



IBM Inside Sales

International Technical Support Organization Global Content Services

ITSO – z System Hardware Workshop

www.ibm.com/redbooks

Part 5 – RAS, HMC, CoD, and zAware



Trademarks

The following are trademarks of the International Business Machines Corporation in the United States, other countries, or both.

Not all common law marks used by IBM are listed on this page. Failure of a mark to appear does not mean that IBM does not use the mark nor does it mean that the product is not actively marketed or is not significant within its relevant market.

Those trademarks followed by ® are registered trademarks of IBM in the United States; all others are trademarks or common law marks of IBM in the United States.

For a complete list of IBM Trademarks, see www.ibm.com/legal/copytrade.shtml :

* BladeCenter®, DB2®, e business(logo)®, DataPower®, ESCON, eServer, FICON, IBM®, IBM (logo)®, MVS, OS/390®, POWER6®, POWER6+, POWER7®, Power Architecture®, PowerVM®, S/390®, System p®, System p5, System x®, z Systems®, System z9®, System z10®, WebSphere®, X-Architecture®, zEnterprise®, z9®, z10®, z196®, z114®, zEnterprise System z196®, zEnterprise System z114®, zEnterprise System zEC12®, zEnterprise System zBC12®, z13®, z/Architecture®, z/OS®, z/VM®, z/VSE®, zSeries®

The following are trademarks or registered trademarks of other companies.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency, which is now part of the Office of Government Commerce.

* All other products may be trademarks or registered trademarks of their respective companies.

Notes:

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

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

Important information about today's workshop

- The ITSO z hardware team created 7 IBM z13 presentations to be delivered today
 - Part 1 – IBM z13 – Positioning / introduction
 - Part 2 – z13 CPC Details Capacity and Performance
 - Part 3 – z13 I/O Subsystem
 - Part 4 – Native PCIe Adapters – zEDC and RoCE (what's new with z13)
 - **Part 5 – RAS, HMC, CoD and zAware**
 - Part 6 – Installation Planning
 - Part 7 – Software Support

- The main references for the presentations today are:
 - IBM z13 Technical Guide – Redbook – SG24-8251
 - IBM z13 Technical Introduction – Redbook - SG24-8250

- **Part of the available material may not be presented..** 😞
 - Even if we don't cover the presentations entirely,
 - The material can be download from:
 - <http://www.redbooks.ibm.com/Redbooks.nsf/pages/addmats>

- **The material being presented may not fully match the copied version you have**

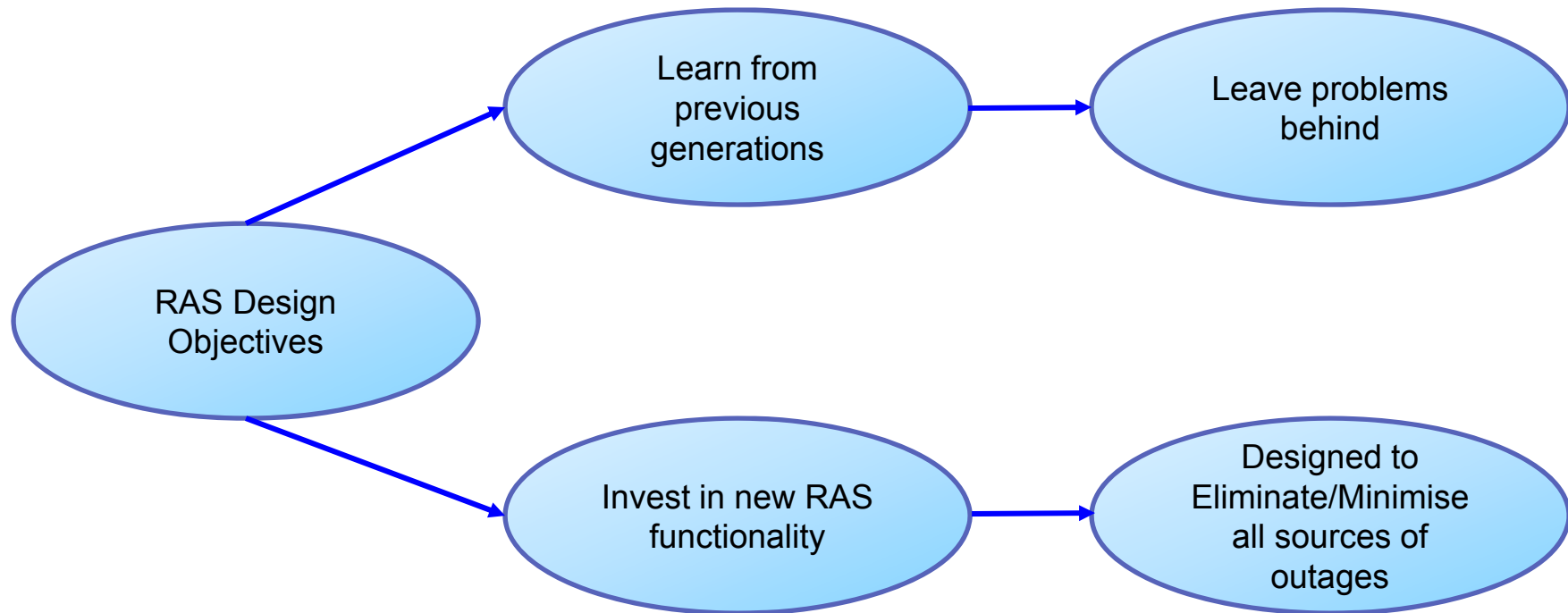
- **You can always get the latest version .. If you want it, just ask !** 😊

- **Please ask questions, make comments and share your own experiences at any time**

- **Thank You !**

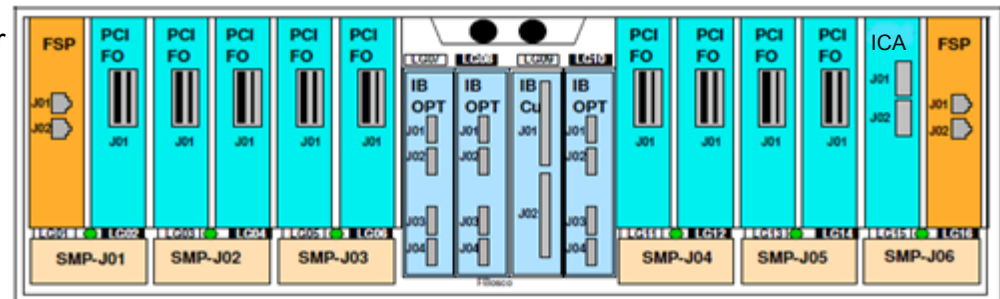
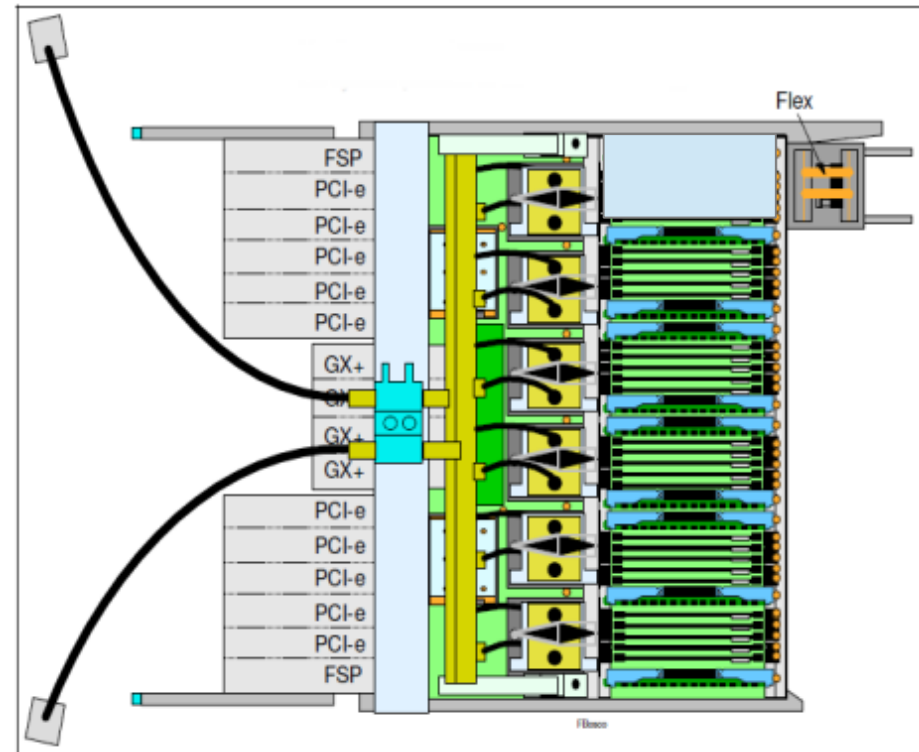


