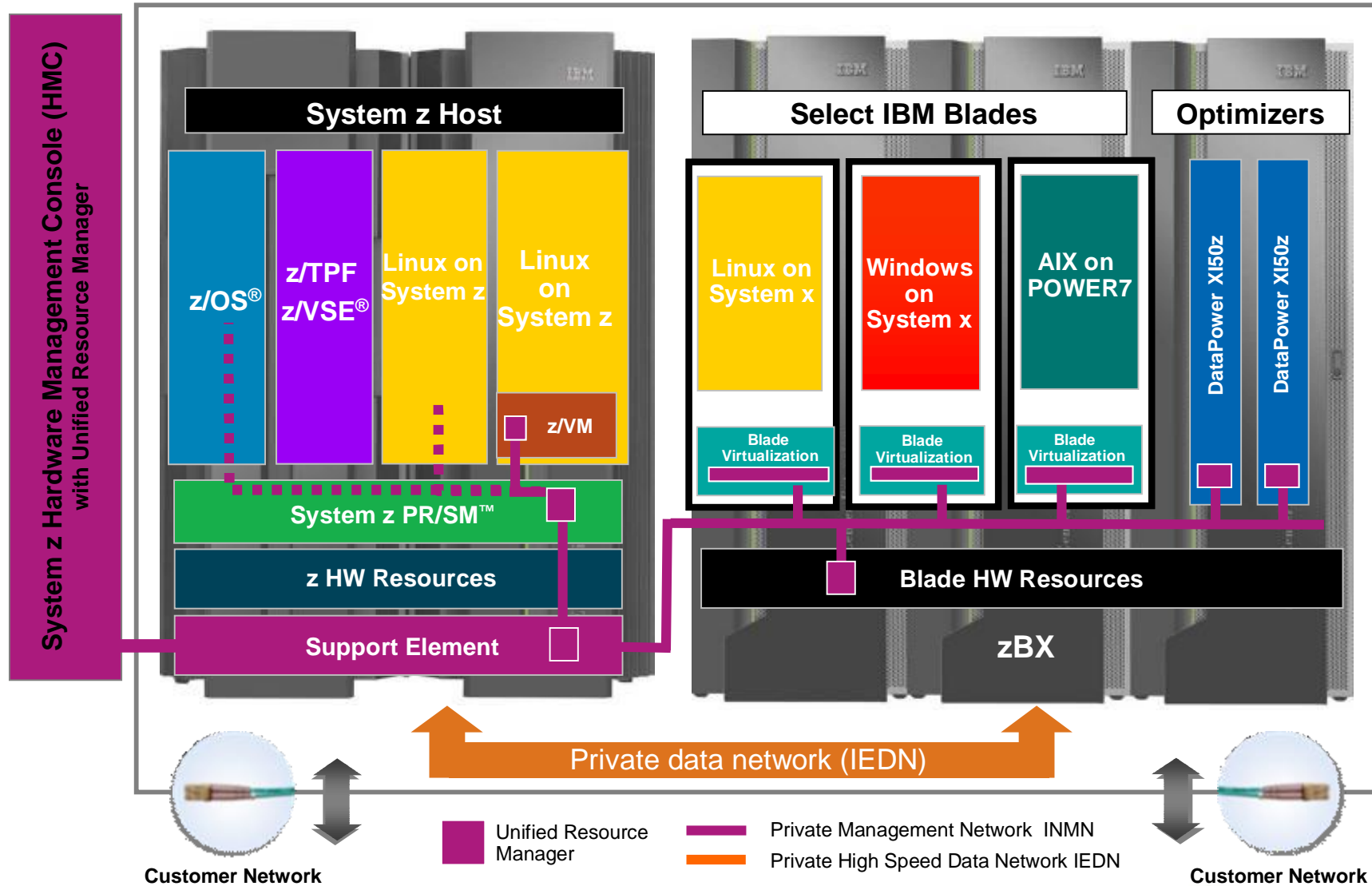
§ Certifications inherited from blades

- SAP support for Linux and Windows on x86 blades in the zBX

§ Operating Systems are customer acquired and installed

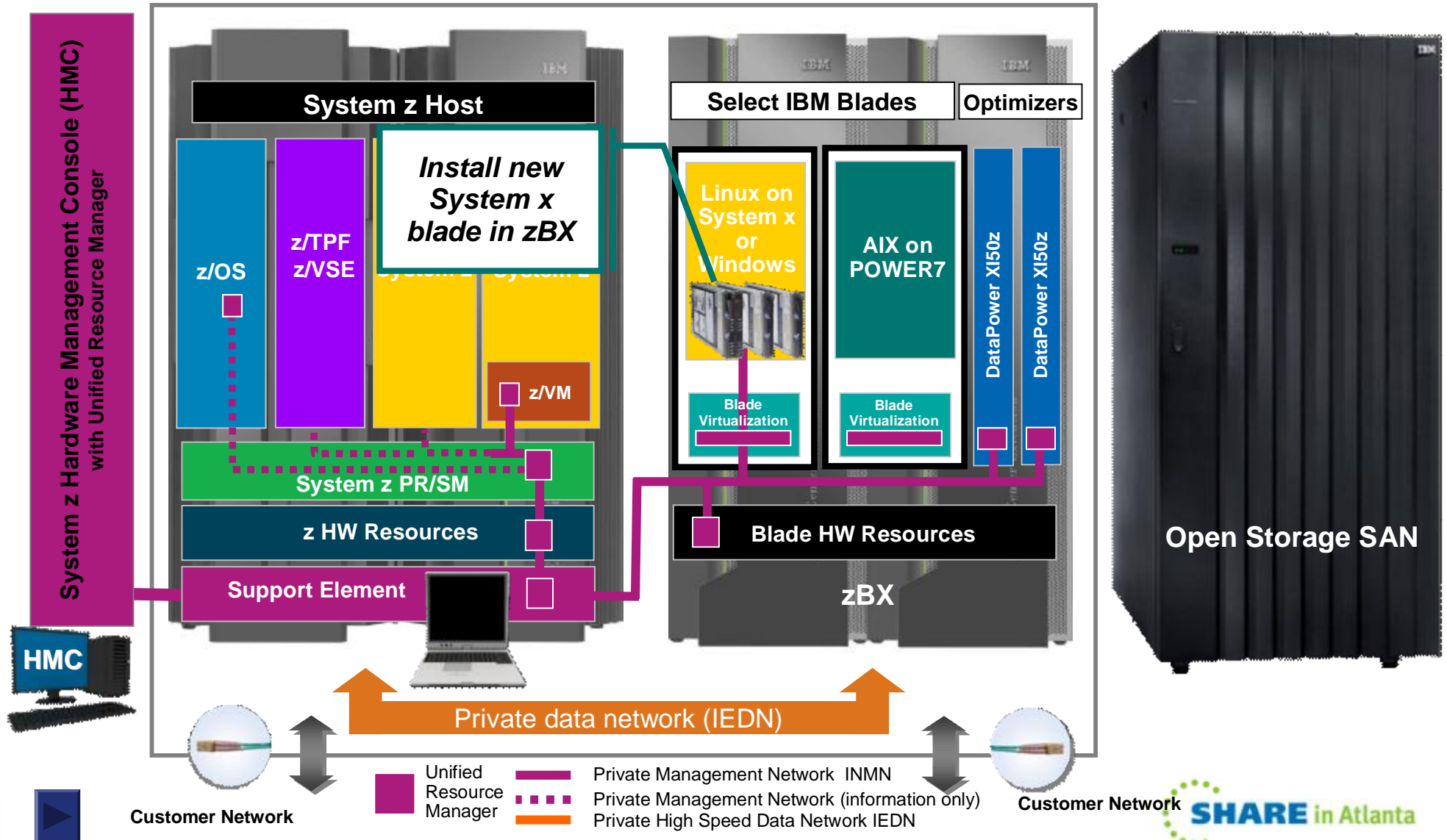


Putting zEnterprise System to the Task



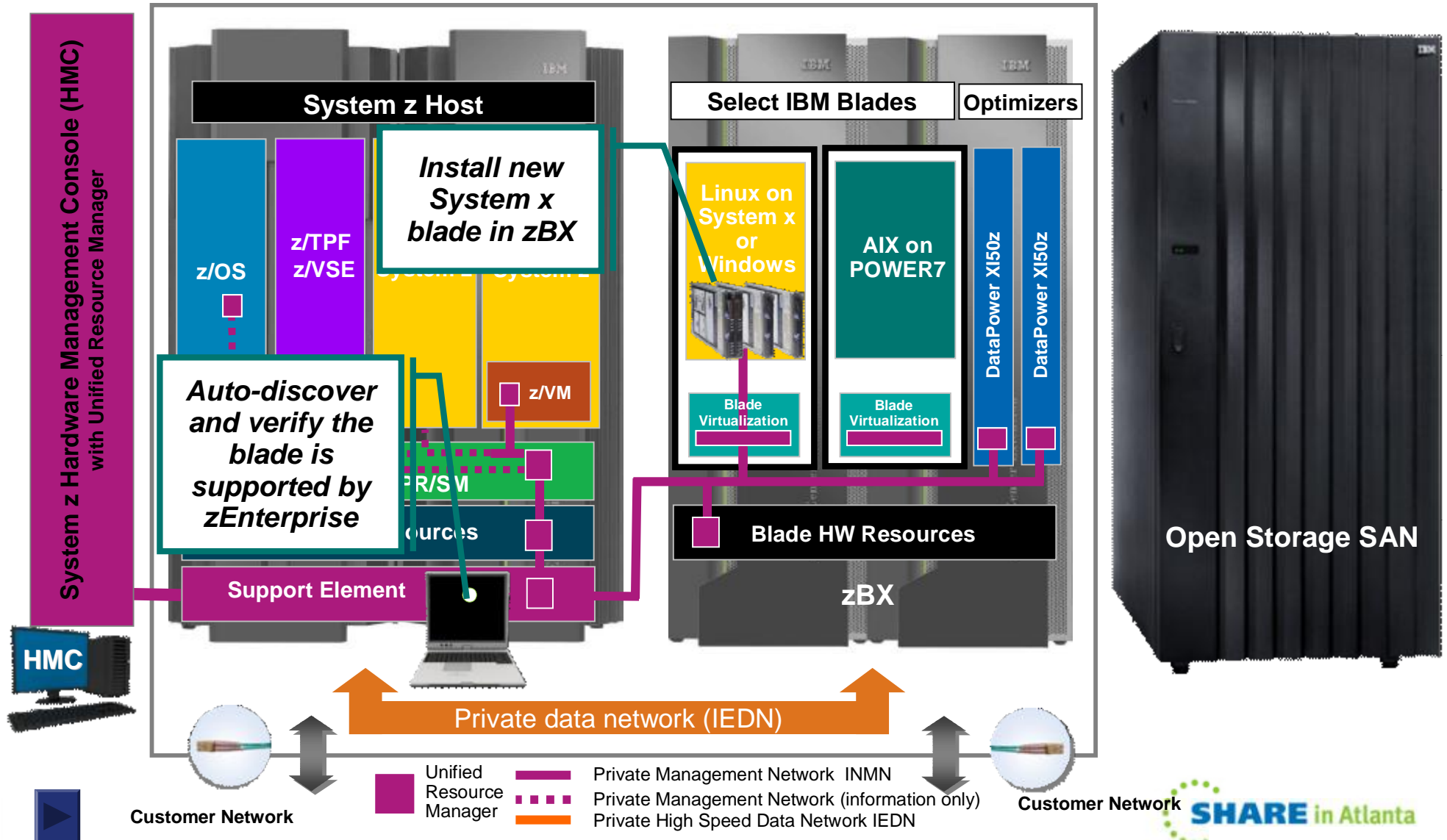
Putting zEnterprise System to the Task

Operational Controls – System x



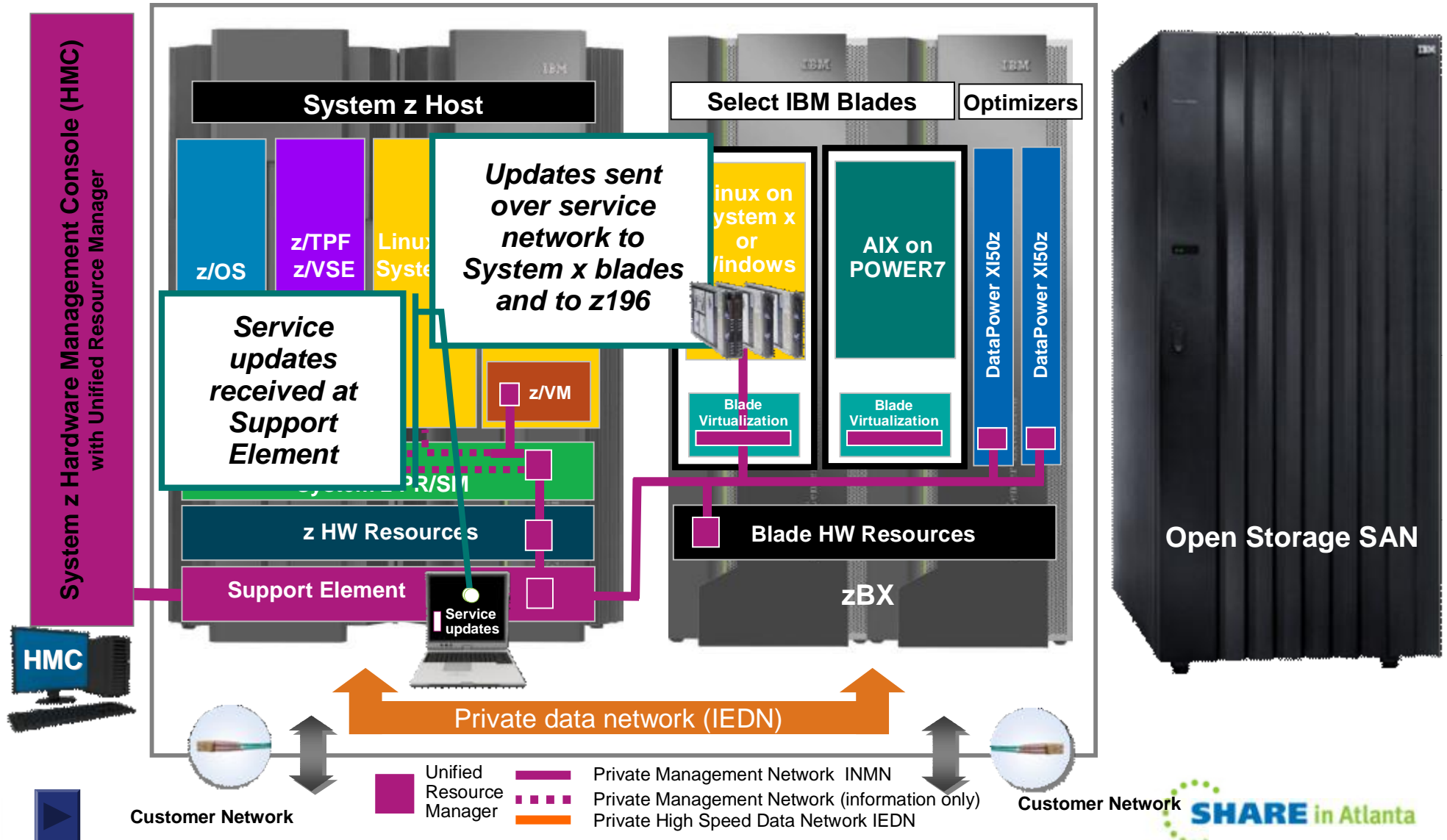
Putting zEnterprise System to the Task

Operational Controls – System x



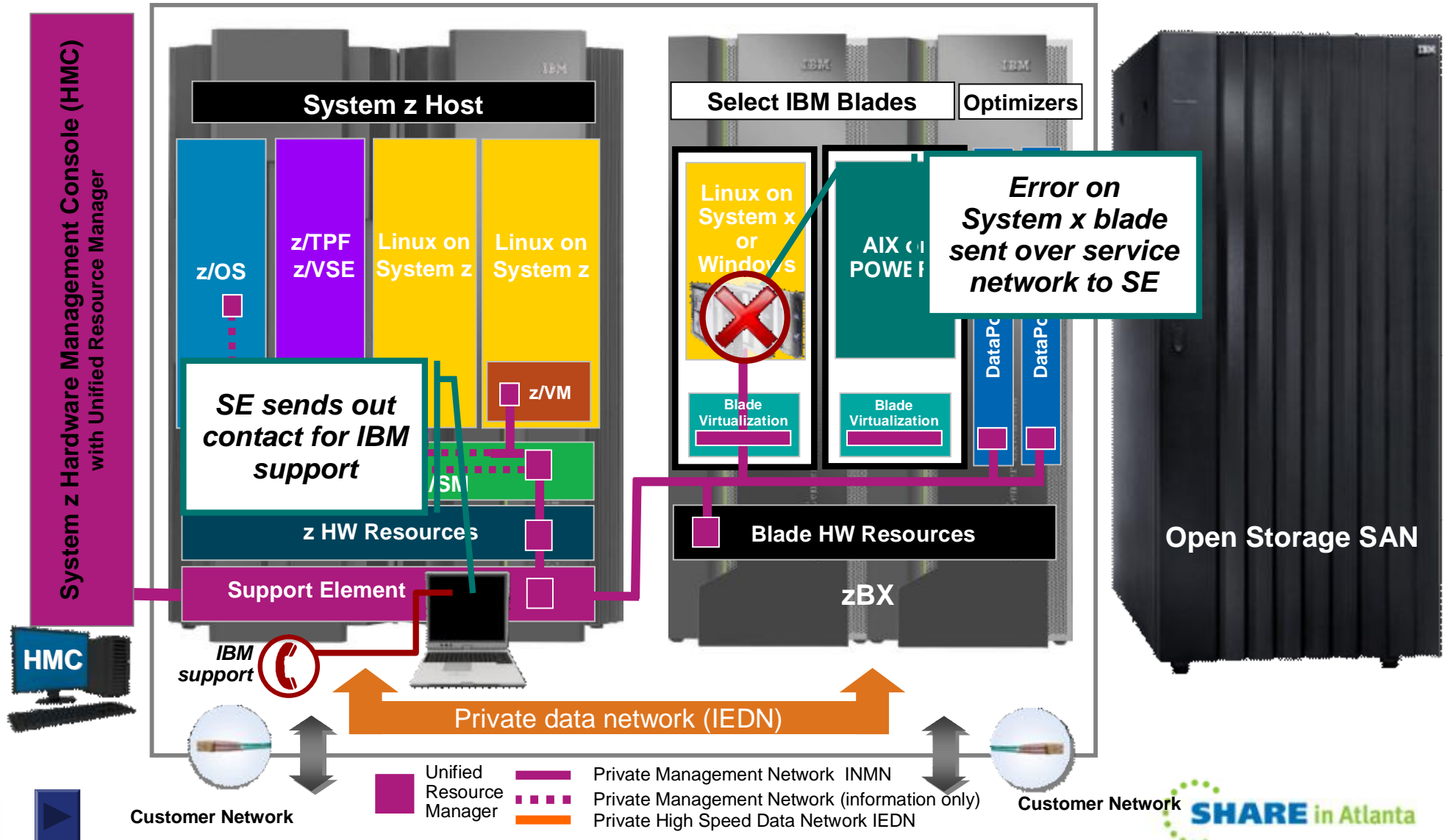
Putting zEnterprise System to the Task

