

Managing System z and POWER and System x Virtual Servers in a zEnterprise Environment

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Agenda

- Overview of the Demo Environment
 - Authorization, Tasks and Roles
 - Storage Administration
 - Network Administration
 - Virtual Server Creation & Administration
 - Virtual Server Operations
 - Operating Systems Deployment
 - Microcode Update
-
- This is not planned to be a rewrite of another redbook or z Enterprise documentation but instead should show some screenshots of the demonstrations of our live z Enterprise ensemble in Boeblingen and discuss the different tasks in detail.

Useful URLs and documentation

- Building an Ensemble Using IBM zEnterprise Unified Resource Manager, SG24-7921-00 <http://www.redbooks.ibm.com/abstracts/sg247921.htm>
- IBM zEnterprise 196 Technical Guide SG24-7833 <http://www.redbooks.ibm.com/abstracts/sg247833.html>
- IBM zEnterprise EC12 Technical Guide, SG24-8049-00 <http://www.redbooks.ibm.com/redpieces/abstracts/sg248049.html>
- zEnterprise System Introduction to Ensembles GC27-2609-04a
- zEnterprise System Ensemble Planning and Configuring Guide GC27-2608-05
- zEnterprise System Ensemble Performance Management Guide GC27-2607-05
- Hardware Management Console Operations Guide for Ensembles V2.12.0 SC27-2622-00
- Hardware Management Console Operations Guide for Ensembles V2.11.1 SC27-2615-01
- System z Hardware Management Console Web Services API V2.12-0 SC27-2617-00
- System z Hardware Management Console Web Services API V2.11.1 SC27-2616-01
- API usage - <http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/PRS4856>
- IBM zEnterprise BladeCenter Extension (zBX) Hardware Overview and Update <http://www.ibm.com/systems/z/hardware/zenterprise/zbx.html>
- List of Storage Devices Supported by PS701 IBM BladeCenter® Express in IBM zEnterprise™ System <http://public.dhe.ibm.com/common/ssi/ecm/en/zsp03437usen/ZSP03437USEN.PDF>
- zBX SAN Cabling and Zoning Recommendations <http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/WP102112>
- Implementation services for zBX network virtualization <http://www-935.ibm.com/services/us/en/it-services/implementation-services-for-zbx-network-virtualization.html>
- Connecting the External Network to the zBX: Avoiding the BIG Mistake
 - <http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/PRS4817>
- z/VM service required for IBM zEnterprise Unified Resource Manager <http://www.vm.ibm.com/service/vmrequrm.html>

Overview of the Demo Environment

→ Hardware used for Demo



Overview of the Demo Environment

Ensemble Management

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

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

Se...	Name	Status	z/VM Processor Management	PowerVM Processor Management	Load Balancing	Description
<input checked="" type="checkbox"/>	GCCzEnterprise	Communicating to the alternate	✓	✓	✓	GCC ensemble with z196 51-D02D5 and z EC12 84-17C07
<input type="checkbox"/>	Members	OK				
<input type="checkbox"/>	P0017C07	Operating				
<input type="checkbox"/>	P00D02D5	Operating				
<input type="checkbox"/>	Workloads					
<input type="checkbox"/>	Default	Compliant				The default workload containing all unmanaged virtual servers.
<input type="checkbox"/>	SAP_Workload	Compliant				Workload used for the SAP on zEnterprise Demo
<input type="checkbox"/>	TMCCVM Demo Workload	Compliant				
<input type="checkbox"/>	Trader	Compliant				Stock Trading workload

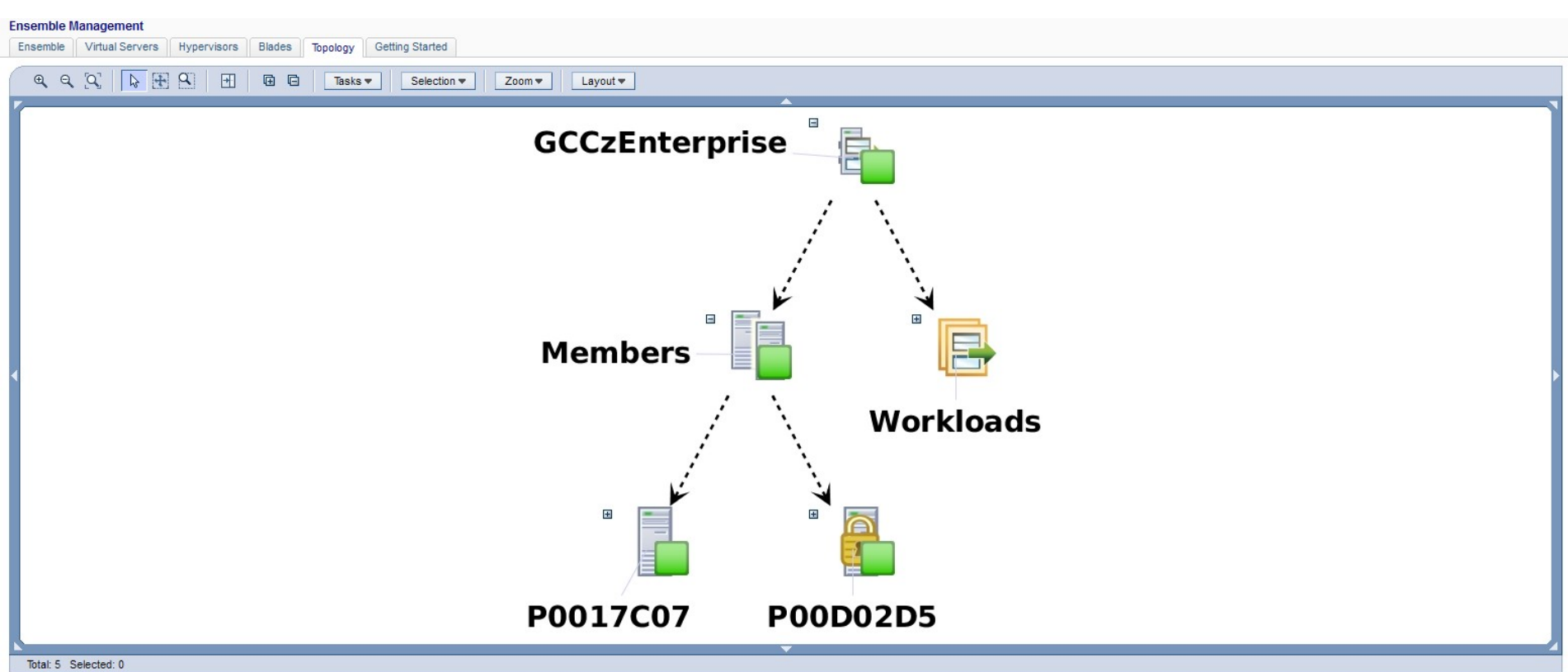
Max Page Size: 500 Total: 9 Filtered: 9 Selected: 1

Tasks: GCCzEnterprise

- Ensemble Details
- Ensemble Management Guide
- Toggle Lock
- Configuration**
 - Add Member to Ensemble
 - Delete Ensemble
 - Manage Alternate HMC
 - Manage Storage Resources
 - Manage Virtual Networks
 - New Virtual Server
 - New Workload Resource Group
- Monitor**
 - Load Balancing Report
 - Monitors Dashboard
 - Network Monitors Dashboard
 - Workloads Report

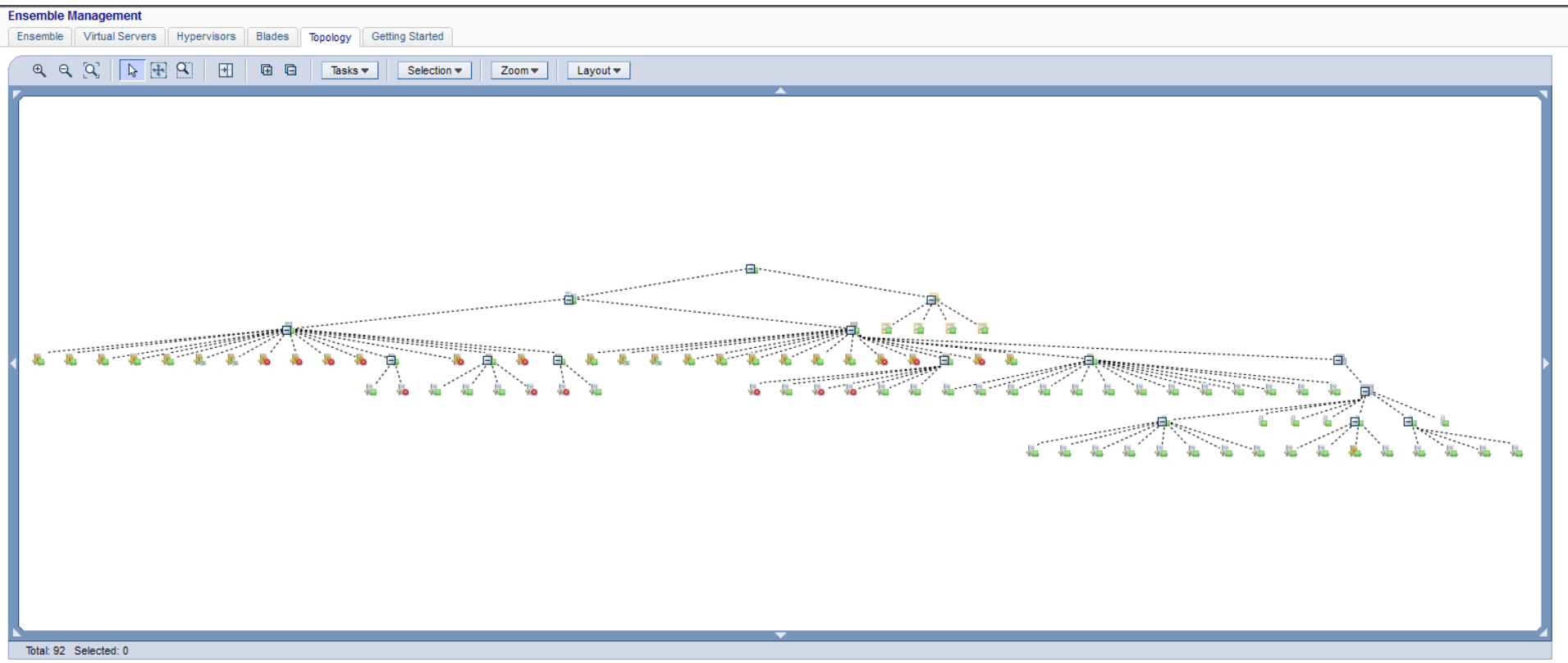
Overview of the Demo Environment

→ Topology view of the ensemble on primary on HMC



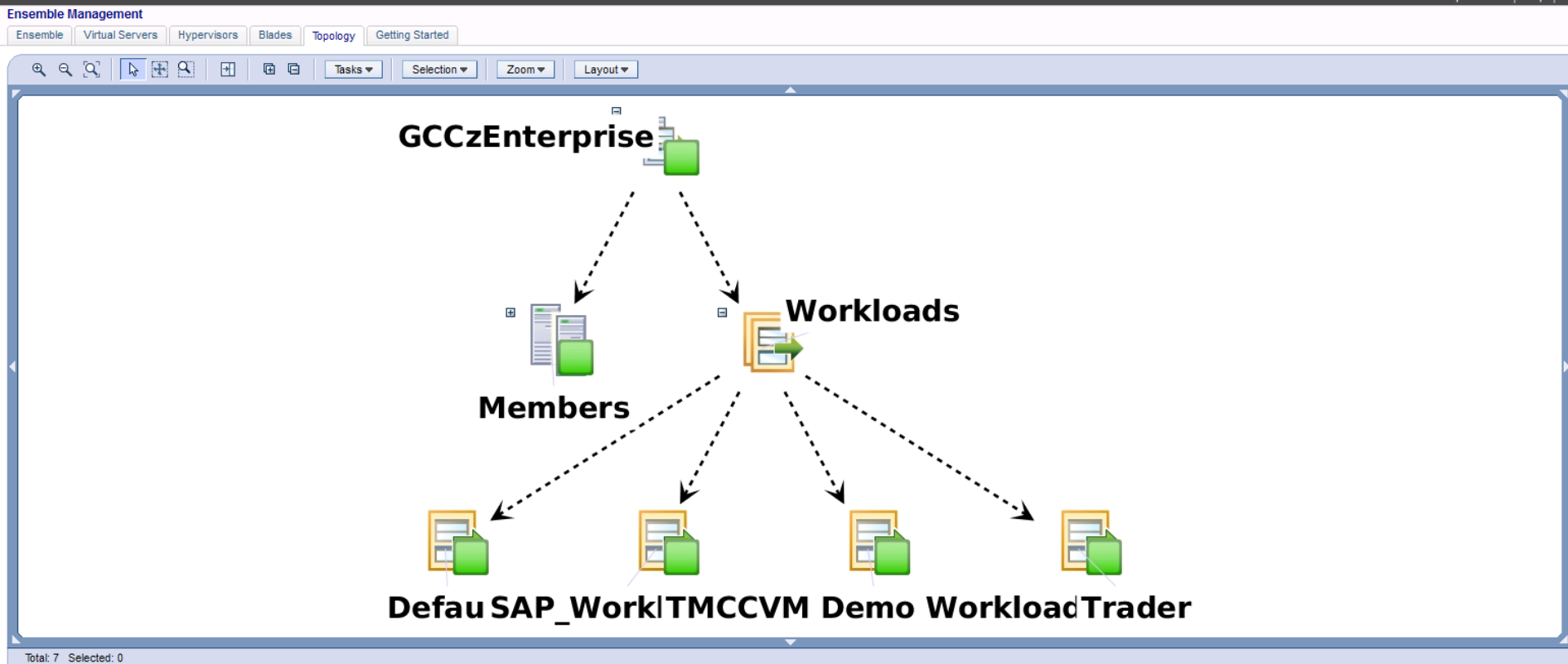
Overview of the Demo Environment

- Topology view of all virtual servers in the ensemble



Overview of the Demo Environment

- Topology view of workload defined in the ensemble



Overview of the Demo Environment

- Detailed VS list by Hypervisor – mostly used during the demo

Ensemble Management

Ensemble Virtual Servers Hypervisors Blades Topology Getting Started

Filter Tasks Views: Members

Select	Name	Status	Activation Profile	Last Used Profile	Machine Type - Model	Serial Number
<input type="checkbox"/>	P0017C07	Operating	TMCC	TMCC	2827 - H43	000840017C07
<input type="checkbox"/>	ZLP9	Operating	ZLP9			
<input type="checkbox"/>	ZLPB	Operating	ZLPB			
<input type="checkbox"/>	ZLIN024	Operating				
<input type="checkbox"/>	ZLIN070	Operating				
<input type="checkbox"/>	ZLIN107	Operating				
<input type="checkbox"/>	ZLIN119	Not activated				
<input type="checkbox"/>	ZLPD	Operating	ZLPD			
<input type="checkbox"/>	P00D02D5	Operating	TMCC	TMCC	2817 - M32	0005100D02D5
<input type="checkbox"/>	ZLPA (TMCCS10:TMCC11)	Operating	ZLPA			
<input type="checkbox"/>	ZLPD (TMCC14:TMCC14)	Operating	ZLPD			
<input type="checkbox"/>	B.1.01	Operating			7873 - A1G	06DCH04
<input type="checkbox"/>	B.1.02	Operating			7873 - A1G	06DCH05
<input type="checkbox"/>	B.1.03	Operating			7873 - A4G	06TCZ79
<input type="checkbox"/>	B.1.04	Operating			7873 - A5G	06TCZ76
<input type="checkbox"/>	B.1.11	Operating			8406 - 71Y	06BAFBA
<input type="checkbox"/>	B.1.12	Operating			8406 - 71Y	06BAFCA
<input type="checkbox"/>	sapdemo139	Operating				
<input type="checkbox"/>	sapdemo141	Operating				
<input type="checkbox"/>	sapdemo142	Operating				
<input type="checkbox"/>	zbx4test	Operating				
<input type="checkbox"/>	B.1.13	Operating			8406 - 71Y	06D590A

Max Page Size: 500 Total: 22 Filtered: 22 Selected: 0

Overview of the Demo Environment

- Blade-only view of ensemble elements

Ensemble Management

Ensemble Virtual Servers Hypervisors Blades Topology Getting Started

Filter Tasks Views

Select	Name	Member	Status	Power Usage (W)	Location	Machine Type - Model	Serial Number	Type
<input type="checkbox"/>	B.1							
<input type="checkbox"/>	B.1.01	P00D02D5	Operating	221	B10BBS01	7873 - A1G	06DCH04	System x
<input type="checkbox"/>	zBX150Tivsam	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX151	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX152	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX153	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX154	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX155	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX156	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	zBX157	P00D02D5	Operating					x Hyp
<input type="checkbox"/>	B.1.02	P00D02D5	Operating	206	B10BBS02	7873 - A1G	06DCH05	System x
<input type="checkbox"/>	B.1.03	P00D02D5	Operating	205	B10BBS03	7873 - A4G	06TCZ79	System x
<input type="checkbox"/>	B.1.04	P00D02D5	Operating	212	B10BBS04	7873 - A5G	06TCZ76	System x
<input type="checkbox"/>	B.1.11	P00D02D5	Operating	164	B10BBS11	8406 - 71Y	06BAFBA	POWER
<input type="checkbox"/>	batchtrader	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	daytrader	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	zbxinstall	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	zbxtest138	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	B.1.12	P00D02D5	Operating	165	B10BBS12	8406 - 71Y	06BAFCA	POWER
<input type="checkbox"/>	sapdemo139	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	sapdemo141	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	sapdemo142	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	zbx4test	P00D02D5	Operating					PowerVM
<input type="checkbox"/>	B.1.13	P00D02D5	Operating	166	B10BBS13	8406 - 71Y	06D590A	POWER

Max Page Size: 500 Total: 24 Filtered: 24 Selected: 0

Tasks: Ensemble Management
 Add Member to Ensemble
 Ensemble Management Guide
 Manage Alternate HMC

Ensemble Tasks

- Customize User Controls – User Profiles
- Manage Storage Resources
- Manage Virtual Networks

 **Ensemble Management Guide**


Use this guide to assist you with setting up an ensemble. Click any of the links to take you directly to the tasks. Click the notes link to add notes about your ensemble, such as steps completed or number of members added.

 [Notes](#)

Before you begin:

[Customize User Controls](#)

(Optional) View and manage task and resource roles introduced for ensemble management.

[User Profiles](#)

(Optional) View and manage users and assign roles.

[View Documentation](#)

(Optional) Read on-line documents to assist you in setting up your ensemble.

Task

[Manage Alternate HMC](#)

Allows you to...

Choose another HMC and start the Manage Alternate HMC task to assign it as an alternate HMC.

[Create Ensemble](#)

Create an ensemble. An HMC can manage only one Ensemble.

[Add Member to Ensemble](#)

Add a member to the ensemble. A functional ensemble must have at least one member, but it can have up to eight.

[Entitle zBX blades](#)

Use the Perform Model Conversion task in the Support Element (SE) to entitle blades if installed. You can use the [Single Object Operations](#) task to access the SE console.

[Manage Storage Resources](#)

Add or remove storage resources and storage groups.

[Manage Virtual Networks](#)

Add or remove virtual networks. Manage which hosts are connected to virtual networks.

[Configure Top-of-rack \(TOR\) Switch](#)

Configure top-of-rack switches for connectivity outside of the IEDN.

[New Virtual Server](#)

Create a virtual server on a hypervisor in this ensemble.

[Mount Virtual Media](#)

Install your operating system and applications. If you plan on including this virtual server in a workload resource group you can install the guest platform management provider (GPMP).

[Activate](#)

Activate a virtual server to power it on.

[Open Text Console](#)

Open a console window to a virtual server.

[Monitors Dashboard](#)

View system virtual server performance metrics.

[New Workload Resource Group](#)

Create a workload resource group for this ensemble. A workload resource group allows related virtual servers to be monitored and managed based on policy.

[New Performance Policy](#)

Define performance goals for the virtual servers in a workload resource group.