z Systems Overall RAS Strategy



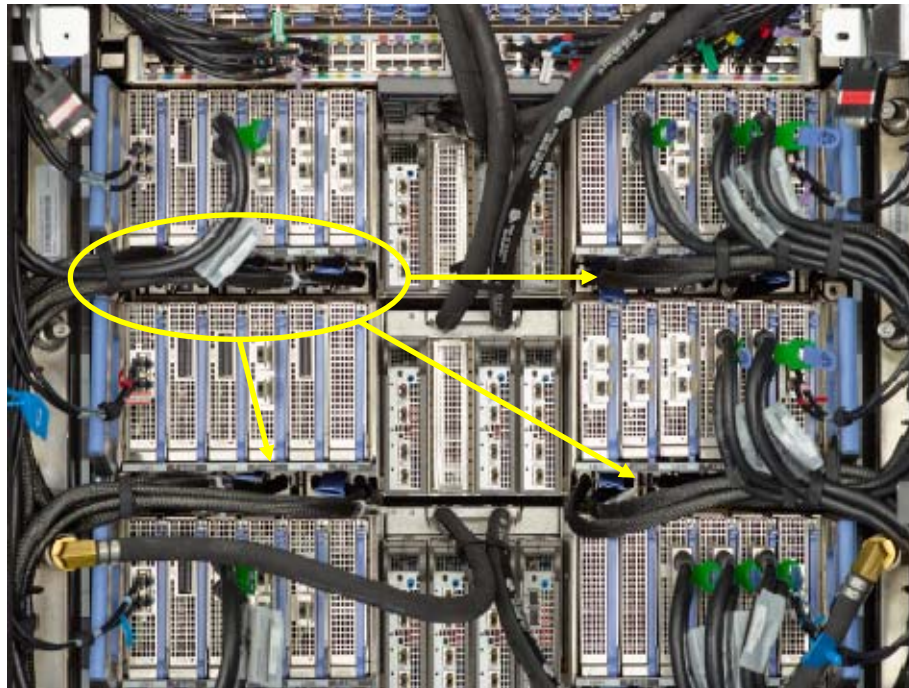
RAS Enhancements

- z13 using CPC drawers
 - Used on BC and POWER Systems
- Cables for SMP fabric
- PU and SC are SCMs
- POL (point of load) replaces Voltage Regulator Modules (VRMs)
 - now a FRU
- Water manifold is a FRU
- Redundant Oscillators isolated on their own backplane
- PU SCM is a FRU with universal spare
- SC SCM is a FRU
- CPC Drawer is a FRU (empty)
- The new drawer structure introduces cables between the drawers
 - Keyed cables to ensure correct length is plugged
 - Plugged detect to correct location
 - Custom latch to ensure retention
- Built in Time Domain Reflectometry (TDR) to isolate failures on
 - SMP cables (between drawer)
 - Between Chips (CP-CP, CP-SC, SC-SC)
 - Between CP and memory DIMM
- CPC Drawer level degrade (1/2 drawer on single drawer)
- FICON - better recovery on fiber and remote PD of nodes
- N+2 radiator pumps
- SCH power supplies n+1 (with N+1 SCH)
- SE power supplies n+1 (with N+1 SE)



Connecting the CPC Drawers

- The new drawer structure introduces cables between the drawers
 - Keyed cables to ensure correct length is plugged
 - Plugged detect to correct location
 - Custom latch to ensure retention



- Built in Time Domain Reflectometry (TDR) to isolate failures on
 - SMP cables (between drawer)
 - Between Chips (CP-CP, CP-SC, SC-SC)
 - Between CP and memory DIMM

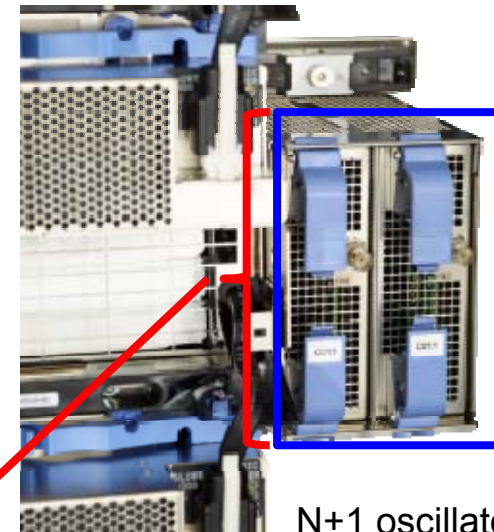
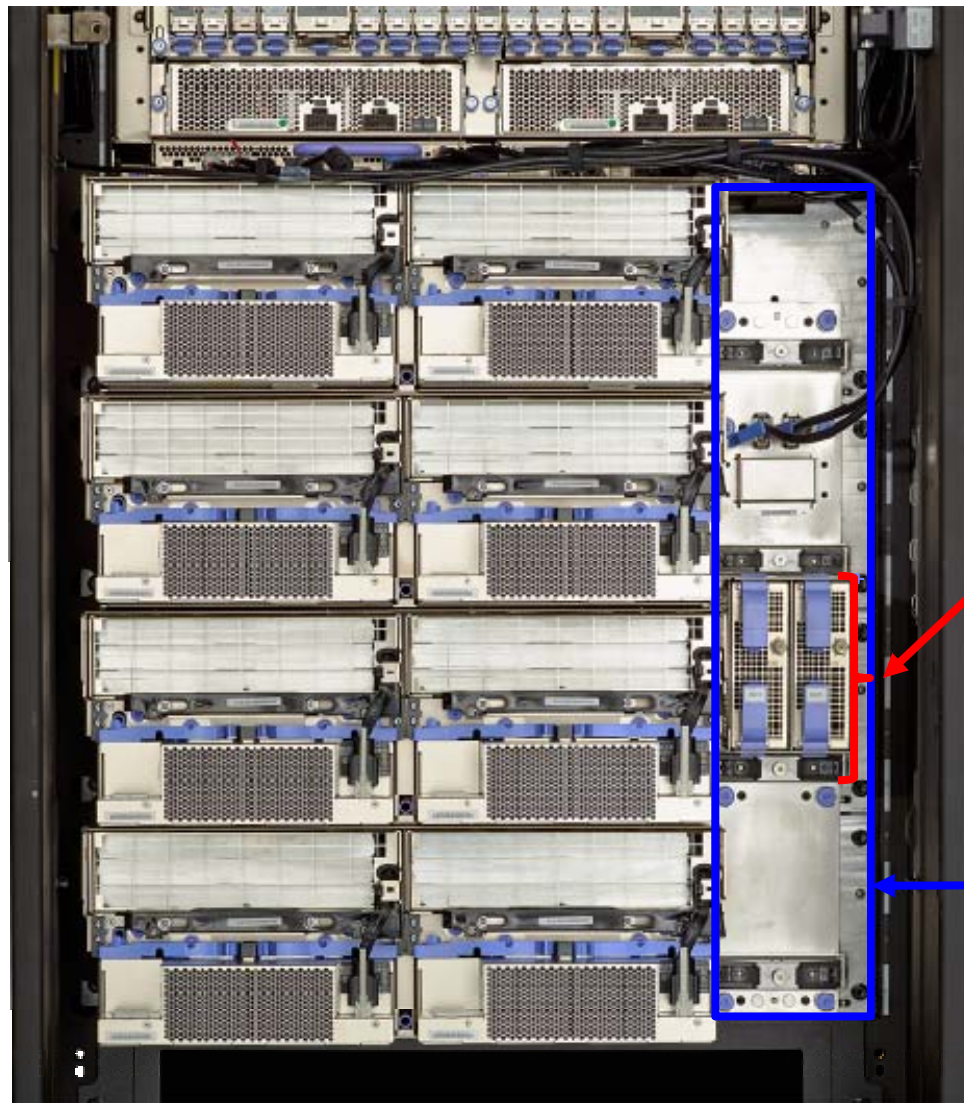
Rack Mounted Support Element



