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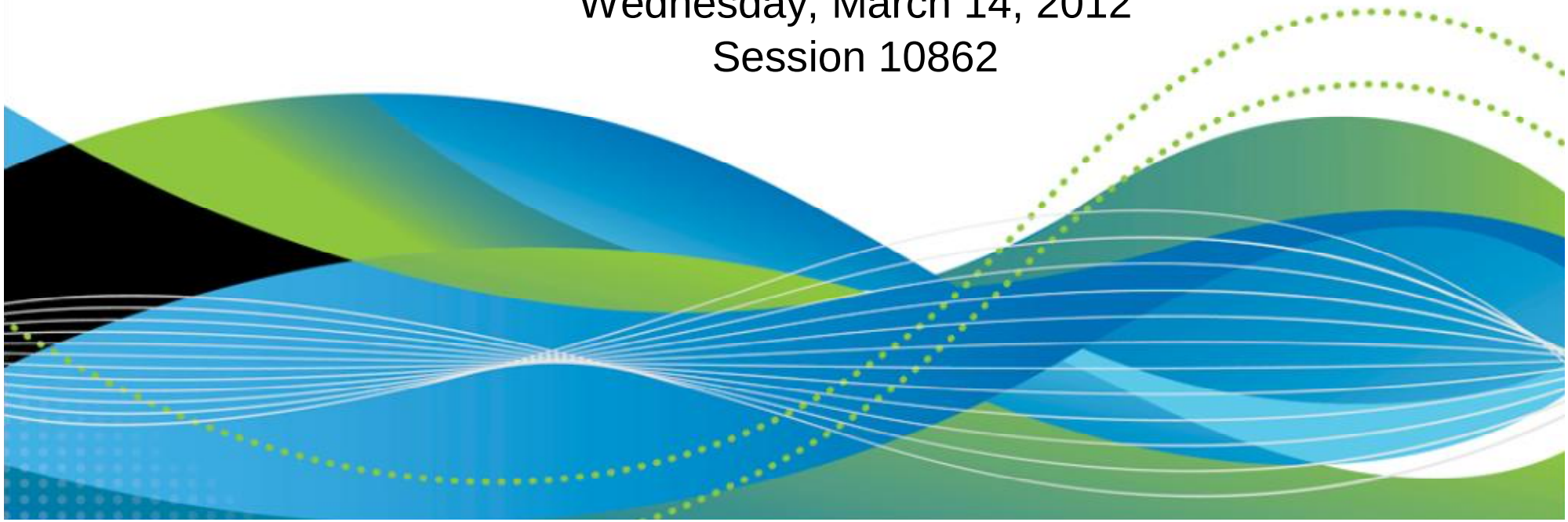
IBM zEnterprise zBX x86 Blade Integration and Unified Resource Manager Virtualization

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)

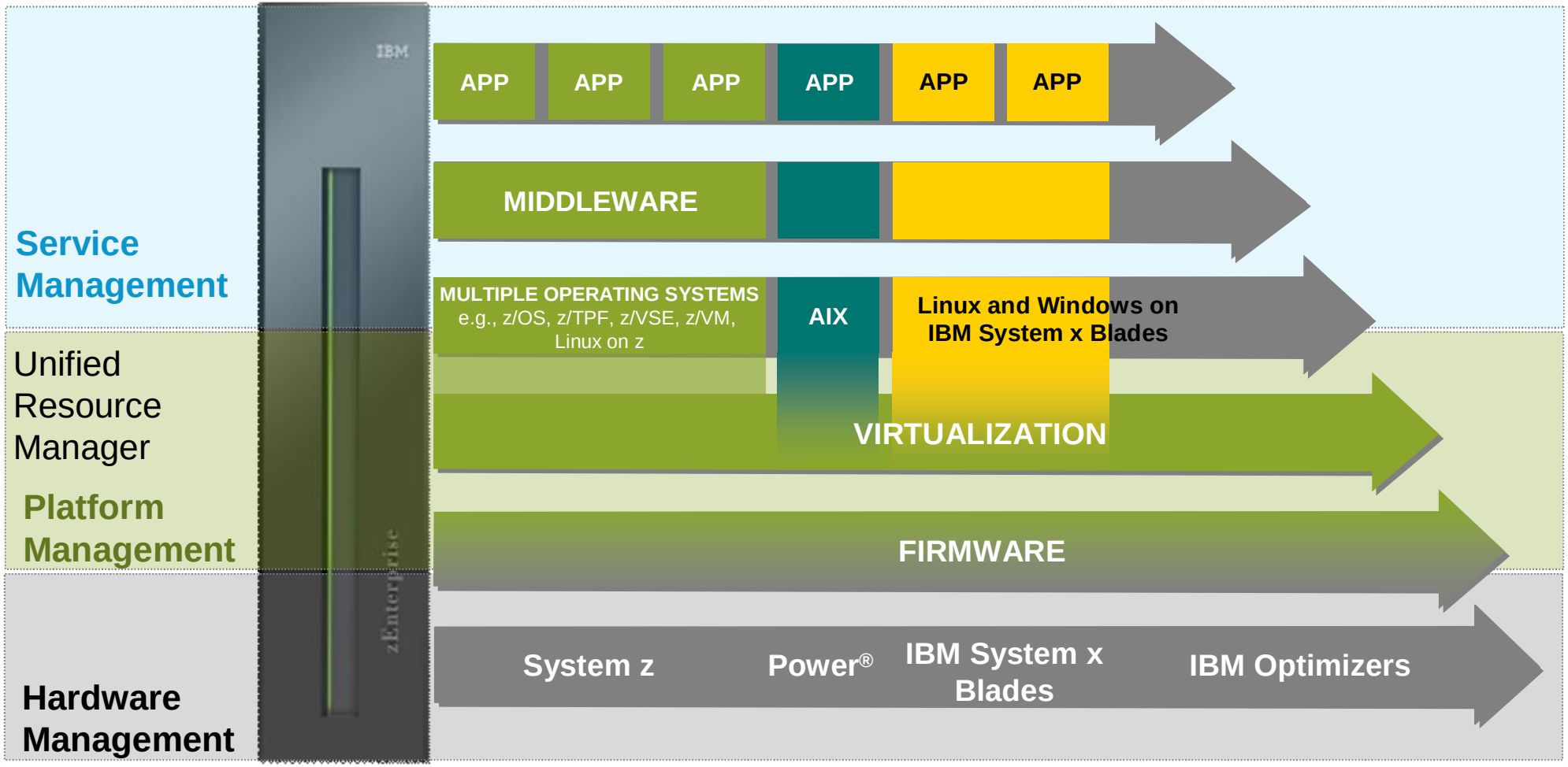
- Ideal for large scale data and transaction serving and mission critical applications
- Most efficient platform for Large-scale Linux® consolidation
- Leveraging a large portfolio of z/OS® and Linux on System z applications
- Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)

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

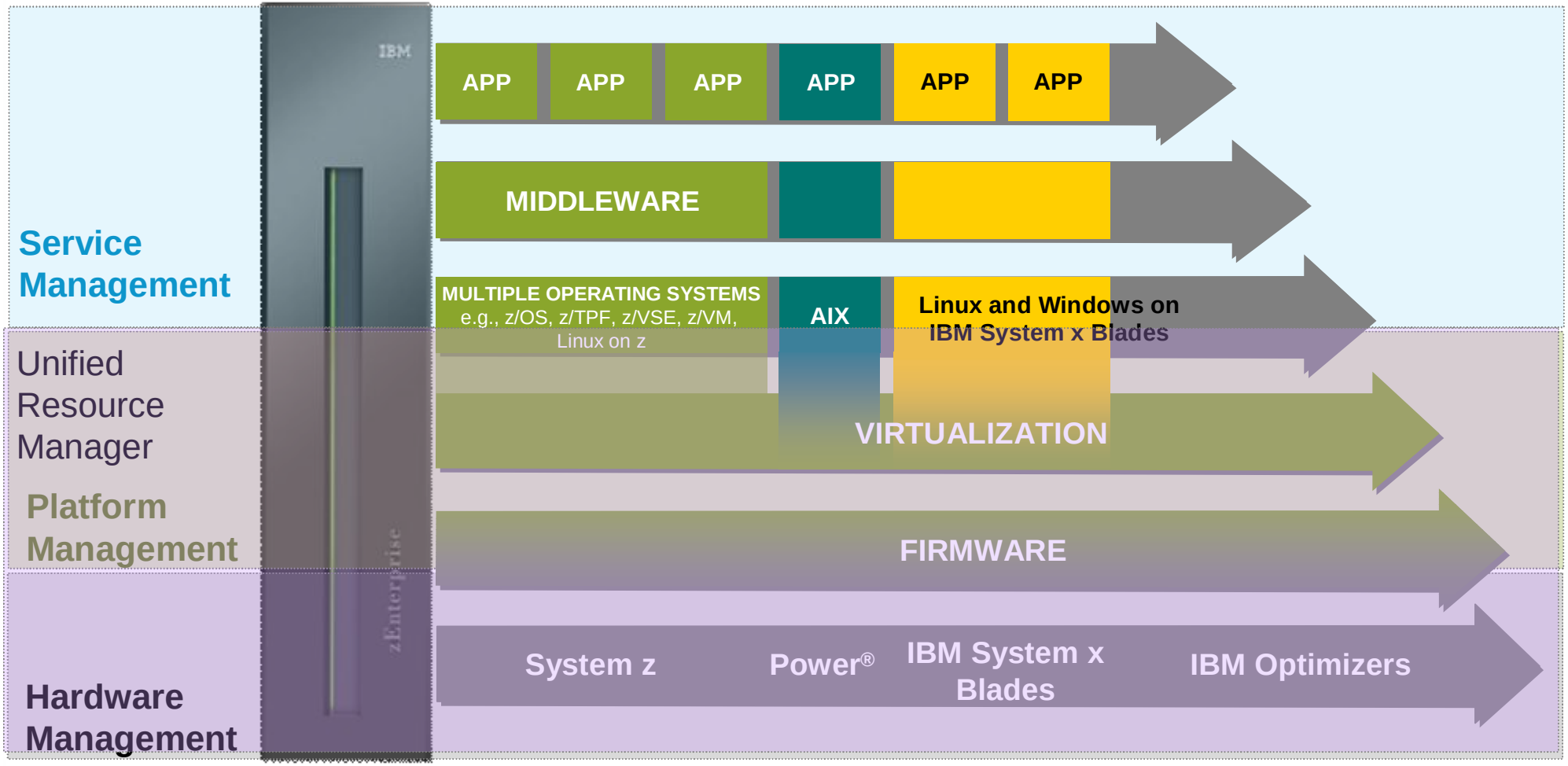
IBM zEnterprise Unified Resource Manager

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

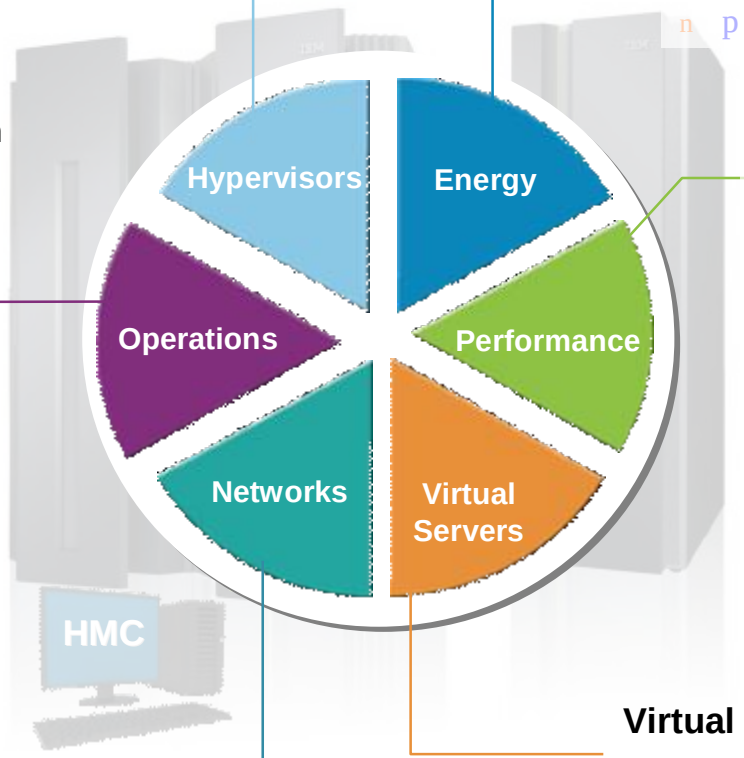
- Integrated deployment and configuration of hypervisors
- Hypervisors (except z/VM) shipped and serviced as firmware.
- Management of ISO images.
- Creation of virtual networks.
- Manage and control communication between virtual server operating systems and the hypervisor.

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.

Network Management

- Management of virtual networks including access control



Energy Management

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

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

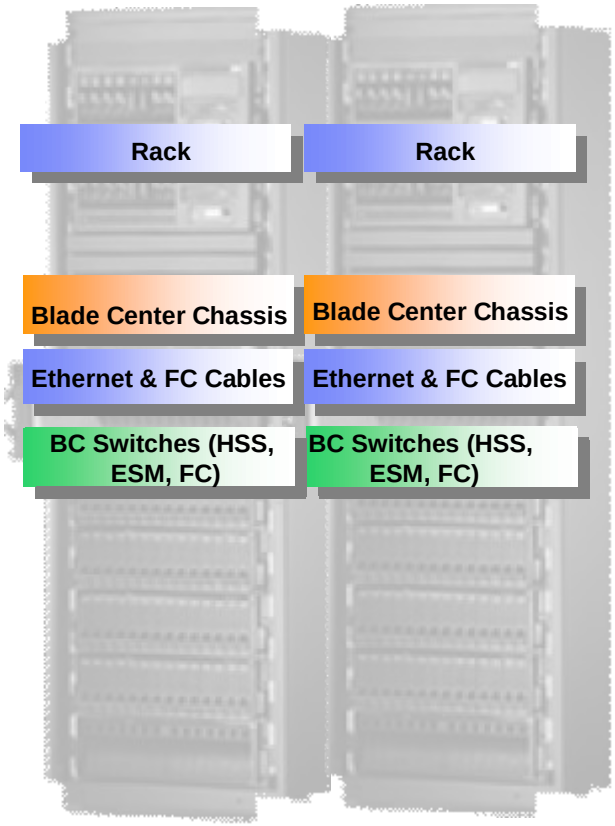
Virtual Server Lifecycle Management

- 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

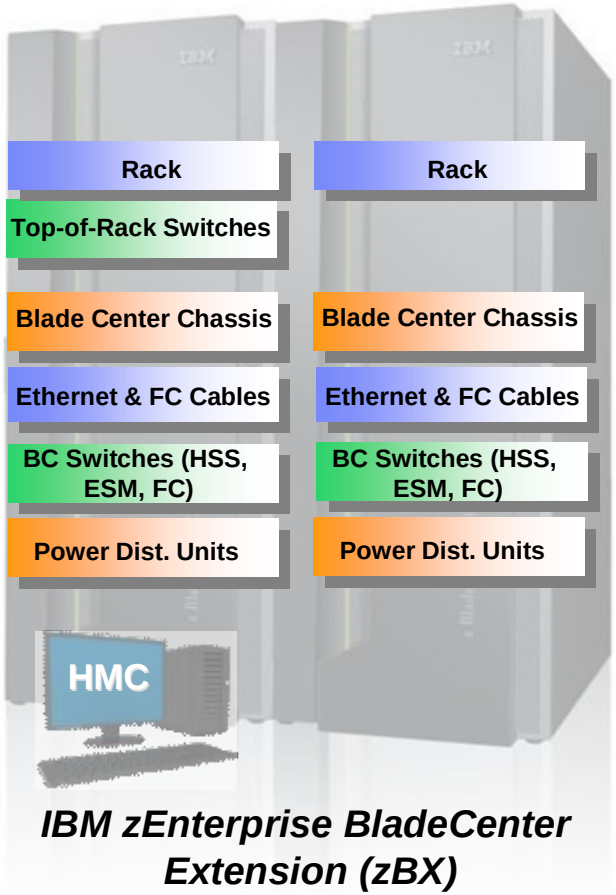
IBM zEnterprise BladeCenter Extension
A Uniquely Configured Extension



Rack infrastructure hosting IBM BladeCenters

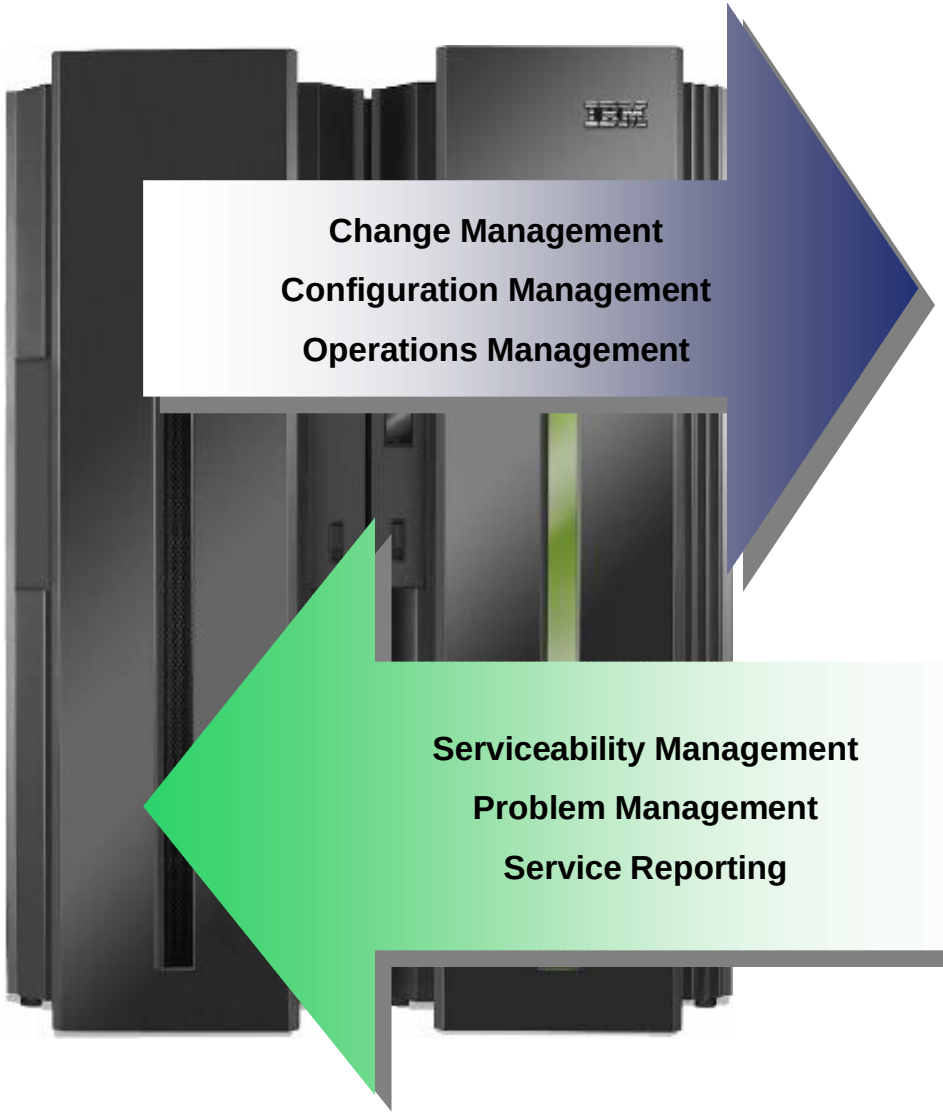
Looks like a rack with BladeCenters but much more...