[Workloads Report](#)

Monitor a workload resource group based on its performance policy.

[Close](#) [Help](#)

USERIDs – Authorization, Tasks & Roles

- First planning and customization for userids
 - „Customize User Controls“
 - Create or modify HMC object groups („Managed Resource Roles“)
 - Create or modify HMC task autorizations („Task Roles“)
 - „User Profiles“ or „Manage Users Wizard“
 - Check or document with „Audit and Log Management“ on HMC or SE

USERIDs – Authorization, Tasks & Roles

Manage User Wizard

Welcome

Use this wizard to:

- Set up a new user
- Modify a user
- Remove a user
- Select the systems that this user will have permission to access from this management console
- Establish a role for this user which defines an authorization level for a set of tasks on the selected resources
- Modify the user settings for this user

[← Back](#)
[Next >](#)
[Finish](#)
[Cancel](#)

Manage User Wizard


Select a User

Select a User ID.

Select	User ID	Description
<input type="radio"/>	tmccadm	System programmer level user
<input checked="" type="radio"/>	test1	test demo1
<input type="radio"/>	test2	test demo2
<input type="radio"/>	test3	test3 lan user
<input type="radio"/>	TMCCADM	System programmer level user
<input type="radio"/>	tmccdemo	tmccdemo

[← Back](#)
[Next >](#)
[Finish](#)
[Cancel](#)

USERIDs – Authorization, Tasks & Roles

 **Manage User Wizard**

- ✓ [Welcome](#)
- ✓ [Pick a Task](#)
- Create User Options
- ✓ [Select a User](#)
- ✓ [Create/Modify a User](#)
- ✓ [Authentication Type](#)
- ✓ [Local Authentication](#)
- LDAP Authentication
- ✓ [Manage Objects](#)
- ✓ [Task Roles](#)
- ✓ [Confirmation Settings](#)
- ✓ [Object Control Settings](#)
- ✓ [UI Style Settings](#)
- Classic Style Settings
- Object Background Settings
- ✓ [Tree Style Settings](#)
- ✓ [Settings](#)
- [Summary](#)

Summary

User Summary:
When you select finish on this panel, the selected action will be completed.

USER: test1

DESCRIPTION: test demo1

AUTHENTICATION MODE: local

MANAGED OBJECT ROLES:
test blade objects
DEMO VLAN
test1_objects

< Back Next > Finish Cancel

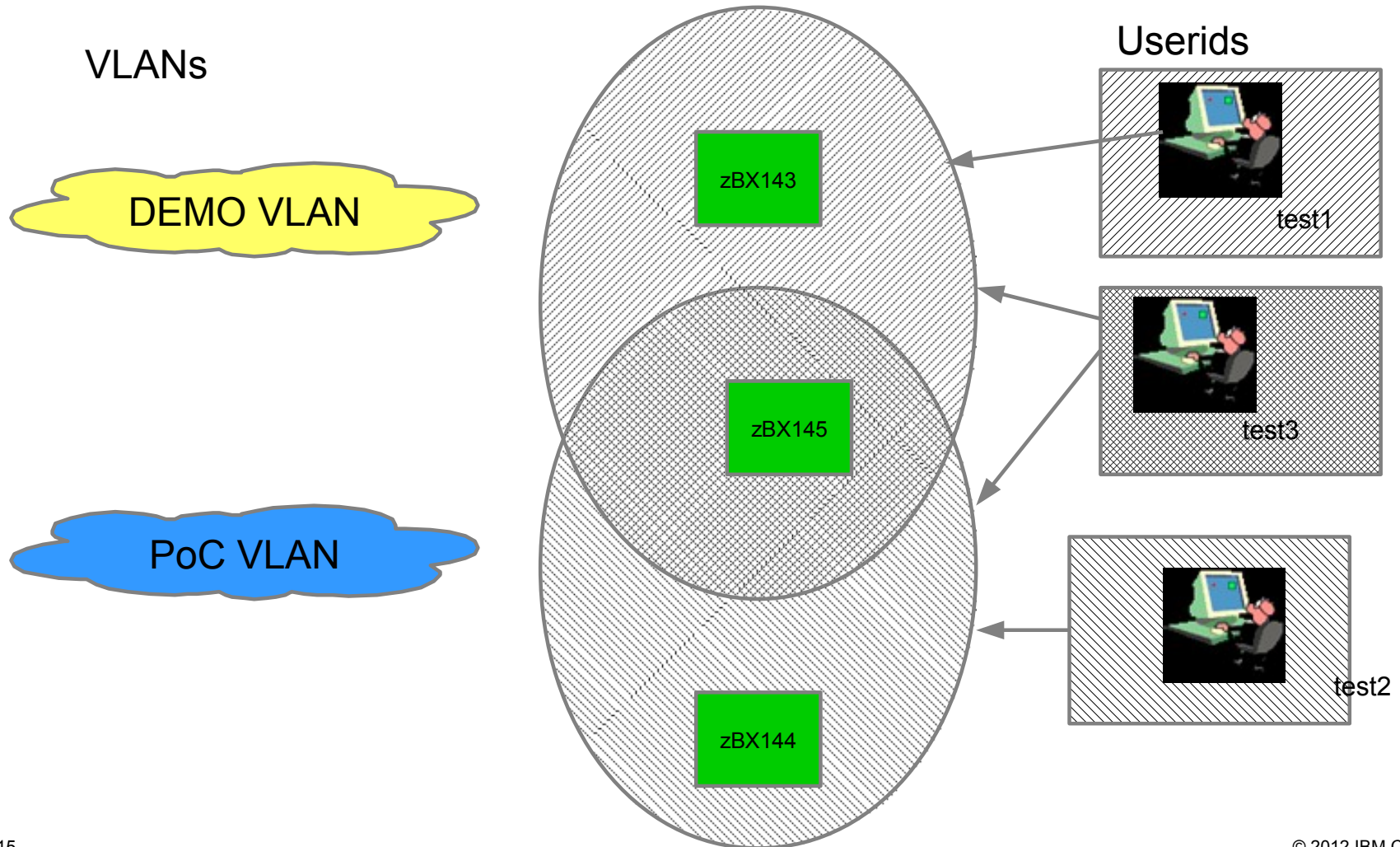
AUTHENTICATION MODE: local

MANAGED OBJECT ROLES:
test blade objects
DEMO VLAN
test1_objects

TASK ROLES:
Virtual Server Administrator Tasks
Virtual Network Administrator Tasks

USERIDs – Authorization, Tasks & Roles - Example

Virtual Servers



USERIDs – Authorization, Tasks & Roles - Example

Users

The following three userids have been created:

test1
test2
test3

test1	
Managed Resource Roles	<ul style="list-style-type: none"> • test blade objects • DEMO VLAN • test1_objects
Task Roles	<ul style="list-style-type: none"> • Virtual Server Administrator Tasks • Virtual Network Administrator Tasks
test2	
Managed Resource Roles	<ul style="list-style-type: none"> • test2_objects • test blade objects • PoC VLAN
Task Roles	<ul style="list-style-type: none"> • Virtual Server Administrator Tasks • Virtual Network Administrator Tasks
test3	
Managed Resource Roles	<ul style="list-style-type: none"> • test2_objects • test blade objects • DEMO VLAN • PoC VLAN • Ensemble Object • test1_objects
Task Roles	<ul style="list-style-type: none"> • Virtual Server Administrator Tasks • Virtual Network Administrator Tasks

test1 userid can do administrator task on all assigned VS and can assign the DEMO VLAN to “his” servers – he can also remove other VLANs from servers in his scope but cannot re-assign those other VLANs
To start the task “Virtual Server Details” the user need the corresponding Hypervisor (Blade Object) assigned as Managed Resource.

test2 userid can do administrator task on all assigned VS and can assign the PoC VLAN to “his” servers – he can also remove other VLANs from servers in his scope but cannot re-assign those other VLANs
To start the task “Virtual Server Details” the user need the the corresponding Hypervisor (Blade Object) assigned as Managed Resource.

test3 userid can do administrator task on all assigned VS and can assign or remove all VLANs in his authorization scope to VS objects in his Managed Resource Roles.

To be able to start the task “Manage Virtual Networks” the userid also needs authorization for the “Ensemble Object”. With that he can see details for the VLANs he is allowed to administrate, but only in the context of the VS he is allowed to administrate

Details on the resource and task groups see next page

USERIDs – Authorization, Tasks & Roles - Example

Managed Resource Roles


The following new resource roles have been created:

test blade objects
 test1_objects
 test2_objects
 DEMO VLAN
 PoC VLAN

test blade objects	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ B.1.13 • ManagedObjectGroup <ul style="list-style-type: none"> ○ zBX Blades
test1_objects	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ zBX143 ○ zBX145
test2_objects	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ zBX144 ○ zBX145

Use default Task Roles

Default Role - cannot be modified



Virtual Network Objects	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ Default ○ IDAA ○ PoCLAN ○ VLAN196 ○ demoLAN • ManagedObjectGroup <ul style="list-style-type: none"> ○ Virtual Networks
DEMO VLAN	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ demoLAN • ManagedObjectGroup <ul style="list-style-type: none"> ○ Virtual Networks
PoC VLAN	<ul style="list-style-type: none"> • ManagedObject <ul style="list-style-type: none"> ○ PoCLAN • ManagedObjectGroup <ul style="list-style-type: none"> ○ Virtual Networks

USERIDs – Authorization, Tasks & Roles - Example

test1 userid can manage the two assigned VS and only add/remove the DEMO VLAN, the userid can also remove VLANs which are not in its scope from a VS - but can not reassign them to the VS – for the „Add“ function only the authorized VLAN is selectable.

test1 | Help | Logoff

Ensemble Management

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

Filter Tasks Views

Select	Name	Member	Hypervisor	Status	Processors	Memory (MB)	Workload(s)	Type
<input type="radio"/>	zBX143	P00D02D5	B.1.13	Operating	2	4,096	TMCCVM Demo Workload	PowerVM
<input type="radio"/>	zBX145	P00D02D5	B.1.13	Operating	1	4,096	TMCCVM Demo Workload	PowerVM

Max Page Size: 500 Total: 2 Filtered: 2 Selected: 0

Virtual Server Details - zBX143

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

MAC Prefix: 02:4f:cc:ad:34:00/40

Network Adapters:

Select	Position	Network Name	Network Description	ID
<input checked="" type="checkbox"/>	0	VLAN143	(6:152:192:128/010)0:1:55fda-564f-11e1-b3f8	

Add Adapter

Network: demoLAN

(Not Assigned)
demoLAN

OK Cancel

OK Apply Cancel Help

Also this userid cannot start the „Manage Virtual LAN“ task

USERIDs – Authorization, Tasks & Roles - Example

test2 userid can manage the two assigned VS and remove VLANs but can add only the PoC VLAN and cannot start the “Manage Virtual LAN” task

test2 | Help | Logoff

Ensemble Management

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

Filter [] Tasks Views

Select	Name	Member	Hypervisor	Status	Processors	Memory (MB)	Workload(s)	Type
<input type="radio"/>	zBX144	P00D02D5	B.1.13	Operating	1	4,096	TMCCVM Demo Workload	PowerVM
<input type="radio"/>	zBX145	P00D02D5	B.1.13	Operating	1	4,096	TMCCVM Demo Workload	PowerVM

Max Page Size: 500 Total: 2 Filtered: 2 Selected: 0

Virtual Server Details - zBX145

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

MAC Prefix: 02:37:3f:8f:4d:00/40

Network Adapters:

Select	Position	Network Name	Network Description	ID
<input checked="" type="radio"/>	0	PoCLAN		8f509814-6925-11e1-b4b
<input type="radio"/>	1	VLA		e610-9e7a-11e1-b5

Add Adapter

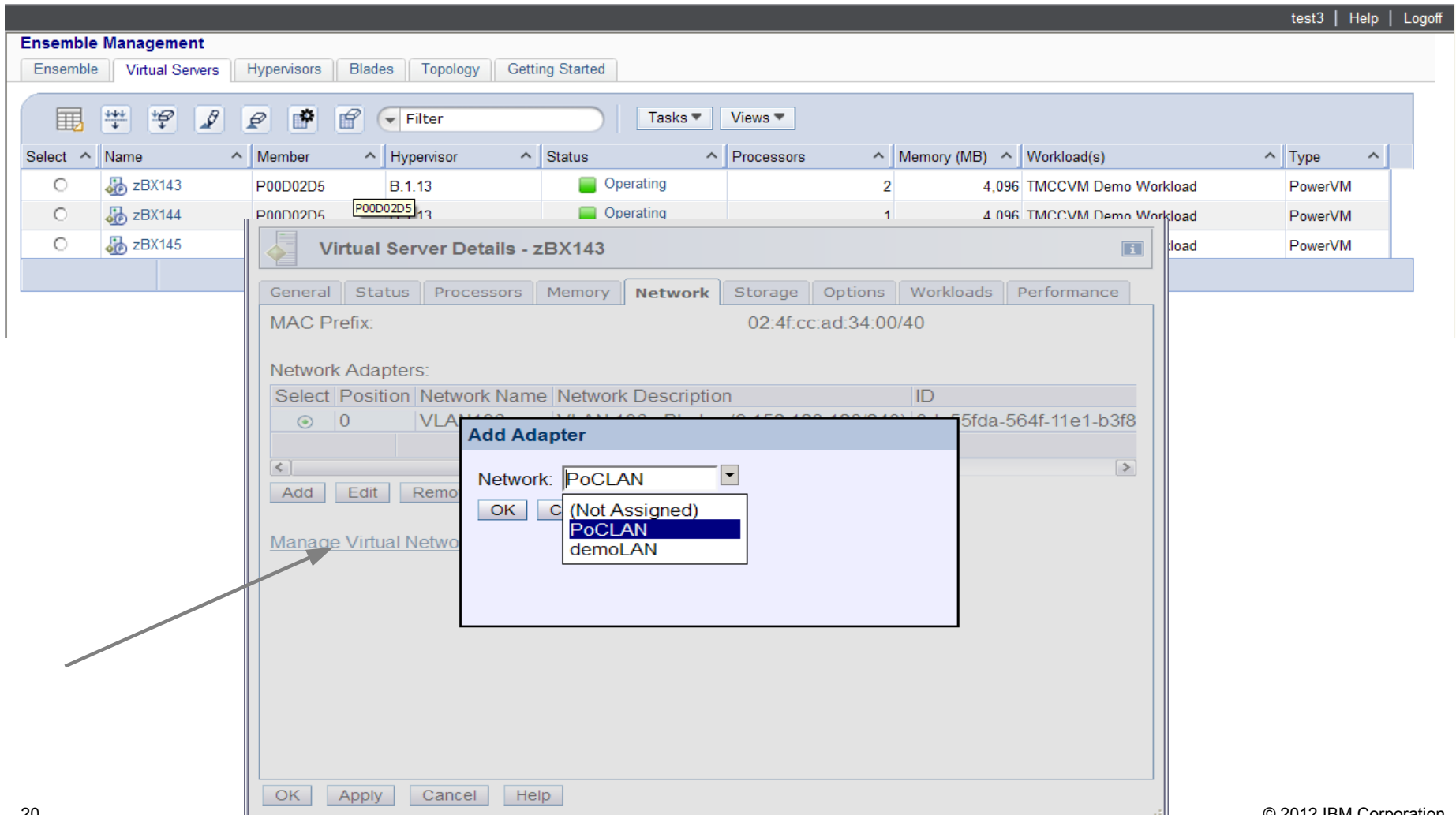
Network: PoCLAN

OK Cancel (Not Assigned) PoCLAN

OK Apply Cancel Help

USERIDs – Authorization, Tasks & Roles - Example

test3 userid can manage the assigned VS and only add/remove both VLANs and also start the “Manage Virtual LAN” task



The screenshot displays the Ensemble Management interface. The main window shows a table of virtual servers:

Select	Name	Member	Hypervisor	Status	Processors	Memory (MB)	Workload(s)	Type
<input type="radio"/>	zBX143	P00D02D5	B.1.13	Operating	2	4,096	TMCCVM Demo Workload	PowerVM
<input type="radio"/>	zBX144	P00D02D5	B.1.13	Operating	1	4,096	TMCCVM Demo Workload	PowerVM
<input type="radio"/>	zBX145	P00D02D5	B.1.13	Operating	1	4,096	TMCCVM Demo Workload	PowerVM

The 'Virtual Server Details - zBX143' window is open, showing the 'Network' tab. The MAC Prefix is 02:4f:cc:ad:34:00/40. The Network Adapters table is as follows:

Select	Position	Network Name	Network Description	ID
<input type="checkbox"/>	0	VLAN100	VLAN100 - PoCLAN	55fda-564f-11e1-b3f8

An 'Add Adapter' dialog box is open, showing a dropdown menu for 'Network' with the following options: (Not Assigned), PoCLAN, and demoLAN. An arrow points from the 'Manage Virtual Network' link in the background to the dialog box.

USERIDs – Authorization, Tasks & Roles - Example

test3 can only manage the VLANs which are in the scope

Manage Virtual Networks - TMCCz196

Virtual Networks:

Select	Name	# of Members	VLAN ID	Description
<input type="radio"/>	demoLAN	35	99	Demo LAN (SAP, z/OS, z/VM - ...10.0, ...9.0)
<input type="radio"/>	PoCLAN	11	19	PoC LAN (...19.0, ...7.0)

Total: 2 Filtered: 2

Close Help

test3 can only add or remove VS he can manage from the VLANs he is authorized to manage

Add Hosts to Virtual Network - demoLAN - TMCCz196

Select Hosts to add to the Virtual Network:

Select	Name	Hypervisor	CPC
<input type="checkbox"/>	zBX143	B.1.13	P00D02D5
<input type="checkbox"/>	zBX145	B.1.13	P00D02D5
<input type="checkbox"/>	zBX144	B.1.13	P00D02D5

Total: 3 Filtered: 3

Next Cancel Help

Remove Hosts from Virtual Network - demoLAN - TMCCz196

Select Hosts to remove from the Virtual Network:

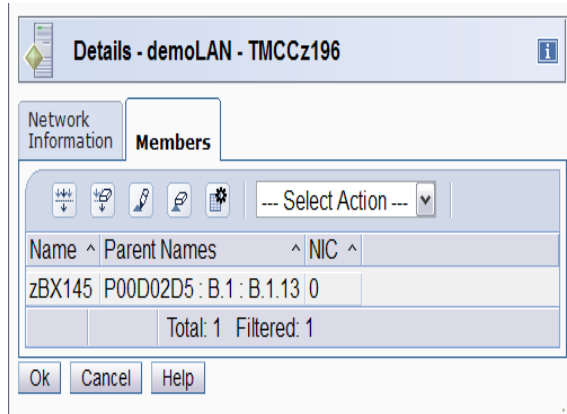
Select	Name	NIC	Parent Names
<input type="checkbox"/>	zBX145	0	P00D02D5 : B.1 : B.1.13

Total: 1 Filtered: 1

Ok Cancel Help

USERIDs – Authorization, Tasks & Roles - Example

test3 can only see the own virtual servers
in the owning VLAN details view
– but not all VS connected to this VLAN




Here the same VLAN details from an administrator userid:

Name	Parent Names	NIC
DE0210299801	P00D02D5 : TOR_Switch	8
DE0210299801	P00D02D5 : TOR_Switch	37
DE0210299823	P00D02D5 : TOR_Switch	8
DE0210299823	P00D02D5 : TOR_Switch	37
LP3	P00D02D5	OSX 0.E0:LP3
LP3	P00D02D5	OSX 0.E2:LP3
LP9	P00D02D5	OSX 0.E2:LP9
LP9	P00D02D5	OSX 0.E0:LP9
ZLIN024	P00D02D5 : LP9	E000
ZLIN027	P00D02D5 : LP9	E000
ZLPC	P00D02D5	OSX 0.E0:ZLPC
ZLPC	P00D02D5	OSX 0.E2:ZLPC
ZLXSAP36	P00D02D5 : LP9	E000
batchtrader	P00D02D5 : B.1 : B.1.11	1
daytrader	P00D02D5 : B.1 : B.1.11	1
sapdemo139	P00D02D5 : B.1 : B.1.12	0
sapdemo141	P00D02D5 : B.1 : B.1.12	0
sapdemo142	P00D02D5 : B.1 : B.1.12	1
zBX145	P00D02D5 : B.1 : B.1.13	0
zBX151	P00D02D5 : B.1 : B.1.01	0

USERIDs – Authorization, Tasks & Roles – Logging

- HMC Management (for authorized userid ACSADMIN role)
 - Audit and Log Management
 - Can display/export User Profile Setting

 **Audit and Log Management** i





Select the type of report and the information to be included in the report.