Operational Controls – System x



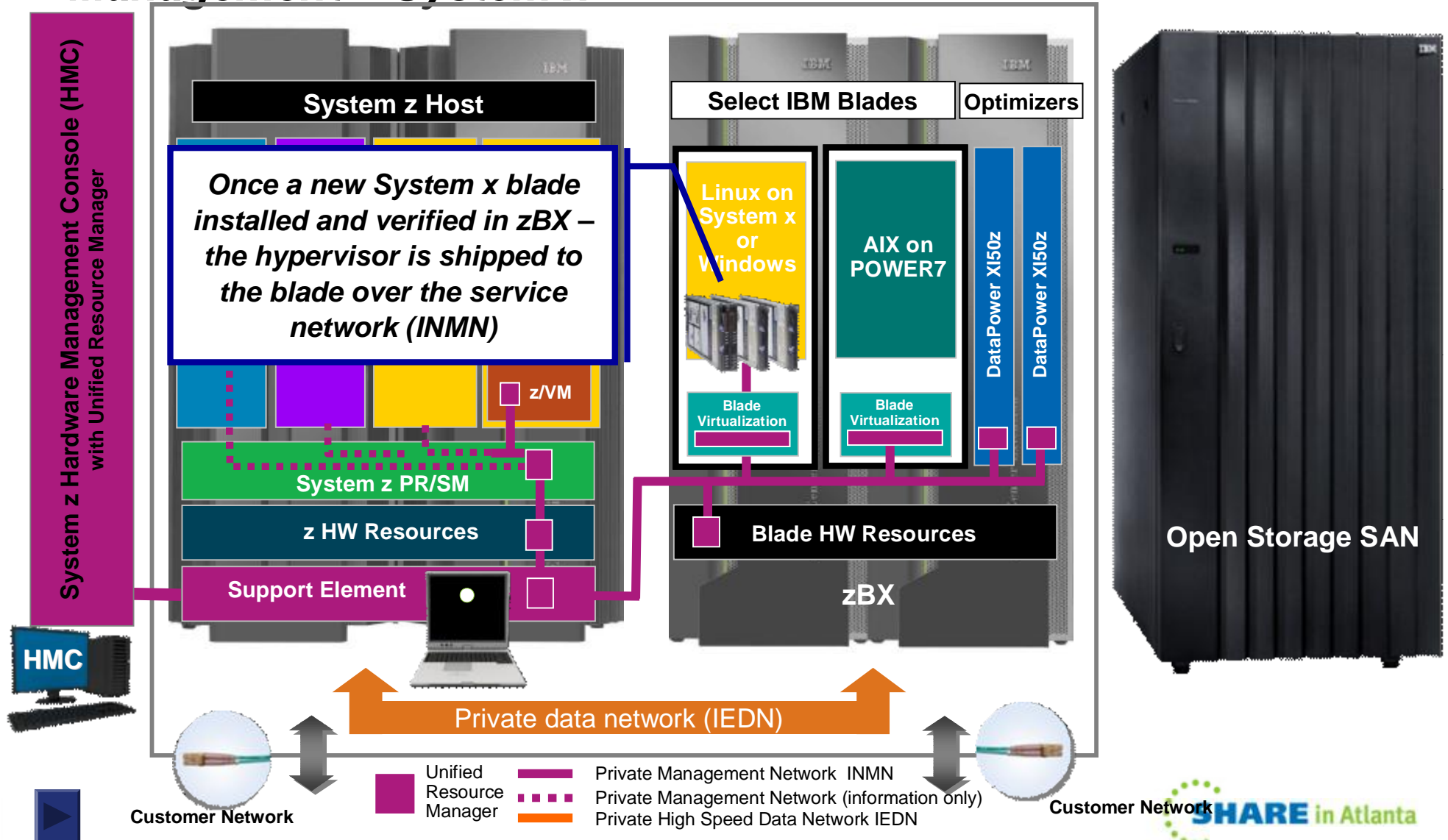
Putting zEnterprise System to the Task

Operational Controls – System x



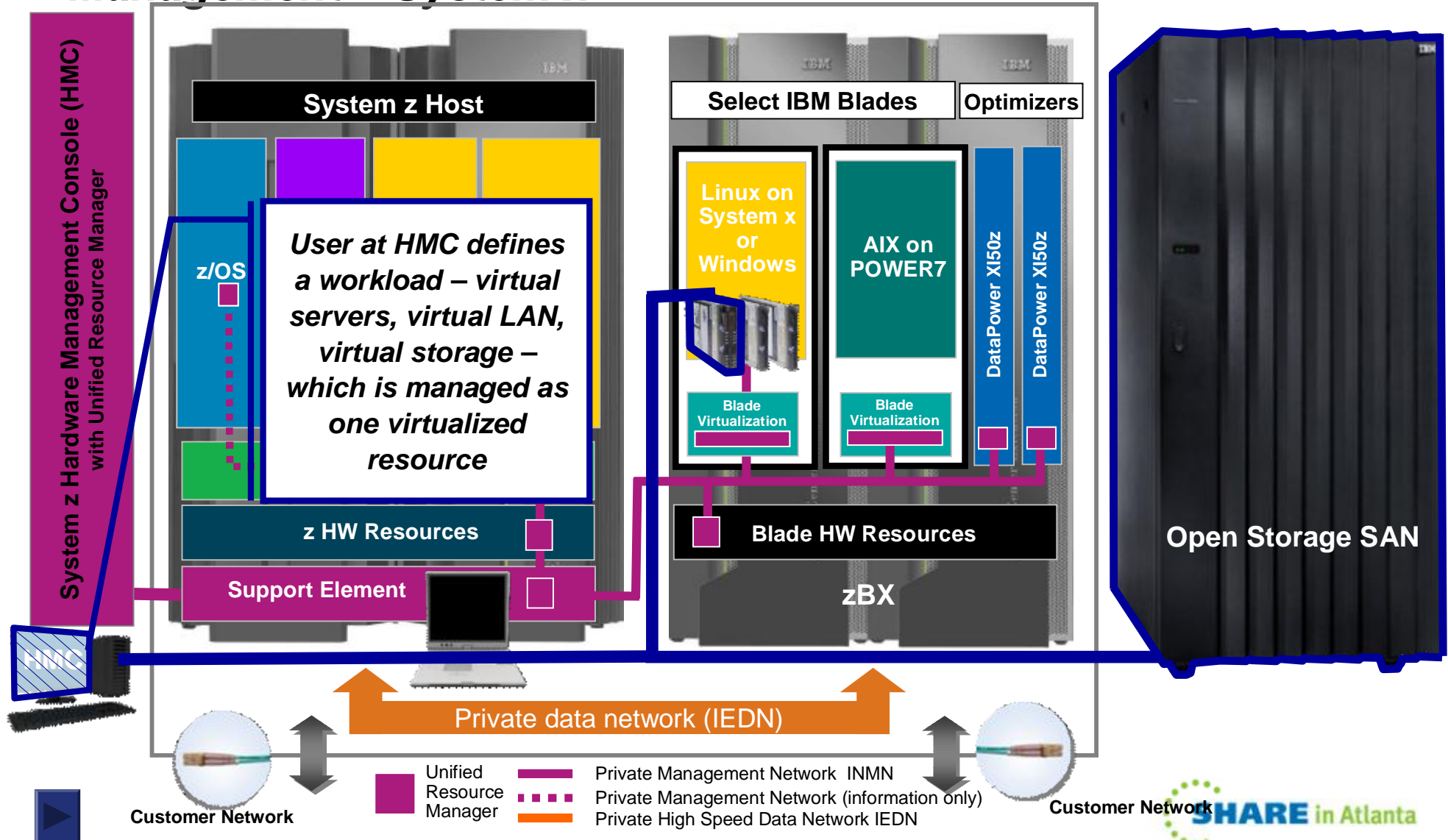
Putting zEnterprise System to the Task

Hypervisor Management and Virtual Server Management – System x



Putting zEnterprise System to the Task

Hypervisor Management and Virtual Server Management – System x



System x Blade Entitlement



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Filter: [] Tasks Views