▪ SE RAS Improvements

- ECC Memory
- Truly redundant physical networks
 - Laptops use single physical networks for SE networking requirements (HMC Network, PSCN, INMN).
 - Supports 1 Gbps
 - Redundant physical networks
- Redundant power modules
 - SEs continue to run:
 - SCH failure
 - Power module failure
 - Eliminates Alternate SE switches for certain power hardware repairs

Redundant Oscillators isolated on their own backplane



N+1 oscillators

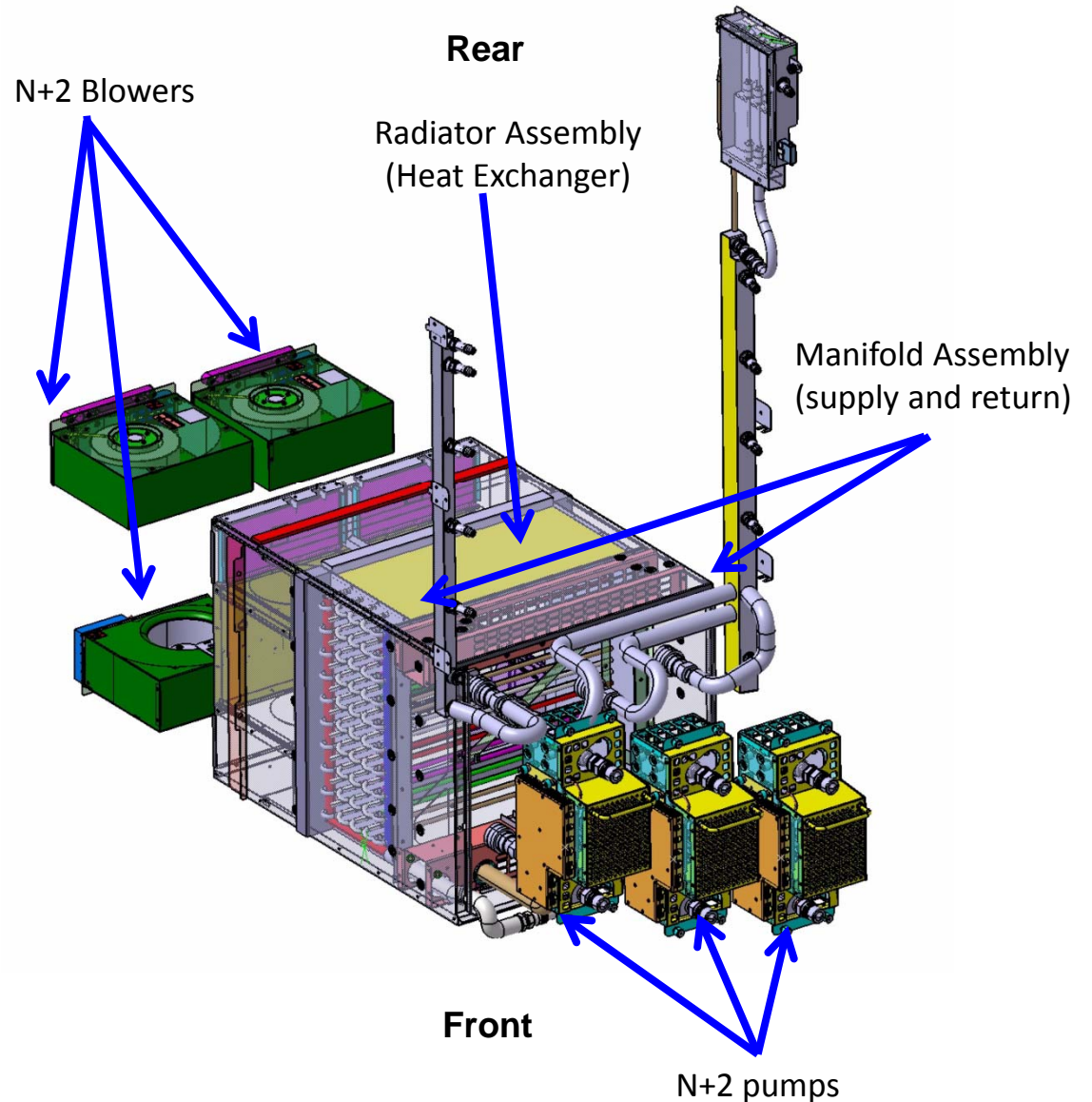
Oscillator backplane with N+1 oscillators

z13 N+2 Radiator Units (RU) and Blowers

- With 1 or 2 CPC drawer(s) System, 3 RU blowers (N+2) are installed.
- With 3 or 4 CPC drawers, 4 RU blowers are installed.
- 3 or 4 CPC drawers need a minimum of 2 RU blowers.
- With 4 RU blowers, the System still has N+2 capability
- If a 1 or 2 CPC drawer System is upgraded to 3 or 4 CPC drawers, the 4th RU blower is installed as part of the upgrade



Rear View of 2 CPC Drawer System with 3 Blowers Installed





z13
Support Element and HMC

z13 Hardware Management Console – HMC



- **HMC System Unit and LIC Support**
 - New Build: HMC FC 0092 tower or 0094 rack mounted HMC (0 – 10 orderable per z13)
 - Carry Forward: HMCs FC 0091 or FC 0092 can be upgraded to control z13
 - zEnterprise Ensemble Primary and Alternate HMCs required to support z13
 - An identical pair is required (Two FC 0094, two FC 0092 or two FC 0091)
 - At Driver 22 – HMC LIC Application level 2.13.0
 - No-charge ECAs TBD orderable by IBM service will be available to upgrade HMC FC 0092 or FC 0091 features of another z System server to HMC Driver 22 LIC to support z13
- **HMC Display Support for HMC FC 0092**
 - 22 inch flat panel FC 6096 (No change from zEC12)
- **New Backup Options**
 - Critical z13 HMC data: USB Storage and FTP/Secure FTP
 - Critical z13 SE data: SE/Alternate SE Hard Drive and FTP/Secure FTP
 - Older machine HMC and SE USB storage only. New optional 32 GB USB “stick” offered if needed
- **HMC application in Driver 22 will support z990 (N-4) and later only**
- **HMC 1000BASE-T LAN Switches – No longer offered**
 - FC 0070 10/100/1000BASE-T switches – (Carry Forward Only)
 - Recommended Alternative: Compatible customer provided 1000BASE-T switches
- **See the z13 Library on Resource Link for the latest publications**
 - “Installation Manual for Physical Planning” for HMC FC 0091, 0092 and 0094 feature physical characteristics
 - “Integrating the HMC Broadband RSF into your Enterprise”
 - “Hardware Management Console Operations Guide” and “Support Element Operations Guide”) is available from the IBM Knowledge Center (<http://www.ibm.com/support/knowledgecenter>)
Select z Systems and then select your product from the navigation bar

Why rack mounted HMC ? – (optional FC 0094)

▪ Customer requirement

- Request to consolidate to rack mounted HMCs
- Allow common solution approach to rack mounted HMCs for System p
- Some customers don't want desktop/tower versions.
- Space is very constrained in data centers

▪ Solution

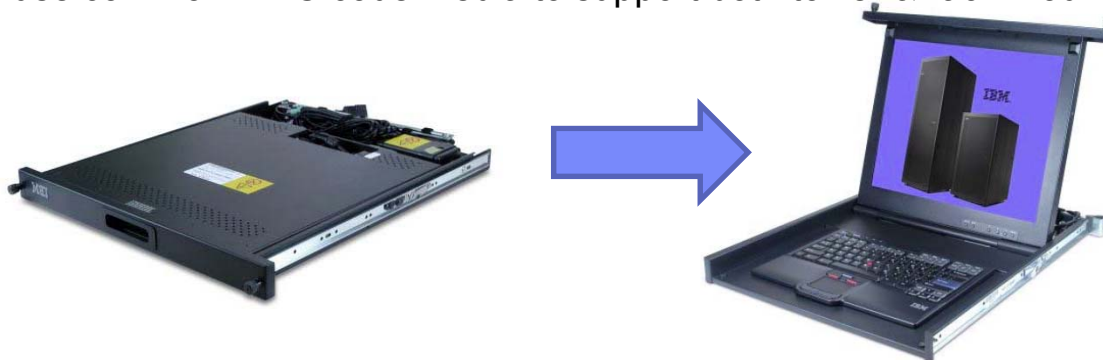
- Use same 1U server hardware as z13 SE – available as an option
 - Slide-out Keyboard/Display
 - KVM Switch to allow multiple HMCs to share keyboard/display
 - Customer supplied rack, power solution and KVM Switch