Report type

HTML XML

Range for event based audit data types

Limit event based audit data to a specific range of dates and times

Starting date	Starting time	Ending date	Ending time
5/15/12 	1:04 PM 	5/15/12 	1:04 PM 

Audit data types

Select	Audit data types
<input checked="" type="checkbox"/>	<input type="checkbox"/> User profiles
<input checked="" type="checkbox"/>	Default settings
<input checked="" type="checkbox"/>	Ldap server definitions
<input checked="" type="checkbox"/>	Password profiles
<input checked="" type="checkbox"/>	User patterns
<input checked="" type="checkbox"/>	User roles

Total: 26 Selected: 8

OK Cancel Help

USERIDs – Authorization, Tasks & Roles – Logging

▪ Example User Profile

	Hide invalid tasks	false
test1		
Description	test demo1	
Disabled:	false	
Allow remote access via the web	true	
Require password for disruptive actions	false	
Authentication Type:	Local authentication	
Password Rule:	Basic	
Password expires in (days):	0	
Force user to change the password at next login	false	
IBM password rules enforced:	false	
Minimum time in minutes between password changes:	0	
Password changed last:	May 15, 2012 12:02:00 PM CEST	
Last Logon Date	05/15/2012	
Last Logon Time	12:41:45	
Session timeout minutes:	0	
Verify timeout minutes:	15	
Idle timeout minutes:	0	
Maximum failed attempts before disable delay:	0	
Maximum failed attempts before disable delay:	0	
Disabled due to inactivity	false	
Disable for inactivity in days:	0	
Managed Resource Roles	<ul style="list-style-type: none"> • test blade objects • DEMO VLAN • test1_objects 	

USERIDs – Authorization, Tasks & Roles – Logging

Example Audit Log

Audit and Log Management

Select the type of report and the information to be included in the report.

Report type
 HTML XML

Range for event based audit data types
 Limit event based audit data to a specific range of dates and times

Starting date: 5/14/12 Starting time: 1:12 PM Ending date: 5/15/12 Ending time: 1:12 PM

Audit data types

Select	Audit data types
<input type="checkbox"/>	Welcome text
<input checked="" type="checkbox"/>	Logs
<input checked="" type="checkbox"/>	Audit log
<input checked="" type="checkbox"/>	Console events
<input checked="" type="checkbox"/>	Security Log
<input checked="" type="checkbox"/>	Service History

Total: 26 Selected: 5

OK Cancel Help

Audit and Log Report

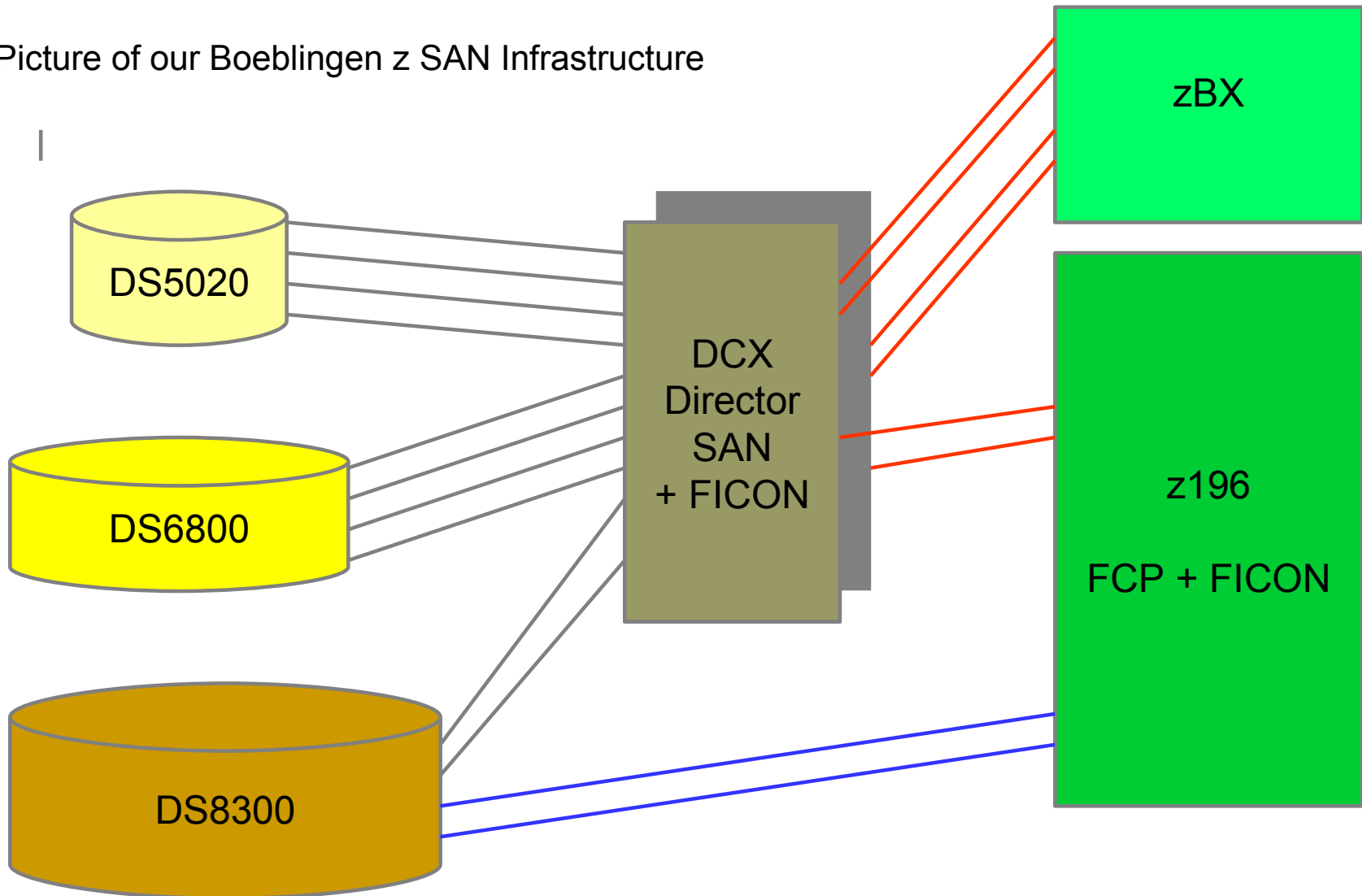
Audit log

Audit Logs	Date	Audit Event
	Tue May 15 10:01:53 CEST 2012	Mirroring data from the primary hardware management console to the alternate hardware management console completed successfully.
	Tue May 15 10:00:00 CEST 2012	Mirroring data from the primary hardware management console to the alternate hardware management console started.
	Mon May 14 18:18:29 CEST 2012	Created virtual server zBX146 on hypervisor B.1.13 which has an internal ID of 531aa912-1bfb-11e1-a7fe-f0def101833e on partner P00D02D5.
	Mon May 14	Deleted virtual server com.ibm.hwmca.fw.managed.ObjectId com.ibm.hwmca.z.lv.xhyp.managed.XVirtualServer[V="d329e298-9dd9-11e1-91df-

Save... Cancel Help

Storage Administration

- Picture of our Boeblingen z SAN Infrastructure



Storage Administration

▪ Manage Storage Resources

- Before storage resources can be assigned to Virtual Servers they have to be defined to the hypervisors
- This is an ensemble-wide task – can be called from several screens.
- Supported storage devices for PS701 Blades in zBX
<http://public.dhe.ibm.com/common/ssi/ecm/en/zsp03437usen/ZSP03437USEN.PDF>

▪ zBX SAN Cabling and Zoning Recommendations

<http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/WP102112>

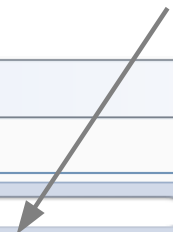
- Planning and configurations in connected SAN switches and storage servers
 - Export z/BX WWPNs (z/VM FCP channels and entitled Blades (x and p))
 - Define SAN zoning
 - Assign LUNs at storage servers to the different hosts

▪ Now define storage resources in the Ensemble per hypervisor

- Manually by add task and filling out the required fields in the screen
- SAN Discovery of LUNs for one or more hypervisors
- Import SAL to one or more hypervisors
- For z/VM SAN Discovery task works different – first discover – then export and save SAL template – modify and import SAL

- Virtual Storage Resources (like virtual DVDs/CDs) will be shown later when operating Virtual Servers

Storage Administration



Manage Storage Resources - TMCCz196 i

Storage Resources Virtual Disks

--- Select Action ---
Filter

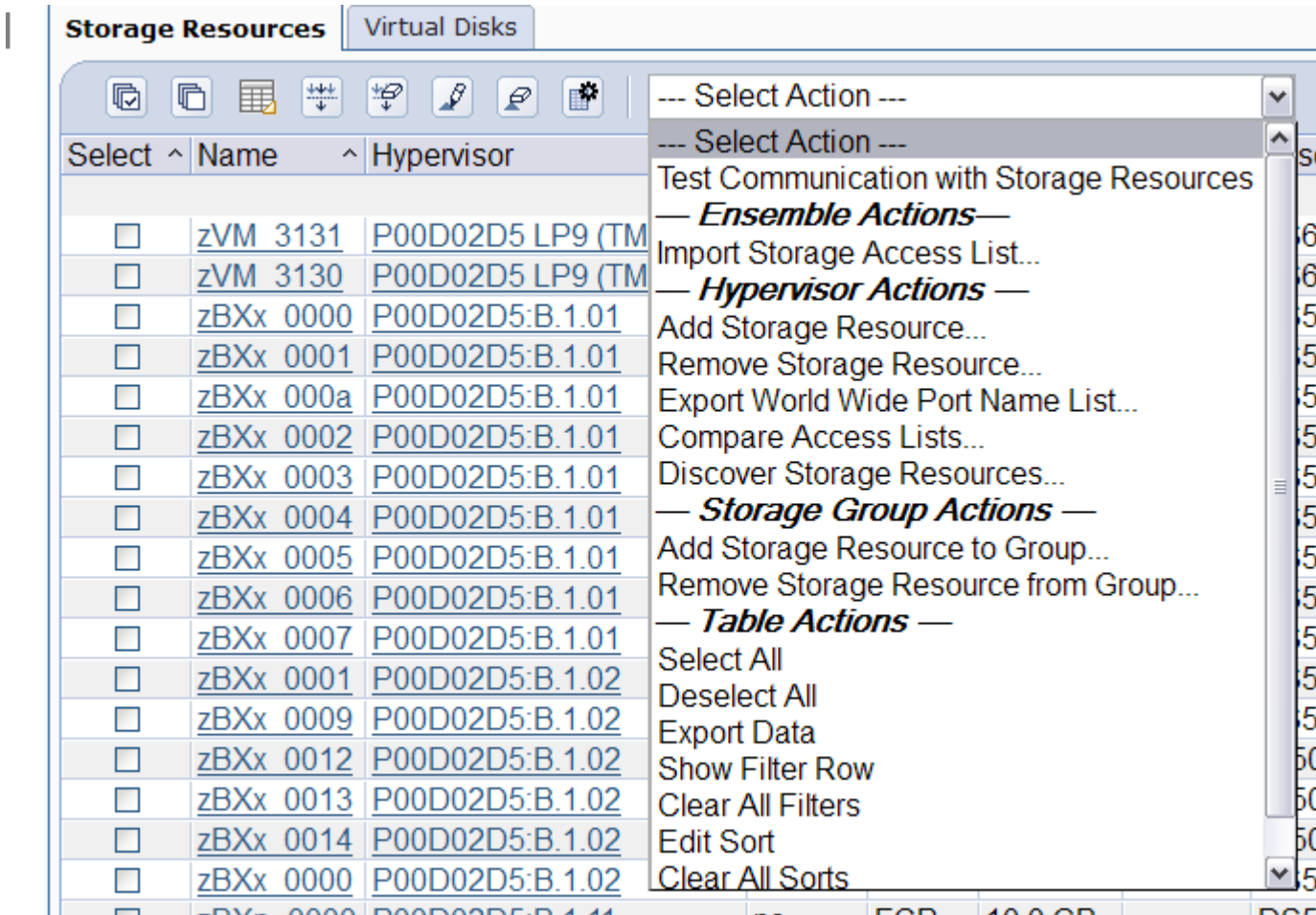
Select	Name	Hypervisor	Owns	Type	Size	Group	Description
<input type="checkbox"/>	zVM 3131	P00D02D5 LP9 (TMCC40)	no	ECKD	10017 cyl	\$3390\$	DS6K_3131
<input type="checkbox"/>	zVM 3130	P00D02D5 LP9 (TMCC40)	no	ECKD	10017 cyl	\$3390\$	DS6K_3130
<input type="checkbox"/>	zBXx 0000	P00D02D5:B.1.01	yes	FCP	100.0 GB		DS5020 LUN 0000 zbx150 TivSAM
<input type="checkbox"/>	zBXx 0001	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0001 zbx151
<input type="checkbox"/>	zBXx 000a	P00D02D5:B.1.01	yes	FCP	50.0 GB		DS5020 LUN 000A (10) zbx157 Demo 2012
<input type="checkbox"/>	zBXx 0002	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0002 zbx152
<input type="checkbox"/>	zBXx 0003	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0003 zbx153
<input type="checkbox"/>	zBXx 0004	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0004 zbx154
<input type="checkbox"/>	zBXx 0005	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0005 zbx155 windows 2008 64
<input type="checkbox"/>	zBXx 0006	P00D02D5:B.1.01	yes	FCP	30.0 GB		DS5020 LUN 0006 zbx156 windows 2008 64
<input type="checkbox"/>	zBXx 0007	P00D02D5:B.1.01	no	FCP	100.0 GB		DS5020 zbx150 TivSAM backup
<input type="checkbox"/>	zBXx 0001	P00D02D5:B.1.02	no	FCP	30.0 GB		DS5020 LUN 0001 zbx151
<input type="checkbox"/>	zBXx 0009	P00D02D5:B.1.02	yes	FCP	100.0 GB		DS5020 LUN 0009 zbx158 TivSAM
<input type="checkbox"/>	zBXx 0012	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0012 - zTech demo servers
<input type="checkbox"/>	zBXx 0013	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0013 - zTech demo servers
<input type="checkbox"/>	zBXx 0014	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0014 - zTech demo servers
<input type="checkbox"/>	zBXx 0000	P00D02D5:B.1.02	no	FCP	100.0 GB		DS5020 LUN 0000 zbx150 TivSAM
<input type="checkbox"/>	zBXp 0000	P00D02D5:B.1.11	no	FCP	10.0 GB		DS5020 LUN 0000
<input type="checkbox"/>	zBXp 1013	P00D02D5:B.1.11	yes	FCP	20.0 GB		DS8300 LUN 1013 batchtrader (.131)
<input type="checkbox"/>	zBXp 1012	P00D02D5:B.1.11	yes	FCP	20.0 GB		DS8300 LUN 1012 daytrader (.132)
<input type="checkbox"/>	zBXp 1014	P00D02D5:B.1.11	yes	FCP	20.0 GB		DS8300 LUN 1014 zbxinstall (.140)
<input type="checkbox"/>	zBXp 1015	P00D02D5:B.1.11	no	FCP	20.0 GB		DS8300 LUN 1016 zbxsap139
<input type="checkbox"/>	zBXp 1016	P00D02D5:B.1.11	no	FCP	30.0 GB		DS8300 LUN 1016 zbxsap141
<input type="checkbox"/>	zBXp 1017	P00D02D5:B.1.11	no	FCP	30.0 GB		DS8300 LUN 1017 zbxsap142
<input type="checkbox"/>	zBXp 1018	P00D02D5:B.1.11	yes	FCP	100.0 GB		DS8300 LUN 1018 zbxinstall (.140) mkysyb

Page 1 of 1 Max Page Size: Total: 59 Filtered: 59 Displayed: 59

Sorted by Hypervisor

Storage Administration

- Actions available for the hypervisors



The screenshot shows the 'Storage Resources' interface with the 'Virtual Disks' tab selected. A table lists various storage resources, and a context menu is open over the table, displaying a list of actions available for the selected hypervisors.


Select	Name	Hypervisor
<input type="checkbox"/>	zVM 3131	P00D02D5 LP9 (TM
<input type="checkbox"/>	zVM 3130	P00D02D5 LP9 (TM
<input type="checkbox"/>	zBXx 0000	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0001	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 000a	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0002	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0003	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0004	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0005	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0006	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0007	P00D02D5:B.1.01
<input type="checkbox"/>	zBXx 0001	P00D02D5:B.1.02
<input type="checkbox"/>	zBXx 0009	P00D02D5:B.1.02
<input type="checkbox"/>	zBXx 0012	P00D02D5:B.1.02
<input type="checkbox"/>	zBXx 0013	P00D02D5:B.1.02
<input type="checkbox"/>	zBXx 0014	P00D02D5:B.1.02
<input type="checkbox"/>	zBXx 0000	P00D02D5:B.1.02

The context menu contains the following actions:










- Select Action ---
- Select Action ---
- Test Communication with Storage Resources
- **Ensemble Actions** —
- Import Storage Access List...
- **Hypervisor Actions** —
- Add Storage Resource...
- Remove Storage Resource...
- Export World Wide Port Name List...
- Compare Access Lists...
- Discover Storage Resources...
- **Storage Group Actions** —
- Add Storage Resource to Group...
- Remove Storage Resource from Group...
- **Table Actions** —
- Select All
- Deselect All
- Export Data
- Show Filter Row
- Clear All Filters
- Edit Sort
- Clear All Sorts

Storage Administration

Export WWPN (of all ensemble hypervisors)

Manage Storage Resources - TMCCz196 


Select one or more hypervisors for for the export operation:










 --- Select Action ---

Select ^	Hypervisor ^	Type ^	Description ^
<input checked="" type="checkbox"/>	P00D02D5 LP9 (TMCC40)	ZVM	z/VM 6.1 z196 LP9 tmcc-123-40
<input checked="" type="checkbox"/>	P00D02D5 ZLPA (TMCCSS10:TMCC11)	ZVM	
<input checked="" type="checkbox"/>	P00D02D5 ZLPB (TMCCSS10:TMCC12)	ZVM	
<input checked="" type="checkbox"/>	P00D02D5 ZLPD (TMCC15)	ZVM	
<input checked="" type="checkbox"/>	P00D02D5:B.1.01	XHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.02	XHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.03	XHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.04	XHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.11	PHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.12	PHYP	
<input checked="" type="checkbox"/>	P00D02D5:B.1.13	PHYP	

Total: 11 Filtered: 11

OK Close Help

Export World Wide Port Number List - TMCCz196 

Select which location to save the file to.

HMC
 Remote Browser

Enter the name of file to which the list should be written.