- 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 though 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)*

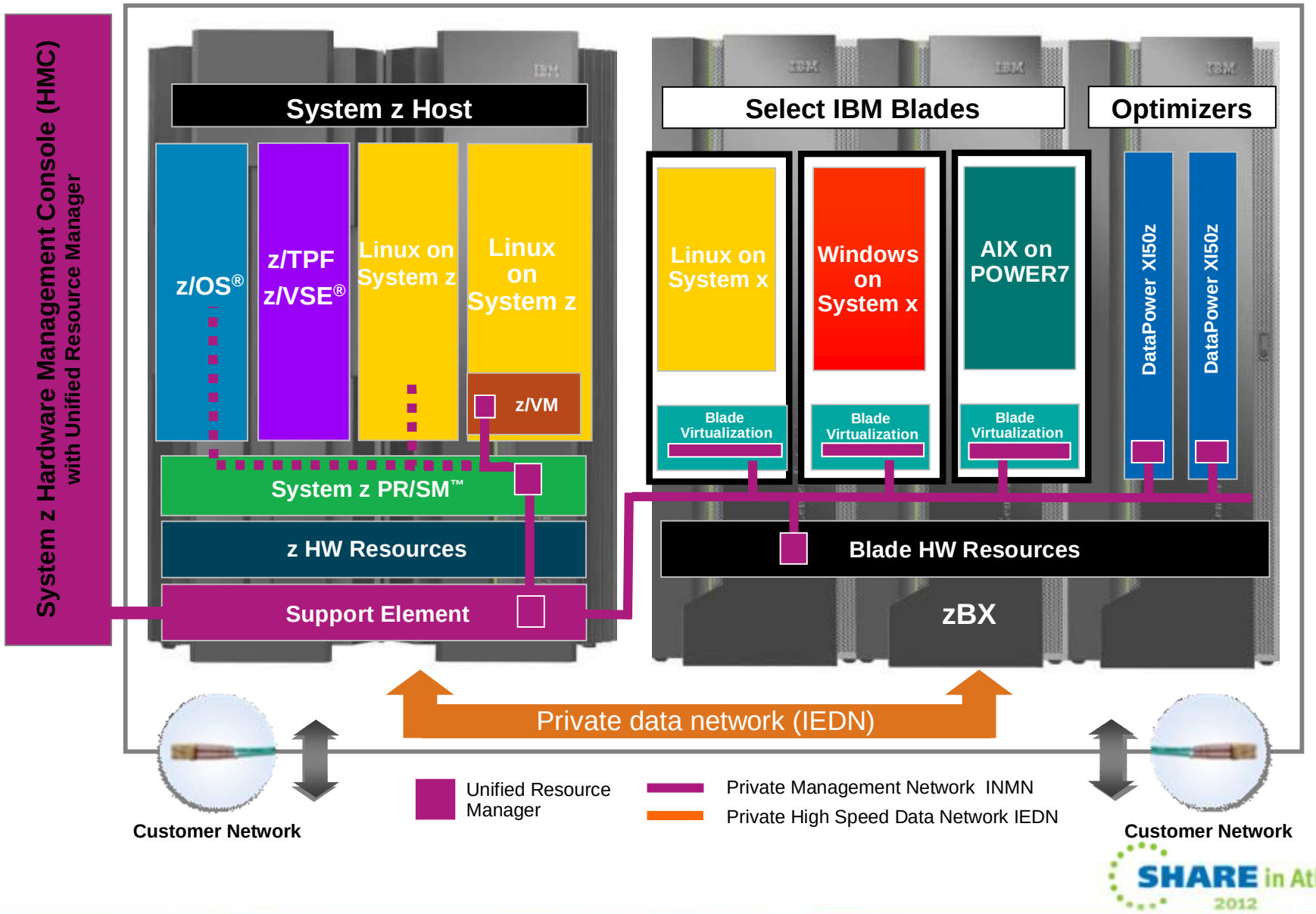
One to four – 42u racks – capacity for up to 112 blades

- **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

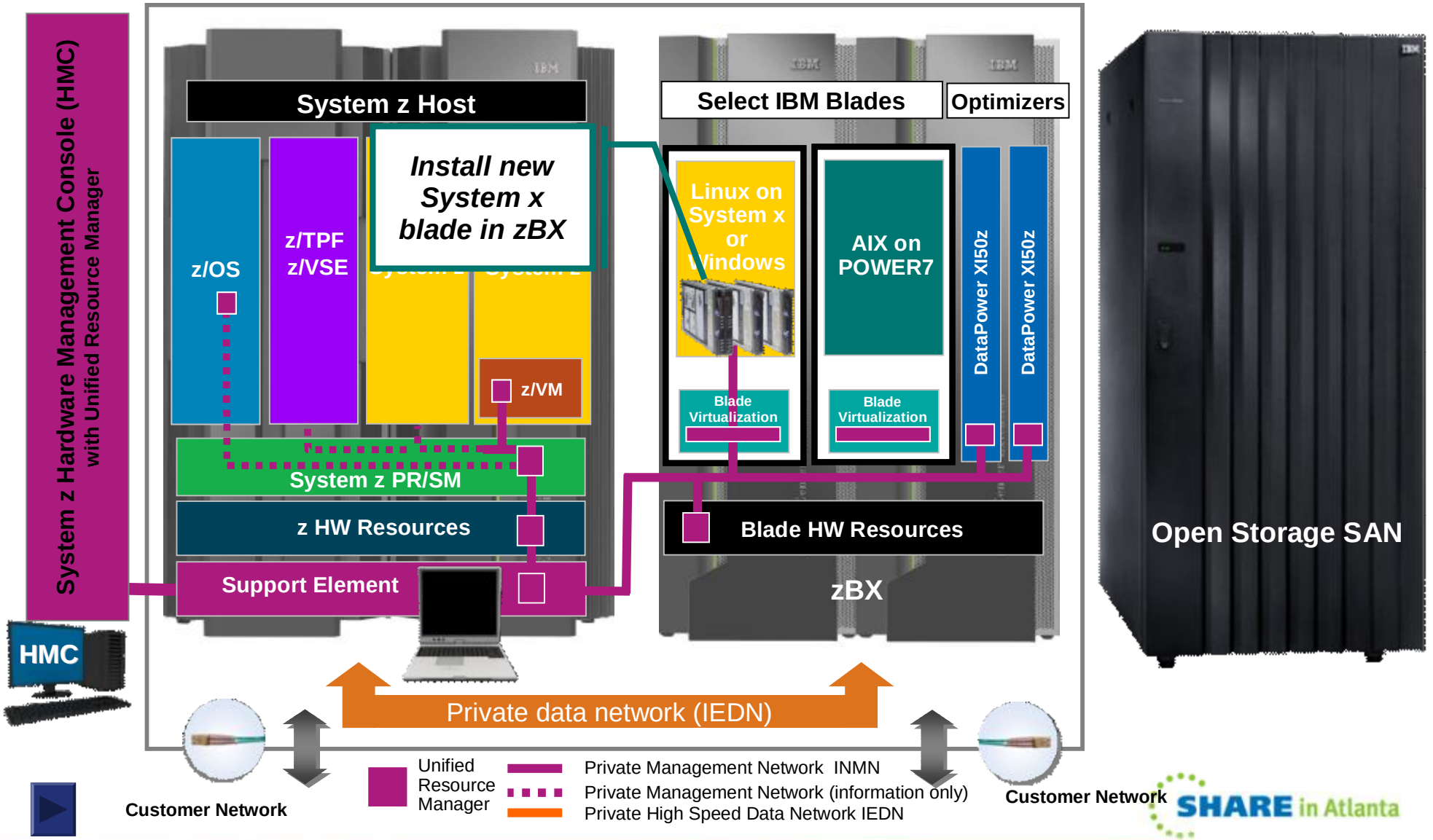
- **Support for Linux and Windows environments on System x blades in zBX**
  - *64-bit version support only*
  - *Linux: RHEL 5.5, 5.6, 6.0 & Novell SUSE SLES 10 (SP4) and SLES 11 SP1*
  - *Microsoft Windows Server 2008 R2 and Microsoft Windows Server 2008 (SP2) (for either we recommend Datacenter Edition)*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



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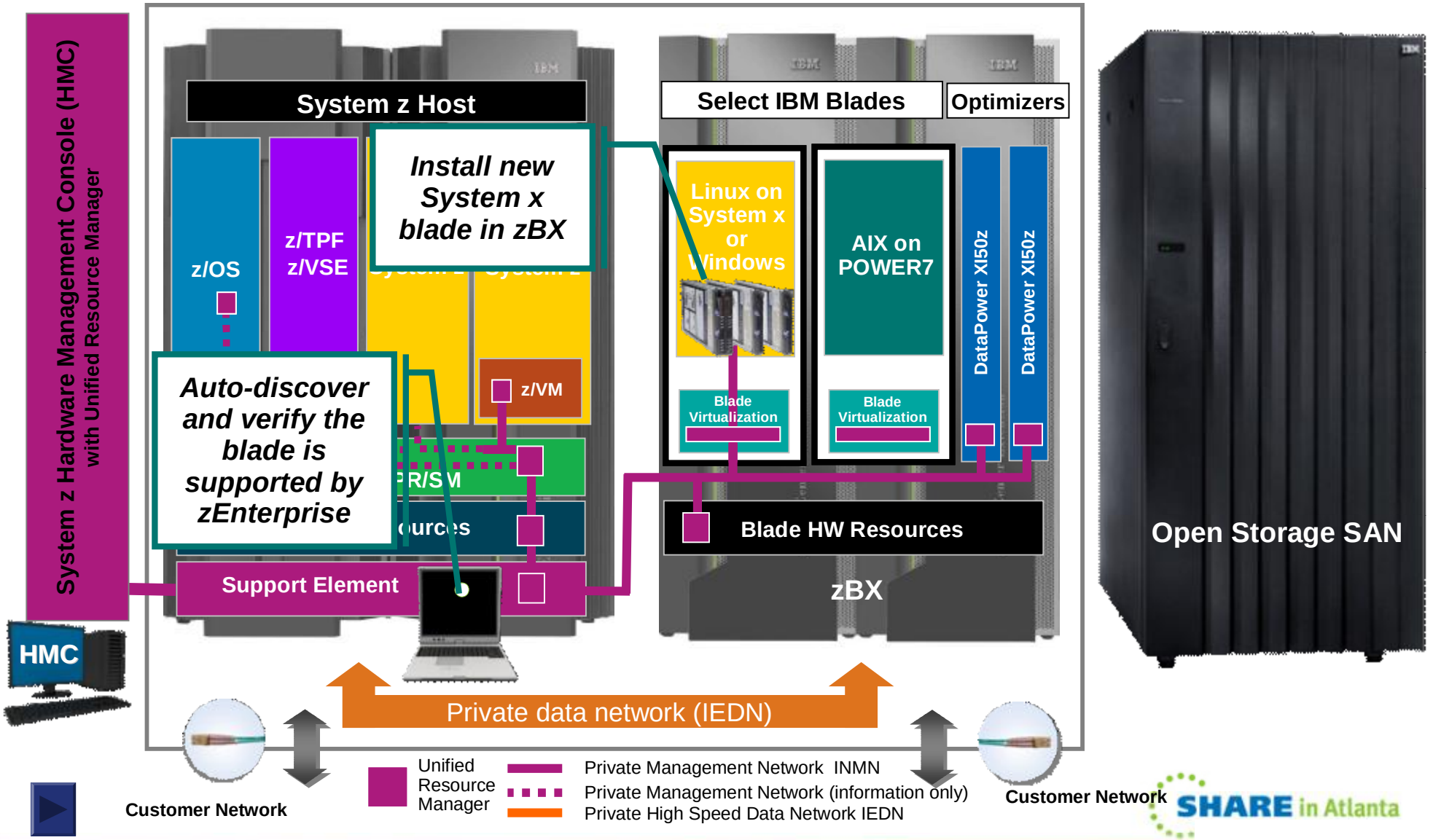

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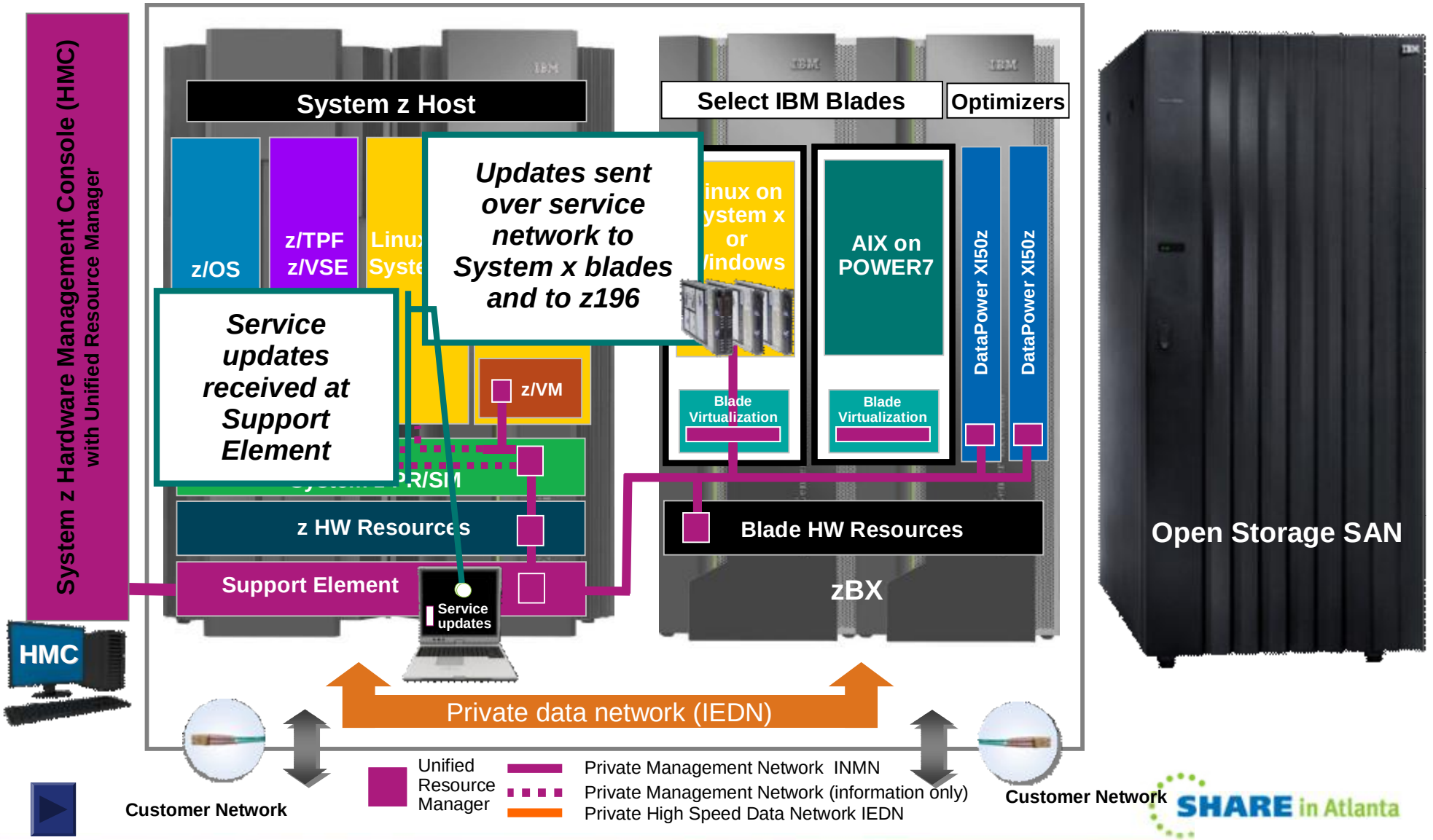
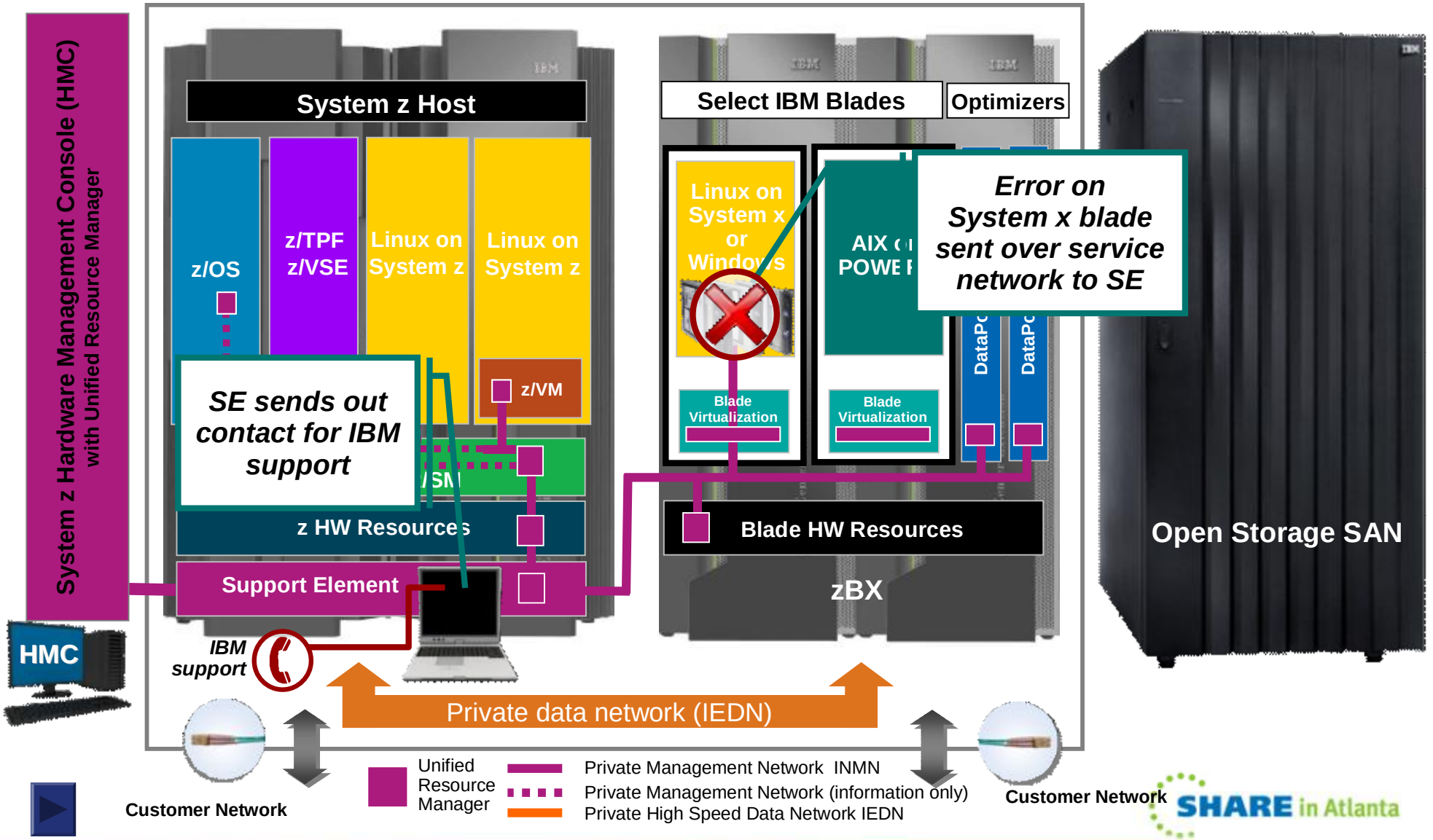
Operational Controls – System x