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input checked="" type="checkbox"/>	POAESE12: Perform Model Conversion - Mozilla Firefox: IBM Ed...					PRISM		
<input type="checkbox"/>				2	65,536	x Hyp	<input checked="" type="checkbox"/>	120
<input type="checkbox"/>				1	1,824	x Hyp	<input type="checkbox"/>	
<input type="checkbox"/>				1	24,576	x Hyp	<input type="checkbox"/>	
<input type="checkbox"/>				4	24,576	x Hyp	<input type="checkbox"/>	
<input type="checkbox"/>				1	4,896	x Hyp	<input type="checkbox"/>	
<input type="checkbox"/>				2	65,536	x Hyp	<input checked="" type="checkbox"/>	300
<input type="checkbox"/>				1	32,768	PowerVM	<input checked="" type="checkbox"/>	300
<input type="checkbox"/>				2	65,536	x Hyp	<input checked="" type="checkbox"/>	300
<input type="checkbox"/>				1	32,768	PowerVM	<input checked="" type="checkbox"/>	120
<input type="checkbox"/>				2	65,536	x Hyp	<input checked="" type="checkbox"/>	300
<input type="checkbox"/>				1	32,768	PowerVM	<input checked="" type="checkbox"/>	300

Perform Model Conversion - POAESE12

Use this function to add, remove, or update system hardware and features. The system model identification may change if required for a Book related selection.