OK Cancel Help

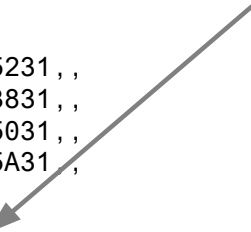
Storage Administration – exported WWPN list of hypervisors

```

#Version: 1
#FCP_DEF: ,Name,Size,Description,Location,HostWwpn,TargetWwpn,Lun
#ECKD_DEF: ,Name,Size,Description,Location,Devno,Volser
#ZVM_FCP_DEF: ,Name,Size,Description,Location,Devno,Volser,HostWwpn,TargetWwpn,Lun
FCP,,,,P00D02D5:B.1.13,21000024ff2b3ab2
FCP,,,,P00D02D5:B.1.13,21000024ff2b3ab3
FCP,,,,P00D02D5:B.1.11,21000024ff2ab6b4
FCP,,,,P00D02D5:B.1.11,21000024ff2ab6b5
ECKD,,,,P00D02D5:ZLPD,,
ZVM_FCP,,,,P00D02D5:LP9,,,C05076EC2D803831,,
ZVM_FCP,,,,P00D02D5:LP9,,,C05076EC2D805A31,,
ZVM_FCP,,,,P00D02D5:LP9,,,C05076EC2D805031,,
ZVM_FCP,,,,P00D02D5:LP9,,,C05076EC2D805231,,
ECKD,,,,P00D02D5:LP9,,
FCP,,,,P00D02D5:B.1.02,21000024ff345ba4
FCP,,,,P00D02D5:B.1.02,21000024ff345ba5
FCP,,,,P00D02D5:B.1.04,21000024ff42e072
FCP,,,,P00D02D5:B.1.04,21000024ff42e073
FCP,,,,P00D02D5:B.1.01,21000024ff345bea
FCP,,,,P00D02D5:B.1.01,21000024ff345beb
ZVM_FCP,,,,P00D02D5:ZLPB,,,C05076EC2D805231,,
ZVM_FCP,,,,P00D02D5:ZLPB,,,C05076EC2D803831,,
ZVM_FCP,,,,P00D02D5:ZLPB,,,C05076EC2D805031,,
ZVM_FCP,,,,P00D02D5:ZLPB,,,C05076EC2D805A31,,
ECKD,,,,P00D02D5:ZLPB,,
FCP,,,,P00D02D5:B.1.03,21000024ff42de62
FCP,,,,P00D02D5:B.1.03,21000024ff42de63
ZVM_FCP,,,,P00D02D5:ZLPA,,,C05076EC2D805231,,
ZVM_FCP,,,,P00D02D5:ZLPA,,,C05076EC2D805A31,,
ZVM_FCP,,,,P00D02D5:ZLPA,,,C05076EC2D803831,,
ZVM_FCP,,,,P00D02D5:ZLPA,,,C05076EC2D805031,,
ECKD,,,,P00D02D5:ZLPA,,
FCP,,,,P00D02D5:B.1.12,21000024ff2ab761
FCP,,,,P00D02D5:B.1.12,21000024ff2ab760

```

Here you find the two
WWPNs of Blade 3.



Storage Administration – Add Task

■ Add Storage Resource

Add Storage Resource to in Ensemble - P00D02D5:B.1.03

Name: * zbxdemo_0001_ds6k

Size: * 10 Gbytes (1024 Mbytes)

Description: manually added LUN 101B = 0001 DS6K

Define at least one and at most four paths to the storage resource.

Host WWPN	Controller WWPN	Logical Unit Number
2100-0024-ff42-de62	* 5005-0763-0e00-0522	* 0001-0000-0000-0000
2100-0024-ff42-de63	500507630e000522	0001000000000000
2100-0024-ff42-de62	500507630e020522	0001000000000000
2100-0024-ff42-de63	500507630e020522	0001000000000000
2100-0024-ff42-de62	500507630e020522	0001000000000000

OK Cancel Help

Manage Storage Resources - TMCCz196

Select the hypervisor to which the new storage resource will be added:

Select	Hypervisor	Type	Description
<input type="radio"/>	P00D02D5 LP9 (TMCC40)	ZVM	z/VM 6.1 z196 LP9 tmcc-123-40
<input type="radio"/>	P00D02D5 ZLPA (TMCCSSI0:TMCC11)	ZVM	
<input type="radio"/>	P00D02D5 ZLPB (TMCCSSI0:TMCC12)	ZVM	
<input type="radio"/>	P00D02D5 ZLPD (TMCC15)	ZVM	
<input type="radio"/>	P00D02D5:B.1.01	XHYP	
<input type="radio"/>	P00D02D5:B.1.02	XHYP	
<input checked="" type="radio"/>	P00D02D5:B.1.03	XHYP	
<input type="radio"/>	P00D02D5:B.1.04	XHYP	
<input type="radio"/>	P00D02D5:B.1.11	PHYP	
<input type="radio"/>	P00D02D5:B.1.12	PHYP	
<input type="radio"/>	P00D02D5:B.1.13	PHYP	

Total: 11 Filtered: 11

OK Close Help

Manually you can define up to 4 path to a LUN

Storage Administration – Add Task

Add Storage Resource to Hypervisor - P00D02D5:B.1.03



The storage resource zbxdemo_0001_ds6k was successfully added to hypervisor P00D02D5:B.1.03.

OK










After manually defining storage resources always check the accessibility

Select storage resource details or simply click on the object.

This shows the status of the paths, but also some additional information about the storage resource.

 **Manage Storage Resources - P00D02D5:B.1.03** 

Storage Resources
Virtual Disks








--- Select Action --- 
demo 

Select ^	Name ^	Hypervisor ^	Owns ^	Type ^	Size ^	Group ^	Description ^
<input type="checkbox"/>	zBXx_000a	P00D02D5:B.1.01	yes	FCP	50.0 GB		DS5020 LUN 000A (10) zbx157 Demo 2012
<input type="checkbox"/>	zBXx_0014	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0014 - zTech demo servers
<input type="checkbox"/>	zBXx_0012	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0012 - zTech demo servers
<input type="checkbox"/>	zBXx_0013	P00D02D5:B.1.02	no	FCP	30.0 GB		ds5020 lun 0013 - zTech demo servers
<input checked="" type="checkbox"/>	zbxdemo_0001_ds6k	P00D02D5:B.1.03	no	FCP	10.0 GB		manually added LUN 101B = 0001 DS6K

Page 1 of 1
Max Page Size:
Total: 60 Filtered: 5 Displayed: 5

Close
Help

Storage Administration – Add Task

Details for Storage Resource - P00D02D5:B.1.03 i

General Information

Name:

Description:

Size: 10.0 GB

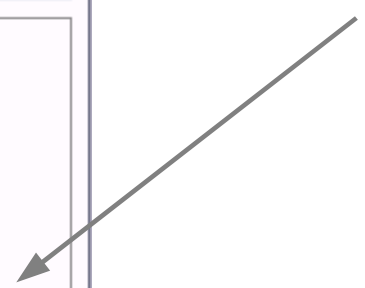
Unique Device Identifier: scsi-3600507630efe05220000000000000101b

Owns: None

Path/Host Port Information

Hypervisor	Host WWPN	Controller WWPN	Controller LUN	Accessible
P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0001000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e000522	0001000000000000	Yes
P00D02D5:B.1.03	21000024ff42de62	500507630e020522	0001000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e020522	0001000000000000	Yes
				Total: 4

LUN ?



LUN ?



Storage Administration - Discovery

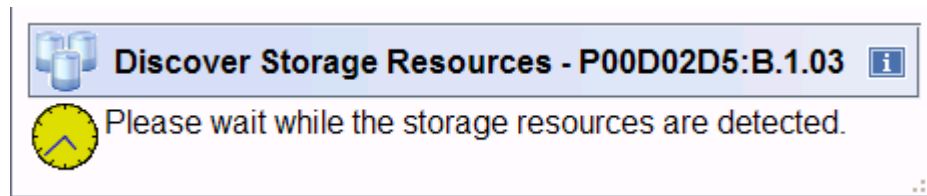
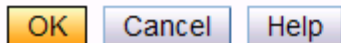


Please select the way the prefix of the name should be generated.

- Unique Storage Resource names generated by Ensemble.
- User specified prefix.

Enter the prefix of name:

zbxdemo



This can take some time – depending on the number of connected storage servers
This task can be run for a single or multiple selected hypervisors (p and x)
z/VM storage discovery works a little bit different.

Storage Administration - Discovery

Discovered Storage Resources - P00D02D5:B.1.03


x Hyp/PowerVM z/VM

Select	Name	Capacity	Path	Host WWPN	Target WWPN	LUN	Defined	Unique Device Identifier
<input type="checkbox"/>	zbxdemo_0		P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_0		P00D02D5:B.1.03	21000024ff42de62	500507630e860522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_0		P00D02D5:B.1.03	21000024ff42de63	500507630e000522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_0		P00D02D5:B.1.03	21000024ff42de63	500507630e020522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_0		P00D02D5:B.1.03	21000024ff42de63	500507630e840522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_000002	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e860522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_000002	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e020522	0002000000000000	New	scsi-3600507630efe0522000000000000101c
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e000522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e020522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e840522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e020522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e840522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e860522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_000003	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e860522	0000000000000000	New	scsi-3600507630efe0522000000000000101d
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e840522	0001000000000000	New	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e020522	0001000000000000	Defined	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e860522	0001000000000000	New	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e020522	0001000000000000	Defined	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e000522	0001000000000000	Defined	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0001000000000000	Defined	scsi-3600507630efe0522000000000000101b
<input type="checkbox"/>	zbxdemo_0001_ds6k	10.0 GB	P00D02D5:B.1.03	21000024ff42de63	500507630e840522	0001000000000000	New	scsi-3600507630efe0522000000000000101b
Total: 24								


Close Help

The previously defined storage resource also appears with status „defined“ - each LUN is discovered with 8 paths.


Storage Administration - Discovery




**Import All New Discovered Storage Resources
Succeeded - P00D02D5:B.1.03**



Imported all new discovered storage resources.










Manage Storage Resources - P00D02D5:B.1.03



Storage Resources

Virtual Disks

--- Select Action ---


b.1.03

Select ^	Name ^	Hypervisor ^	Owns ^	Type ^	Size ^	Group ^	Description ^
<input type="checkbox"/>	zbxdemo_000002	P00D02D5:B.1.03	no	FCP	10.0 GB		
<input type="checkbox"/>	zbxdemo_000003	P00D02D5:B.1.03	no	FCP	10.0 GB		
<input type="checkbox"/>	zbxdemo_0001_ds6k	P00D02D5:B.1.03	no	FCP	10.0 GB		manually added LUN 101B = 0001 DS6K

Page 1 of 1
Max Page Size:
Total: 62 Filtered: 3 Displayed: 3

Select lun to display details – and accessibility – you can also change the name and Description - as you can see on the next page the discovery and import defines all physically available paths to the LUNs

Storage Administration - Discovery


Details for Storage Resource - P00D02D5:B.1.03
i

General Information

Name: zbxdemo_0002_ds6k

Description: description (added):
ds6k LUN 101C = 0002

Size: 10.0 GB

Unique Device Identifier: scsi-3600507630efe0522000000000000101c


Owns: None

Path/Host Port Information









Hypervisor	Host WWPN	Controller WWPN	Controller LUN	Accessible
P00D02D5:B.1.03	21000024ff42de62	500507630e840522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e840522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de62	500507630e860522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e860522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0002000000000000	Yes
				Total: 8

OK
Cancel
Help

Storage Administration - Discovery


Manage Storage Resources - P00D02D5:B.1.03
i

Storage Resources
Virtual Disks

--- Select Action ---

b.1.03
x

Select ^	Name ^	Hypervisor ^	Owns ^	Type ^	Size ^	Group ^	Description ^
<input type="checkbox"/>	zbxdemo 0002 ds6k	P00D02D5:B.1.03	no	FCP	10.0 GB		description (added): ds6k LUN 101C = 0002
<input type="checkbox"/>	zbxdemo 000003	P00D02D5:B.1.03	no	FCP	10.0 GB		
<input type="checkbox"/>	zbxdemo 0001 ds6k	P00D02D5:B.1.03	no	FCP	10.0 GB		manually added LUN 101B = 0001 DS6K

Page 1 of 1
Max Page Size:
Total: 62 Filtered: 3 Displayed: 3

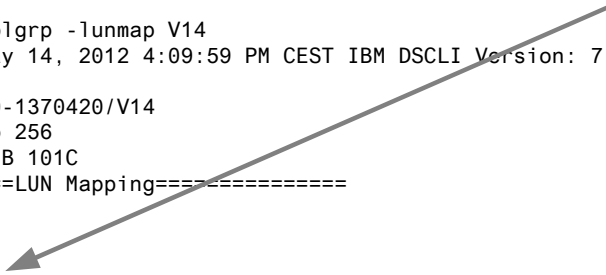
Close
Help

Caution!! order of LUN can be different than order of volume

```

dsccli> showvolgrp -lunmap V14
Date/Time: May 14, 2012 4:09:59 PM CEST IBM DSCCLI Version: 7.6.10.511 DS: IBM.1750-1370420
Name zbxtest
ID IBM.1750-1370420/V14
Type SCSI Map 256
Vols 101D 101B 101C
=====LUN Mapping=====
vol lun
=====
101D 00
101B 01
101C 02
dsccli>

```



Storage Administration - Removal

Manage Storage Resources - P00D02D5:B.1.03 i

Storage Resources Virtual Disks

Remove Storage Resource... b.1.03

Select	Name	Hypervisor	Description
<input checked="" type="checkbox"/>	zbxdemo_0002_ds6k	P00D02D5	Description (added): 6k LUN 101C = 0002
<input checked="" type="checkbox"/>	zbxdemo_000003	P00D02D5	
<input checked="" type="checkbox"/>	zbxdemo_0001_ds6k	P00D02D5	Manually added LUN 101B = 0001 DS6K ed: 3

Page 1 of 1 Max Pa

Close Help

Remove Storage Resource...
 --- Select Action ---
 Test Communication with Storage Resources
 — **Ensemble Actions** —
 Import Storage Access List...
 — **Hypervisor Actions** —
 Add Storage Resource...
 Remove Storage Resource...
 Export World Wide Port Name List...
 Compare Access Lists...
 Discover Storage Resources

Removal only works if the storage resource is „free“ - no VS shown in column „own“

Remove Storage Resource from Hypervisor - P00D02D5:B.1.03 i

The following resources were successfully removed:

zbxdemo_0002_ds6k, zbxdemo_000003, zbxdemo_0001_ds6k

OK

Storage Administration – Import Storage Access List

- Manage Storage Resources

- Use the list of exported WWPNs as template for the definition of storage resources to import a list of LUNs in one step to one or more hypervisors.

```
#Version: 1
#FCP_DEF: ,Name,Size,Description,Location,HostWwpn,TargetWwpn,Lun
#ECKD_DEF: ,Name,Size,Description,Location,Devno,Volser
#ZVM_FCP_DEF: ,Name,Size,Description,Location,Devno,Volser,HostWwpn,TargetWwpn,Lun
FCP , , , P00D02D5:B.1.03,21000024ff42de62
FCP , , , P00D02D5:B.1.03,21000024ff42de63
```

- With this way you can define multiple storage resources and have proper naming conventions
- For example we now import the three previously discovered and removed LUNs to the hypervisor in blade B.1.03 again

Storage Administration – Import SAL

Manage Storage Resources - TMCCz196

Storage Resources | Virtual Disks

--- Select Action --- | B.1.03

Select	Name	Hypervisor	Owns	Type	Size	Group	Description
<input type="checkbox"/>	zbxdemo_0000	P00D02D5:B.1.03	no	FCP	20.0 MB		DS6K_101D
<input type="checkbox"/>	zbxdemo_0001	P00D02D5:B.1.03	no	FCP	20.0 MB		DS6K_101B
<input type="checkbox"/>	zbxdemo_0002	P00D02D5:B.1.03	no	FCP	20.0 MB		DS6K_101C

Page 1 of 1 | Max Page Size: 250 | Total: 62 | Filtered: 3 | Displayed: 3

Close | Help

Details for Storage Resource - TMCCz196

General Information

Name: zbxdemo_0002

Description: DS6K_101C

Size: 10.0 GB

Unique Device Identifier: scsi-3600507630efe0522000000000000101c

Owns: None

Path/Host Port Information

Hypervisor	Host WWPN	Controller WWPN	Controller LUN	Accessible
P00D02D5:B.1.03	21000024ff42de62	500507630e840522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e840522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de62	500507630e860522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de63	500507630e860522	0002000000000000	Yes
P00D02D5:B.1.03	21000024ff42de62	500507630e000522	0002000000000000	Yes

Total: 8

OK | Cancel | Help

Details to check paths
All 8 are defined and accessible

Network Administration

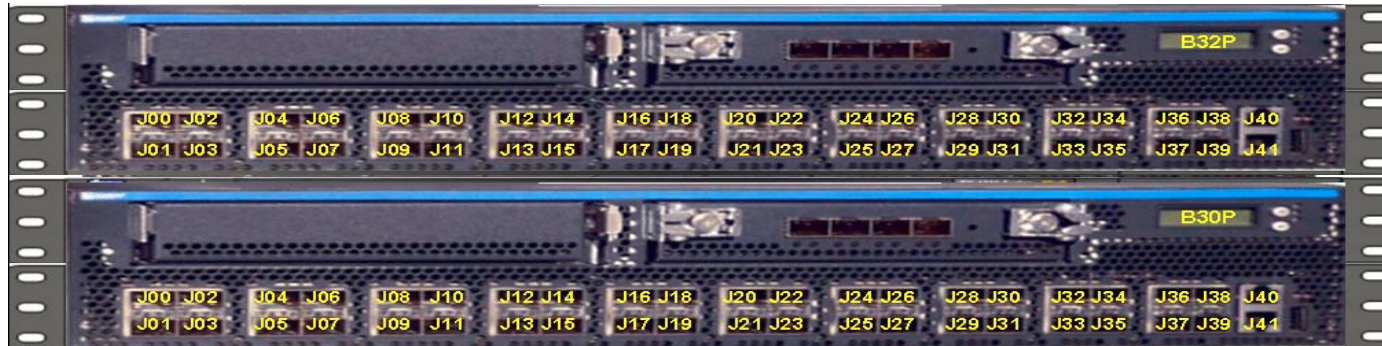
- Manage Network Resources
 - Before Virtual Servers can communicate over the 10GbE IEDN network, this network has to be configured and the connection to the outside LAN (if necessary) has to be established)
 - This is an ensemble-wide task – can be called from several screens.

 - Planning and configurations in connected switches (layer3)
 - VLAN planning (0-1030) and configuration for ensemble and TORs
 - Layer 3 connection to the outside only

 - Now Virtual Servers can be assigned NICs to the VLANs
 - Manage Virtual Networks task (z LPARs)
 - or „Virtual Server Details“ Network Tab (x, p and z/VM virtual servers)
 - Definition of IEDN network in the operating system
 - If VS will be INMN managed (GPMP) some OS configuration has to be done also (enablement of IPv6)

Network Administration

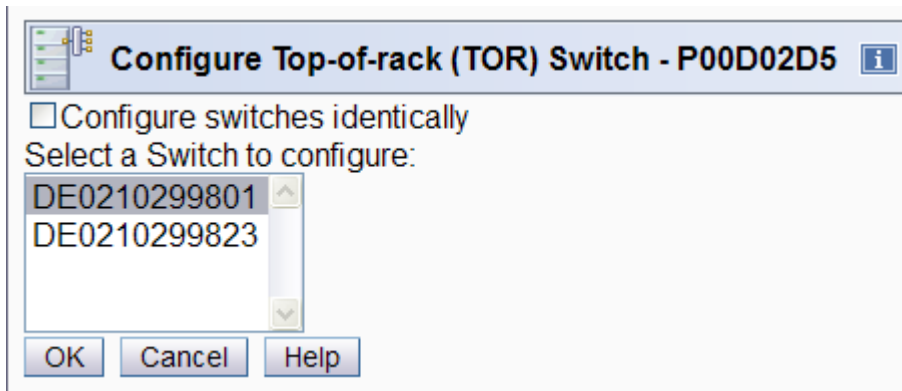
- TOR Configuration (IEDN)



- Customer Ports starting 31 - reduced from 9 to 7 (J38/J39 future use).
- OSX ports 0 ff
- Blade Ports 8 ff
- INMN TOR normally not touched – no configuration necessary (only for z Virtual Servers (LPARs) make sure the OSM channels are configured and online – INMN network will then be automatically defined in the z/OS (if VTAM ENSEMBLE=YES and IPV6 enabled) and z/VM (if SMAPI enabled).