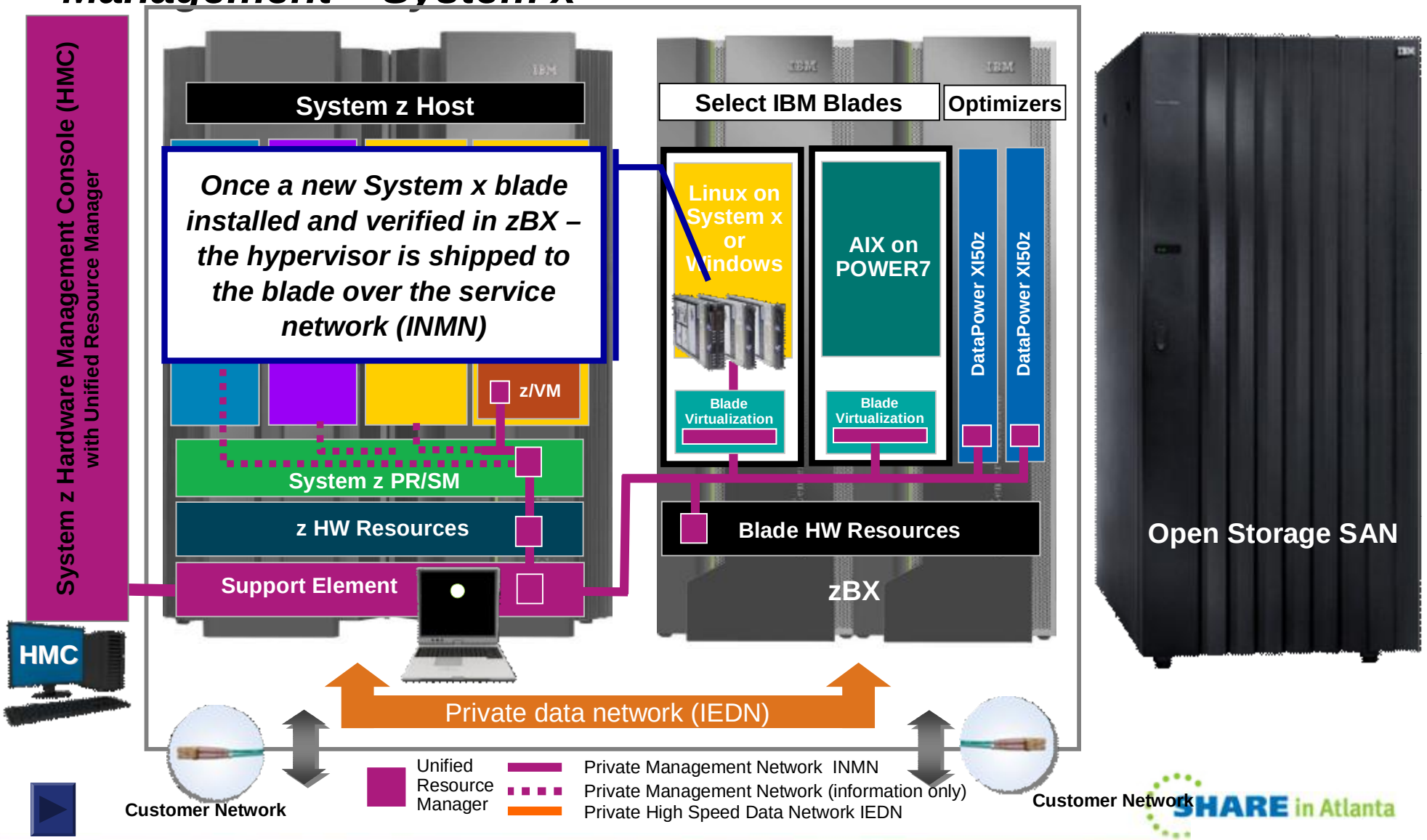
Putting zEnterprise System to the Task

Operational Controls – System x



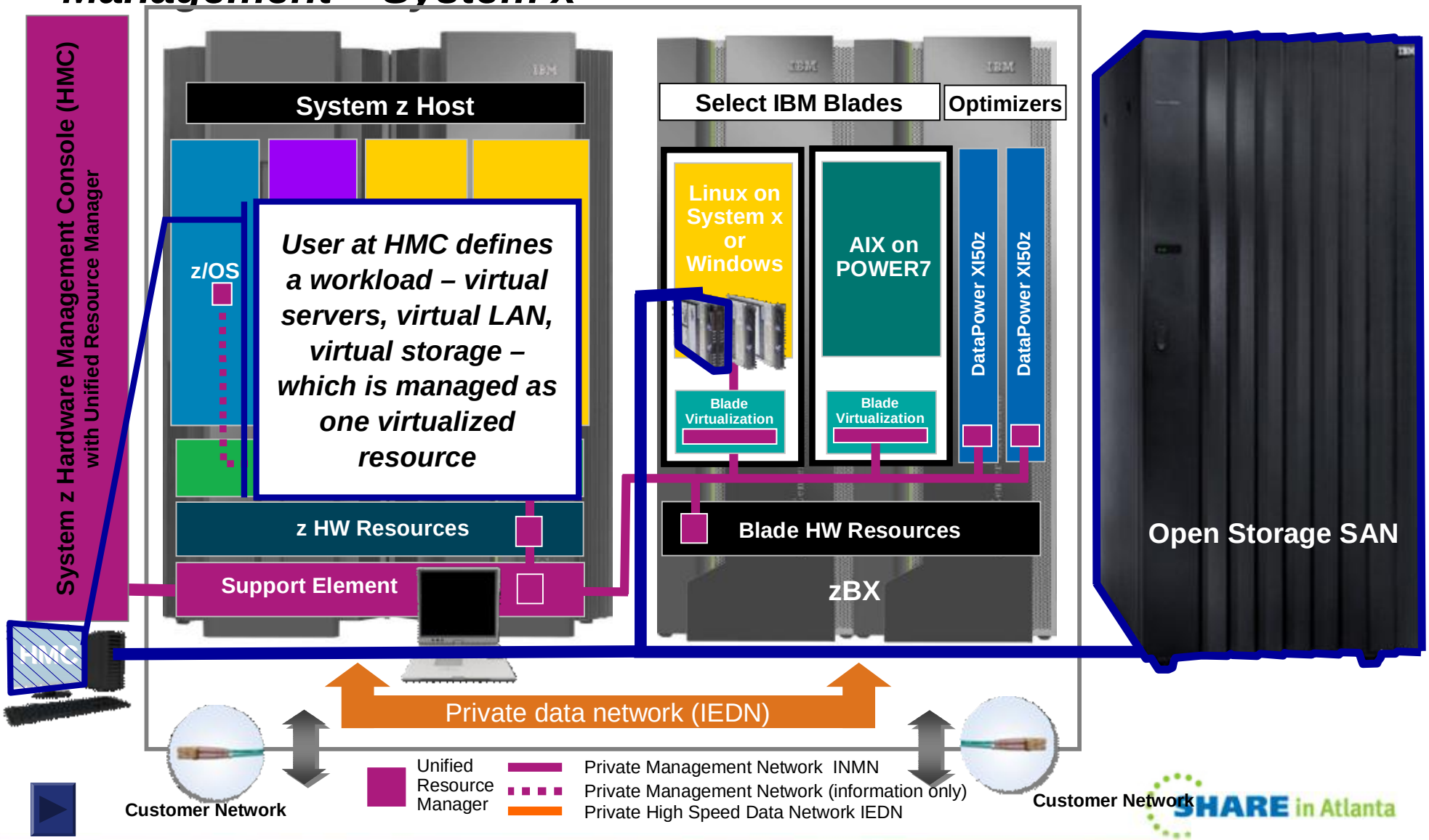
Putting zEnterprise System to the Task

Hypervisor Management and Virtual Server Management – System x

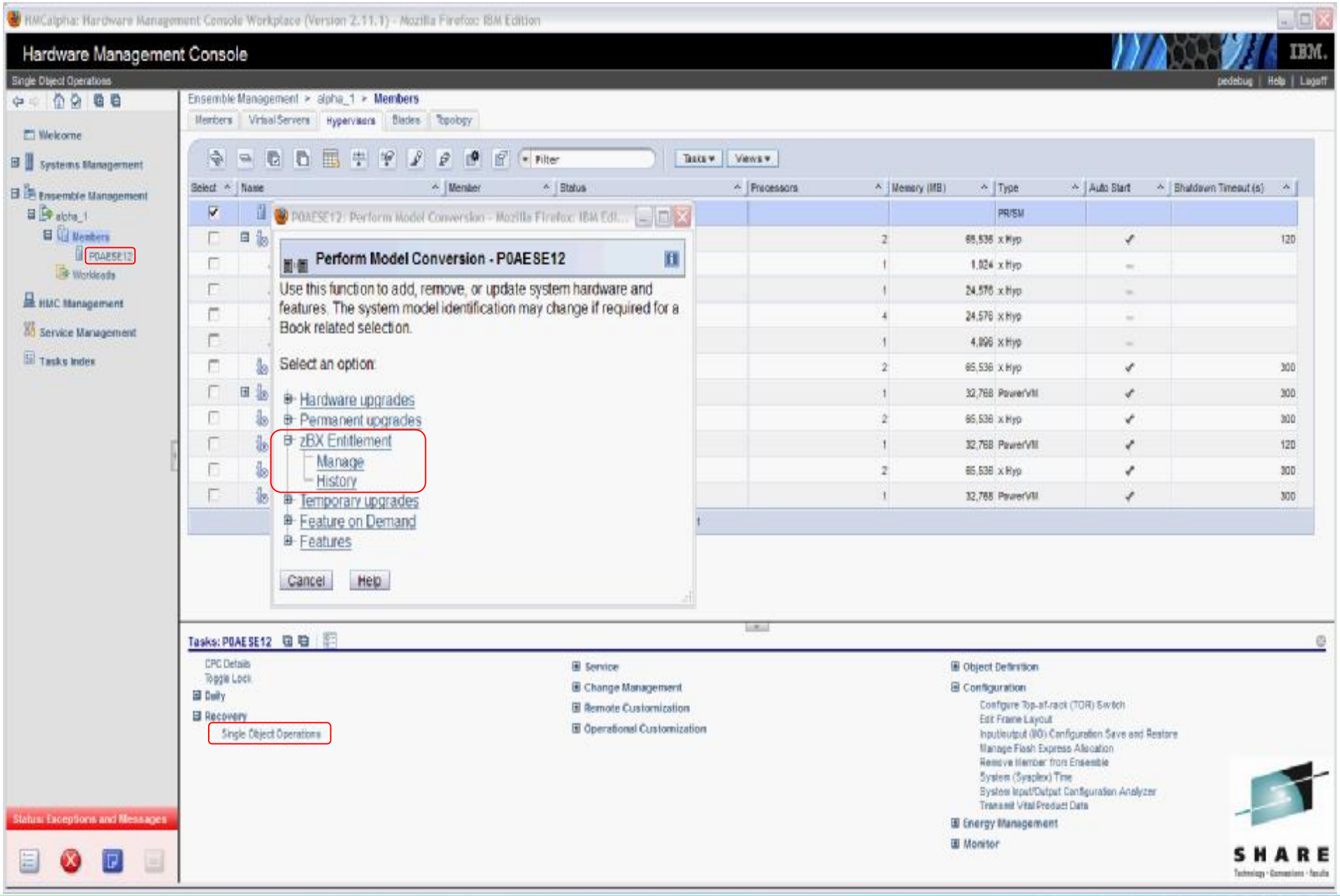


Putting zEnterprise System to the Task

Hypervisor Management and Virtual Server Management – System x



System x Blade Entitlement



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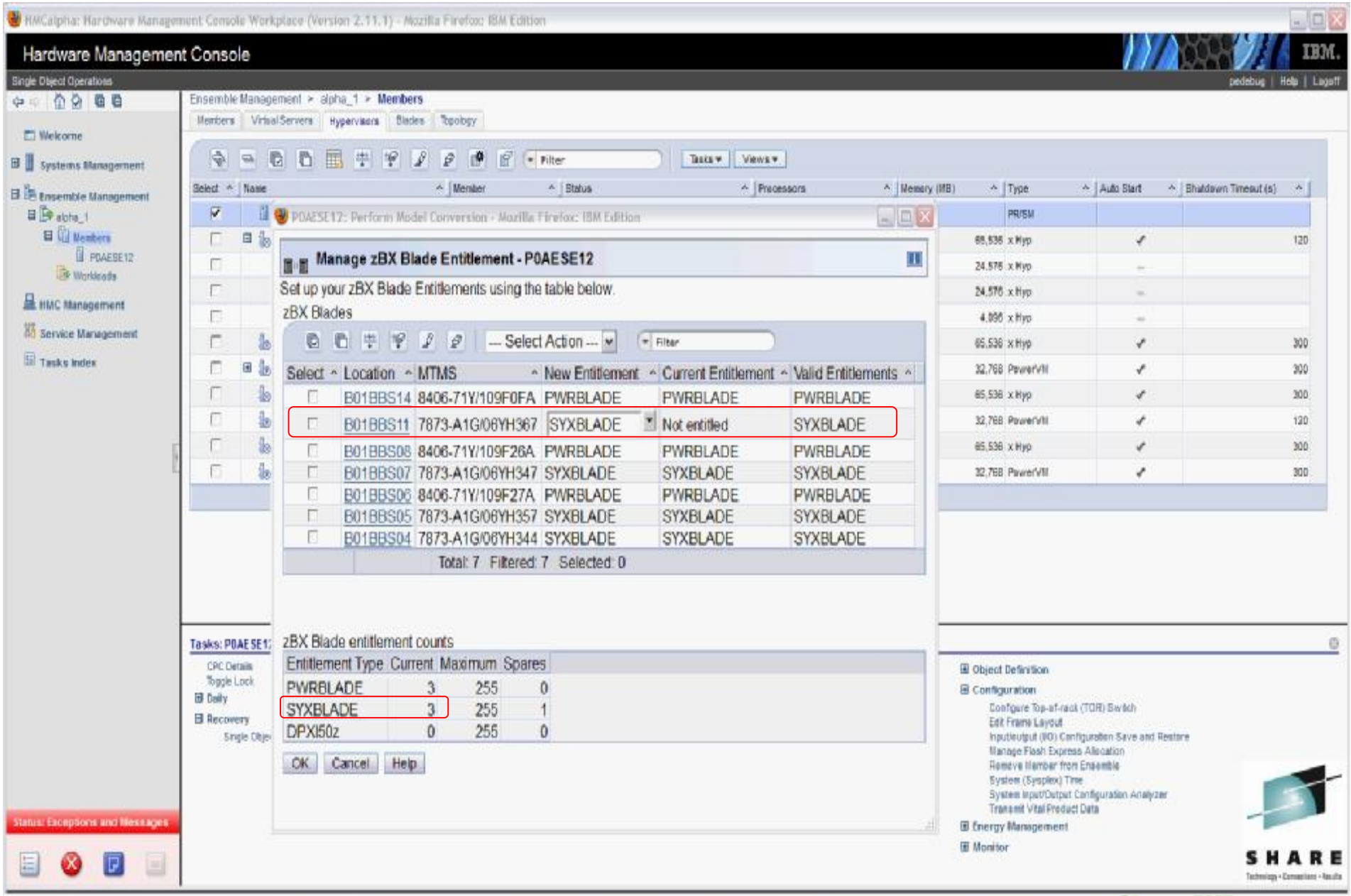