▪ Tower hardware continues to be provided as default z System HMC

▪ Will use common HMC code media to support both tower & rack mounted HMC



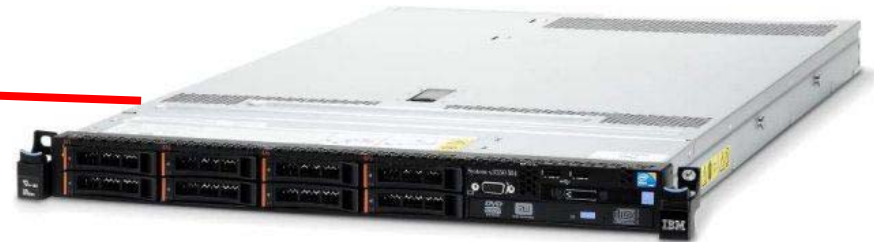
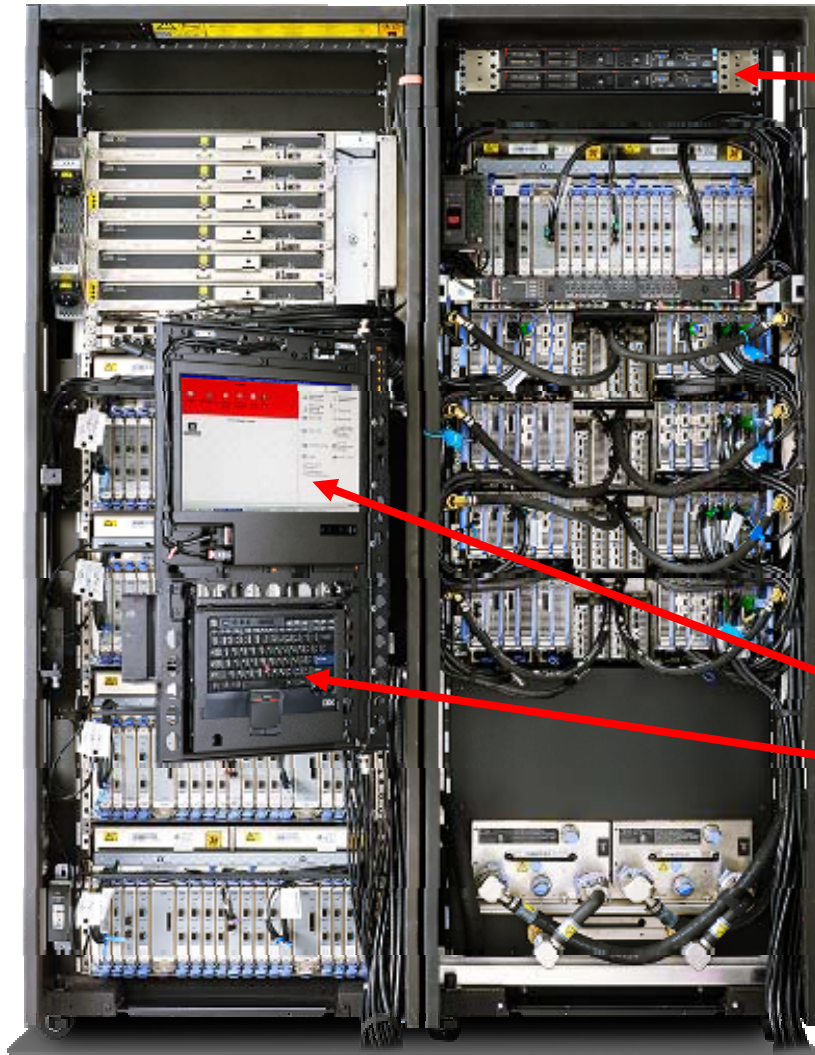
z13: HMC Feature Code #0094



HMC Display and Keyboard: IBM 1U 18.5-inch Standard Console (1723-8BX)

Note: The System unit and tray must be mounted in a customer rack in two adjacent 1U locations in the “ergonomic zone” between 21U and 26U. Three C13 power receptacles are required, two for the System Unit and one for the Display and Keyboard.

z13 Support Elements - Under the covers (Front View)



Support Element System: Two 1U units
Both mounted in the z13 A Frame

Smart Card Readers
Internal USB attached units to support Flash Express and Feature on Demand.



System Unit Display/Keyboards:
Two IBM 1U 18.5-inch Standard
Consoles (1723-8BX)
“Gate mounted” in a manner similar
to zEC12 Support Elements

Ordering for HMC Hardware

- ▶ FC0094 rack mounted cannot be ordered as a feature code on the zEC12 or zBC12.

- ▶ FC0091 upgrade to z13
 - MES is required for existing HMCs with code at Driver 93 or lower to take RAM from 8 GB to 16 GB

- ▶ Other existing HMCs can order ECAs
 - Ordered by SSR, no charge.
 - FC0091 ECA 332 → Adds RAM from 8 GB to 16 GB if required.
 - FC0091 ECA 348 → Driver 22
 - FC0092 ECA 348 → Driver 22

New Hardware for SE/HMC/TKE - Summary

▪ SE

– 1U Units

- Use DC power supply
- Customized Keyboard/Display for Service use only
- DVD drive
- USB attached Smart Card Reader – always present, used by FoD and Flash Express

▪ HMC

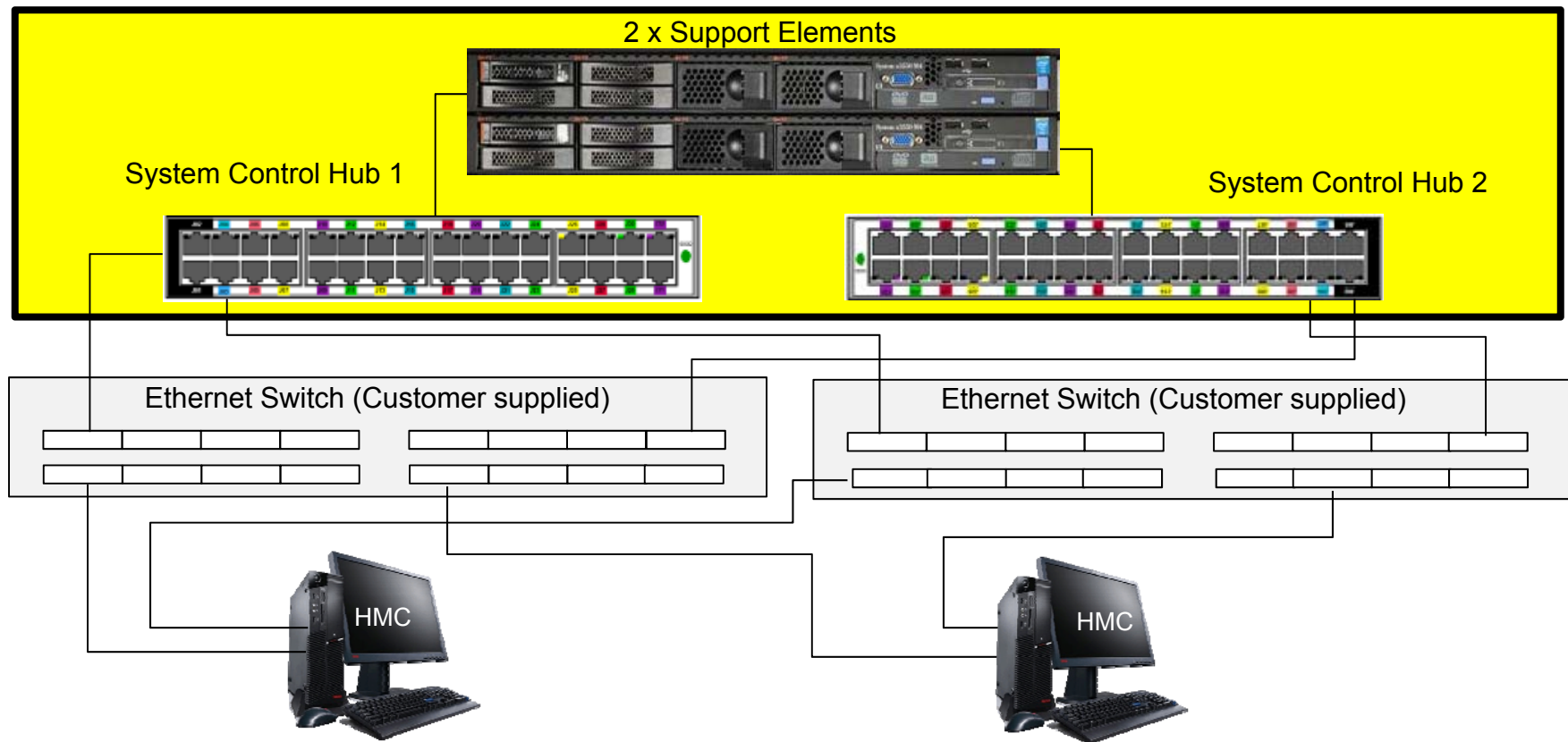
- Tower Unit – standard/default option M/T 7382-PBC FC 0092
- 1U rack mounted option - M/T 7914-PKG
 - Same config as 1U SE hardware except AC power supply
 - Feature Code: 0094
 - Keyboard/Display provided with each rack mount (rack provided by customer)
 - ◆Keyboard part number: 1723-8BX