Select an option:

- Hardware upgrades
- Permanent upgrades
- zBX Entitlement**
 - Manage
 - History
- Temporary Upgrades
- Feature on Demand
- Features

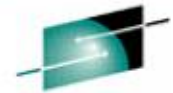
Cancel Help

Tasks: POAESE12

- CPC Details
- Toggle Lock
- Daily
- Recovery
 - Single Object Operations
- Service
- Change Management
- Remote Customization
- Operational Customization
- Object Definition
- Configuration
 - Configure Top-of-rack (TOR) Switch
 - Edit Frame Layout
 - Input/output (IO) Configuration Save and Restore
 - Manage Flash Express Allocation
 - Remove Member from Ensemble
 - System (Sysplex) Time
 - System Input/Output Configuration Analyzer
 - Transfer Vital Product Data
- Energy Management
- Monitor

Status: Exceptions and Messages

System x Blade Entitlement



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

POAESE12: Perform Model Conversion - Mozilla Firefox: IBM Edition

Manage zBX Blade Entitlement - POAESE12

Set up your zBX Blade Entitlements using the table below.

zBX Blades

Select	Location	MTMS	New Entitlement	Current Entitlement	Valid Entitlements
<input type="checkbox"/>	B01BBS14	8406-71Y/109F0FA	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS11	7873-A1G/06YH367	SYXBLADE	Not entitled	SYXBLADE
<input type="checkbox"/>	B01BBS08	8406-71Y/109F26A	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS07	7873-A1G/06YH347	SYXBLADE	SYXBLADE	SYXBLADE
<input type="checkbox"/>	B01BBS06	8406-71Y/109F27A	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS05	7873-A1G/06YH357	SYXBLADE	SYXBLADE	SYXBLADE
<input type="checkbox"/>	B01BBS04	7873-A1G/06YH344	SYXBLADE	SYXBLADE	SYXBLADE

Total: 7 Filtered: 7 Selected: 0

Tasks: POAESE12

zBX Blade entitlement counts

Entitlement Type	Current	Maximum	Spares
PWRBLADE	3	255	0
SYXBLADE	3	255	1
DPX50z	0	255	0

OK Cancel Help

Object Definition

Configuration

- Configure Top-of-rack (TOR) Switch
- Edit Frame Layout
- Input/output (IO) Configuration Save and Restore
- Manage Flash Express Allocation
- Remove Member from Ensemble
- System (Sysplex) Time
- System Input/Output Configuration Analyzer
- Transmit Vital Product Data

Energy Management

Monitor

SHARE
Technology • Consulting • Results

System x Blade Entitlement



Hardware Management Console Workplace (Version 2.11.1) - Mozilla Firefox: IBM Edition

Hardware Management Console

Single Object Operations

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Filter: [] Tasks Views

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input checked="" type="checkbox"/>	POAESE12: Perform Model Conversion - Mozilla Firefox: IBM Ex...					PR/SM		
<input type="checkbox"/>				2	85,536	x Hyp	✓	120
<input type="checkbox"/>				1	24,576	x Hyp	—	
<input type="checkbox"/>				4	24,576	x Hyp	—	
<input type="checkbox"/>				1	4,896	x Hyp	—	
<input type="checkbox"/>				2	85,536	x Hyp	✓	300
<input type="checkbox"/>				1	32,768	PowerVM	✓	300
<input type="checkbox"/>				2	85,536	x Hyp	✓	300
<input type="checkbox"/>				1	32,768	PowerVM	✓	120
<input type="checkbox"/>	B.2.11	POAESE12	No Power	2	85,536	x Hyp	✓	300
<input type="checkbox"/>	B.2.14	POAESE12	Operating	1	32,768	PowerVM	✓	300

Max Page Size: 500 Total: 11 Filtered: 11 Selected: 1

Updating zBX Entitlements... Progress - POAESE12

Function duration time: 01:51:00
Elapsed time: 00:01:00

Select	Object Name	Status
<input checked="" type="radio"/>	B01BBS11	Installing the OS
<input type="radio"/>	BladeCenters	Preparing for entitlement update...

OK Details Cancel Help

Tasks: POAESE12

- CPC Details
- Toggle Lock
- Daily
- Recovery
 - Single Object Operations
- Service
- Change Management
- Remote Customization
- Operational Customization
- Object Definition
- Configuration
 - Configure Top-of-rack (TOR) Switch
 - Edit Frame Layout
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- Energy Management
- Monitor

Status: Exceptions and Messages

System x Blade Entitlement



Hardware Management Console (Version 2.11.1) - Mozilla Firefox: IBM Edition

Hardware Management Console

Single Object Operations

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

POAASE12: Perform Model Conversion - Mozilla Firefox: IBM Edition

Manage zBX Blade Entitlement - POAASE12

Set up your zBX Blade Entitlements using the table below.

zBX Blades

Select	Location	MTMS	New Entitlement	Current Entitlement	Valid Entitlements
<input type="checkbox"/>	B01BBS14	8408-71Y/109F0FA	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS11	7873-A1G/06YH367	SYXBLADE	SYXBLADE	SYXBLADE
<input type="checkbox"/>	B01BBS08	8408-71Y/109F26A	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS07	7873-A1G/06YH347	SYXBLADE	SYXBLADE	SYXBLADE
<input type="checkbox"/>	B01BBS06	8408-71Y/109F27A	PWRBLADE	PWRBLADE	PWRBLADE
<input type="checkbox"/>	B01BBS05	7873-A1G/06YH357	SYXBLADE	SYXBLADE	SYXBLADE
<input type="checkbox"/>	B01BBS04	7873-A1G/06YH344	SYXBLADE	SYXBLADE	SYXBLADE

Total: 7 Filtered: 7 Selected: 0

zBX Blade entitlement counts

Entitlement Type	Current	Maximum	Spares
PWRBLADE	3	255	0
SYXBLADE	4	255	0
DPX150z	0	255	0

OK Cancel Help

Tasks: POAASE12

- CPC Details
- Toggle Lock
- Daily
- Recovery
- Single Object

Status: Exceptions and Messages

Object Definition

Configuration

- Configure Top-of-rack (TOR) Switch
- Edit Frame Layout
- Input/output (IO) Configuration Save and Restore
- Manage Flash Express Allocation
- Remove Member from Ensemble
- System (Sysplex) Time
- System Input/Output Configuration Analyzer
- Transfer Vital Product Data