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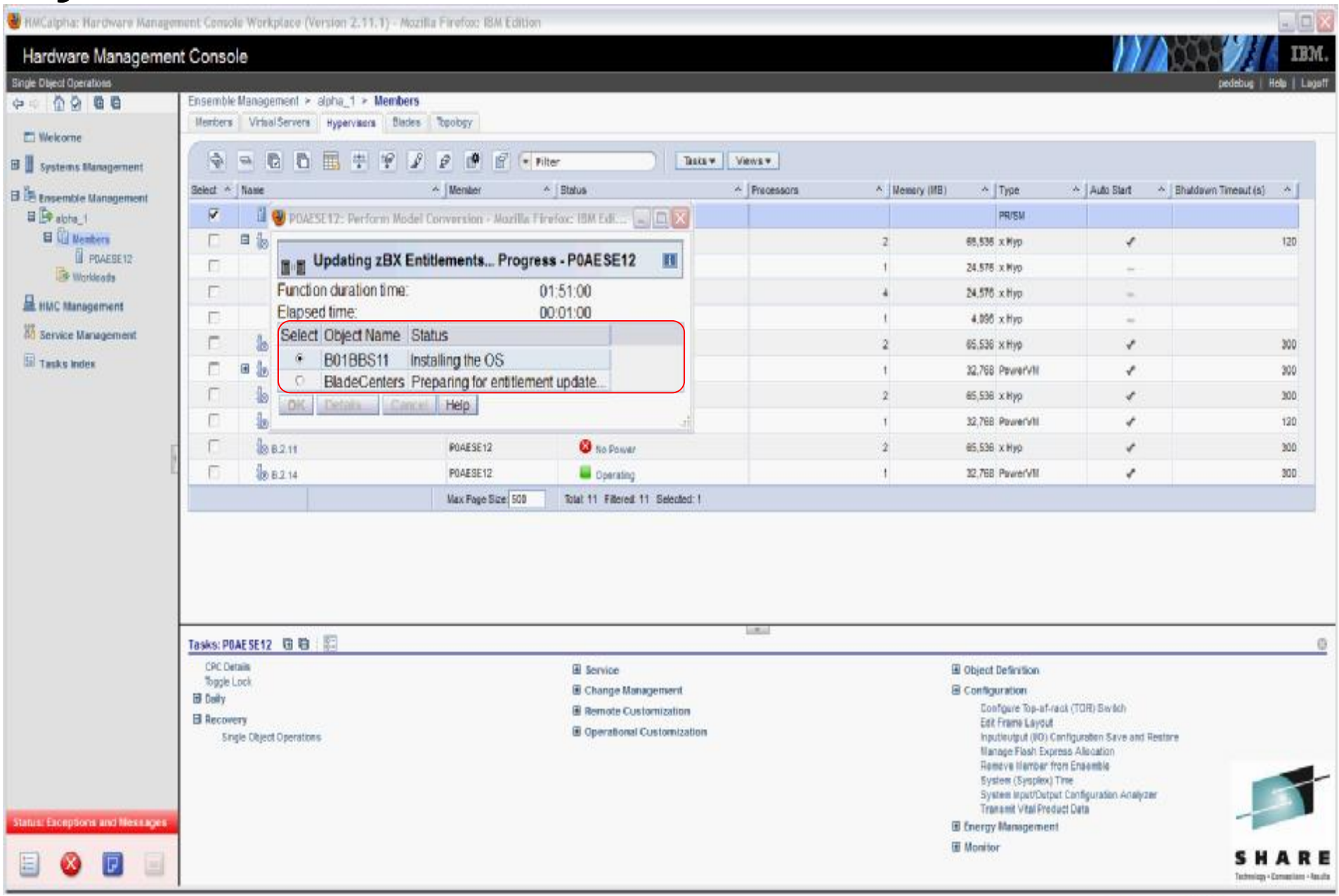

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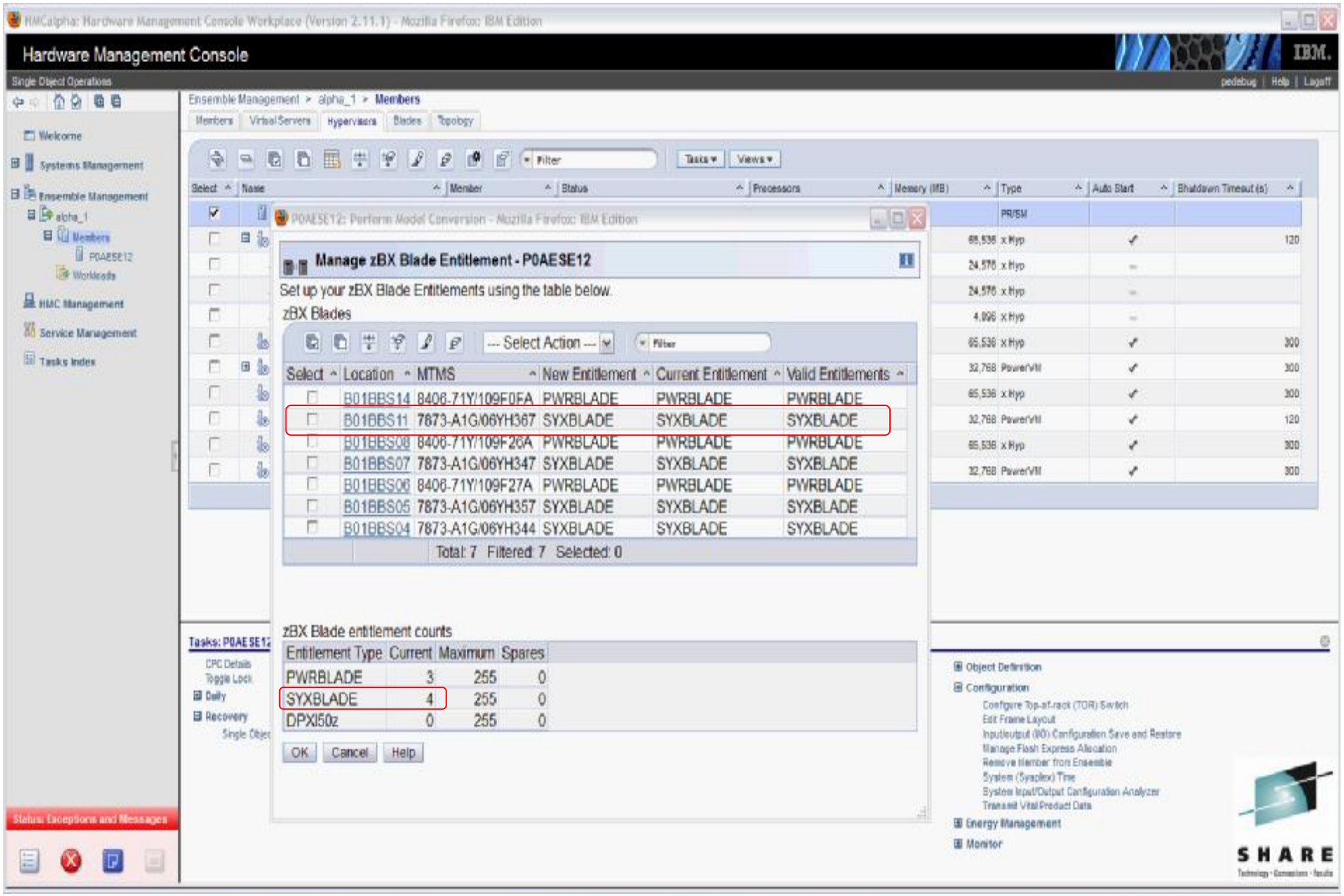
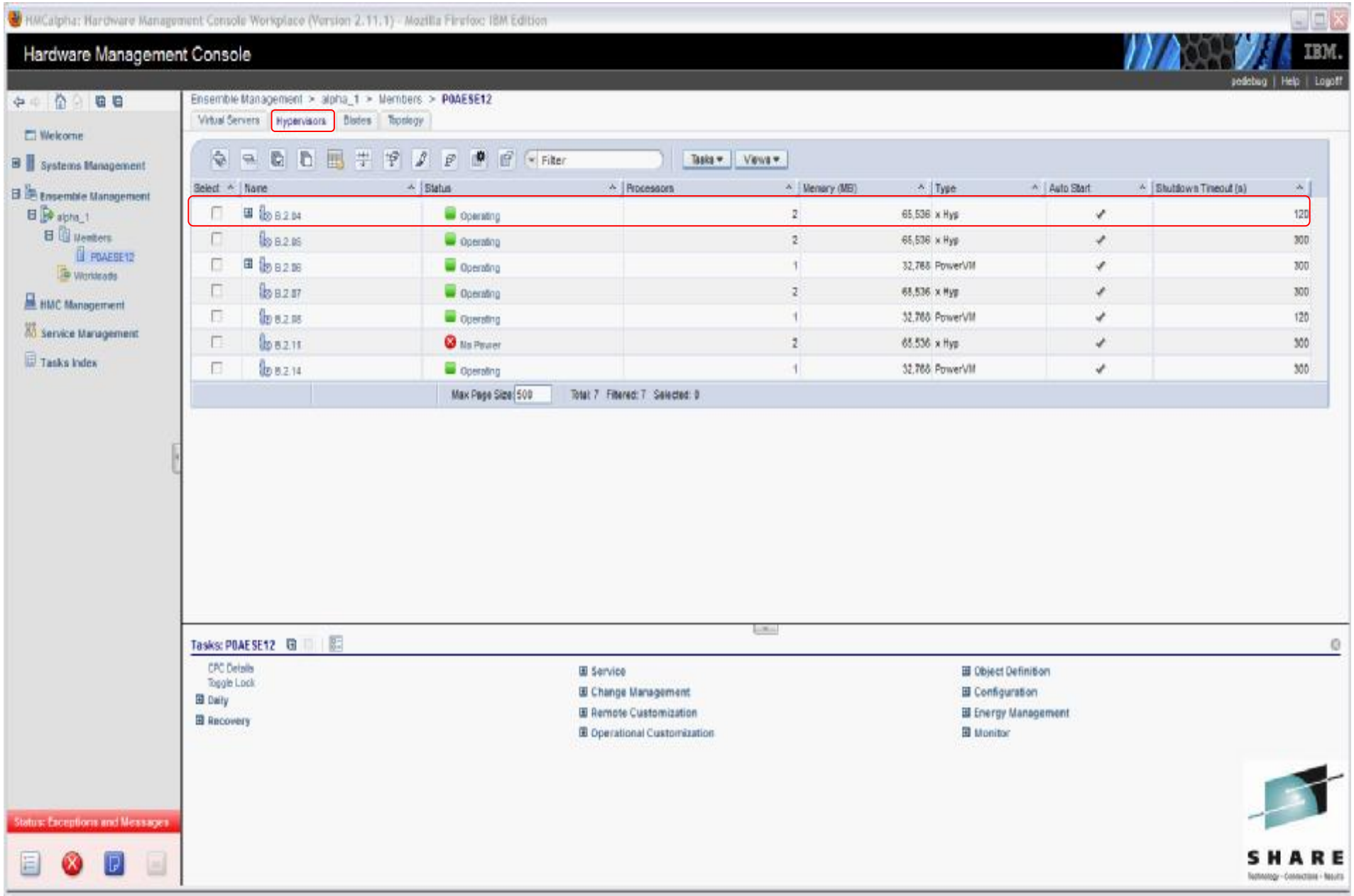


System x Blade – New Virtual Server



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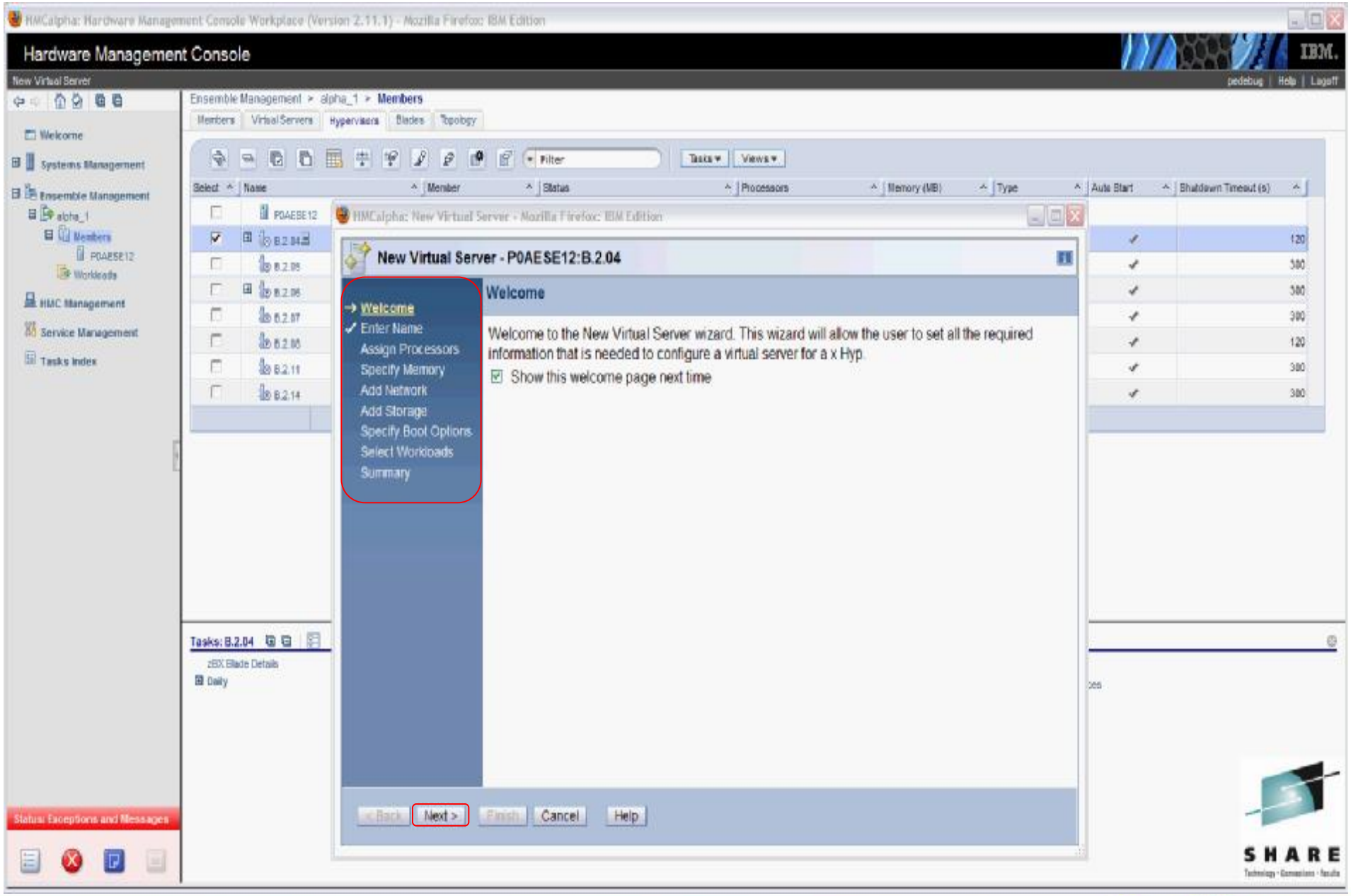