▪ TKE

- same configuration as mini tower HMC



SE and HMC Network Connections



- System Control Hub supports 1 Gbps and has redundant physical networks
- SE is always connected to the System Control Hub (replacement for the Bulk Power Hub)
- Customer supplied switches are connected to the System Control Hubs
- Other Server's HMC's/SEs may be connected to the Ethernet switches



HMC Topics

- uEFI/BIOS Enhancements
- 32 GB USB Flash Drive
- Alternative to USB Flash Drive
- SMT (Simultaneous Multithreading)
- Security Enhancements
- RSF Infrastructure Changes
- STP Changes/Enhancements
- Crypto Enhancements
- LCSSes/Coupling Channels Increase
- I/O Enhancements
- Monitors Dashboard
- HMC Data Replication Versioning
- Other Enhancements

HMC 2.13.0 System support

- **The new HMC Version 2.13.0 will support the systems/SE (Support Element) versions shown in the table**
 - This HMC 2.13.0 Release will support z13, zBX Mod 004, & some legacy systems
 - z900/z800 (Driver 3G, SE version 1.7.3) & z990/z890 (Driver 55, SE version 1.8.2) systems are no longer supported
 - Recommendation: If customers have these older systems, these should be managed by separate HMCs running older levels of the code

Machine Family	Machine Type	Firmware Driver	SE Version	Ensemble Node Potential
z13	2964	22	2.13.0	Yes
zBX Node	2458 Mod 004	22	2.13.0	Required
zBC12	2828	15	2.12.1	Yes
zEC12	2827	15	2.12.1	Yes
z114	2818	93	2.11.1	Yes
z196	2817	93	2.11.1	Yes
z10 BC	2098	79	2.10.2	No
z10 EC	2097	79	2.10.2	No
z9 BC	2096	67	2.9.2	No
z9 EC	2094	67	2.9.2	No

Firmware/uEFI/BIOS Change

- **uEFI/BIOS of the HMC and SE consoles will be signed and require signed updates**
 - Conforms to NIST 800-147 BIOS Protection Guidelines
- **Protects against uEFI/BIOS attacks**
- **Disabled boot from removable media**
 - Can be changed via uEFI/BIOS configuration change (IBM SSR action)
 - Necessary for tasks that require booting from removable media
 - Engineering Change (EC) Upgrade; Restore of Save/Restore data
 - Hard Disk Restore (including Restore Critical Data)
 - Hard Disk Repair during a Repair and Verify procedure
 - Alternate HMC Preload (HMC only)
 - Must be changed back to the default when finished
 - Documented in “z System Service Guide for HMCs and SEs”
 - **Why?**
 - Protects against unauthorized booting from an OS on a bootable removable media device for additional protection
 - **The customer can set an admin password for the uEFI/BIOS**
 - If admin password is set, SSR will need customer input for above service actions where boot from media needs to be enabled

USB 32 GB Feature

- **Current**
 - 4 GB = miscellaneous use
 - 8 GB = Backup Critical Data
- **z13**
 - Continue support for 4 GB & 8 GB
 - 8 GB will remain the default backup size
- **Why 32 GB?**
 - Need to increase size for Backup due to increased data from
 - Unified Resource Manager
 - zBX
 - IBM zAWARE
 - other growing code/data needs
- **New alternatives (FTP) for storing the Backup files**
 - not applicable for legacy CPC's
- **32 GB is an optional feature to replace the default 8 GB**
 - FC 0848 – Available only for z13 or zBX Model 004
 - Only IBM supplied will work. Substitutes not supported
 - Should only be ordered if backups fails i.e not enough space on existing USB drives

Alternative to USB Flash Memory for HMC and SE Critical Data Backup for z13

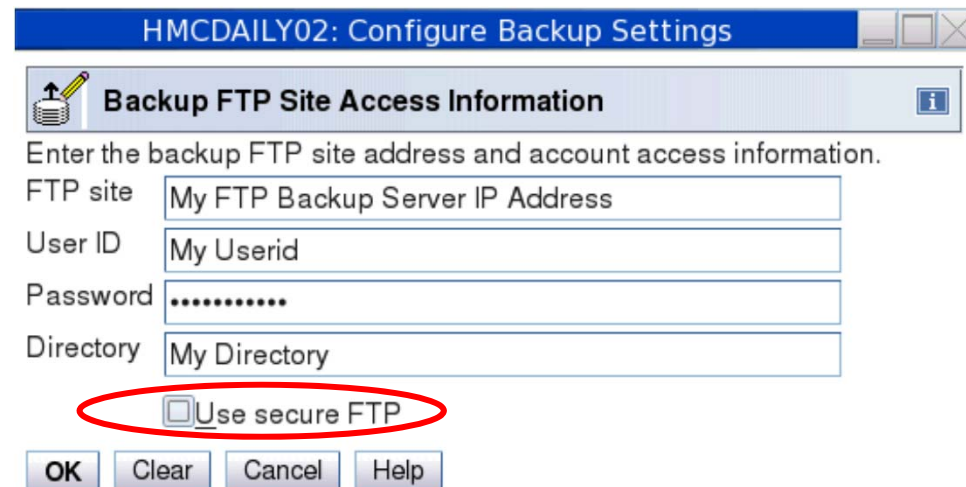
- **USB Flash Memory Drives used on HMC/SE**
 - Backup Critical Data
 - Import/Export Data
 - Offload Security and Audit Data
 - etc.
- **Most customers will continue to allow USB usage**
- **Some customers have policies of no R/W media**
 - Introducing Alternatives to USB for those customers
 - USB no longer needed once z13 is installed
 - [Feature Code: 0845 'Read-Only Media Option'](#)
 - Will be option on certain eConfig selections
 - Will Drive R/O media to be shipped rather than USB
 - [Alternative Options such as FTP Servers, Using Remote Browser from Workstation for Import/Export, etc.](#)
 - Customer Publications will include table with all USB Alternatives per task
- **Legacy systems will still have USB requirement**
 - ie., Backup Critical Data

Configuring the Backup Settings

The screenshot displays the IBM HMC Management console interface. On the left, a navigation pane contains the following items: Ensemble Management, Custom Groups, HMC Management (highlighted with a green box), Service Management, and Tasks Index. The main content area is divided into two sections: Security and Configuration. The Security section includes: Audit and Log Management (View or off-load audit reports for configuration and log information), Archive Security Logs (Archive the console's security logs), Customize Automatic Logon (Customize the automatic logon settings for the console), and Manage SSH Keys (Manage SSH Keys used for Secure FTP access). The Configuration section includes: User Settings (Customize the appearance of the workplace), Configure Data Replication (Configure the Data Replication settings for the HMC), Customize Console Date/Time (Customize the date and time), Customize Customer Information (Customize the customer information for the console), Customize Scheduled Operations (Customize schedule of automated console operations), and Object Locking Settings (Change the automatic locking of managed objects.). To the right of the main content area, a list of additional options is shown: View Security Logs (View security logs), Users and Tasks (View the logged on users and the tasks they are running), Certificate Management (Create, modify, delete, and import certificates used on the HMC, a), Domain Security (Change console's domain name or password), Configure 3270 Emulators (Customize the 3270 emulator sessions), Customize API Settings (Customize the Application Programming Interface for the console), Customize Console Services (Customize the enablement of various console services), Customize Network Settings (View current network information and change settings), Enable FTP Access to Mass Storage Media (Enable FTP Access to Mass Storage Media), and Configure Backup Settings (Configure the backup settings.). The 'Configure Backup Settings' option is highlighted with a green box. At the bottom left, a red bar indicates 'Status: Exceptions and Messages' with icons for a list, an error, a document, and a window.