Energy Management

Monitor

SHARE
Technology - Commerce - Results

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members > POAESE12

Virtual Servers **Hypervisors** Notes Topology

Select	Name	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	B.2.84	Operating		2	65,536 x Hyp	✓	120
<input type="checkbox"/>	B.2.85	Operating		2	65,536 x Hyp	✓	300
<input type="checkbox"/>	B.2.86	Operating		1	32,768 PowerVM	✓	300
<input type="checkbox"/>	B.2.87	Operating		2	65,536 x Hyp	✓	300
<input type="checkbox"/>	B.2.88	Operating		1	32,768 PowerVM	✓	120
<input type="checkbox"/>	B.2.11	No Power		2	65,536 x Hyp	✓	300
<input type="checkbox"/>	B.2.14	Operating		1	32,768 PowerVM	✓	300

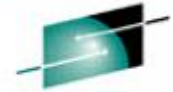
Max Page Size: 500 Total: 7 Filtered: 7 Selected: 0

Tasks: POAESE12

- CPC Details
- Toggle Lock
- Daily
- Recovery
- Service
- Change Management
- Remote Customization
- Operational Customization
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- Configuration
- Energy Management
- Monitor

Status: Exceptions and Messages

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POAEE12							
<input checked="" type="checkbox"/>	B.2.04				120		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.05				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.06				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.07				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.08				120		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.11				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.14				300		<input checked="" type="checkbox"/>	

Tasks: B.2.04

zBX Blade Details

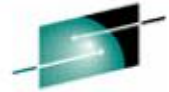
Daily

Status: Exceptions and Messages

IBM

SHARE
Technology - Governance - Security

System x Blade – New Virtual Server



Hardware Management Console

New Virtual Server

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POAEE12							
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.09						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.10						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.12						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.13						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

Tasks: B.2.04

- zBX Blade Details
- Daily

Status: Exceptions and Messages

IBM

pedebug Help Logout

Filter Tasks Views

New Virtual Server - POAEE12: B.2.04

Enter Name

Enter in a name and description for the virtual server.

Hypervisor name: B.2.04

Hypervisor type: x Hyp

Name: +WIN

Description:

< Back Next > Finish Cancel Help

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System x Blade – New Virtual Server



The screenshot displays the IBM Hardware Management Console (HMC) interface for creating a new virtual server. The main window is titled "New Virtual Server - P0AESE12:B.2.04". The "Assign Processors" step is selected in the left-hand navigation pane. The "Assign Processors" dialog box is open, showing a table of available processors and a configuration window for the virtual server.

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	P0AESE12							
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.10						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

The configuration window for the virtual server shows the following settings:

- Maximum assignable virtual processors: 16
- Virtual processors: 1

The "Next >" button is highlighted in red.



System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POAEBE12							
<input checked="" type="checkbox"/>	B.2.04				120		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.05				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.06				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.07				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.08				120		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.11				300		<input checked="" type="checkbox"/>	
<input type="checkbox"/>	B.2.14				300		<input checked="" type="checkbox"/>	

New Virtual Server - POAEBE12:B.2.04

Specify Memory

Specify the amount of dedicated memory that will be available for the virtual server. The memory amount must be specified in increments of 1 MB

Maximum assignable memory: 62914

Dedicated memory: MB

< Back **Next >** Finish Cancel Help

Tasks: B.2.04

zBX Blade Details

Daily

Status: Exceptions and Messages

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select: Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	P0AESE12	HMCAlpha: New Virtual Server - Mozilla Firefox IBM Edition						
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

Tasks: B.2.04

- zBX Blade Details
- Daily

Status: Exceptions and Messages

New Virtual Server - P0AESE12:B.2.04

- Welcome
- Enter Name
- Assign Processors
- Specify Memory
- Add Network**
- Add Storage
- Specify Boot Options
- Select Workloads
- Summary

Add Network

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

Select	Position	Network Name	Type	ID
<input checked="" type="checkbox"/>	0	Default	Intel(R) PRO1000 PCI	

Total: 1

Add Edit Remove Move Up Move Down

Manage Virtual Networks

< Back Next > Finish Cancel Help

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POAEBE12							
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

New Virtual Server - POAEBE12:B.2.04

Add Storage

Add the storage drives that the virtual server will use to access the storage resources.

Add Drive

ID:

Name: *WIN

Description:

Type: Virtio

Storage resource:

Select	Name	Description	Size	In Use
<input checked="" type="radio"/>	LUN0000		12.0 GB	-
<input type="radio"/>	LUN0001		12.0 GB	-
<input type="radio"/>	LUN0002		12.0 GB	-
<input type="radio"/>	LUN0004		12.0 GB	-
<input type="radio"/>	SAP_LINUX		500.0 GB	<input checked="" type="checkbox"/>

Total: 6

OK Cancel Help

Tasks: B.2.04

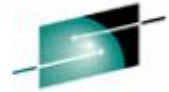
zBX Blade Details

Daily

Status: Exceptions and Messages

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System x Blade – New Virtual Server



Hardware Management Console

New Virtual Server

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

POAESE12
B.2.04
B.2.05
B.2.06
B.2.07
B.2.08
B.2.11
B.2.14

Tasks: B.2.04
iBMC Blade Details
Daily

Status: Exceptions and Messages

Hardware Management Console Workplace (Version 2.11.1) - Mozilla Firefox: IBM Edition

pedebug Help Logoff

IBM

HWMPalpha: New Virtual Server - Mozilla Firefox: IBM Edition

New Virtual Server - POAESE12:B.2.04

- Welcome
- Enter Name
- Assign Processors
- Specify Memory
- Add Network
- Add Storage**
- Specify Boot Options
- Select Workloads
- Summary

Add Storage

Add the storage drives that the virtual server will use to access the storage resources.

Select	Position	Name	Description	Type	Shared	Resource Name	Size	ID
<input checked="" type="checkbox"/>	0	WIN		Virio	-	LUN0000	12.0 GB	
Total: 1								

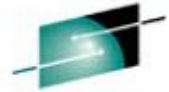
Add Edit Remove

Manage Storage Resources

< Back Next > Finish Cancel Help

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Technology - Connections - Results

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input checked="" type="checkbox"/>	P0AEBE12						<input checked="" type="checkbox"/>	120
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.10						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

Tasks: B.2.04 zBX Blade Details Daily

Status: Exceptions and Messages

IBM

pedebug Help Logout

Filter Tasks Views

New Virtual Server - P0AEBE12:B.2.04

Specify Boot Options

Choose the boot source for your virtual server.

Boot sequence:

Select	Enabled	Description
<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	Media Drive
<input type="radio"/>	<input type="checkbox"/>	Storage Drives
<input type="radio"/>	<input type="checkbox"/>	Network Adapters

Total: 3

Move Up Move Down

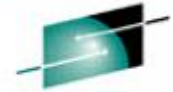
Launch Mount Virtual Media after the virtual server has been created

Enable GPMP support

< Back Next > Finish Cancel Help

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System x Blade – New Virtual Server



Hardware Management Console

New Virtual Server

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select: Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	P0A5E12	HMCAlpha: New Virtual Server - Mozilla Firefox: IBM Edition						
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

New Virtual Server - P0A5E12:B.2.04

Select Workloads

Select the workloads that this virtual server will participate in.