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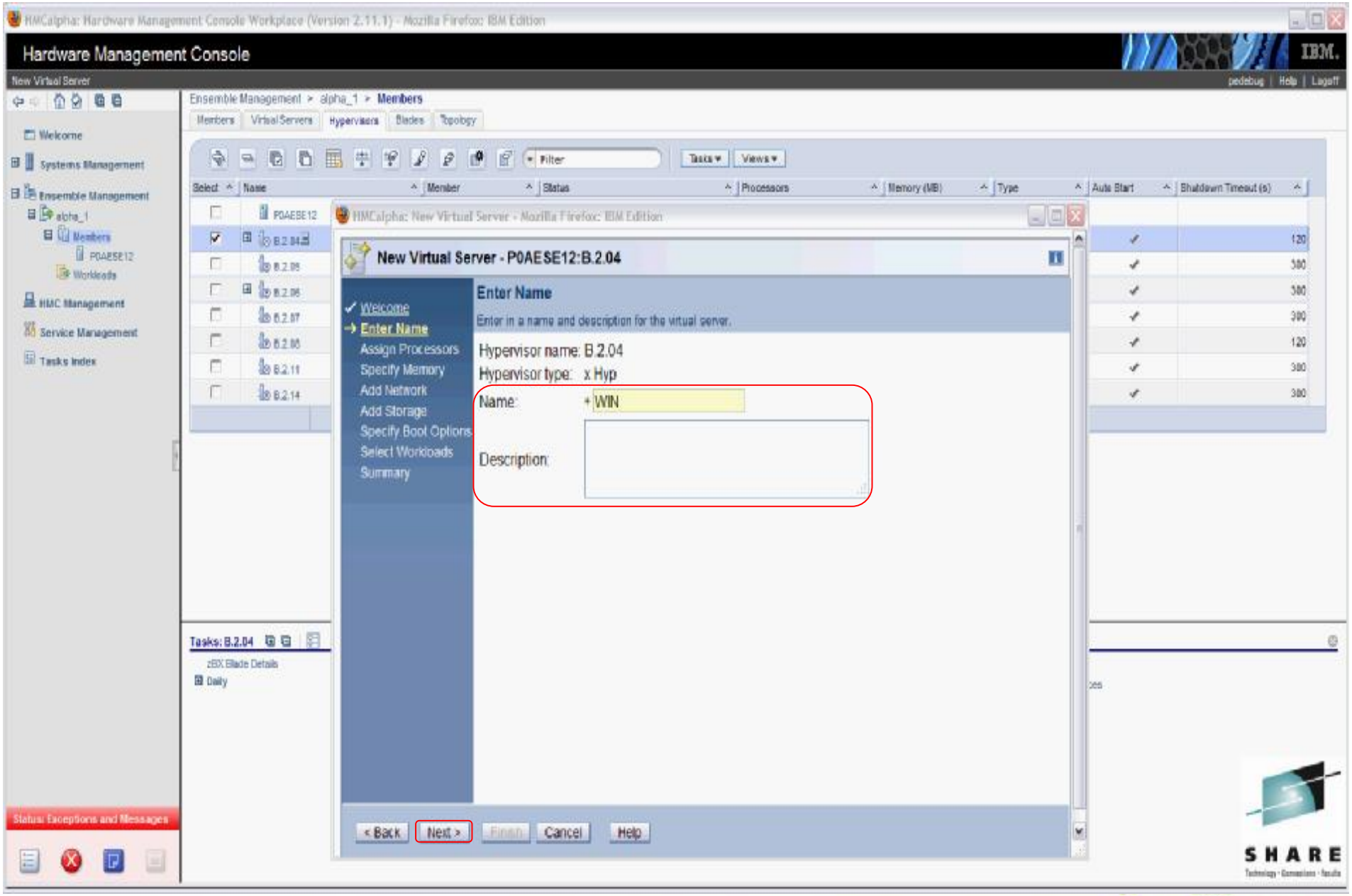

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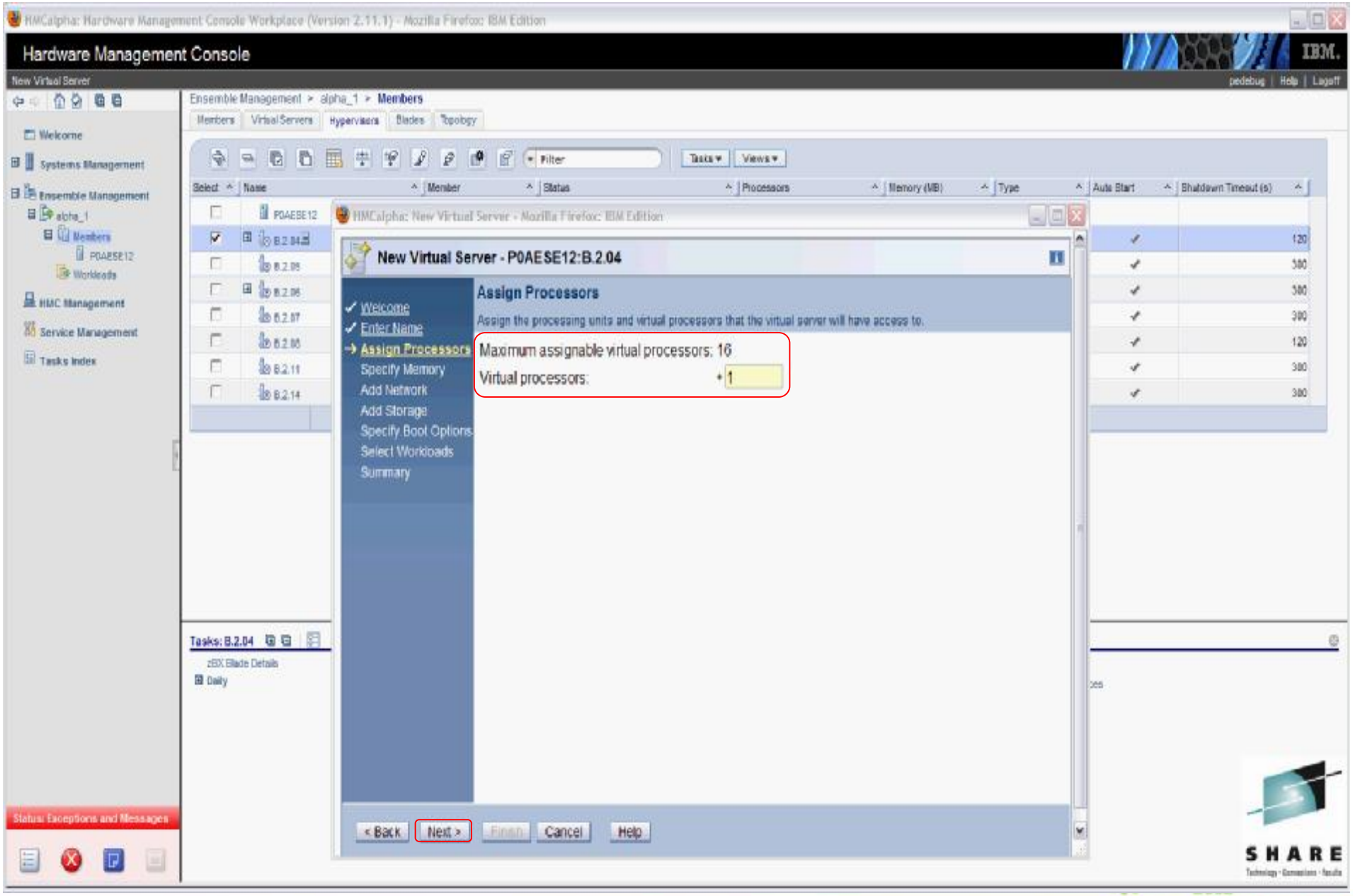

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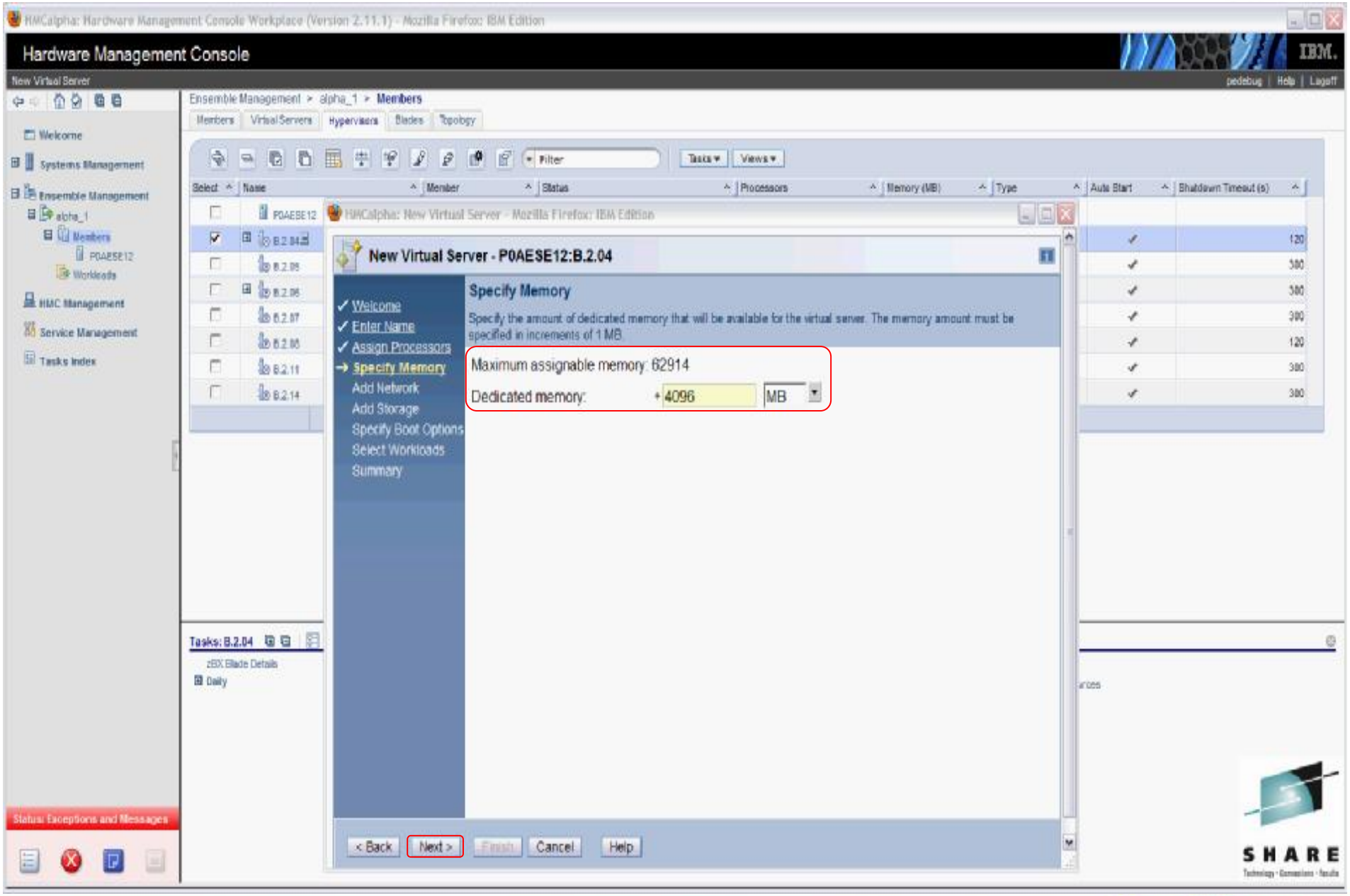

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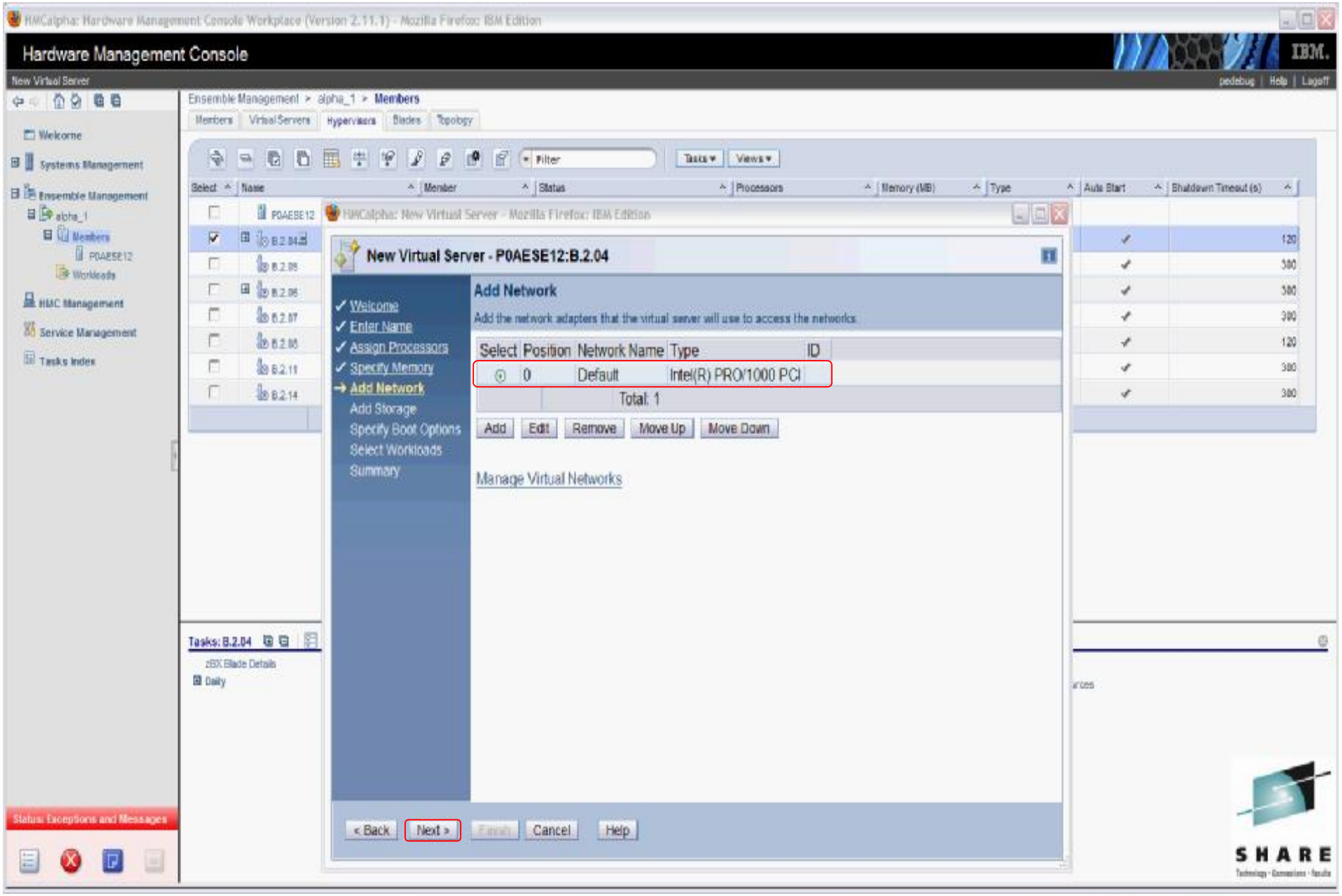

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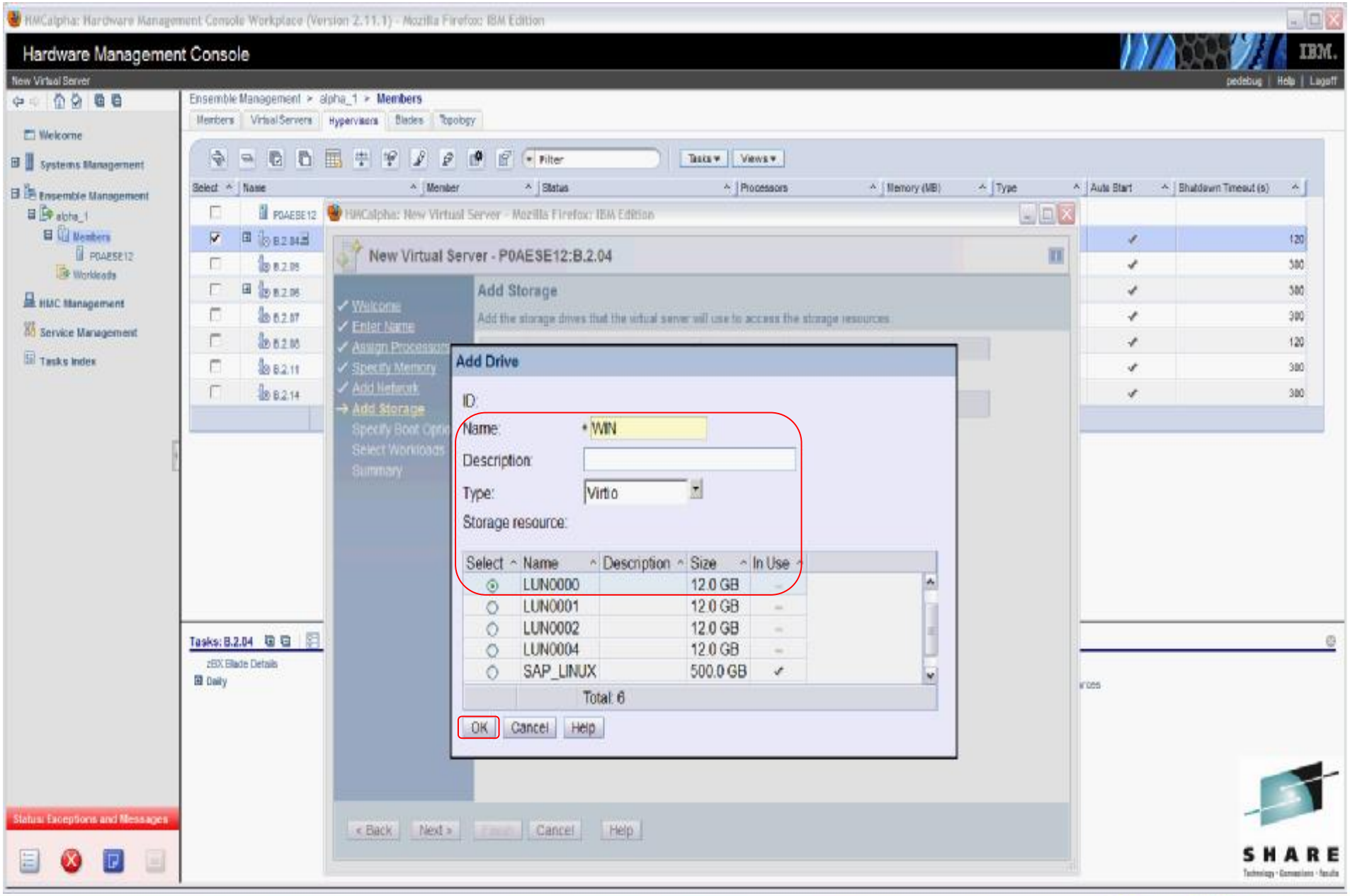