FTP Server Setup

- **FTP Server supplied by the customer.**
 - If used, must be set up in advance of the backup before it can be selected as an alternative for USB
 - Secure FTP Server option
- **This task created to support the z13 and zBX Model 004 only.**
 - Task name = Configure Backup Settings
 - Need the following information to configure the FTP server:
 - IP Address / Name
 - User ID
 - Password
 - Backup directory (where the backup files will be stored)

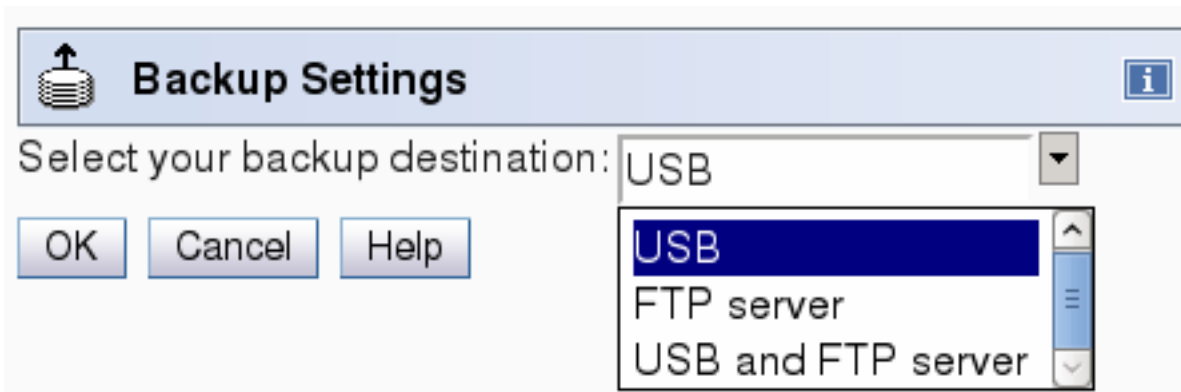
A screenshot of a Windows-style dialog box titled "HMCDAILY02: Configure Backup Settings". The dialog has a blue title bar and a grey border. Inside, there is a section titled "Backup FTP Site Access Information" with an information icon on the right. Below the title, there is a prompt: "Enter the backup FTP site address and account access information." followed by four text input fields: "FTP site" (containing "My FTP Backup Server IP Address"), "User ID" (containing "My Userid"), "Password" (containing "....."), and "Directory" (containing "My Directory"). Below these fields is a checkbox labeled "Use secure FTP", which is circled in red. At the bottom of the dialog are four buttons: "OK", "Clear", "Cancel", and "Help".

Backup for HMC (and TKE)

- **The HMC supports backing up to FTP server.**
 - Users can still select USB for backing up the HMC
 - User can backup to USB, to FTP server, or both.
 - If user selects the FTP server option:
 - If the FTP server information has not been entered in the "Configure Backup Settings" task, a message box will be displayed to indicate that the user needs to complete this information.
 - The system first checks the transfer rate to this server. If the rate is below the acceptable level, the user is notified and is given the option to continue or cancel the operation.

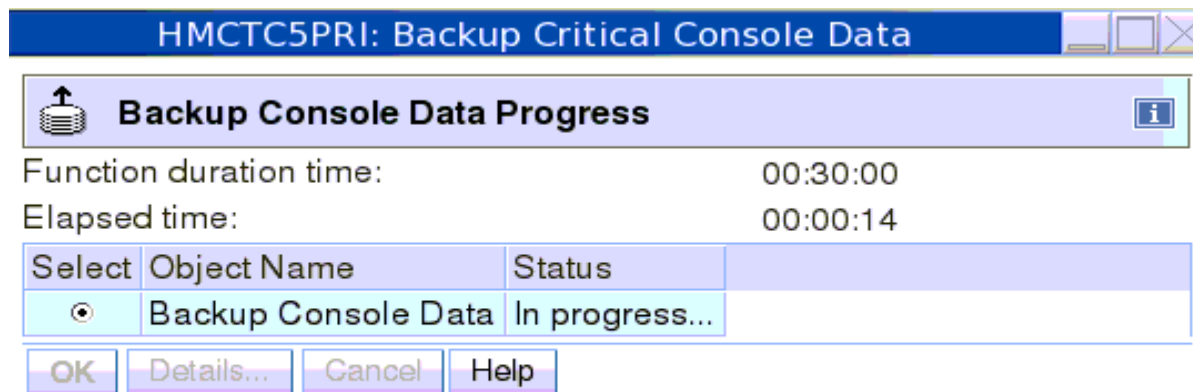
Backup for HMC data

- Once the user selects the Backup Critical Console Data task, the following windows are displayed:



- Choose
 - USB Drive
 - FTP (new)
 - USB & FTP (both)

- Notes
 - USB must be labeled ACTBKP.
 - Size available on USB not checked.
 - 4 or 8 GB USB (default)
 - 32 GB USB
 - (optional FC 0848)



Backup the Support Element

- **Critical Data Task**
- **z13 and zBX Model 004**

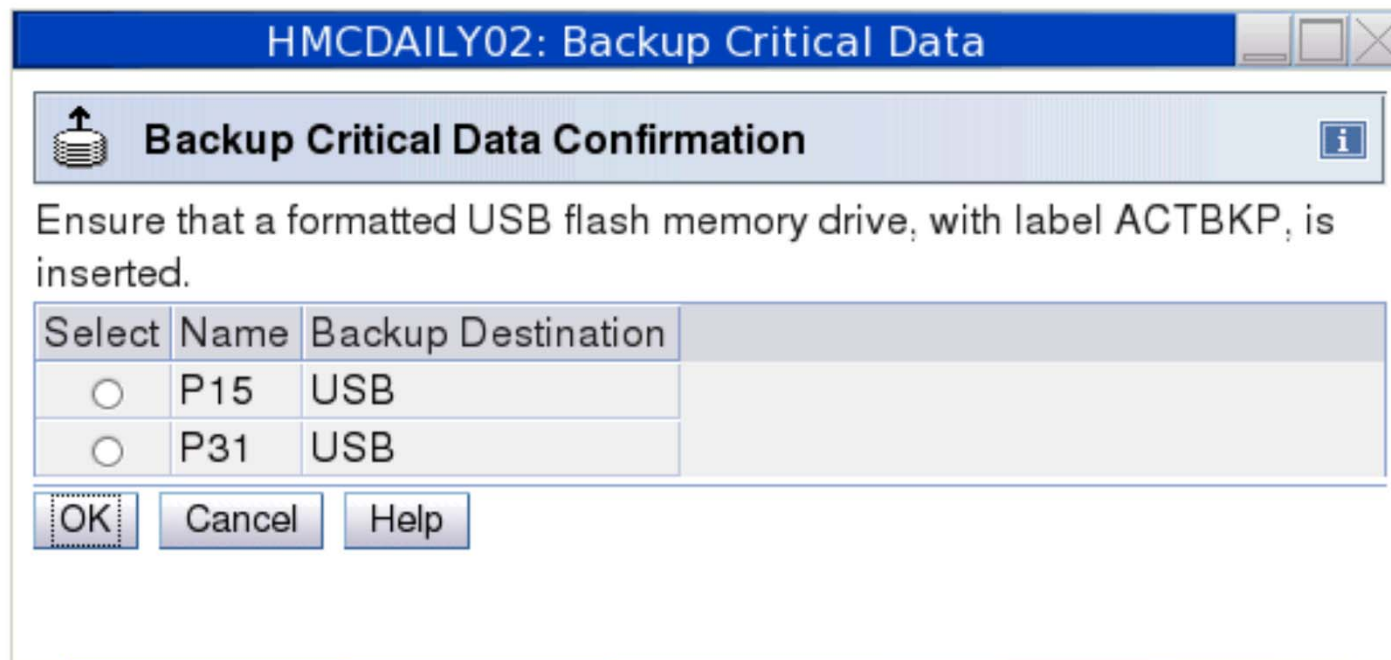


- NO USB option
 - Save to Primary SE HDD/Alternate SE HDD
 - Save to Primary SE HDD/Alternate SE HDD and to the FTP Server
-
- **Older CPCs (zEC12, zBC12 and older)**
 - Save to USB only
 - If multiple CPCs, a large 32 GB USB (new FC0848) may be required