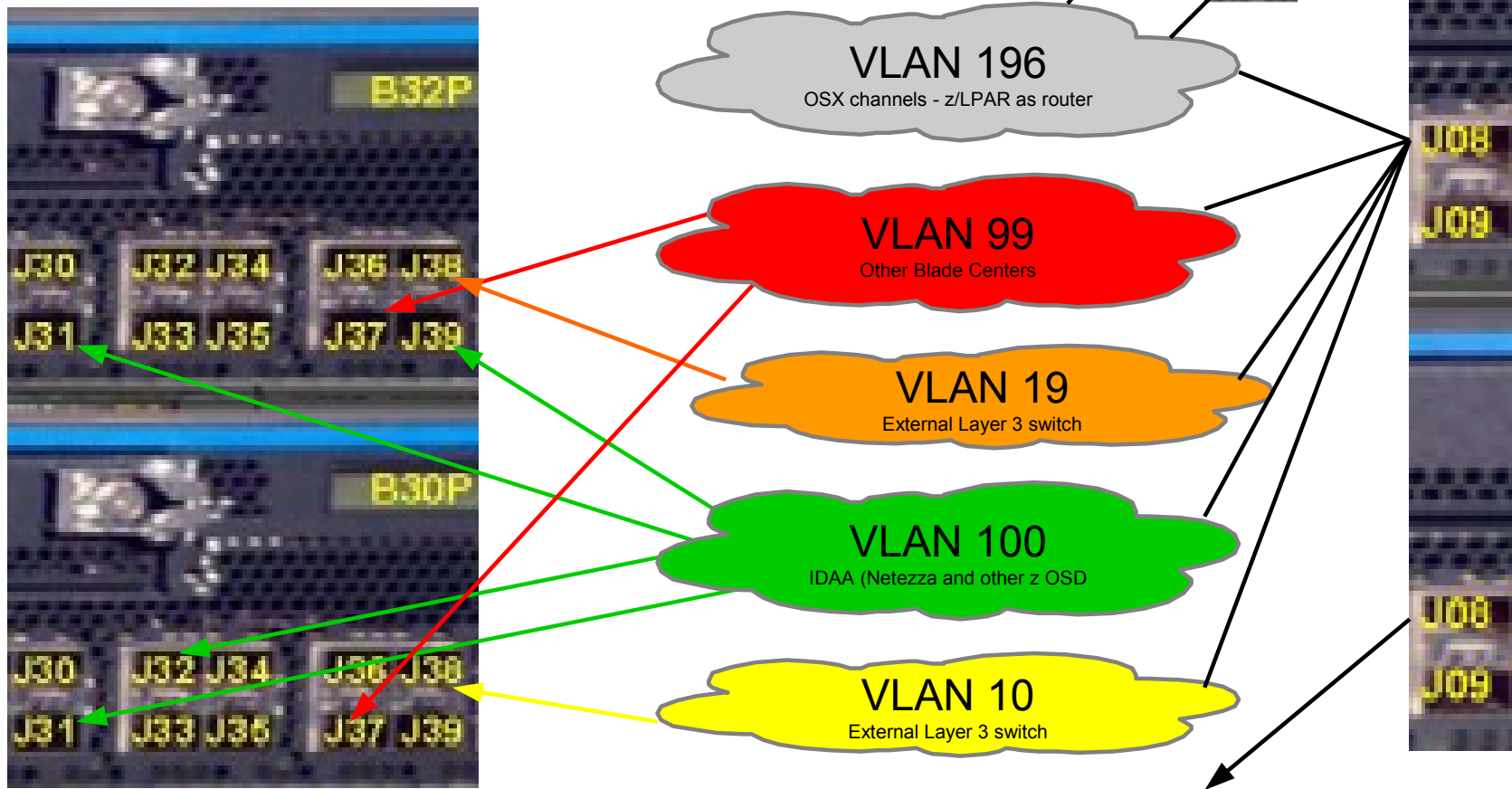
Network Administration

- Picture of our Boeblingen zBX Network/VLAN Infrastructure



Network Administration

- Picture of zBX Network/VLAN Infrastructure



In our example port 38 and 32 are not cabled symmetrically

Network Administration

- TOR switches in our machine – not configured identically

Configure Top-of-rack (TOR) Switch - P00D02D5

Switch Port:

Select	Port	Type	VLAN Mode	Allowed Virtual Networks
<input checked="" type="radio"/>	37	External	Access	99
<input type="radio"/>	38	External	Access	19
<input type="radio"/>	39	External	Access	100
<input type="radio"/>	8	Internal	Trunk	99,19,196,100...
<input type="radio"/>	31	External	Access	100

VLAN Settings:

Allow all VLAN IDs

VLAN Mode:

Allowed Virtual Networks:

Select	Virtual Network
<input checked="" type="checkbox"/>	99 - demoLAN
<input type="checkbox"/>	100 - IDAA
<input type="checkbox"/>	196 - VLAN196

MAC Address Filtering:

Allow all MAC addresses

MAC Address: Allowed MAC Addresses:

Example: 00:11:22:33:44:55

Configure Top-of-rack (TOR) Switch - P00D02D5

Switch Port:

Select	Port	Type	VLAN Mode	Allowed Virtual Networks
<input type="radio"/>	38	External	Access	10
<input type="radio"/>	39	External	Access	100
<input type="radio"/>	8	Internal	Trunk	99,19,196,100...
<input type="radio"/>	31	External	Access	100
<input type="radio"/>	32	External	Access	100

VLAN Settings:

Allow all VLAN IDs

VLAN Mode:

Allowed Virtual Networks:

Select	Virtual Network
<input type="checkbox"/>	10 - Default
<input type="checkbox"/>	19 - PoCLAN
<input checked="" type="checkbox"/>	99 - demoLAN

MAC Address Filtering:

Allow all MAC addresses

MAC Address: Allowed MAC Addresses:

Example: 00:11:22:33:44:55

Network Administration

- VLAN configuration

Manage Virtual Networks - TMCCz196

Virtual Networks:

--- Select Action ---

Select	Name	# of Members	VLAN ID	Description
<input type="radio"/>	demoLAN	35	99	Demo LAN (SAP, z/OS, z/VM - ...10.0, ...9.0)
<input type="radio"/>	VLAN196	16	196	VLAN 196 pBlades (9.152.123.128/240)
<input type="radio"/>	PoCLAN	11	19	PoC LAN (...19.0, ...7.0)
<input type="radio"/>	Default	4	10	Default virtual network
<input type="radio"/>	IDAA	13	100	connection to Netezza

Manage Virtual Networks - TMCCz196

Virtual Networks:

--- Select Action ---

Select	Name	# of Members	Description
<input type="radio"/>	demoLAN		OS, z/VM - ...10.0, ...9.0)
<input type="radio"/>	VLAN196		(9.152.123.128/240)
<input checked="" type="radio"/>	PoCLAN		.7.0)
<input type="radio"/>	Default		ork
<input type="radio"/>	IDAA		za

Total: ---



Close Help

--- Select Action ---

- Details...
- New Virtual Network...
- Delete Virtual Network
- Add Hosts to Virtual Network...
- Remove Hosts from Virtual Network...
- Repair Virtual Network...
- **Table Actions** —
- Show Filter Row
- Clear All Filters
- Edit Sort






Network Administration

- Details ... task



Details - PoCLAN - TMCCz196

Network Information

Members

--- Select Action ---

Name	Parent Names	NIC
DE0210299801	P00D02D5 : TOR_Switch	38
DE0210299801	P00D02D5 : TOR_Switch	8
DE0210299823	P00D02D5 : TOR_Switch	8
LP9	P00D02D5	OSX 0.E2:LP9
LP9	P00D02D5	OSX 0.E0:LP9
ZLIN027	P00D02D5 : LP9	E000
zBX144	P00D02D5 : B.1 : B.1.13	0
zBX145	P00D02D5 : B.1 : B.1.13	1
zbx1490	P00D02D5 : B.1 : B.1.03	0
zbx1491	P00D02D5 : B.1.03	0
zbx1492	P00D02D5 : B.1.03	0
Total: 11		Filtered: 11



Ok









Cancel

Help

Network Administration

- Repair task

 **Repair Virtual Network - PoCLAN - TMCCz196**









--- Select Action --- 

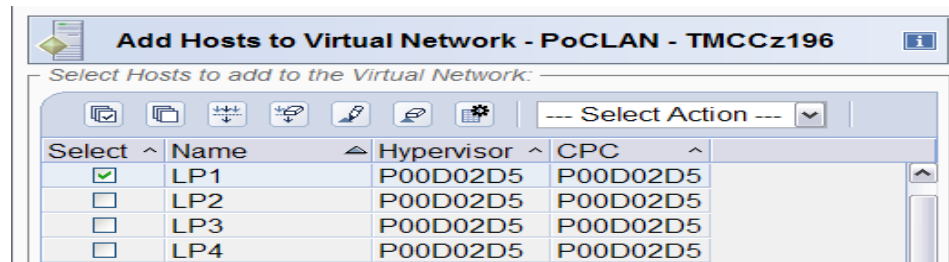
Select ^	Name ^	Parent Names ^	NIC ^	Status ^
<input checked="" type="checkbox"/>	DE0210299801	P00D02D5 : TOR_Switch	38	No problems found.
<input checked="" type="checkbox"/>	DE0210299801	P00D02D5 : TOR_Switch	8	No problems found.
<input checked="" type="checkbox"/>	DE0210299823	P00D02D5 : TOR_Switch	8	No problems found.
<input checked="" type="checkbox"/>	LP9	P00D02D5	OSX 0.E2:LP9	No problems found.
<input checked="" type="checkbox"/>	LP9	P00D02D5	OSX 0.E0:LP9	No problems found.
<input checked="" type="checkbox"/>	ZLIN027	P00D02D5 : LP9	E000	No problems found.
<input checked="" type="checkbox"/>	zBX144	P00D02D5 : B.1 : B.1.13	0	No problems found.
<input checked="" type="checkbox"/>	zBX145	P00D02D5 : B.1 : B.1.13	1	No problems found.
<input checked="" type="checkbox"/>	zbx1490	P00D02D5 : B.1 : B.1.03	0	No problems found.
<input checked="" type="checkbox"/>	zbx1491	P00D02D5 : B.1.03	0	No problems found.
<input checked="" type="checkbox"/>	zbx1492	P00D02D5 : B.1.03	0	No problems found.

Total: 11 Filtered: 11

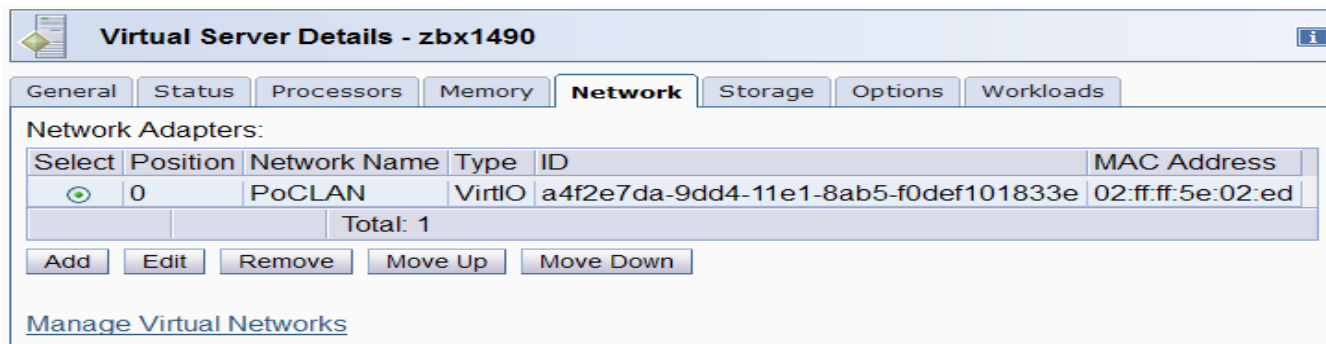
Query Repair Forcibly Remove Ok Help

Network Administration

- Add/Remove Host from VLAN
 - For VS which have PR/SM as hypervisor type (LPARs) do this in the „Manage Virtual Networks“ task

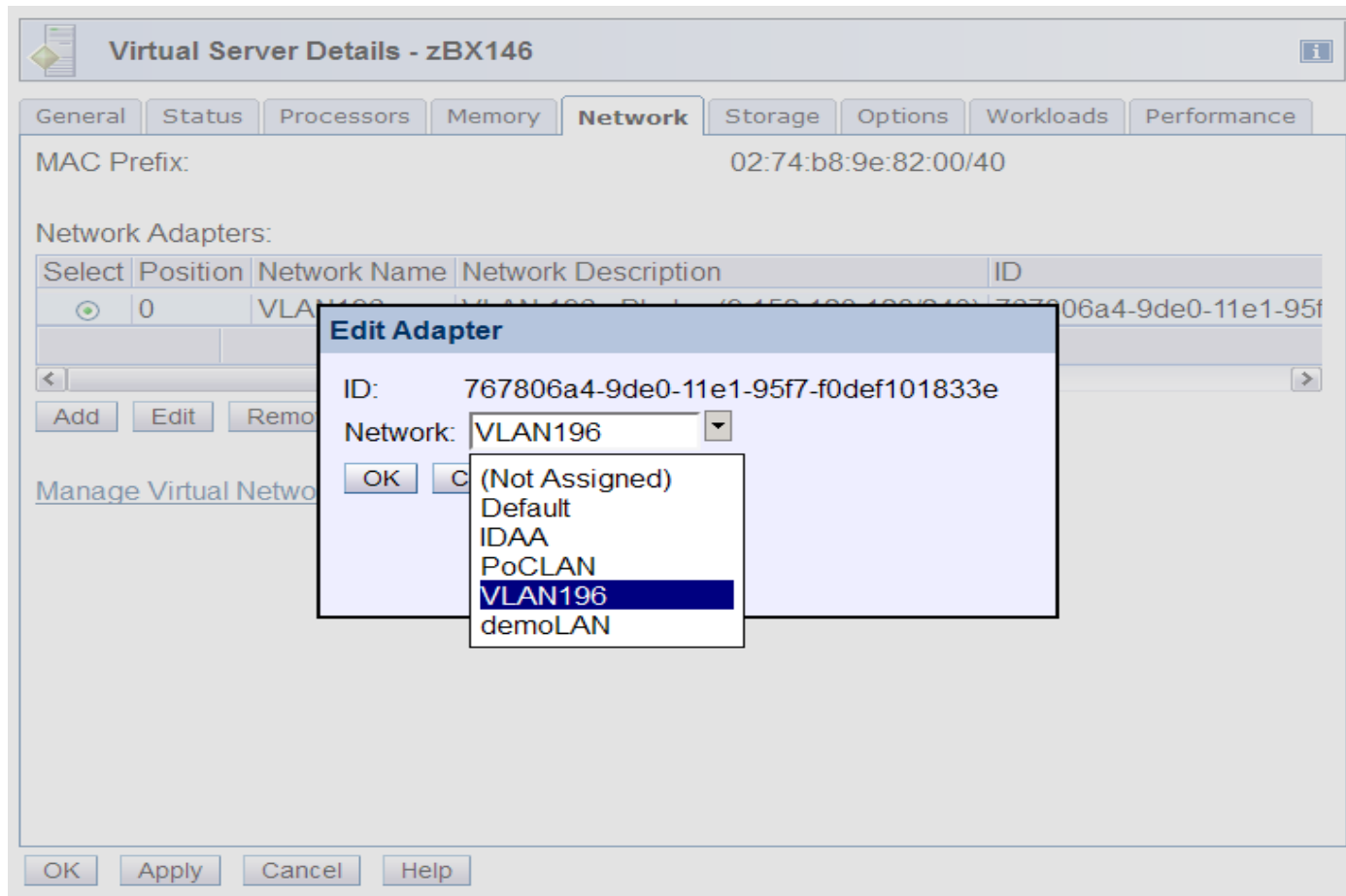


- For VS that have z/VM or PowerVM or xHyp as hypervisor type, do this in „Virtual Server Details“ task
 - VS for x and p hypervisors must be „not activated“ to perform changes in the network
 - z/VM managed VS can have network changed while the VS is active



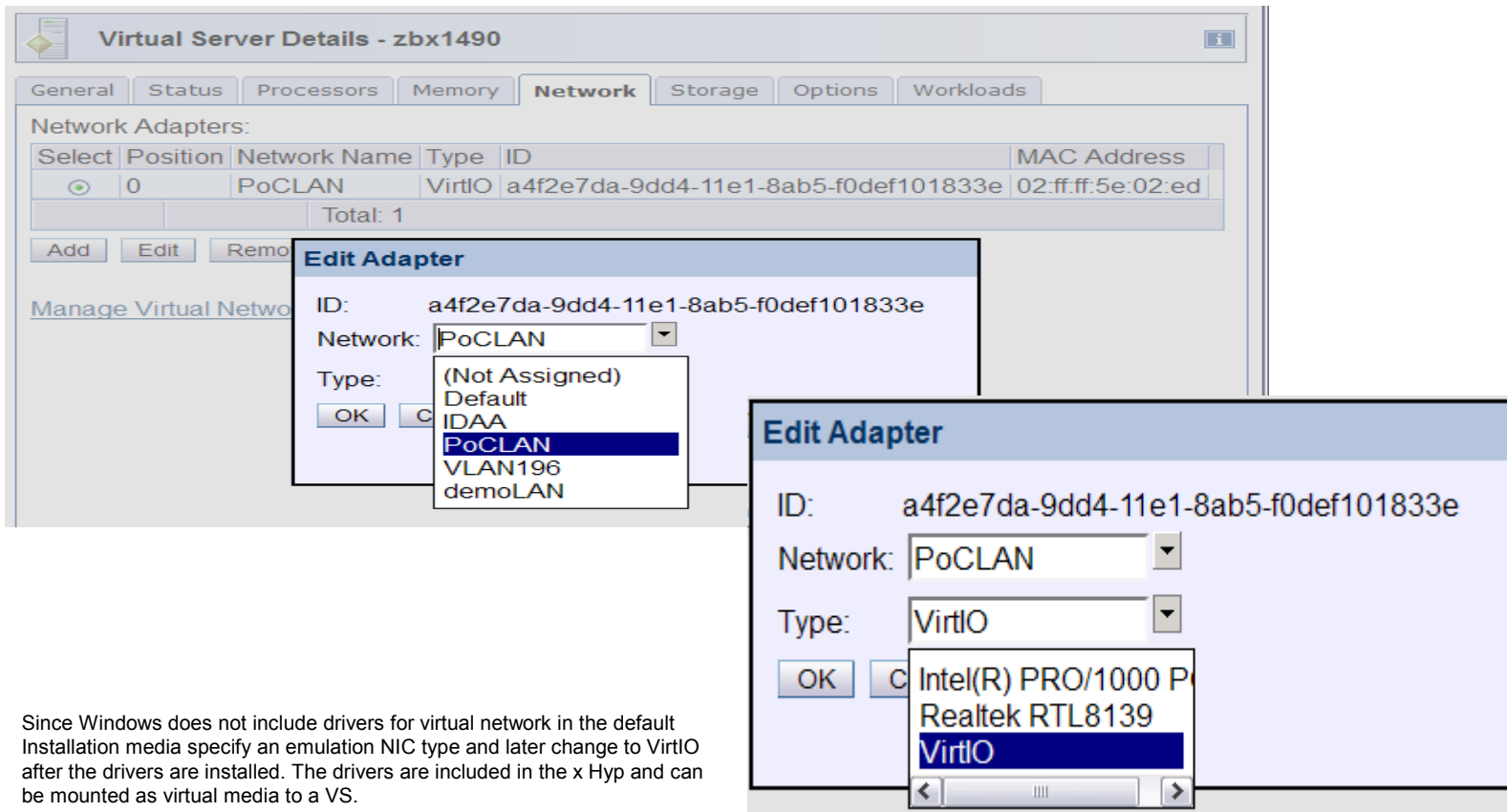
Network Administration

- For p VS
 - Only selection between the different VLANs defined in the ensemble



Network Administration

- For x VS
 - Selection between the different VLANs defined in the ensemble
 - Also type of NIC can be configured (more on this later when VS are created)



Virtual Server Details - zbx1490

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

Network Adapters:

Select	Position	Network Name	Type	ID	MAC Address
<input type="checkbox"/>	0	PoCLAN	VirtIO	a4f2e7da-9dd4-11e1-8ab5-f0def101833e	02:ff:ff:5e:02:ed
Total: 1					

Add Edit Remove

Manage Virtual Network

Edit Adapter

ID: a4f2e7da-9dd4-11e1-8ab5-f0def101833e

Network: PoCLAN

Type: (Not Assigned)
Default
IDAA
PoCLAN
VLAN196
demoLAN

OK Cancel

Edit Adapter

ID: a4f2e7da-9dd4-11e1-8ab5-f0def101833e

Network: PoCLAN

Type: VirtIO

OK Cancel

Intel(R) PRO/1000 P
Realtek RTL8139
VirtIO

Since Windows does not include drivers for virtual network in the default Installation media specify an emulation NIC type and later change to VirtIO after the drivers are installed. The drivers are included in the x Hyp and can be mounted as virtual media to a VS.