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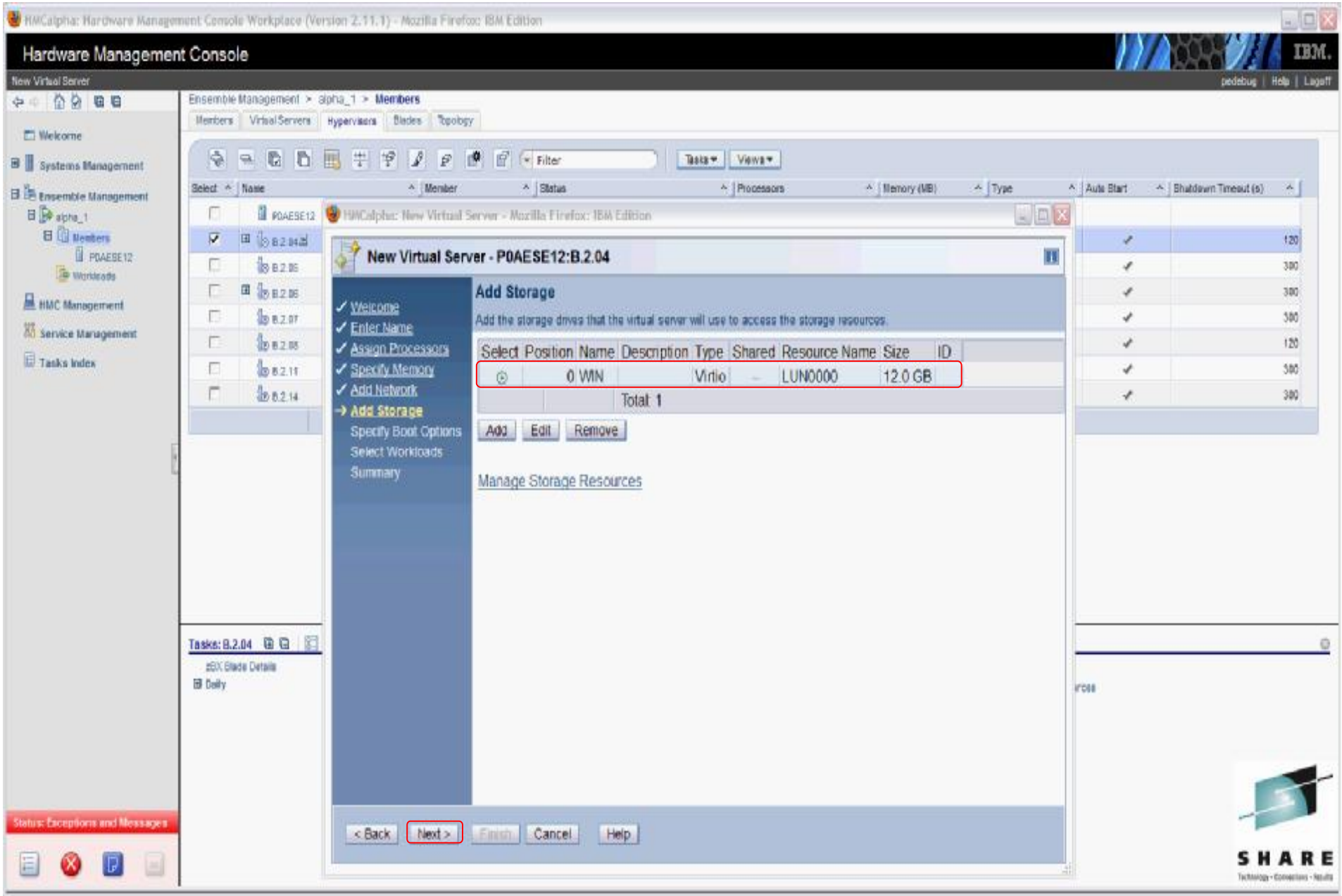

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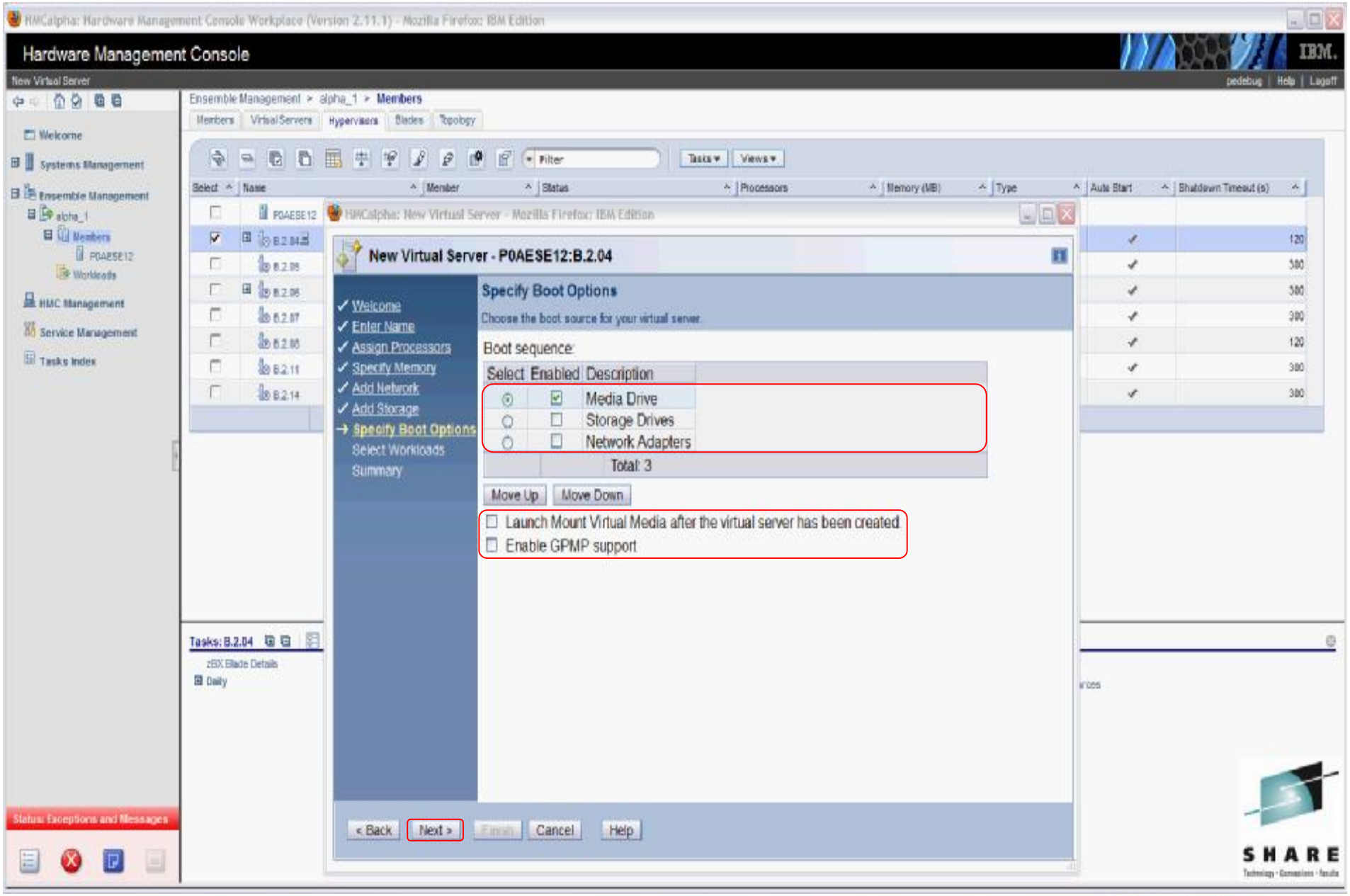

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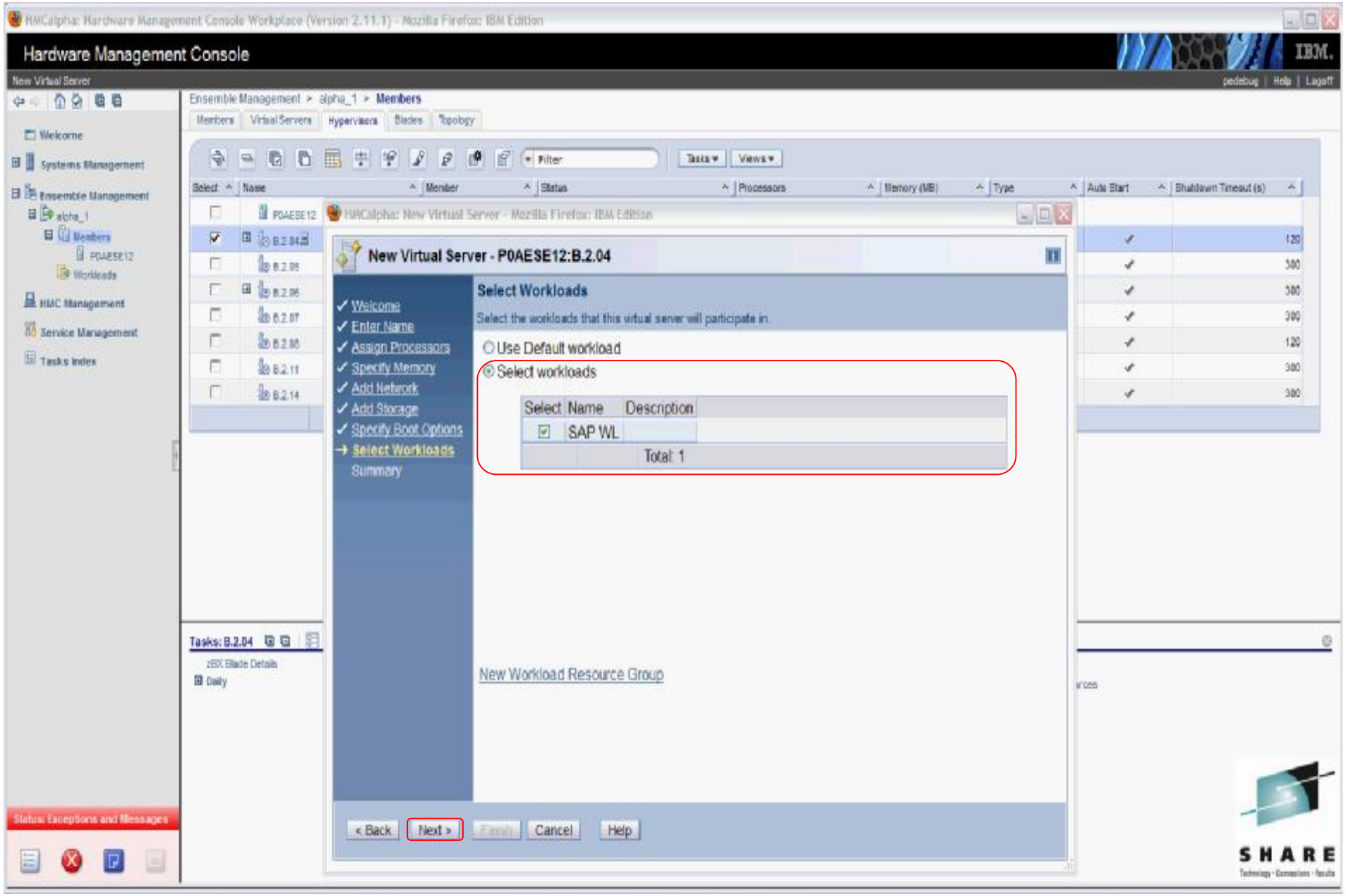

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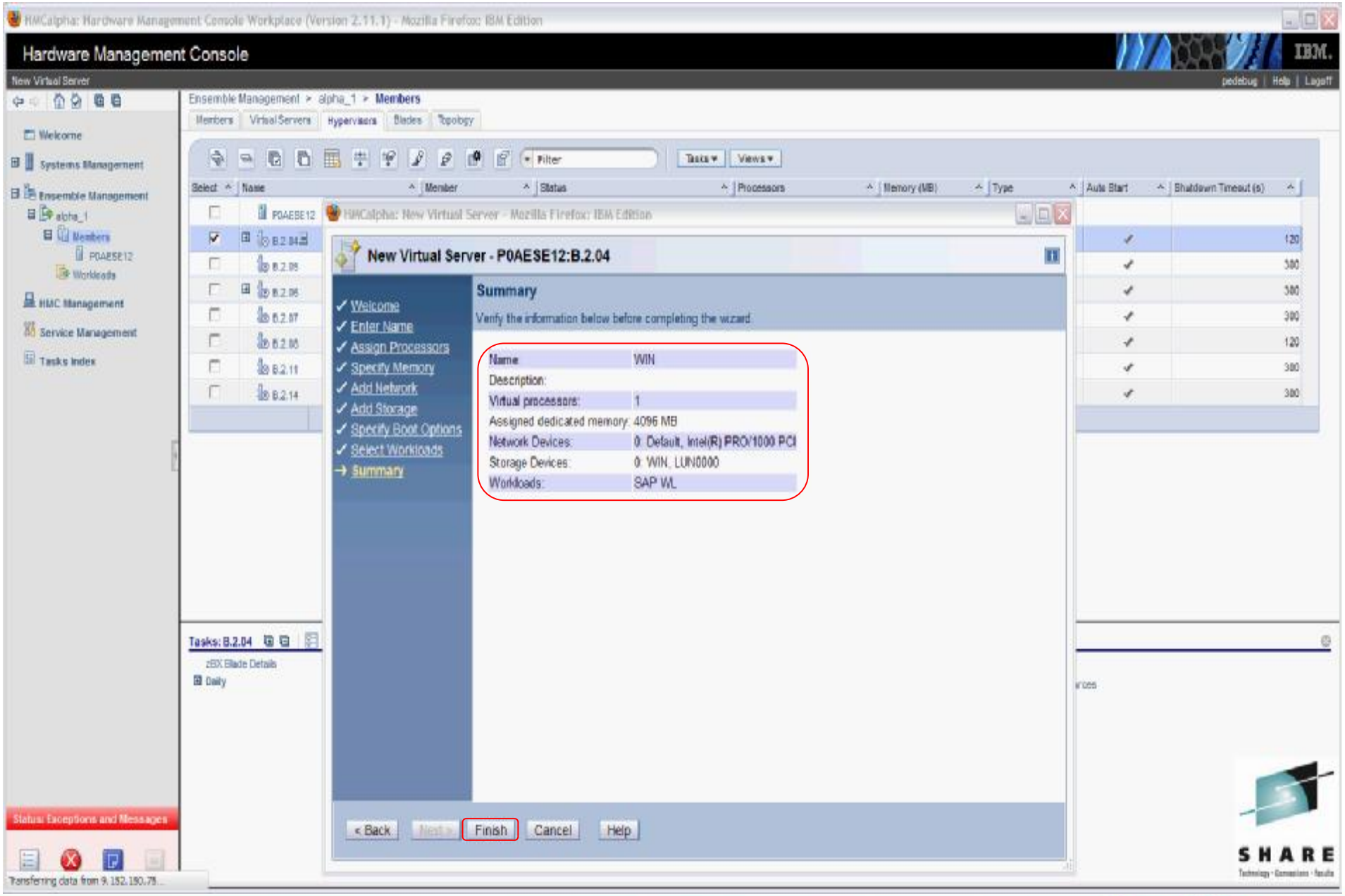