- **If the FTP server information has not been added to the Configure Backup Settings, then users cannot backup to the FTP server**
- **The same support has also been implemented for SE backups created via Scheduled Operation**

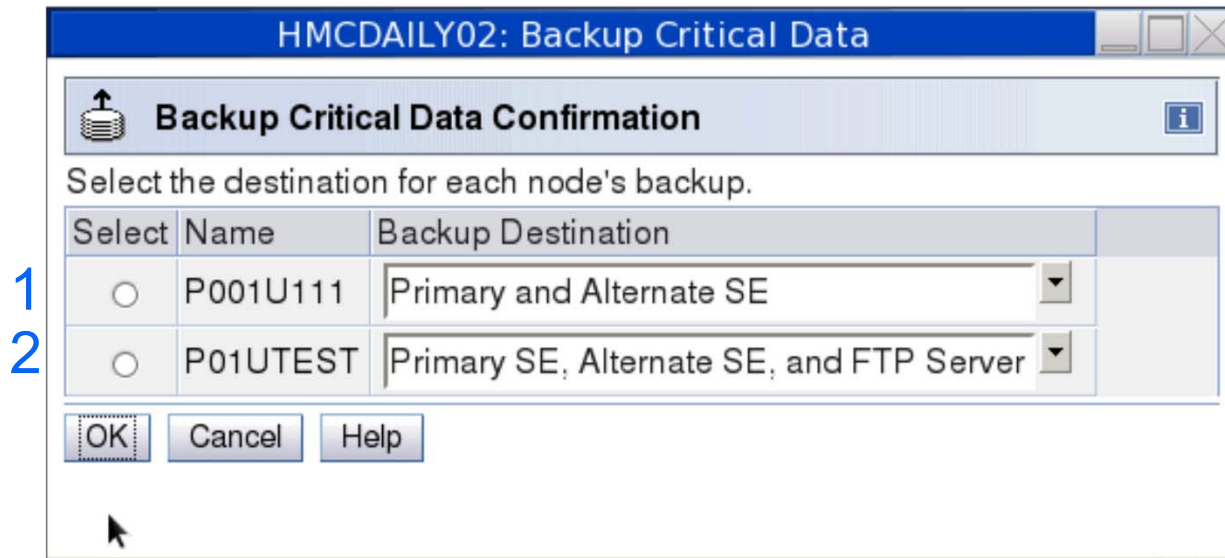
Support Element Backup

- **Scenario 1:**
Older CPCs (zEC12, zBC12 and older)
- Select the CPCs and Launch the Backup Critical Data Task
- Backup created and sent to the HMC
 - USB Only



Support Element Backup

- **Scenario 2:**
 - **Select only z13 and zBX Model 004 (no older CPCs)**
 - Select the CPCs and Launch the Backup Critical Data Task
 - Backup create
 1. Save to Primary SE HDD/Alternate SE HDD
 2. Save to Primary SE HDD/Alternate SE HDD and to the FTP Server
 3. No option for USB



Support Element Backup

- **Scenario 3:**
 - Mix of z13, zBX Model 004 and Older CPCs
 - Select the CPCs & Launch the Backup Critical Data Task
 - Backup create
 1. Save to Primary SE HDD/Alternate SE HDD
 2. Save to Primary SE HDD/Alternate SE HDD and to the FTP Server
 3. USB for older CPCs

HMCDAILY02: Backup Critical Data

Backup Critical Data Confirmation

Select the destination for each node's backup.

Select	Name	Backup Destination
1 <input type="radio"/>	P001U111	Primary and Alternate SE
2 <input type="radio"/>	P01UTEST	Primary SE, Alternate SE, and FTP Server

Ensure that a formatted USB flash memory drive, with label ACTBKP, is inserted.

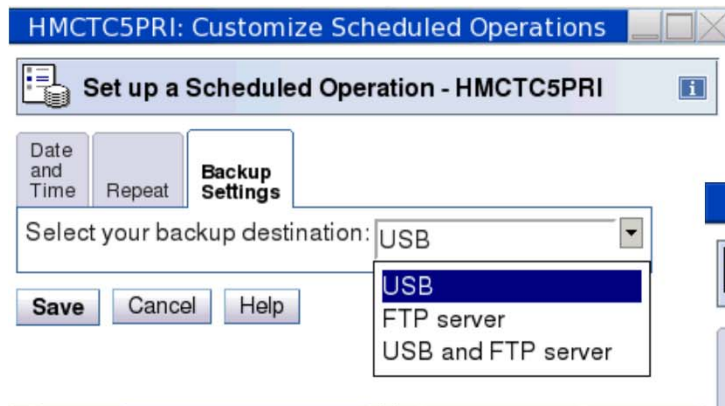
Select	Name	Backup Destination
3 <input type="radio"/>	P15	USB
<input type="radio"/>	P31	USB

OK Cancel Help

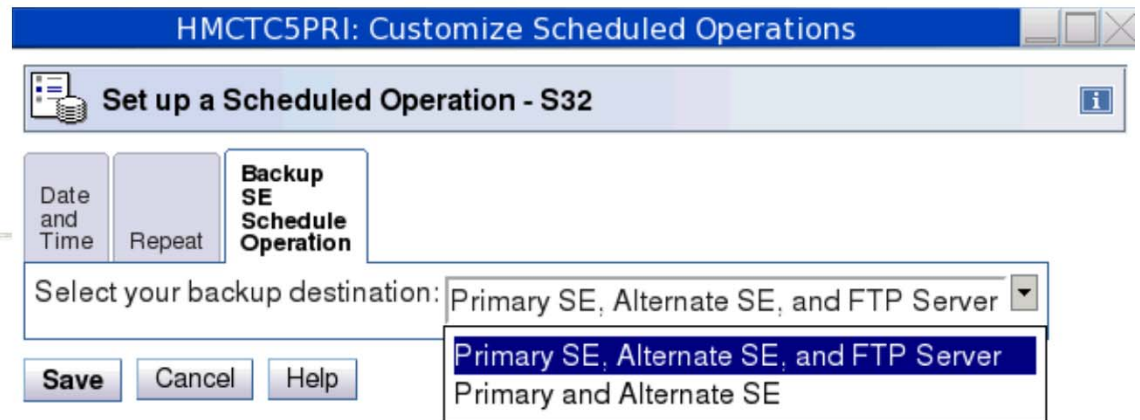
Scheduled Operations

- All options shown can be a scheduled operation if desired.