Use Default workload

Select workloads

Select	Name	Description
<input checked="" type="checkbox"/>	SAP WL	

Total: 1

Summary

Tasks: B.2.04

zBX Blade Details

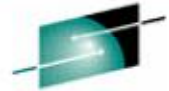
Daily

Status: Exceptions and Messages

< Back Next > Finish Cancel Help

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System x Blade – New Virtual Server



Hardware Management Console

New Virtual Server

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	P0AEBE12							
<input checked="" type="checkbox"/>	B.2.04						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.05						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.06						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08						<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.11						<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14						<input checked="" type="checkbox"/>	300

Tasks: B.2.04

zBX Blade Details

Daily

Status: Exceptions and Messages

Transferring data from 9.152.150.75

New Virtual Server - P0AEBE12:B.2.04

Summary

Verify the information below before completing the wizard.

Name:	WIN
Description:	
Virtual processors:	1
Assigned dedicated memory:	4096 MB
Network Devices:	0: Default, Intel(R) PRO/1000 PCI
Storage Devices:	0: WIN, LUN0000
Workloads:	SAP WL

< Back Next **Finish** Cancel Help

System x Blade – New Virtual Server



Hardware Management Console

Ensemble Management > alpha_1 > Members > POAE SE12

Virtual Servers | Hypervisors | Blades | Topology

Select	Name	Hypervisor	Status	Processors	Memory (MB)	Workload(s)	Type
<input type="checkbox"/>	SAP LINUX	B 2.04	Operating		24,578	SAP WL	x Hyp
<input type="checkbox"/>	SAP VM	B 2.04	Operating	4	24,578	SAP WL	x Hyp
<input type="checkbox"/>	WIN	B 2.04	Not Operating	1	4,896	SAP WL	x Hyp
<input type="checkbox"/>	APR1	B 2.06	Operating	32	16,384	SAP WL	PowerVM

Max Page Size: 500 | Total 4 | Filtered: 4 | Selected: 0

Tasks: POAE SE12

- CPC Details
- Toggle Lock
- Daily
- Recovery
- Service
- Change Management
- Remote Customization
- Operational Customization
- Object Definition
- Configuration
- Energy Management
- Monitor

Status: Exceptions and Messages

System x Blade – Virtual Media



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Filter Tasks Views

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POV	HMCalpha: Mount Virtual Media - Mozilla Firefox: IBM Edition				PR/SM		
<input type="checkbox"/>	B.2				65,536 x Hyp		<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2				1,024 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>	B.2				24,576 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>	B.2				24,576 x Hyp		<input type="checkbox"/>	
<input checked="" type="checkbox"/>	B.2				4,096 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>	B.2				65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2				32,768 PowerVM		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2				65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2				32,768 PowerVM		<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2				65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2				32,768 PowerVM		<input checked="" type="checkbox"/>	300

Mount Virtual Media - WIN

Welcome

Welcome to the Mount Virtual Media wizard

Use this wizard to mount virtual media onto a Virtual Server's DVD.

Show this welcome page next time

Tasks: VMN

Virtual Server Detail
Toggle Lock

Configuration

- Delete Virtual Server
- Migrate Virtual Server
- Mount Virtual Media
- New Virtual Server Based On
- Open Graphical Console
- Open Text Console

Monitor

Next >

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System x Blade – Virtual Media



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select Name Member Status Processors Memory (MB) Type Auto Start Shutdown Timeout (s)

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	PO1	HMCAlpha: Mount Virtual Media - Mozilla Firefox: IBM Edition				PR/SM		
<input type="checkbox"/>	B.2				85,536 x Hyp		✓	120
<input type="checkbox"/>	B.2				1,024 x Hyp		-	
<input type="checkbox"/>	B.2				24,576 x Hyp		-	
<input type="checkbox"/>	B.2				24,576 x Hyp		-	
<input type="checkbox"/>	B.2				4,096 x Hyp		-	
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	300
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	120
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	300

Mount Virtual Media - WIN

Select Source

Choose the type and location for the ISO image.

- Image from HMC media
- Image from remote workstation
- Available images

virtio-win.iso

virtio-win.iso

GPMP Installation Image

< Back Next > Finish Cancel Help

Tasks: VMI

Virtual Server Detail

Toggle Lock

Configuration

- Delete Virtual Server
- Migrate Virtual Server
- Mount Virtual Media
- New Virtual Server Based On
- Open Graphical Console
- Open Text Console

Monitor

Status: Exceptions and Messages

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System x Blade – Virtual Media



HWAlpha: Hardware Management Console Workplace (Version 2.11.1) - Mozilla Firefox: IBM Edition

Hardware Management Console

Mount Virtual Media

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Select < Name < Member < Status < Processors < Memory (MB) < Type < Auto Start < Shutdown Timeout (s) <

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	PCU	HWAlpha: Mount Virtual Media - Mozilla Firefox: IBM Edition				PR/SM		
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	120
<input type="checkbox"/>	B.2				1,024 x Hyp		-	
<input type="checkbox"/>	B.2				24,576 x Hyp		-	
<input type="checkbox"/>	B.2				24,576 x Hyp		-	
<input checked="" type="checkbox"/>	B.2				4,096 x Hyp		-	
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	300
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	120
<input type="checkbox"/>	B.2				65,536 x Hyp		✓	300
<input type="checkbox"/>	B.2				32,768 PowerVM		✓	300

Mount Virtual Media - WIN

Summary

Click Finish to upload and mount the selected ISO image to the Virtual Server.

Upload Source: Available images
Selected ISO: virtio-win.iso
Make Primary Boot Device: No

Tasks: WIN

Virtual Server Detail
Toggle Lock

< Back Next > **Finish** Cancel Help

Status: Exceptions and Messages

Configuration

- Delete Virtual Server
- Migrate Virtual Server
- Mount Virtual Media
- New Virtual Server Based On
- Open Graphical Console
- Open Text Console

Monitor

System x Blade – Virtual Media



Hardware Management Console

Ensemble Management > alpha_1 > Members

Members Virtual Servers Hypervisors Blades Topology

Mount Virtual Media Progress - WIN

Function duration time: 00:10:00
Elapsed time: 00:00:02

Select	Name	Member	Status	Processors	Memory (MB)	Type	Auto Start	Shutdown Timeout (s)
<input type="checkbox"/>	POA					PR/SM		
<input type="checkbox"/>	B.2			2	65,536 x Hyp		<input checked="" type="checkbox"/>	120
<input type="checkbox"/>				1	1,024 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>				1	24,576 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>				4	24,576 x Hyp		<input type="checkbox"/>	
<input checked="" type="checkbox"/>				1	4,096 x Hyp		<input type="checkbox"/>	
<input type="checkbox"/>	B.2			2	65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2			1	32,768 PowerVM		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.07	POAESE12	Operating	2	65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.08	POAESE12	Operating	1	32,768 PowerVM		<input checked="" type="checkbox"/>	120
<input type="checkbox"/>	B.2.11	POAESE12	No Power	2	65,536 x Hyp		<input checked="" type="checkbox"/>	300
<input type="checkbox"/>	B.2.14	POAESE12	Operating	1	32,768 PowerVM		<input checked="" type="checkbox"/>	300