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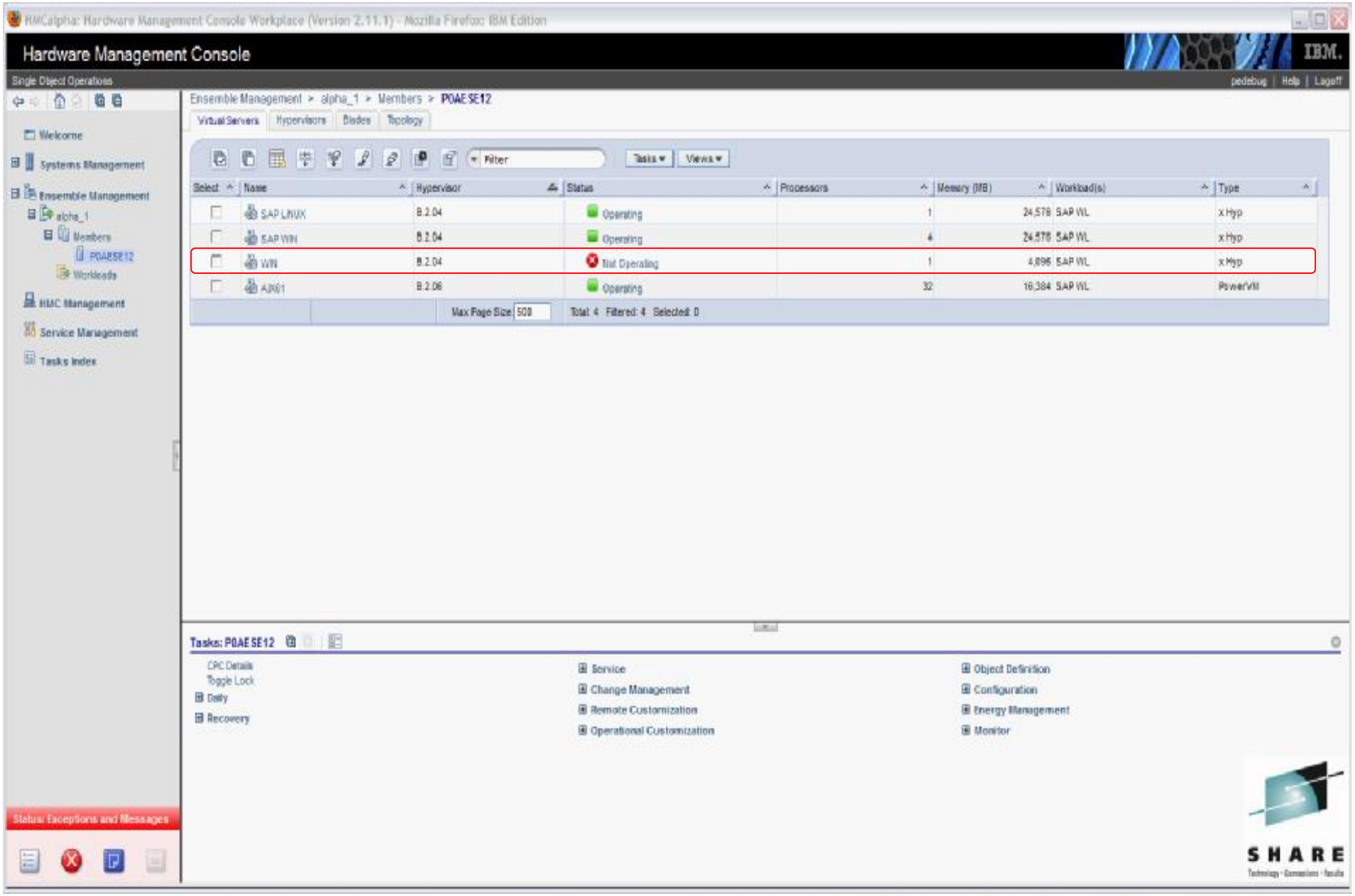
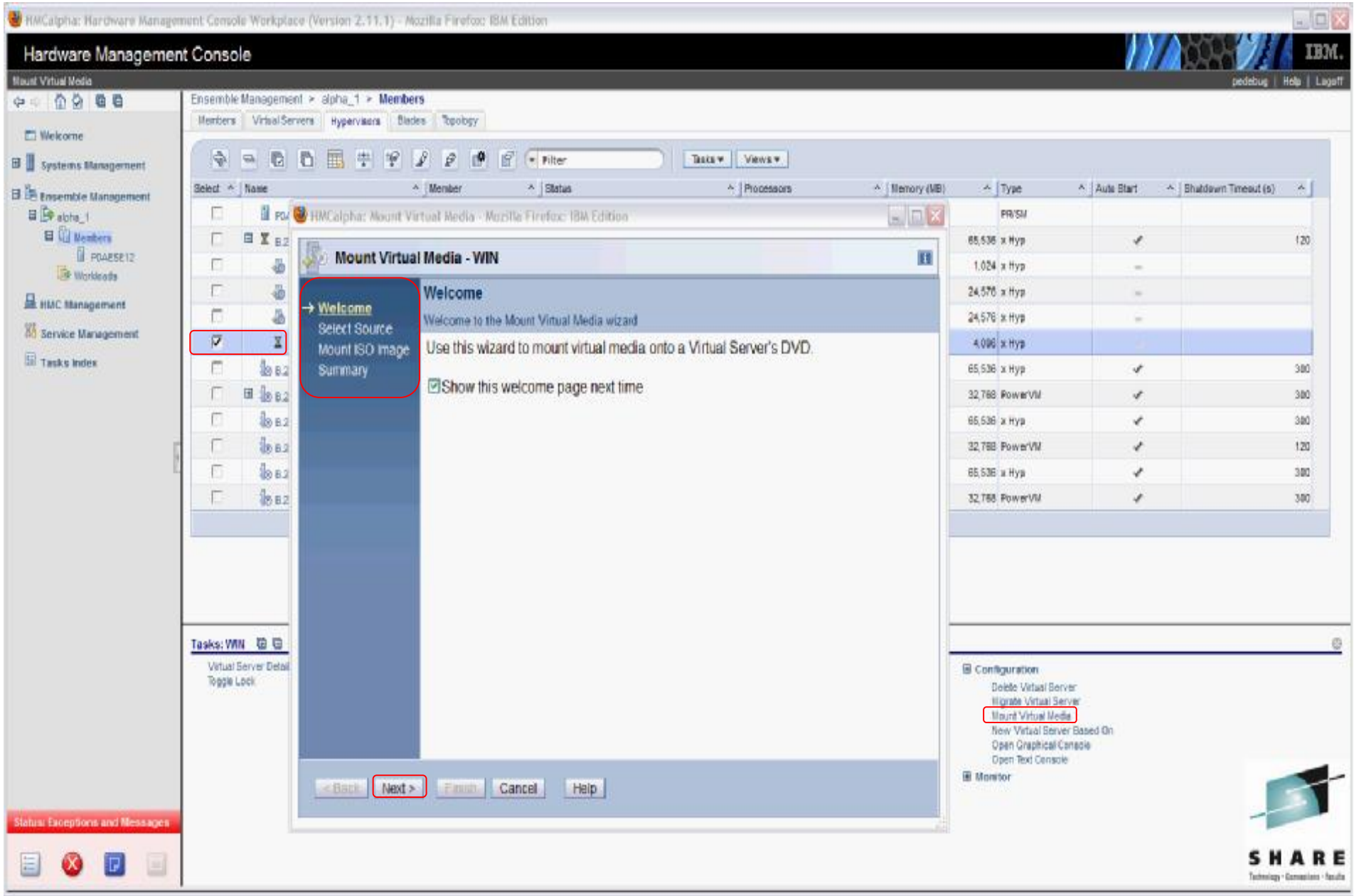


System x Blade – Virtual Media



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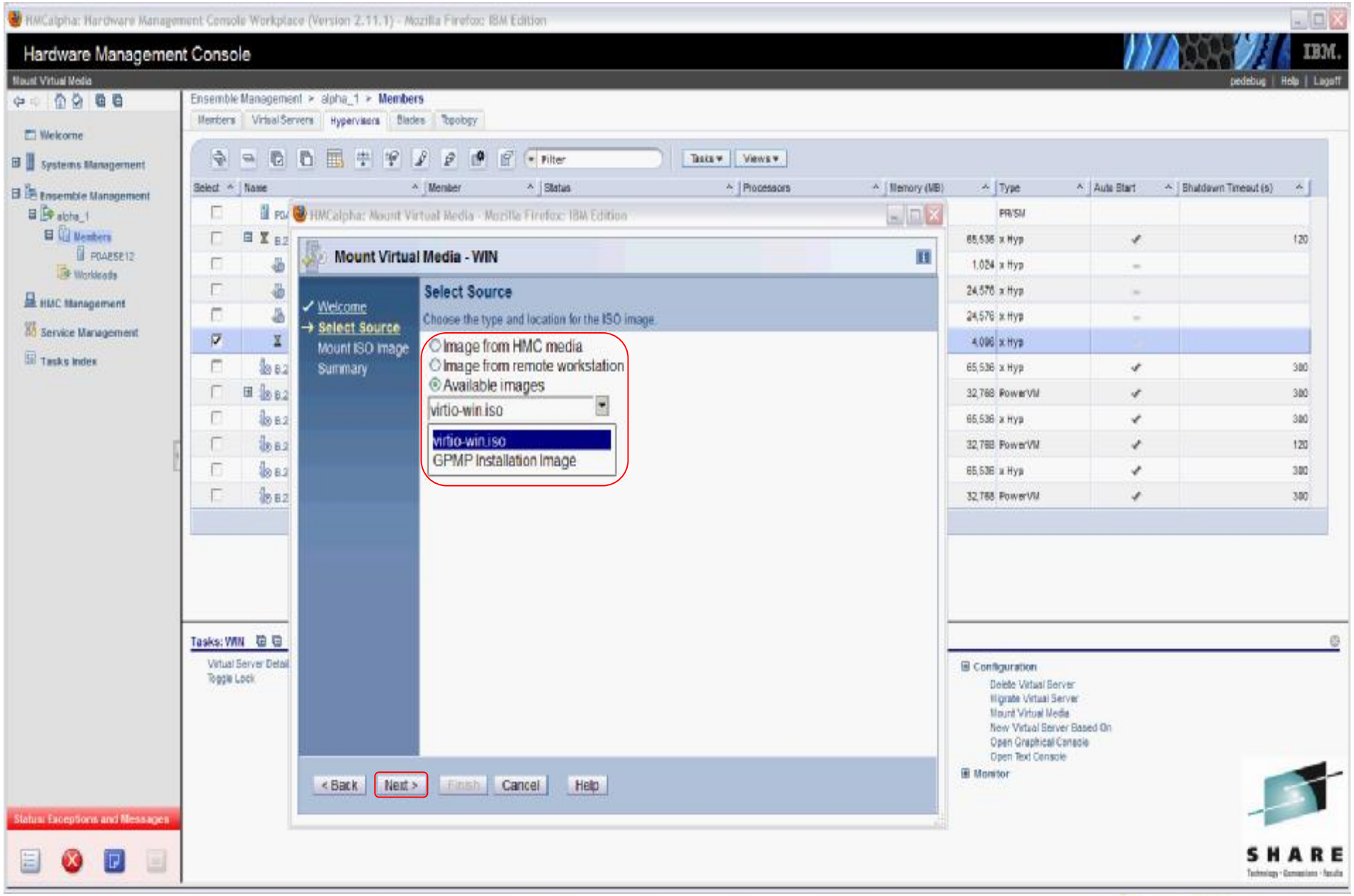

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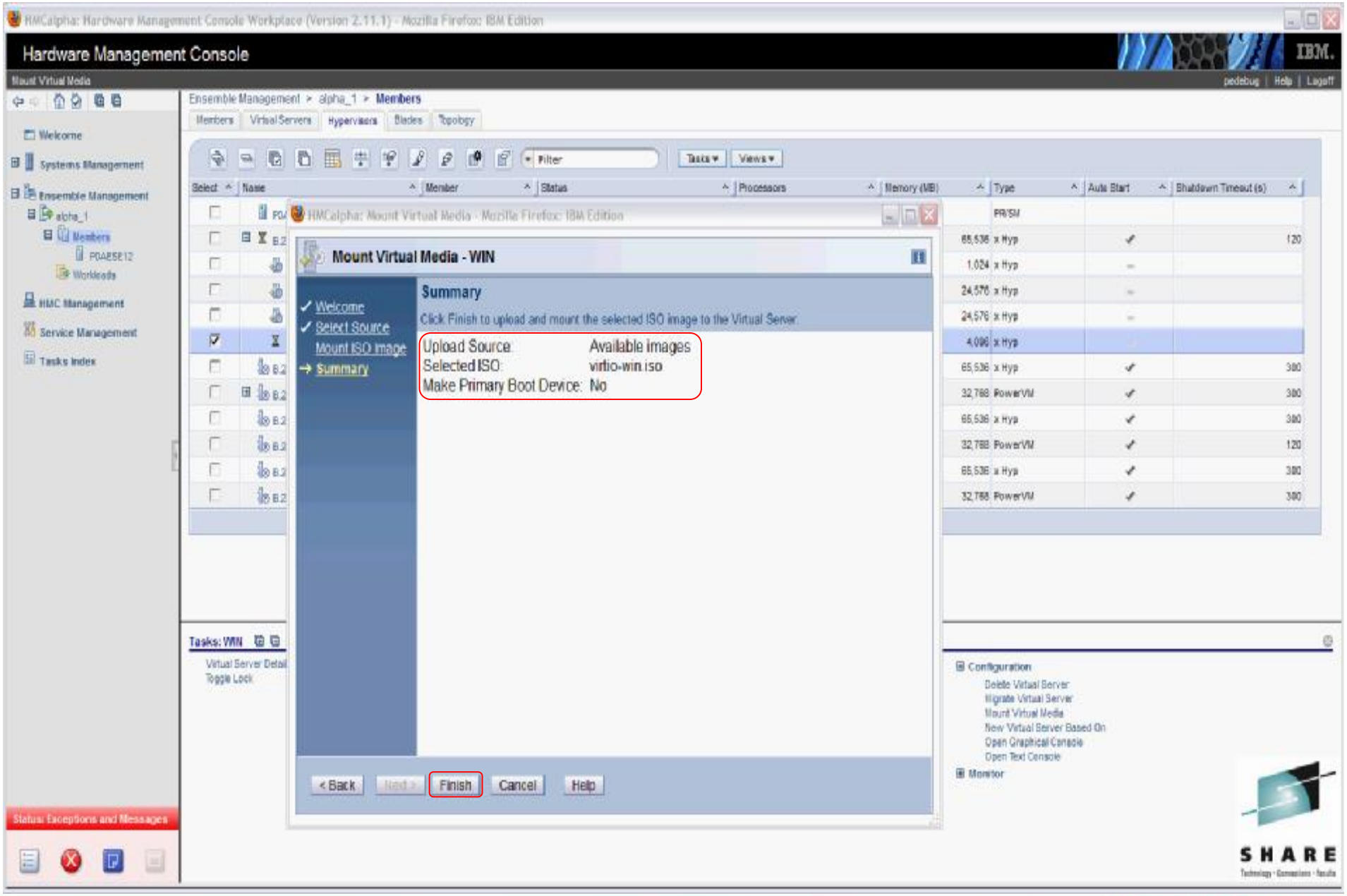