If you plan to install Linux in the VS you can specify VirtIO from beginning, all of the supported Linux distributions include VirtIO drivers

Network Administration

- To find out which virtual servers can access a VLAN
 - „Manage Virtual LANs“ - „Details“ screen

- To find out for which VLANs a VS has the authorization to connect:
 - „Virtual Server Details“ - „Network“ screen
 - This only works for p, x and z/VM virtual servers
 - To find which VLANs are assigned to a z LPAR – check the OSX NVM

Virtual Server Creation & Administration

- Virtual Server creation and configuration tasks
 - New Virtual Server
 - New Virtual Server Based On
 - Delete Virtual Server
 - Virtual Server Details

- Virtual Server operations tasks
 - Activate
 - Deactivate
 - Migrate (static migration only)
 - Mount Virtual Media
 - Open Graphical Console (x only)
 - Open Text Console (p and x – but for x the console has to be defined in the OS first)
 - Initiate Virtual Server Dump (p only)
 - Monitor System Events (ensemble wide task – not related to specific server)

- For z/VM with already existing virtual servers
 - Choose z/VM Virtual Machines to Manage
 - (only possible if z/VM is „managed“)

```
q vmlan
VMLAN maintenance level:
  Latest Service: VM65042
VMLAN MAC address assignment:
  System MAC Protection: OFF
  MACADDR Prefix: 020001 USER Prefix: 020000
  MACIDRANGE SYSTEM: 000001-FFFFFF
  USER: 000000-000000
VMLAN Unified Resource Manager status:
  Hypervisor Access: YES      Status: MANAGED
  ID: 1DB01E96FD5811DF876600215E69146B
  MAC Prefix: 02FBBE
VMLAN default accounting status:
  SYSTEM Accounting: OFF      USER Accounting: OFF
VMLAN general activity:
  PERSISTENT Limit: INFINITE  Current: 6
  TRANSIENT Limit: INFINITE   Current: 0
```

Virtual Server Creation & Administration

- Virtual Server creation can be done
 - Manually with all details through the task „New Virtual Server“ - most characteristics of VS can be defined in the creation screen sequence – but not all. The rest like keyboard mapping for x server graphical console or „In-band monitoring“ have to be changed with the VS details task.
 - One or more can be created out of an existing VS (even on another hypervisor) with the task „New Virtual Server Based On“.
 - One or more server on the same or different hypervisors can be created in one step via API calls.

- This is true for p, x and z/VM hypervisor – the PR/SM virtual server are still created by IOCP

Virtual Server Creation & Administration

- Create VS for x and p blade and z/VM hypervisor looks similar
- VS name must be unique per hypervisor – this means the same name can exist for multiple VS – unique identifier per ensemble is UUID (shown later)

Ensemble Management

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

Filter: [] Tasks: [] Views: Virtual Servers []

Select	Name	Member	Status	Process...	Memory (MB)	Boot Source	Workload(s)	Type
<input type="checkbox"/>	P00D02D5		Operating					PR/SM
<input type="checkbox"/>	LP9 (TMCC40)	P00D02D5	Operating				TMCCVM Demo Workload	z/VM
<input type="checkbox"/>	ZLPA (TMCCSSIO:TMCC11)	P00D02D5	Operating				Default	z/VM
<input type="checkbox"/>	ZLIN119	P00D02D5	Not Activated	1	1,024	CMS	Default	z/VM
<input type="checkbox"/>	ZLPB (TMCCSSIO:TMCC12)	P00D02D5	Operating				Default	z/VM
<input type="checkbox"/>	ZLPD (TMCC15)	P00D02D5	Operating				TMCCVM Demo Workload	z/VM
<input type="checkbox"/>	B.1.01	P00D02D5	Operating	2	131,072			x Hyp
<input type="checkbox"/>	B.1.02	P00D02D5	Operating	2	65,536			x Hyp
<input type="checkbox"/>	zBX158	P00D02D5	Operating	4	8,192	Storage Driv	TMCCVM Demo Workload	x Hyp
<input checked="" type="checkbox"/>	B.1.03		Operating	2	65,536			x Hyp
<input type="checkbox"/>	B.1.04		Operating	2	131,072			x Hyp
<input type="checkbox"/>	B.1.11		Operating	1	65,536			PowerVM
<input type="checkbox"/>	B.1.12		Operating	1	65,536			PowerVM
<input type="checkbox"/>	B.1.13		Operating	1	65,536			PowerVM
<input type="checkbox"/>	zBX143	P00D02D5	Operating	2	4,096	Network Ad	TMCCVM Demo Workload	PowerVM
<input type="checkbox"/>	zBX144	P00D02D5	Operating	1	4,096	Storage Driv	TMCCVM Demo Workload	PowerVM
<input type="checkbox"/>	zBX145	P00D02D5	Operating	1	4,096	Storage Driv	TMCCVM Demo Workload	PowerVM

Max Page Size: 500 Total: 17 Filtered: 17 Selected: 1

zBX Blade Details

Daily

Service

Operational Customization

Configuration

Energy Management

Manage Storage Resources

New Virtual Server

Tasks: B.1.03

zBX Blade Details

Daily

- Activate
- Deactivate
- Grouping
- Hardware Messages

Service

- Initiate Hypervisor Dump

Operational Customization

- Customize Scheduled Operations

Configuration



- Manage Storage Resources
- New Virtual Server

Energy Management






- Set Power Cap
- Set Power Saving

Virtual Server Creation & Administration

- Choose z/VM Virtual Machines to Manage

 **Choose z/VM Virtual Machines to Manage - P0017C07:ZLPB** 

Select or deselect the z/VM virtual machines that are to be managed by this console.

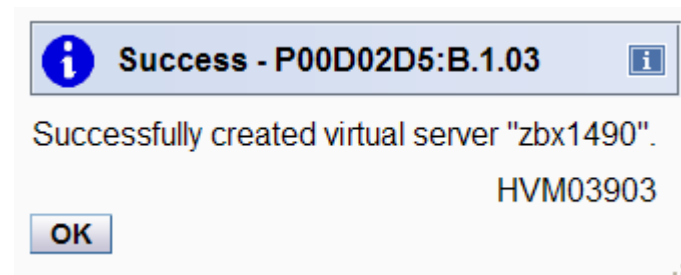
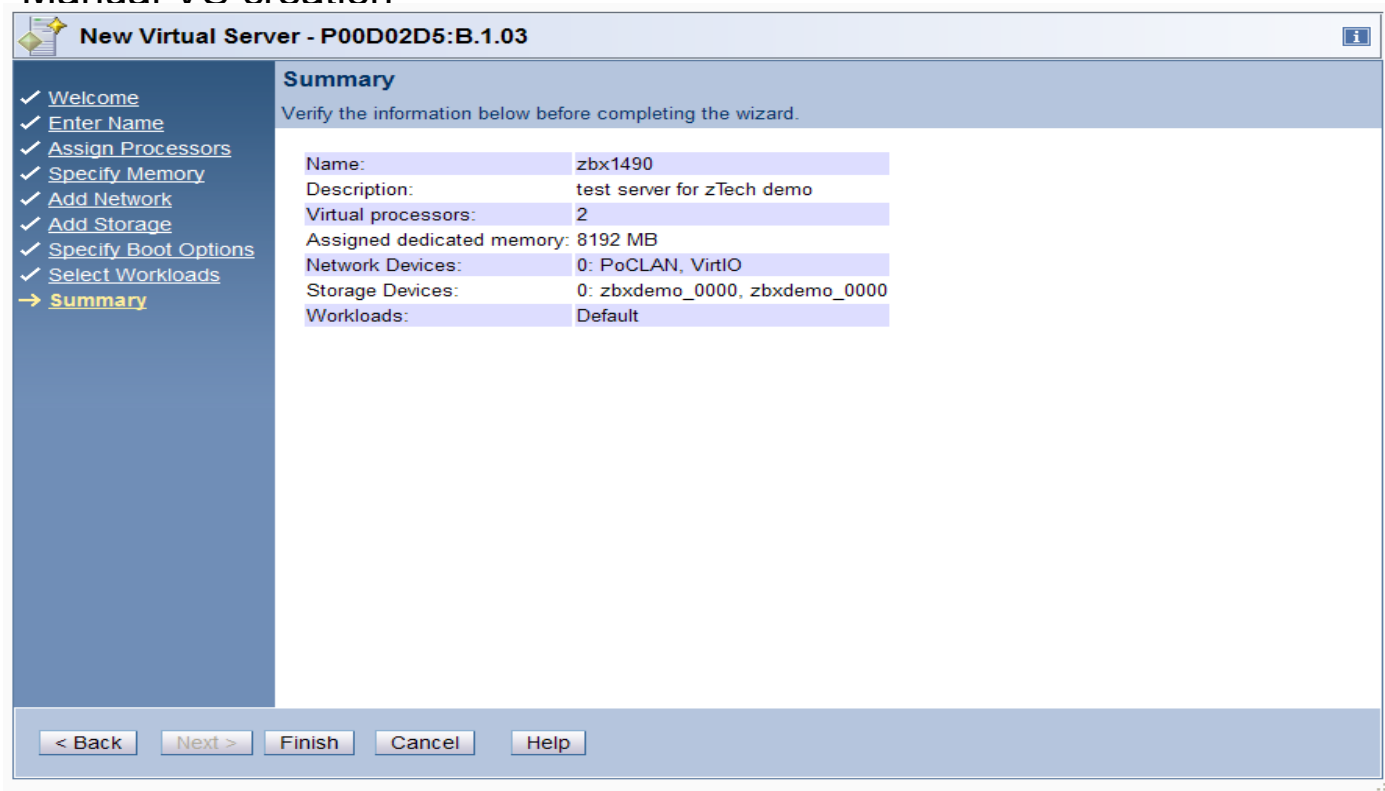
    

Select	Virtual Machine Name
<input type="checkbox"/>	ZLIN022
<input type="checkbox"/>	ZLIN023
<input checked="" type="checkbox"/>	ZLIN024
<input type="checkbox"/>	ZLIN027
<input type="checkbox"/>	ZLIN029
<input checked="" type="checkbox"/>	ZLIN070
<input type="checkbox"/>	ZLIN092
<input checked="" type="checkbox"/>	ZLIN107
<input checked="" type="checkbox"/>	ZLIN119
<input type="checkbox"/>	ZLIN120

Page 1 of 1 Total: 139 Filtered: 10 Displayed: 10 Selected: 4

Virtual Server Creation & Administration

Manual VS creation



Virtual Server Creation & Administration

- Unique identifier of the VS

<input checked="" type="checkbox"/>	B.1.03	P00D02D5	Operating	2	65,536			x Hyp
<input type="checkbox"/>	zbx1490	P00D02D5	Not Operating	2	8,192	Network Ad: Default		x Hyp

Virtual Server Details - zbx1490

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

Hypervisor name: B.1.03
 Hypervisor type: x Hyp
 UUID: a4b0e628-9dd4-11e1-8ab5-f0def101833e
 Name: *zbx1490
 Description: test server for zTech demo

Lock out disruptive tasks

OK Apply Cancel Help



Virtual Server Creation & Administration

- Creation of multiple VS based on an existing one which has all the required attributes defined

Ensemble Management
Tasks: zbx1490

Ensemble Virtual Servers Hypervisors Blades Topology Getting Started

Filter Tasks Views: Virtual Servers

Select	Name	Member	Status	Processors	Memory (MB)	Boot Source	Workload(s)	Type
<input type="checkbox"/>	P00D02D5		Operating					PR/SM
<input type="checkbox"/>	LP9 (TMCC40)	P00D02D5	Operating				TMCCVM Demo Workload	z/VM
<input type="checkbox"/>	ZLPA (TMCCSS10:TMCC11)	P00D02D5	Operating				Default	z/VM
<input type="checkbox"/>	ZLIN119	P00D02D5	Not Activated	1	1,024	CMS	Default	z/VM
<input type="checkbox"/>	ZLPB (TMCCSS10:TMCC12)	P00D02D5	Operating				Default	z/VM
<input type="checkbox"/>	ZLPD (TMCC15)	P00D02D5	Operating				TMCCVM Demo Workload	z/VM
<input type="checkbox"/>	B.1.01	P00D02D5	Operating	2	131,072			x Hyp
<input type="checkbox"/>	B.1.02	P00D02D5	Operating	2	65,536			x Hyp
<input type="checkbox"/>	zBX158	P00D02D5	Operating	4	8,192	Storage Drives	TMCCVM Demo Workload	x Hyp
<input type="checkbox"/>	B.1.03	P00D02D5	Operating	2	65,536			x Hyp
<input checked="" type="checkbox"/>	zbx1490	P00D02D5	Not Operating	2	8,192	Network Adapter	Default	x Hyp
<input type="checkbox"/>	B.1.04	P00D02D5	Operating	2	131,072			x Hyp
<input type="checkbox"/>	B.1.11	P00D02D5	Operating	1	65,536			PowerVM
<input type="checkbox"/>	B.1.12	operating	operating	1	65,536			PowerVM
<input type="checkbox"/>	B.1.13	operating	operating	1	65,536			PowerVM
<input type="checkbox"/>	zBX143		operating	2	4,096	Network Adapter	TMCCVM Demo Workload	PowerVM
<input type="checkbox"/>	zBX144		operating	1	4,096	Storage Drives	TMCCVM Demo Workload	PowerVM
<input type="checkbox"/>	zBX145		operating	1	4,096	Storage Drives	TMCCVM Demo Workload	PowerVM

Max Page Size: 500 Total: 18 Filtered: 18 Selected: 1

Virtual Server Details

Toggle Lock

Daily

Operational Customization

Configuration

Monitor

Delete Virtual Server

Migrate Virtual Server

Mount Virtual Media

New Virtual Server Based On

Open Graphical Console

Open Text Console

Virtual Server Creation & Administration

- VS can be created on different hypervisor (but of same type p or x or z)

New Virtual Server Based On - zbx1490

Welcome
 → **Select Hypervisor**
 Enter Name
 Configure Storage
 Select Workloads
 Summary

Select Hypervisor
 Select the hypervisor to host the new virtual server.

--- Select Action --- Filter

Select ^	Hypervisor ^	Status ^	Parent ^	Member ^	Virtual Servers ^
<input type="radio"/>	B.1.01	Operating	B.1	P00D02D5	8
<input type="radio"/>	B.1.02	Operating	B.1	P00D02D5	1
<input checked="" type="radio"/>	B.1.03	Operating	B.1	P00D02D5	1
<input type="radio"/>	B.1.04	Operating	B.1	P00D02D5	0
Total: 4 Filtered: 4					

< Back Next > Finish Cancel Help

Virtual Server Creation & Administration

- Can create multiple – specify number and starting index

The screenshot shows a wizard window titled "New Virtual Server Based On - zbx1490". On the left is a navigation pane with the following items: "Welcome", "✓ Select Hypervisor", "→ Enter Name" (highlighted), "Configure Storage", "Select Workloads", and "Summary". The main area is titled "Enter Name" and contains the following fields and options:

- Source: zbx1490
- Name: *
- Description:
- Create multiple virtual servers
 - Count: *
 - Starting index: *
 - Names: zbx1491 and zbx1492

At the bottom of the window are five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

Virtual Server Creation & Administration

- Can select storage resources

New Virtual Server Based On - zbx1490

Configure Storage
Select the storage drives for the new virtual servers.

Create storage drives

Name	Storage Resource Selection	Storage Resource
zbxdemo_0000		zbxdemo_0000
zbx1491	Custom	
zbx1492	Omit	

Page 1 of 1 ed: 3

New Virtual Server Based On - zbx1490

Configure Storage
Select the storage drives for the new virtual servers.

Create storage drives

Name	Storage Resource Selection	Storage Resource
zbxdemo_0000	Custom	zbxdemo_0000
zbx1491	zbxdemo_0001	
zbx1492		

Page 1 of 1 d: 3

Omit
Use Same
zbxdemo_0001
zbxdemo_0002

< Back Next > Finish Cancel Help

Virtual Server Creation & Administration

- Can select (one or more) Workloads to be assigned to

The screenshot shows a web-based wizard for creating a new virtual server. The title bar reads "New Virtual Server Based On - zbx1490". On the left, a navigation pane lists steps: "Welcome", "Select Hypervisor", "Enter Name", "Configure Storage", "Select Workloads" (highlighted with a yellow arrow), and "Summary". The main content area is titled "Select Workloads" and contains the instruction "Select the workloads that this virtual server will participate in." Below this, there are two radio button options: "Use Default workload" (unselected) and "Select workloads" (selected). A table lists available workloads with checkboxes for selection:

Select	Name	Description
<input type="checkbox"/>	SAP_Workload	Workload used for the SAP on zEnterprise Dem
<input checked="" type="checkbox"/>	TMCCVM Demo Workload	
<input type="checkbox"/>	Trader	Stock Trading workload
		Total: 3

Below the table is a horizontal scrollbar. At the bottom of the main area is a link labeled "New Workload". The footer of the wizard contains five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

Virtual Server Creation & Administration

■ Summary

- This task does not ask for network details – the new VS will have the same network connection than the VS they are based on

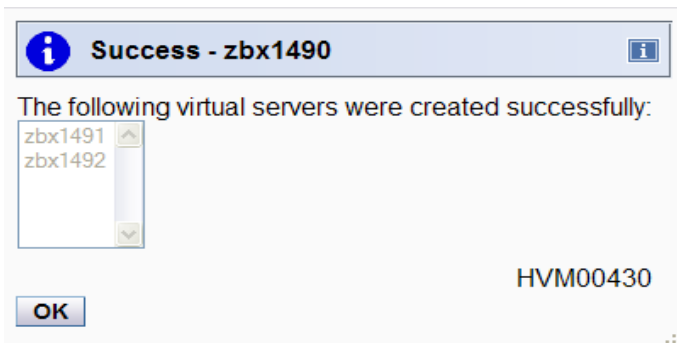
The screenshot shows a wizard window titled "New Virtual Server Based On - zbx1490". On the left is a navigation pane with the following steps: Welcome, Select Hypervisor, Enter Name, Configure Storage, Select Workloads, and Summary (highlighted with a yellow arrow). The main area is titled "Summary" and contains the instruction: "Verify the information below before completing the wizard." Below this is a table of configuration details:











Source:	zbx1490
Names:	zbx1491 and zbx1492
Description:	test server for zTech demo
Hypervisor:	B.1.03
Storage Devices:	zbx1491 0: zbxdemo_0001 zbx1492 0: zbxdemo_0002

At the bottom of the window are five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

Virtual Server Creation & Administration

- Summary
 - Very fast creation of multiple new VS

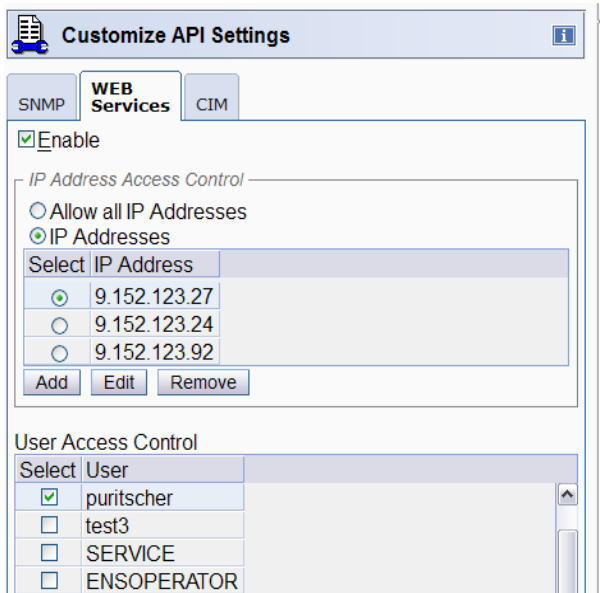


<input type="checkbox"/>	 B.1.03	P00D02D5	 Operating	2	65,536			x Hyp
<input checked="" type="checkbox"/>	 zbx1490	P00D02D5	 Not Operating	2	8,192	Network Ad:	Default	x Hyp
<input type="checkbox"/>	 zbx1491	P00D02D5	 Not Operating	2	8,192	Network Ad:	Default	x Hyp
<input type="checkbox"/>	 zbx1492	P00D02D5	 Not Operating	2	8,192	Network Ad:	Default	x Hyp
<input type="checkbox"/>	 B.1.04	P00D02D5	 Operating	2	131,072			x Hyp

- Same can be achieved with API calls.