Max Page Size: 500 Total: 12 Filtered: 12 Selected: 1

Tasks: WIN

- Virtual Server Details
- Toggle Lock
- Daily
- Operational Customization
- Configuration
 - Delete Virtual Server
 - Migrate Virtual Server
 - Mount Virtual Media
 - New Virtual Server Based On
 - Open Graphical Console
 - Open Text Console
- Monitor

Status: Exceptions and Messages

System x Blade – Virtual Server Details



Hardware Management Console

Virtual Server Details

Ensemble Management > alpha_1 > Members > POAESE12

Virtual Servers | Hypervisors | Blades | Topology

Select	Name	Hypervisor	Status	Processors	Memory (MB)	Workload(s)	Type
<input type="checkbox"/>	SAP LINUX	B 2.04	Operating		1	24,576 SAP WL	x Hyp
<input type="checkbox"/>	SAP WIN	B 2.04	Operating		4	24,576 SAP WL	x Hyp
<input type="checkbox"/>	ADR1				16,384	SAP WL	PowerVM

Virtual Server Details - SAP WIN

General | Status | Processors | Memory | Network | Storage | **Options** | Workloads

Boot sequence:

Select	Enabled	Description
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Storage Drives (IDE only)
<input type="checkbox"/>	<input type="checkbox"/>	Network Adapters
<input type="checkbox"/>	<input type="checkbox"/>	Media Drive

Total: 3

Keyboard language: en_GB

Autostart virtual server with hypervisor

Enable GPMP support

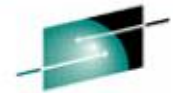
GPMP version: Unavailable

In-band monitoring

Object Definition
configuration
energy management
monitor

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System x Blade – Graphical Console



The screenshot displays the IBM Hardware Management Console (HMC) graphical console interface. The main window is titled "Graphical Console : SAP WMI" and shows a disconnected state. The interface includes a left-hand navigation pane with sections for "Welcome", "Systems Management", "Ensemble Management", "HMC Management", "Service Management", and "Tasks Index". The "Ensemble Management" section is expanded to show "alpha_1", "Members", "PDAESE12", and "Workloads". The "SAP" icon under "Members" is highlighted with a red box. The main area displays a "Server Manager (SAPTEST-WMI)" window with a tree view showing "Roles", "Features", "Diagnostics", "Configuration", "Task Scheduler", "Windows Firewall with Advanced Security", "Services", "WMI Control", "Local Users and Groups", and "Storage". A "Console Root" window is also open, showing a table with the following data:

Name
SAP Systems

The bottom status bar indicates "Last Refresh: Today at 17:12" and provides a "Configure refresh" link. The IBM logo and "SHARE" branding are visible in the bottom right corner.

System x Blade – Monitors Dashboard



Hardware Management Console

Ensemble Management > alpha_1 > Members > POA5E12

Virtual Servers Hypervisors Blades Topology

Monitors Dashboard

zBX Blades

Select	Name	Type	Processor Usage (%)	Memory Usage (%)	Network I/O Usage (%)	Storage (Bytes/second)
<input checked="" type="checkbox"/>	B.2.04	System x	0		39	0
<input type="checkbox"/>	B.2.05	System x	0		0	5
<input type="checkbox"/>	B.2.06	POWER	0		0	4
<input type="checkbox"/>	B.2.07	System x	0		0	6
<input type="checkbox"/>	B.2.08	POWER	0		0	10

Virtual Servers

Select	Name	Hypervisor	Processor Usage (%)	Memory Usage (%)
<input type="checkbox"/>	AD051	B.2.06	0	
<input checked="" type="checkbox"/>	SAP LINUX	B.2.04		
<input checked="" type="checkbox"/>	SAP WIN	B.2.04		

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System x Blade – Monitors Dashboard



Hardware Management Console

Ensemble Management > alpha_1

Select	Name	Member	Hypervisor	Status	Type
<input type="checkbox"/>	SAP LINUX	P0AESE12	B 2.04	Operating	x Hyp
<input type="checkbox"/>	SAP WIN	P0AESE12	B 2.04	Operating	x Hyp
<input type="checkbox"/>				Operating	PowerVM

Dashboard Histogram Display - P0AESE12

Virtual Servers display for SAP LINUX B.2.04

Display Type: Processor Usage
Frequency and Duration: 15 seconds for 1 hour

Processor Usage (%)

Percent (%)

100
75
50
25
0

16:00:00 16:10:00 16:20:00 16:30:00

Mar 10, 2012

• CPU

Clear Pause Export Close Help

Status: Exception

Monitor

- Load Balancing Report
- Monitors Dashboard
- Network Monitors Dashboard
- Workloads Report

System x Blade – Monitors Dashboard



Hardware Management Console

Ensemble Management > alpha_1

Select	Name	Member	Hypervisor	Status	Type
<input type="checkbox"/>	SAP LINUX	P0A0SE12	B.2.04	Operating	x Hyp
<input type="checkbox"/>				Operating	x Hyp
<input type="checkbox"/>				Operating	PowerVM

zBX Blades display for B.2.04

Display Type: Storage Usage (KBytes/second) | Frequency and Duration: 15 seconds for 1 hour

Storage (KBytes/second)

Mar 10, 2012

Clear Pause Export Close Help

Monitor

- Load Balancing Report
- Monitors Dashboard
- Network Monitors Dashboard
- Workloads Report

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Related SHARE Sessions

- *10847: HMC Unified Resource Manager Web Services API and User Interface Enhancements*
 - Tuesday, March 13, 2012: 1:30 PM-2:30 PM
 - International Ballroom B (Omni Hotel CNN Center)
 - Speaker: Joe Gdaniec (IBM Corporation)

- *10328: zEnterprise Unified Resource Manager: What's in it for z/VM?*
 - Wednesday, March 14, 2012: 11:00 AM-12:00 PM
 - Magnolia (Omni Hotel CNN Center)
 - Speaker: Scott Loveland (IBM Corporation)

Related Sessions (continued)

- *10658: zManager: Platform Performance Management*
 - Wednesday, March 14, 2012: 11:00 AM-12:00 PM
 - International Ballroom C (Omni Hotel CNN Center)
 - Speaker: Hiren Shah (IBM Corporation)
- *10631: Unified Resource Manager Hands-On Lab - Part 1 of 2*
 - Wednesday, March 14, 2012: 1:30 PM-2:30 PM
 - Pine (Omni Hotel CNN Center)
 - Speaker: Hiren Shah (IBM Corporation)
- *10632: Unified Resource Manager Hands-On Lab - Part 2 of 2*
 - Wednesday, March 14, 2012: 3:00 PM-4:00 PM
 - Pine (Omni Hotel CNN Center)
 - Speaker: Hiren Shah (IBM Corporation)

Questions?



धन्यवाद

Hindi

Kiitos

Finnish

ขอขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

多謝

Traditional Chinese

Thank You

English

Dank U wel

Dutch

Takk

Norwegian

Tack

Swedish

Grazie

Italian

Obrigado

Portuguese

Merci

French

多谢

Simplified Chinese

நன்றி

Tamil

ありがとうございました

Japanese

Danke

German

감사합니다

Korean



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IBM eServer	PR/SM		

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Notes:

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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