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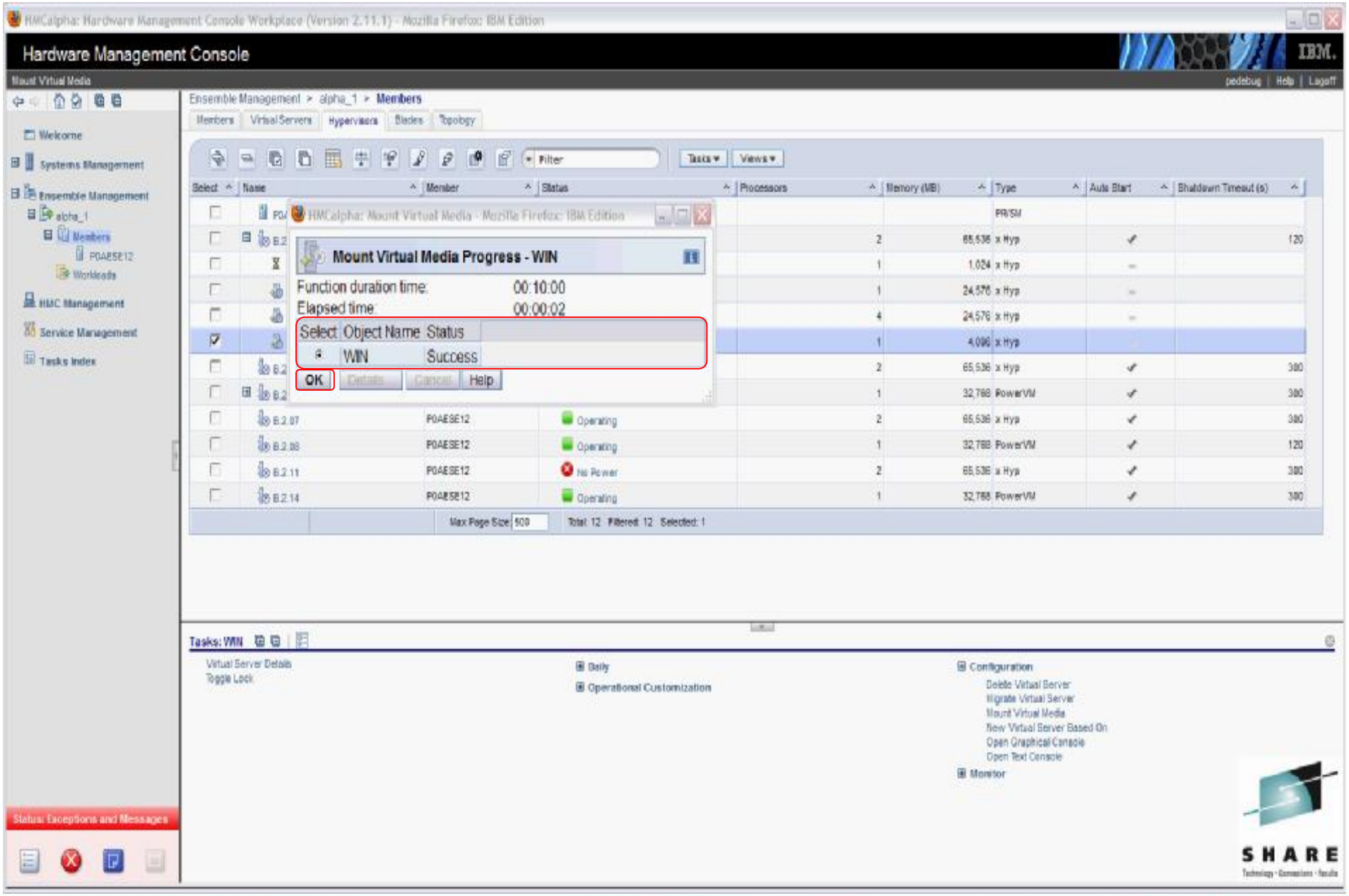
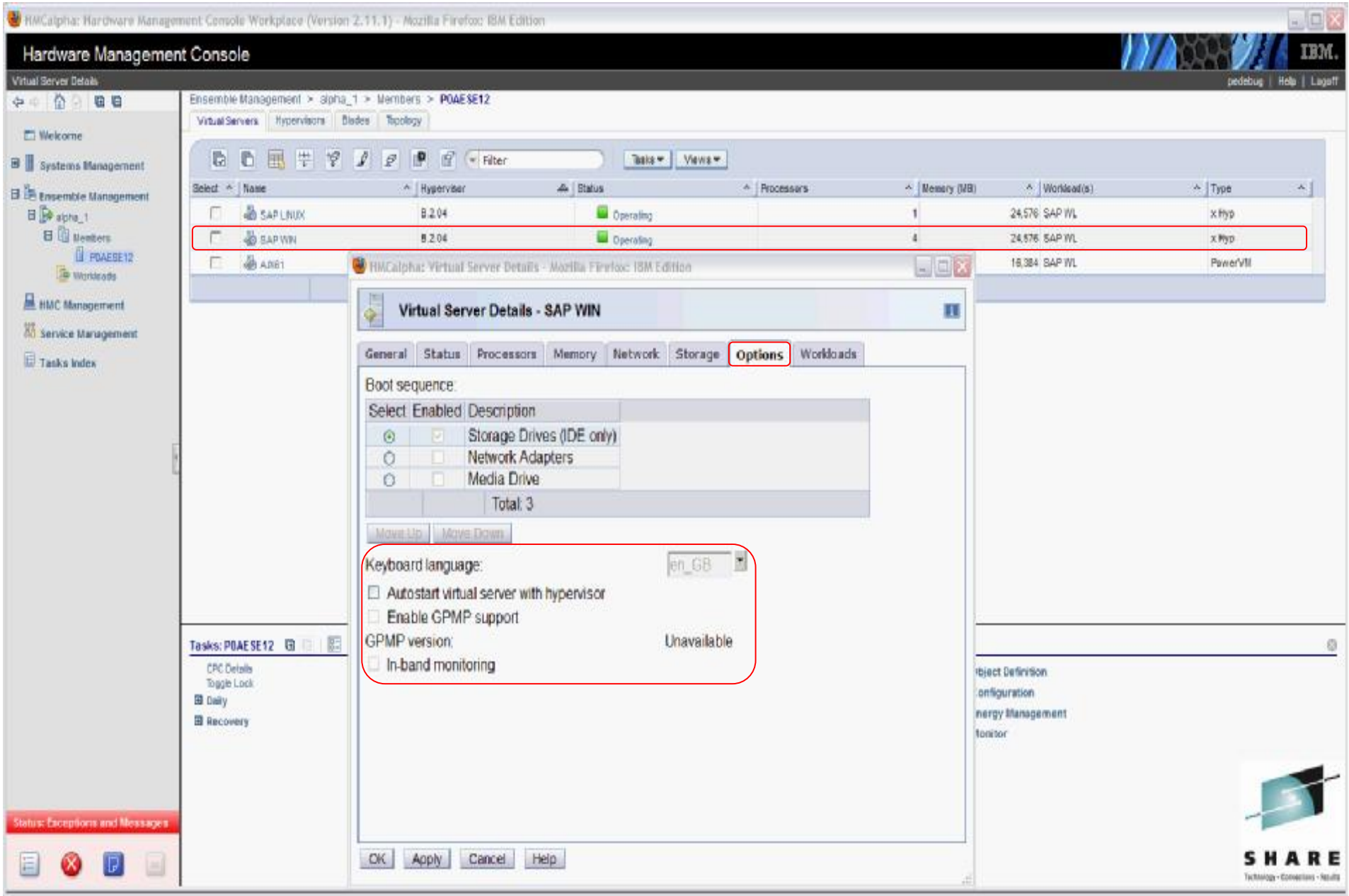
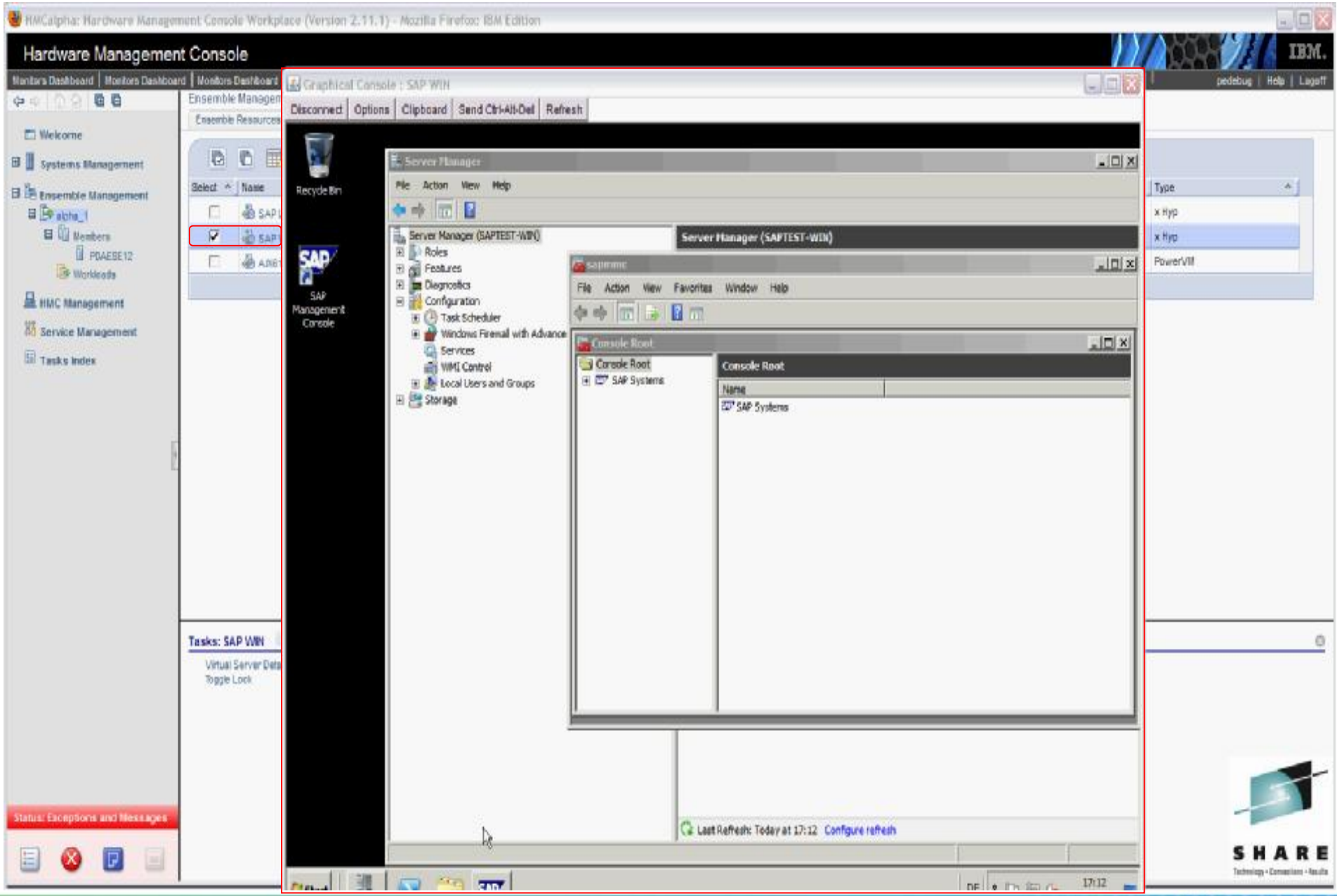


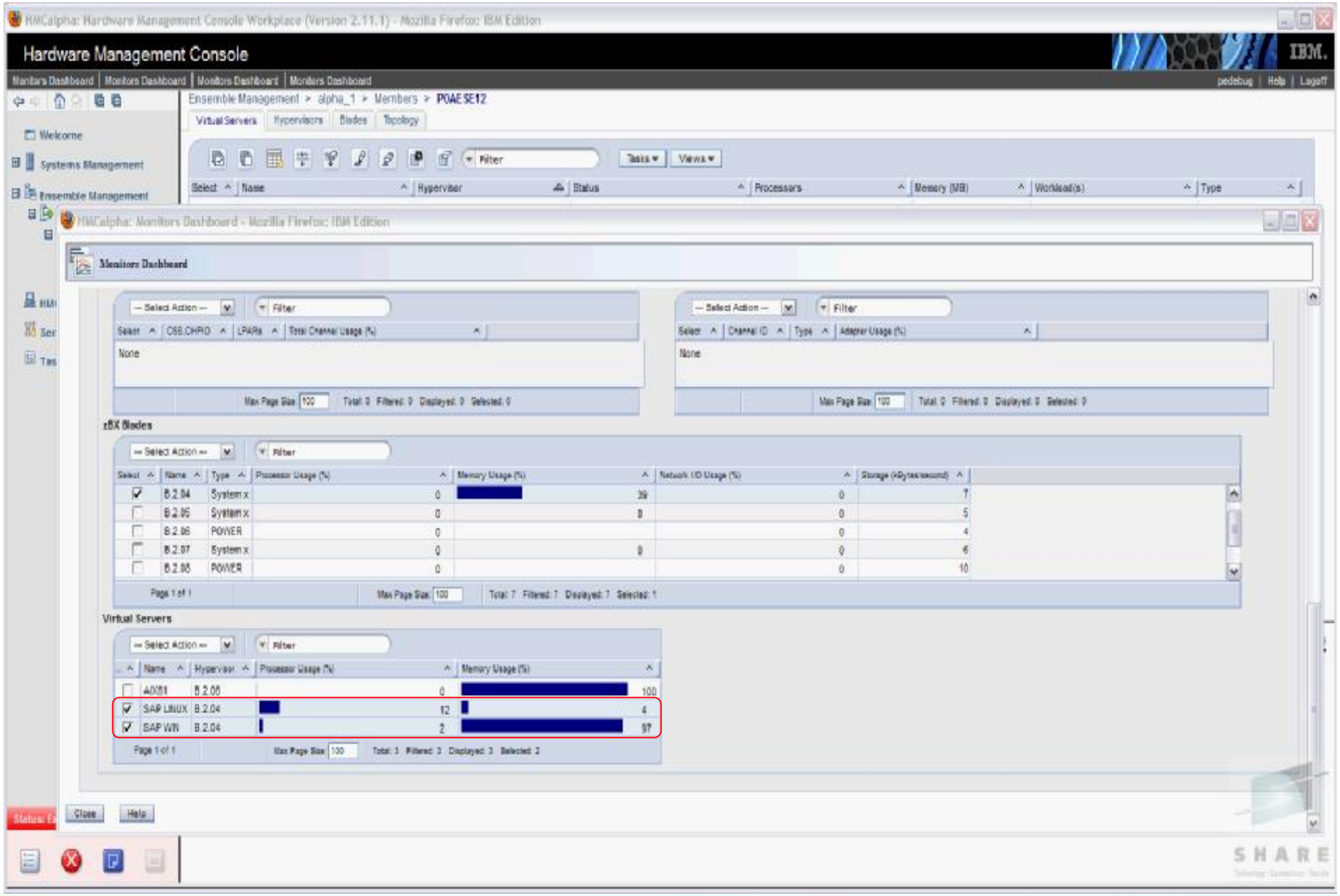
System x Blade – Virtual Server Details



System x Blade – Graphical Console



System x Blade – Monitors Dashboard



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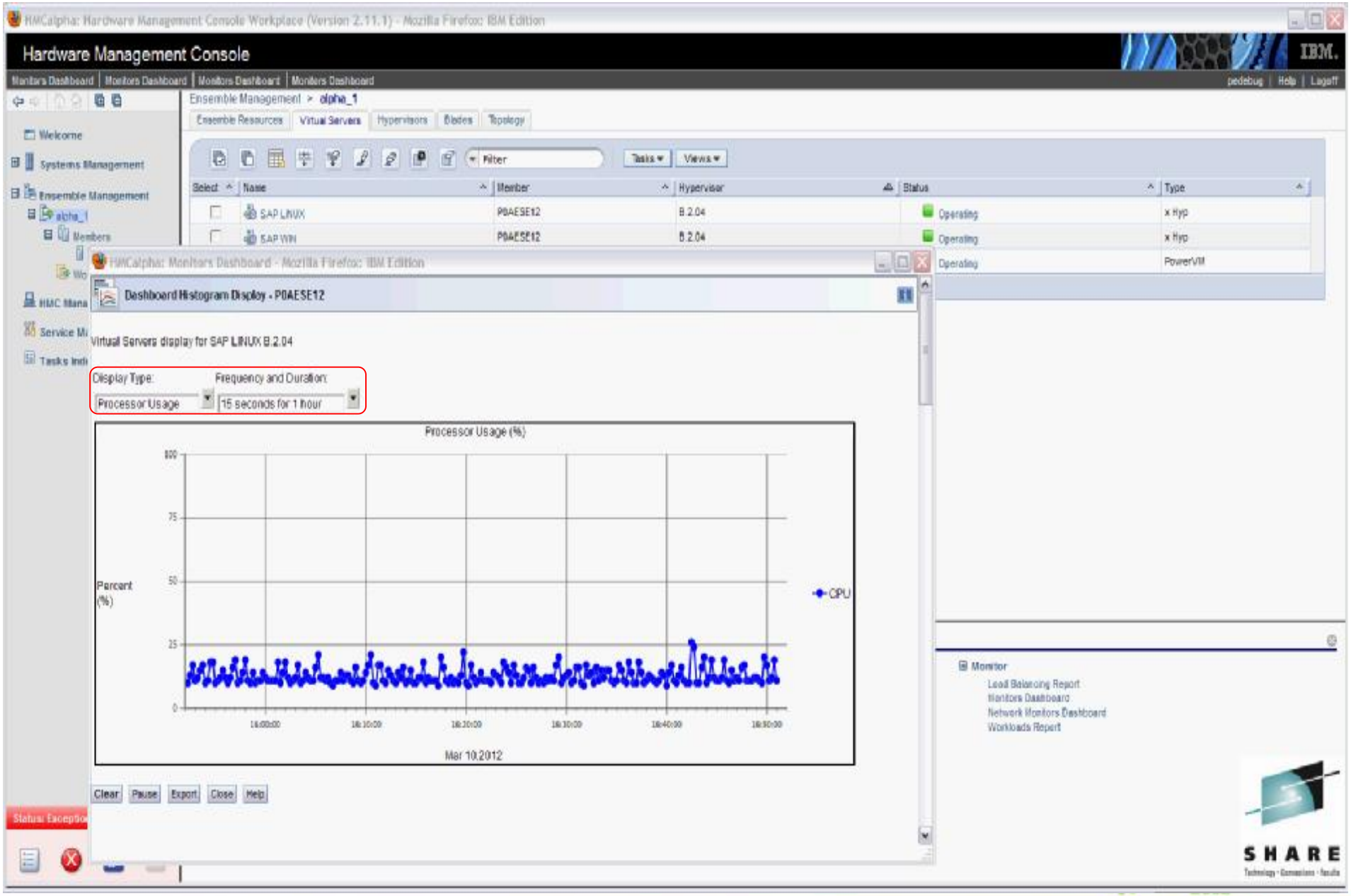

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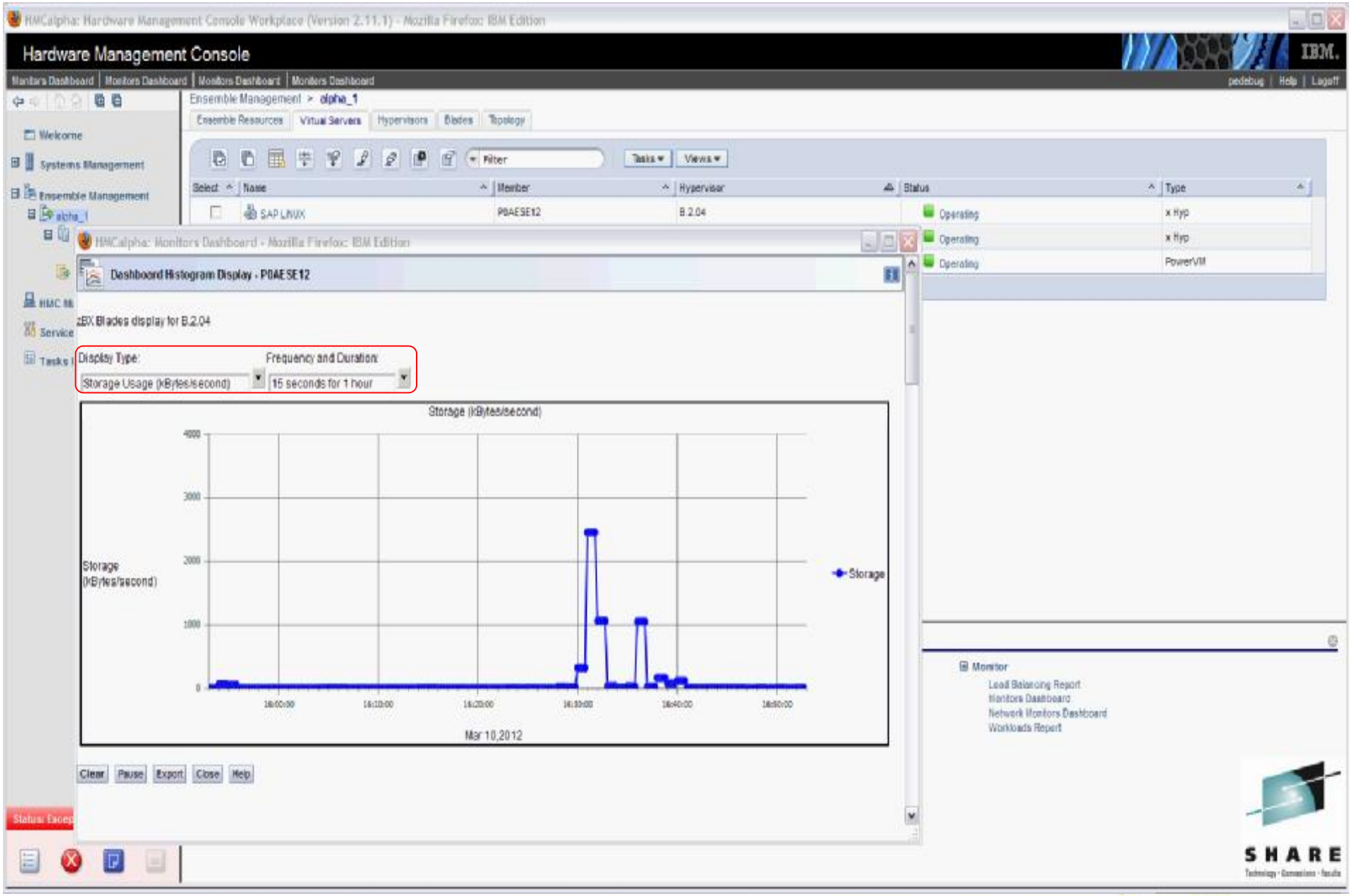


Related SHARE Sessions

- *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)

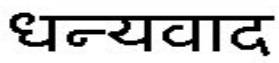
Related Sessions (continued)

- *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?



Hindi

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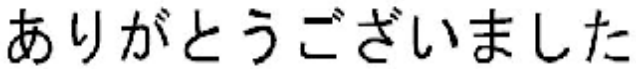
French

Simplified Chinese

Tamil



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German

Korean

Thank
You

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