Virtual Server Creation & Administration

- WebServices API has to be enabled on HMC and in addition the userids which will be used to connect to HMC via API must have the attributes enabled in their user profiles



Customize API Settings

SNMP **WEB Services** CIM

Enable

IP Address Access Control

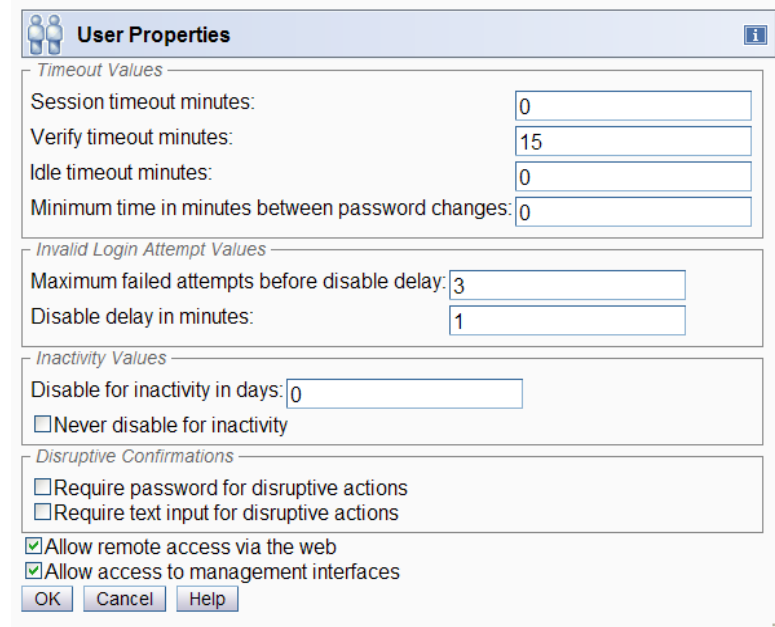
Allow all IP Addresses
 IP Addresses

Select	IP Address
<input checked="" type="radio"/>	9.152.123.27
<input type="radio"/>	9.152.123.24
<input type="radio"/>	9.152.123.92

Add Edit Remove

User Access Control

Select	User
<input checked="" type="checkbox"/>	puritscher
<input type="checkbox"/>	test3
<input type="checkbox"/>	SERVICE
<input type="checkbox"/>	ENSOPERATOR



User Properties

Timeout Values

Session timeout minutes: 0

Verify timeout minutes: 15

Idle timeout minutes: 0

Minimum time in minutes between password changes: 0

Invalid Login Attempt Values

Maximum failed attempts before disable delay: 3

Disable delay in minutes: 1

Inactivity Values

Disable for inactivity in days: 0

Never disable for inactivity

Disruptive Confirmations

Require password for disruptive actions
 Require text input for disruptive actions

Allow remote access via the web
 Allow access to management interfaces

OK Cancel Help

Virtual Server Creation & Administration

▪ Sample call

```
python -i CreateVirtualServer.py usr hmcuserid pwd password config CreateVirtualServerx target B.1.03
```

...

```
Target Virtualization Host found in the ensemble.                B.1.03
```

```
-----
Performing command:  Checking if a virtual server with this name already exists on the
target virtualization host.
```

```
Status code 200: The request has succeeded completely.
```

```
No duplicate found for virtual server:  zBX1491
```

```
-----
virtualizationhosturi /api/virtualization-hosts/879d9898-797a-11e1-bad8-f0def101833e
targetbody {"type":"x-hyp","name":"zBX1491","description":"Test server for zTech demo -
created using the web services API","initial-virtual-processors":2,"initial-
memory":8192,"auto-start":false,"gpmp-support-enabled":true,"inband-monitoring-
enabled":true,"keyboard-language":"en_US"}
```

```
Performing command:  Create virtual server
```

```
Status code 201: The request has succeeded completely and resulted in the creation of a new
managed resource/object.
```

```
Object URI {u'object-uri': u'/api/virtual-servers/d329e298-9dd9-11e1-91df-f0def101833e'}
```

```
Logging off...
```

```
...done logging off.
```

```
=====
Local date and time:
```

```
Mon, 14 May 2012
```

```
17:31:08
```

```
Script duration time in seconds:
```

```
0.1
```

```
End of
```

```
Script-----
```

Virtual Server Creation & Administration

Sample call - result

<input type="checkbox"/>	B.1.03	P00D02D5	Operating		2	65,536			x Hyp
<input type="checkbox"/>	zbx1490	P00D02D5	Not Operating		2	8,192	Network Adapter	Default	x Hyp
<input type="checkbox"/>	zbx1491	P00D02D5	Not Operating		2	8,192	Network Adapter	Default	x Hyp
<input type="checkbox"/>	zBX1491	P00D02D5	Not Operating		2	8,192	Network Adapter	Default	x Hyp
<input type="checkbox"/>	zbx1492	P00D02D5	Not Operating		2	8,192	Network Adapter	Default	x Hyp
<input type="checkbox"/>	B.1.04	P00D02D5	Operating		2	131,072			x Hyp
<input type="checkbox"/>	B.1.11	P00D02D5	Operating		1	65,536			PowerVM

Virtual Server Details - zBX1491
i

General
Status
Processors
Memory
Network
Storage
Options
Workloads

Hypervisor name: B.1.03
 Hypervisor type: x Hyp
 UUID: d329e298-9dd9-11e1-91df-f0def101833e
 Name: * zBX1491

Description: Test server for zTech demo - created using the web services API

Lock out disruptive tasks

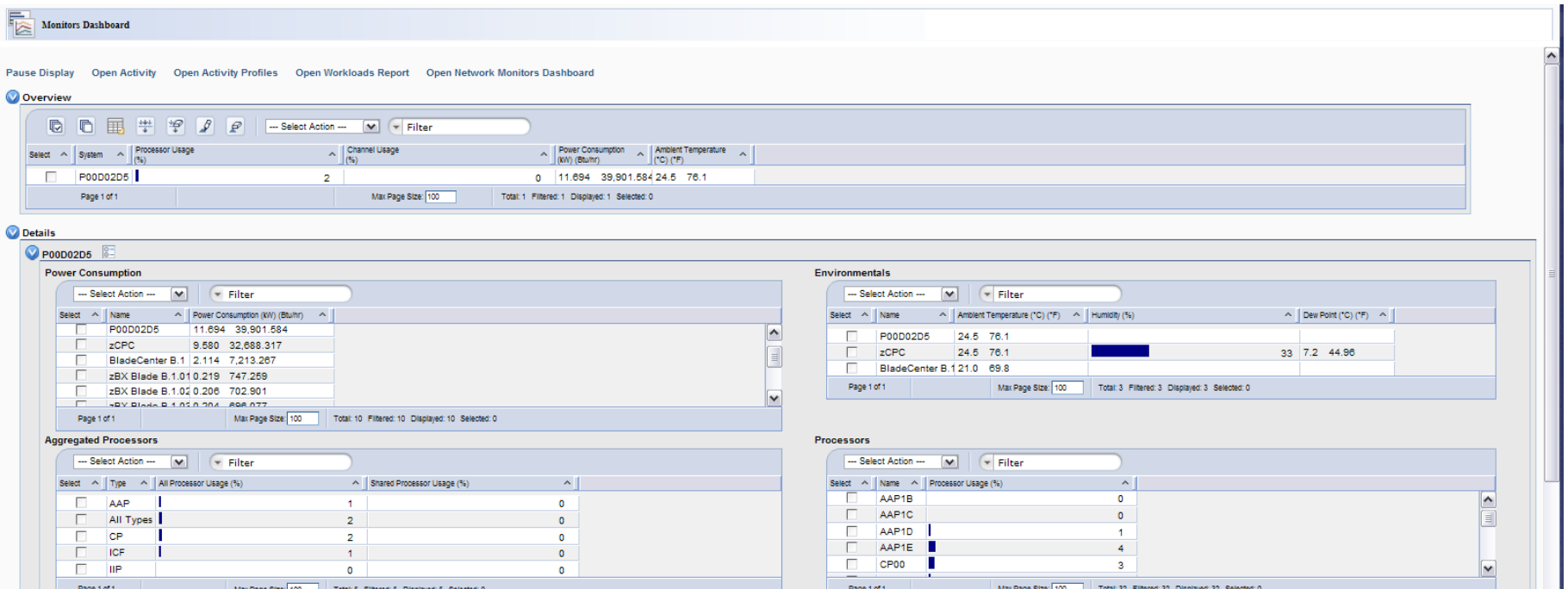
OK
Apply
Cancel
Help

Virtual Server Operations

- Activation/Deactivation
 - Even for x VS this can take some time – don't compare with KVM
- Migration (static only)
 - All the resources assigned to a VS have to be defined on the target blade in advance
- Configuration Changes (memory, cpu, network, disk...)
 - Dynamically
 - For pBlade you can now dynamically add disks
 - Static
 - Network changed mean you have to bring down the VS first
 - To change to boot order the VS has to be stopped
- Monitoring
 - Monitors Dashboard (this also includes hypervisor monitoring)
 - Workload Management
- API usage
 - All tasks – for example also export of configuration

Virtual Server Operations

- Monitoring
 - Monitors Dashboard
 - Includes monitoring of IEDN network



Monitors Dashboard

Pause Display Open Activity Open Activity Profiles Open Workloads Report Open Network Monitors Dashboard

Overview

Select	System	Processor Usage (%)	Channel Usage (%)	Power Consumption (kW) (Btu/hr)	Ambient Temperature (°C) (°F)
<input type="checkbox"/>	P00D02D5	2	0	11.694 39,901.584	24.5 76.1

Page 1 of 1 Max Page Size 100 Total 1 Filtered: 1 Displayed: 1 Selected: 0

Details

P00D02D5

Power Consumption

Select	Name	Power Consumption (kW) (Btu/hr)
<input type="checkbox"/>	P00D02D5	11.694 39,901.584
<input type="checkbox"/>	zCPC	9.580 32,688.317
<input type="checkbox"/>	BladeCenter B.1	2.114 7,213.267
<input type="checkbox"/>	zBX Blade B.1.01	0.219 747.259
<input type="checkbox"/>	zBX Blade B.1.02	0.206 702.901
<input type="checkbox"/>	zBX Blade B.1.03	0.204 698.077

Page 1 of 1 Max Page Size 100 Total 10 Filtered: 10 Displayed: 10 Selected: 0

Environmentals

Select	Name	Ambient Temperature (°C) (°F)	Humidity (%)	Dew Point (°C) (°F)
<input type="checkbox"/>	P00D02D5	24.5 76.1		
<input type="checkbox"/>	zCPC	24.5 76.1		33 7.2 44.96
<input type="checkbox"/>	BladeCenter B.1	21.0 69.8		

Page 1 of 1 Max Page Size 100 Total 3 Filtered: 3 Displayed: 3 Selected: 0

Aggregated Processors

Select	Type	All Processor Usage (%)	Shared Processor Usage (%)
<input type="checkbox"/>	AAP	1	0
<input type="checkbox"/>	All Types	2	0
<input type="checkbox"/>	CP	2	0
<input type="checkbox"/>	ICF	1	0
<input type="checkbox"/>	IIP	0	0

Page 1 of 1 Max Page Size 100 Total 4 Filtered: 4 Displayed: 4 Selected: 0

Processors

Select	Name	Processor Usage (%)
<input type="checkbox"/>	AAP1B	0
<input type="checkbox"/>	AAP1C	0
<input type="checkbox"/>	AAP1D	1
<input type="checkbox"/>	AAP1E	4
<input type="checkbox"/>	CP00	3

Page 1 of 1 Max Page Size 100 Total 30 Filtered: 30 Displayed: 30 Selected: 0

Virtual Server Operations

Monitoring

The screenshot displays the IBM Monitor Dashboard with several monitoring panels:

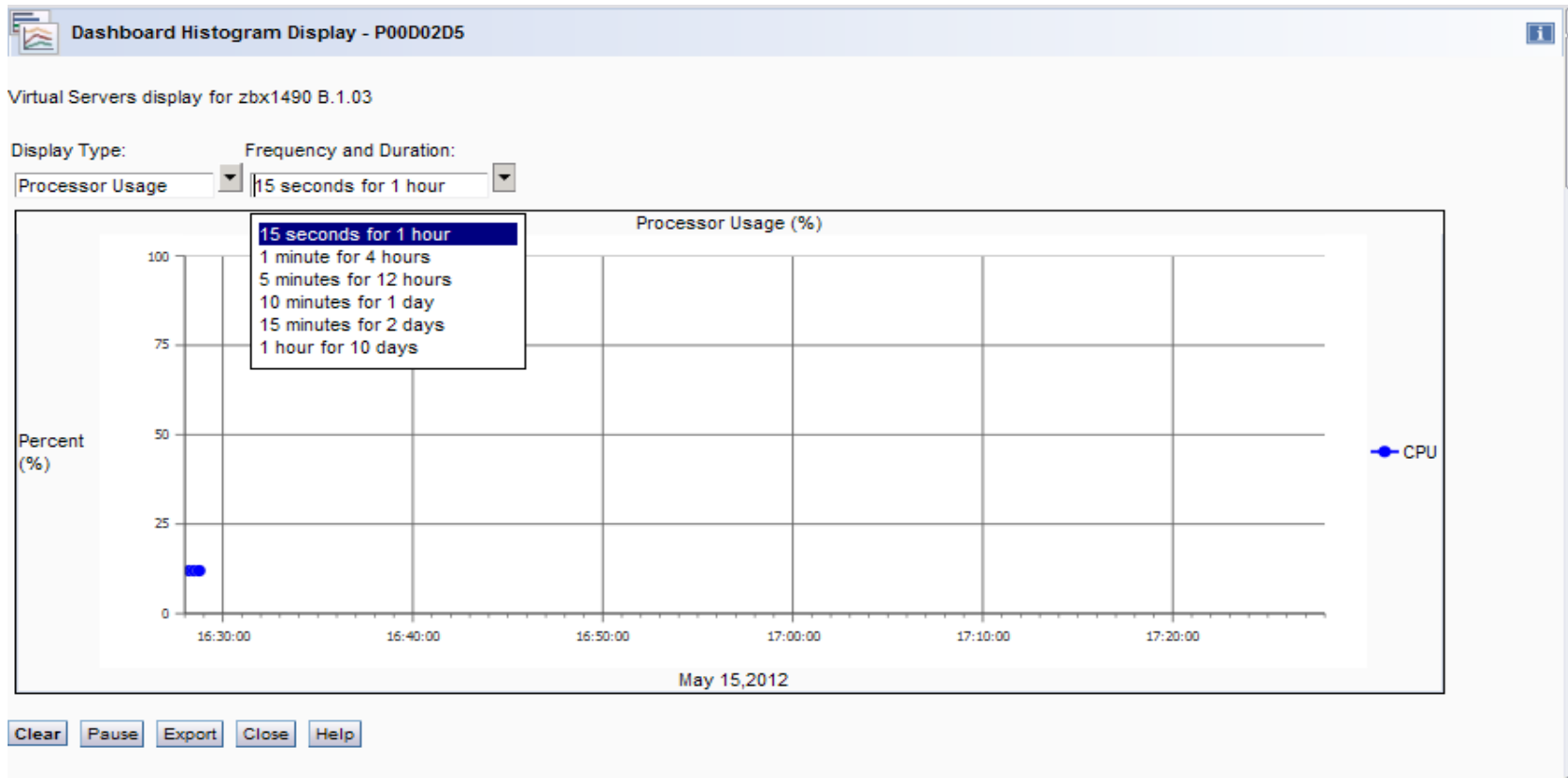
- System Assist Processors:** A table listing processors SAP00 through SAP04 with their respective Processor Usage (%) values.
- Logical Partitions:** A table listing logical partitions LP1 through LP6 with Processor Usage (%) and z/VM Paging Rate (pages/second).
- Channels:** A table listing channels 0.03 through 0.53 with their LPARs and Total Channel Usage (%).
- zBX Blades:** A table listing blades with Processor Usage (%), Memory Usage (%), Network I/O Usage (%), and Storage (kB/res/second). A context menu is open over this table.
- Virtual Servers:** A table listing virtual servers with their Name, Hypervisor, Processor Usage (%), and Memory Usage (%).

Each panel includes a 'Filter' input field and a 'Select Action' dropdown menu. The dashboard also features 'Close' and 'Help' buttons at the bottom left.

Virtual Server Operations

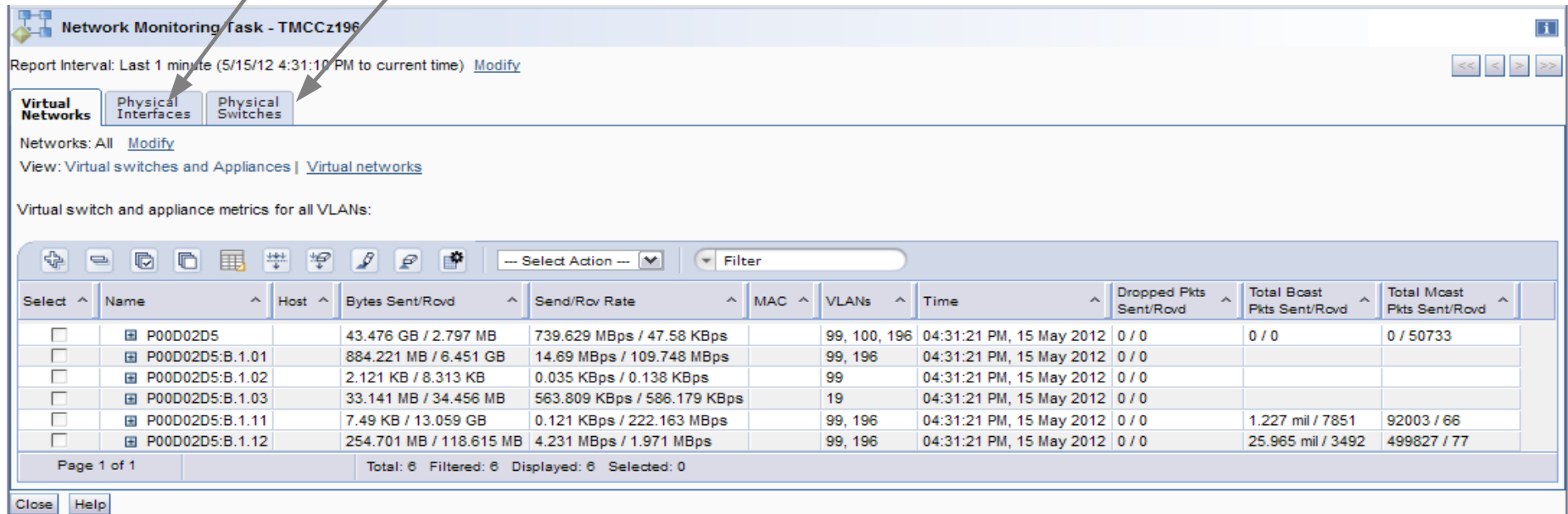
■ Monitoring

- Including historical monitoring – depending on the interval
- Can be exported to workstation for reporting
- Monitoring data can also be called via API



Virtual Server Operations

- Network Monitoring
 - Can see the OSX and TOR usage
 - Virtual Network Administrator Authorization required



Network Monitoring Task - TMCCz196

Report Interval: Last 1 minute (5/15/12 4:31:10 PM to current time) [Modify](#)

Virtual Networks | Physical Interfaces | Physical Switches

Networks: All [Modify](#)

View: Virtual switches and Appliances | [Virtual networks](#)

Virtual switch and appliance metrics for all VLANs:

Select	Name	Host	Bytes Sent/Rcvd	Send/Rcv Rate	MAC	VLANs	Time	Dropped Pkts Sent/Rcvd	Total Bcast Pkts Sent/Rcvd	Total Mcast Pkts Sent/Rcvd
<input type="checkbox"/>	P00D02D5		43.476 GB / 2.797 MB	739.629 MBps / 47.58 KBps		99, 100, 196	04:31:21 PM, 15 May 2012	0 / 0	0 / 0	0 / 50733
<input type="checkbox"/>	P00D02D5:B.1.01		884.221 MB / 6.451 GB	14.69 MBps / 109.748 MBps		99, 196	04:31:21 PM, 15 May 2012	0 / 0		
<input type="checkbox"/>	P00D02D5:B.1.02		2.121 KB / 8.313 KB	0.035 KBps / 0.138 KBps		99	04:31:21 PM, 15 May 2012	0 / 0		
<input type="checkbox"/>	P00D02D5:B.1.03		33.141 MB / 34.456 MB	563.809 KBps / 586.179 KBps		19	04:31:21 PM, 15 May 2012	0 / 0		
<input type="checkbox"/>	P00D02D5:B.1.11		7.49 KB / 13.059 GB	0.121 KBps / 222.163 MBps		99, 196	04:31:21 PM, 15 May 2012	0 / 0	1.227 mil / 7851	92003 / 66
<input type="checkbox"/>	P00D02D5:B.1.12		254.701 MB / 118.615 MB	4.231 MBps / 1.971 MBps		99, 196	04:31:21 PM, 15 May 2012	0 / 0	25.965 mil / 3492	499827 / 77

Page 1 of 1 Total: 6 Filtered: 6 Displayed: 6 Selected: 0

[Close](#) [Help](#)

Operating Systems Deployment

- Supported OS Releases
 - For the p Blades
 - <http://public.dhe.ibm.com/common/ssi/ecm/en/zsy03019usen/ZSY03019USEN.PDF>
 - AIX 5.3 TL12+, AIX 6.1 TL5+ and available December 16, 2011 - AIX 7.1 are supported on the PS701 blades. Either AIX Express, Standard, or Enterprise Edition may be ordered.
 - For the x Blades
 - <http://public.dhe.ibm.com/common/ssi/ecm/en/zsl03128usen/ZSL03128USEN.PDF>
 - The two Linux operating system configurations that will be supported are Red Hat Enterprise Linux (RHEL) 5.5, 5.6 and 6.0 and Novell SUSE Linux Enterprise Server (SLES) 10 (SP4) and SLES 11 SP1.
 - The HX5 (7873) blades also supports Microsoft Windows Server 2008 R2 and Microsoft Windows Server 2008 (SP2), 64 bit version only.
- Installation of z VS
 - Linux as usual
- Installation of p VS
 - AIX
- Installation of x VS
 - Linux and Windows
- Licenses (for PowerBlades and x and p VS)

Operating Systems Deployment

- Installation of p VS
 - AIX
 - Virtual Media
 - Network (NIM)
 - Other



Virtual Server Details - zBX143

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

Boot mode: Normal

Boot source: Network Adapters

IP address: 9.152.123.143

Subnet mask: 255.255.255.224

Gateway IP address: 9.152.123.129

Boot server IP address: 9.152.123.140

Keylock: NORMAL

Autostart virtual server with hypervisor

Enable dynamic logical partitioning

DLPAR active: Inactive

Enable GPMP support

GPMP version: 2.0.31

In-band monitoring

OK Apply Cancel Help

Boot mode: Normal

Boot source: Normal

IP address: 9.152.123.143

Subnet mask: 255.255.255.224

System Management Services (SMS) Menu

D diagnostic with Default Boot List

D diagnostic with Stored Boot List

O Open Firmware Prompt

Boot source: Network Adapters

IP address: 9.152.123.143

Subnet mask: 255.255.255.224

Storage Drives

Network Adapters

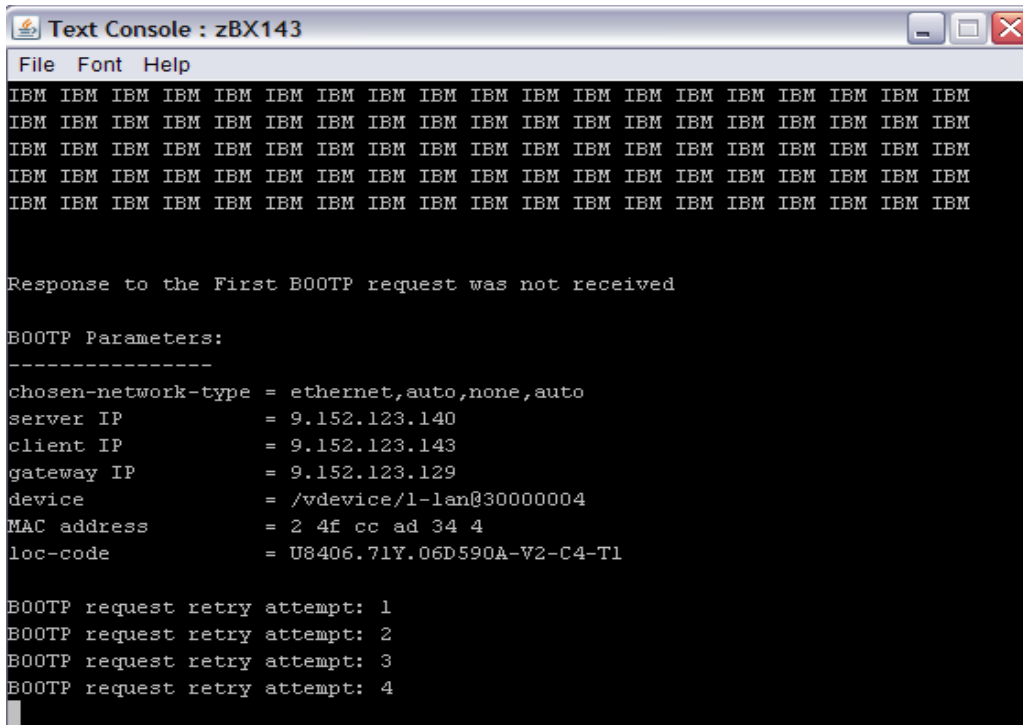
Media Drive

Operating Systems Deployment

■ Installation of p VS

– AIX

- Installing from virtual media mean to first upload the iso image of the AIX installation DVD – since this is more than 2GB it can only be done when the media is in the HMC(USB or DVD) – no upload from remote workstation
- If the network is connected to a NIM infrastructure this is the easy way to install



```
Text Console : zBX143
File Font Help
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

Response to the First BOOTP request was not received

BOOTP Parameters:
-----
chosen-network-type = ethernet,auto,none,auto
server IP           = 9.152.123.140
client IP           = 9.152.123.143
gateway IP          = 9.152.123.129
device              = /vdevice/l-lan@30000004
MAC address         = 2 4f cc ad 34 4
loc-code            = U8406.71Y.06D590A-V2-C4-T1

BOOTP request retry attempt: 1
BOOTP request retry attempt: 2
BOOTP request retry attempt: 3
BOOTP request retry attempt: 4
```

Operating Systems Deployment

- Installation of x VS
 - Linux and Windows
 - Virtual Media
 - Network (PXE boot) ←
 - Other (SUSE Studio, RHEL Satellite, migration of VMWARE or KVM images ...)

Virtual Server Details - zbx1490

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

Boot sequence:

Select	Enabled	Description
<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	Network Adapters
<input type="radio"/>	<input checked="" type="checkbox"/>	Storage Drives
<input type="radio"/>	<input checked="" type="checkbox"/>	Media Drive
		Total: 3

Move Up Move Down

Keyboard language:

Autostart virtual server with hypervisor

Enable GPMP support

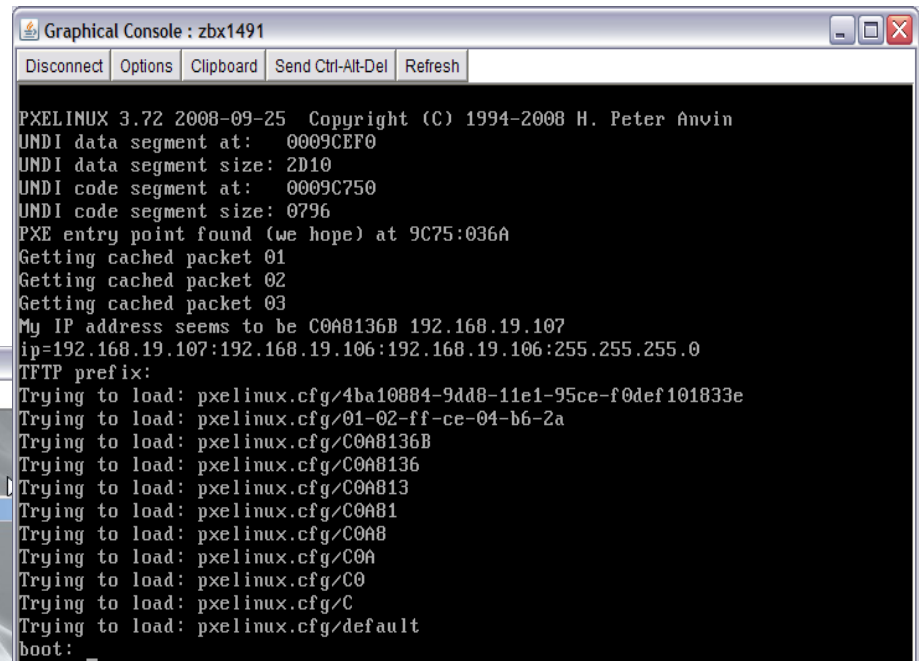
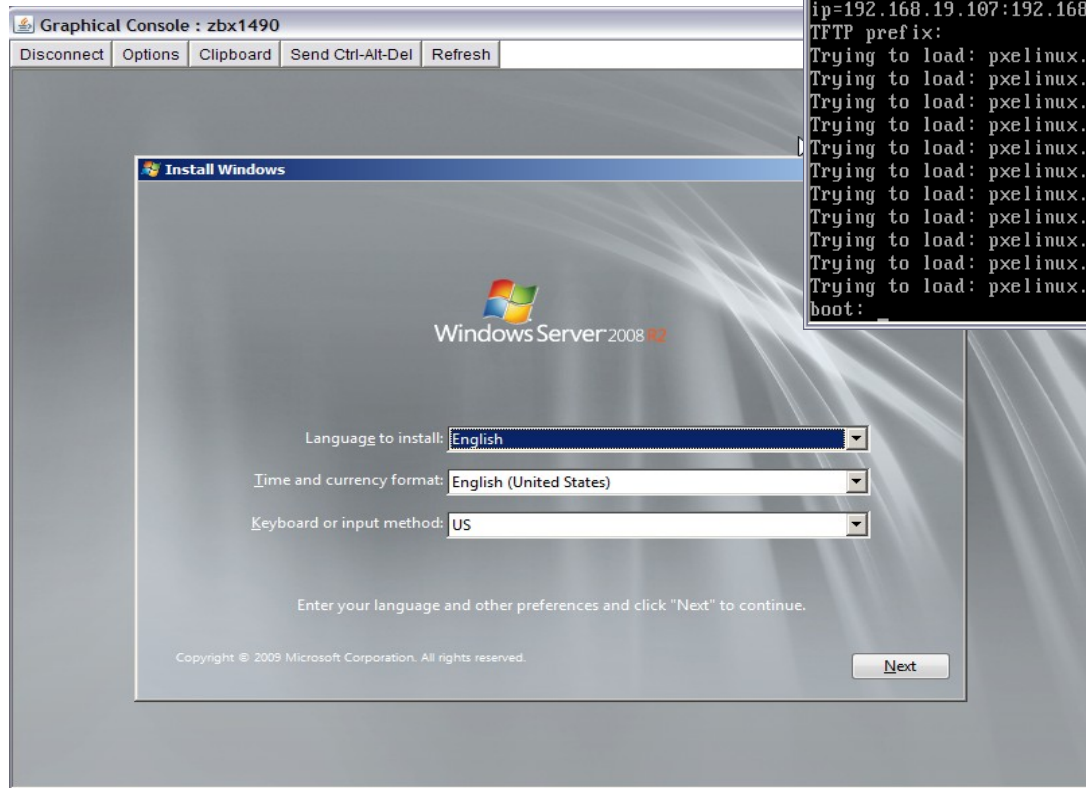
GPMP version: Unavailable

In-band monitoring

OK Apply Cancel Help

Operating Systems Deployment

Installation of x VS



Operating Systems Deployment

■ Installation of x VS

– Linux and Windows

- Our linux systems are installed via PXE boot – the install server is a Linux on System z machine connected to the 10GbE IEDN – only problem is that the MAC address of the x VS cannot be configured. This means after creation of a new VS we have to find the MAC address via HMC VS Details task and configure the PXE server and then start the installation. This MAC address will stay as long as the VS exists – if you delete and re-add the NIC of the VS it will get a new MAC.
- The visualized name of the VS cannot be used for „personalization“ of a new installed OS, only unique identifier is the UUID (dmidecode |grep UUID) and MAC address if NIC is permanent assigned
- Since at the moment we don't have boot server for windows available we upload windows ISO image to install the VS but have also done migration of VMWare and KVM images.
- For windows installation make sure the disk and network types use emulation mode since the windows installation media does not include the virtio drivers.
- If you have KVM servers connected to the same SAN which can connect the LUNs of the zBX VS you can also deploy the OS from outside the zBX and just boot the new VS (make sure the linux disks in your deployment procedure use virtual naming like /dev/vda, /dev/vdb, ...)

Blade Operations

- Activation/Deactivation
- Monitoring
 - Monitors Dashboard
 - Workload Management
- Blade Operations - Microcode Updates of Blades

Blade Operations

Microcode Updates

Channels/Cryptos Configure Off/On Pending conditions exist currently:NO

Coupling Facility Control Code reactivation conditions exist currently:NO

Power-On Reset Tracking conditions exist currently:NO

zBX Components pending firmware updates conditions exist currently:YES

Select the "Manage zBX Internal Code" task from the target CPC for a list of all the zBX Components that are currently pending a firmware update.

Channels/Cryptos Configure Off/On Pending conditions will exist

Coupling Facility Control Code reactivation conditions will exist in

Power-On Reset Tracking conditions will exist in the next install a

zBX Components pending firmware updates conditions will exist

Internal code management is disabled on one or more zBX blade:

Manage zBX Internal Code - P00D02D5

zBX Blade Status: Pending

zBX Switch Status: Current

--- Select Action ---

Select ^	Identifier ^	Type	Pending ^
<input checked="" type="checkbox"/>	B.1.11	POWER Blade 840671Y	Yes
<input checked="" type="checkbox"/>	B.1.12	POWER Blade 840671Y	Yes
<input checked="" type="checkbox"/>	B.1.13	POWER Blade 840671Y	Yes
<input checked="" type="checkbox"/>	B.1.01	System x Blade 7873A1G	Yes
<input checked="" type="checkbox"/>	B.1.02	System x Blade 7873A1G	Yes
<input checked="" type="checkbox"/>	B.1.03	System x Blade 7873A4G	Yes
<input checked="" type="checkbox"/>	B.1.04	System x Blade 7873A5G	Yes
		Total: 7	Selected: 7

Update Blades

Details

Update Switches

Close

Help

Check task on SE and decide when to perform the update – don't have to run all at once – can schedule different time slots

Blade Operations

Microcode Updates

Manage zBX Blade Internal Code P00D02D5

The Licensed Internal code is about to be updated on the zBX Blades identified in the list below:

Identifier	Type
B.1.13	POWER Blade 840671Y
B.1.03	System x Blade 7873A4G
B.1.04	System x Blade 7873A5G

If you click the Continue button, the update process will begin.

If you click the Cancel button the update will be cancelled.

Confirm Disruptive Action - P00D02D5

Attention! The zBX Blades identified in the list below are currently active. This task is disruptive to zBX Blade operations and will cause the zBX Blades to restart.

Identifier	Type
B.1.13	POWER Blade 840671Y
B.1.03	System x Blade 7873A4G
B.1.04	System x Blade 7873A5G

If you click the Continue button, the update process will begin.

If you click the Cancel button the update will be cancelled.

Blade Operations

Microcode Updates

zBX Internal Code Update Progress - P00D02D5

Function duration time: 00:43:56
 Elapsed time: 00:20:40

Select	Object Name	Status
<input checked="" type="radio"/>	B.1.03	Updating the firmware: Ethernet device
<input type="radio"/>	B.1.04	Updating the firmware: Ethernet device
<input type="radio"/>	B.1.13	Internal code update complete
<input type="radio"/>	BladeCenters	

OK Details... Cancel Help

zBX Internal Code Update Progress - P00D02D5

Function duration time: 00:42:58
 Elapsed time: 00:29:57

Select	Object Name	Status
<input checked="" type="radio"/>	B.1.03	Completed successfully
<input type="radio"/>	B.1.04	Completed successfully
<input type="radio"/>	B.1.13	Completed successfully
<input type="radio"/>	BladeCenters	Completed successfully

OK Details... Cancel Help

Manage zBX Internal Code - P00D02D5

zBX Blade Status: Pending
 zBX Switch Status: Current

--- Select Action ---

Select	Identifier	Type	Pending
<input type="checkbox"/>	B.1.11	POWER Blade 840671Y	Yes
<input type="checkbox"/>	B.1.12	POWER Blade 840671Y	Yes
<input checked="" type="checkbox"/>	B.1.13	POWER Blade 840671Y	No
<input type="checkbox"/>	B.1.01	System x Blade 7873A1G	Yes
<input type="checkbox"/>	B.1.02	System x Blade 7873A1G	Yes
<input checked="" type="checkbox"/>	B.1.03	System x Blade 7873A4G	No
<input checked="" type="checkbox"/>	B.1.04	System x Blade 7873A5G	No

Total: 7 Selected: 3

Update Blades Details Update Switches Close Help

Remaining updates will be scheduled when the VS can be stopped

More information:

Unified Resource Manager does not support SSI and LGR

Suggested best practice is to not combine SSI and LGR with the above offering

Work with your IBM Sales Team, IBM Lab Services, or z/VM Development Lab to determine which technologies are most critical to your environment and business.

Turnkey support for zEnterprise ensembles

- Enable clients new to z/VM to get started with Unified Resource Manager
 - Those who purchase DIRMAINT or another directory manager, or who require an external security manager, need to perform manual enablement
- Decline this option during installation

If configured to participate in an ensemble, z/VM will automatically join the ensemble at IPL

- can be inhibited by config off all ensemble type OSA channels for the LPAR
- See chapter "Configuring z/VM for an Ensemble" in CP Planning and Administration manual
- always check for latest service z/VM (<http://www.vm.ibm.com/service/vmrequrm.html>)

Virtual Switch bridge between Ethernet LAN and HiperSockets

- zEnterprise IEDN (OSX) or OSD connections
- Original Statement of Directions only mentioned IEDN
- Guests can use simulated OSA or dedicated HiperSockets
 - VLAN aware
 - One HiperSocket chpid only

Statement of Direction

z/VM V6.2 is the last release of z/VM that will be supported by the nonensemble z/VM System Management functions of the System z10, z196 and z114 z/VM virtual server management will continue to be supported using the zEnterprise Unified Resource Manager on the z196 and later