HMC

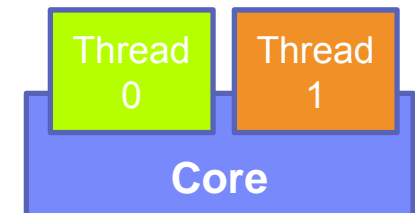


Support Element



HMC support for Simultaneous Multithreading

- LICCC and up/downgrades are on core, not thread, granularity
- If a core is concurrently upgraded and the LPAR has reserved PUs defined,
 - Either one or 2 threads (logical PUs) become available to the OS, depending if it opted in or not during IPL
- If a dedicated core is concurrently downgraded,
 - The entire core with both threads (logical PUs) needs to be deconfigured (SCLP deconfigure CPU addresses all threads of a core)
- If a shared core is concurrently downgraded,
 - the logical PUs continue to run on the remaining cores of this type
- Things only done on a Core basis for SMT
 - Image profiles (user only specifies number of cores)
 - All threads of one core must be the same
 - Deconfigure / add of logical processors
 - When Partition is running in SMT mode,
 - Logical processors added in groups of 2 (one core, but 2 LPs)
 - Deconfigure targets the core and thus affects all threads for that core.
 - Management of processor weights for shared partitions



SMT - Monitors Dashboard

- New columns for processors for SMT
 - Per-thread usage
 - “SMT” usage, showing how often SMT is really exploited

Monitors Dashboard

[Pause Display](#)
[Open Activity](#)
[Open Activity Profiles](#)
[Open Workloads Report](#)
[Open Network Monitors Dashboard](#)

Overview

--- Select Action ---

Select	Name	Type	Processor Usage (%)	Channel Usage (%)	Power Consumption (kW) (Btu/hr)	Ambient Temperature (°C) (°F)
<input type="checkbox"/>	R34	System	<div style="width: 68%;"></div>	68	3 22.758 77,653.519	22.8 73.04

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

Details

--- Select Action ---

Power Consumption

Name	Power Consumption (kW)	Heat Load (Btu/hr)	Heat Load (forced-air) (Btu/hr)	Heat Load (water) (Btu/hr)	Average Voltage (V)
<input type="checkbox"/> zCPC	22.758	77705	77705		
<input type="checkbox"/> Power cord Z29B-BPEA-J01	5.616				480
<input type="checkbox"/> Power cord Z29B-BPEB-J01	5.797				483
<input type="checkbox"/> Power cord Z29B-BPEA-J02	5.640				478
<input type="checkbox"/> Power cord Z29B-BPEB-J02	5.761				477

Page 1 of 1 Max Page Size: 100 Total: 8 Filtered: 8 Displayed: 8 Selected: 0

Environmentals

Name	Ambient Temperature (°C) (°F)	Humidity (%)	Dew Point (°C) (°F)	Air Pressure (hPa)
<input type="checkbox"/> R34	22.8 73.04			
<input type="checkbox"/> zCPC	22.8 73.04	<div style="width: 40%;"></div>	40 8.4 47.12	1,030

Page 1 of 1 Max Page Size: 100 Total: 2 Filtered: 2 Displayed: 2 Selected: 0

--- Select Action ---

Select	Name	Processor Usage (%)	SMT Usage (%)	Thread 0 Usage (%)	Thread 1 Usage (%)
<input type="checkbox"/>	IFL00	<div style="width: 90%;"></div>	<div style="width: 90%;"></div>	<div style="width: 100%;"></div>	<div style="width: 80%;"></div>
<input type="checkbox"/>	IP00	<div style="width: 93%;"></div>	<div style="width: 50%;"></div>	<div style="width: 100%;"></div>	<div style="width: 80%;"></div>
<input type="checkbox"/>	IP01	<div style="width: 80%;"></div>	<div style="width: 0%;"></div>	<div style="width: 80%;"></div>	<div style="width: 0%;"></div>

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

Close Help

SMT and Logical Processor Numbering

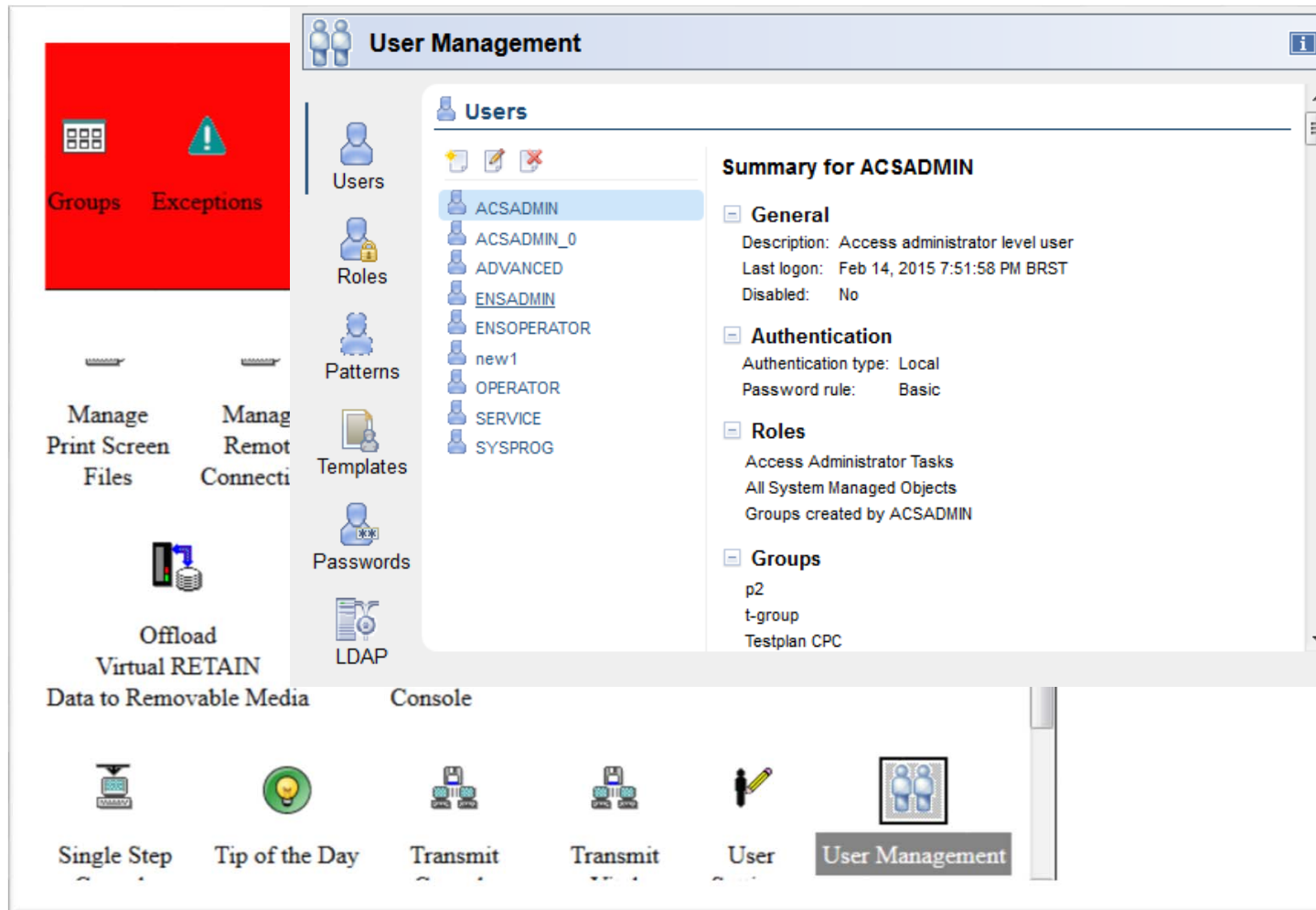
- **When a partition switches into SMT mode**
 - Number of logical processors doubles to reflect the fact that each logical processor defined in the image profile now has 2 threads. This occurs for all processor types. So, for CP processors, the odd addresses are not usable.
- **Image Details shows if the partition is or is not exploiting SMT**
- **Other cases (like Change LPAR Controls) continues to have the number of processors as being “the number of cores”.**
- **In this example, the partition had one CP specified in the image profile and the code in the partition switched to use SMT mode and thus 2 logical processors are present:**

The screenshot shows the IBM System zNext console interface. A red header bar contains navigation icons for Groups, Exceptions, Active Tasks, Console Actions, Task List, and Help. Below this is a grid of partition icons labeled A01 through A11. A pop-up window titled 'A01 Details - A01' is open, showing instance information. A blue arrow points to the 'Simultaneous Multi-Threading (SMT): Active' status.

A01 Details - A01	
Instance Information	Status
Group:	Images
Image mode:	ESA/390
Activation profile:	A01
Last used profile:	TEST960D
Sysplex name:	PLEX76
Operating system name:	SC76
Operating system type:	z/OS
Operating system level:	V2R1
Group capacity name:	
CP management cluster name:	PLEX76
Simultaneous Multi-Threading (SMT):	Active
Include CP's in Standby state:	<input type="radio"/> Yes <input checked="" type="radio"/> No
Lockout disruptive tasks:	<input type="radio"/> Yes <input checked="" type="radio"/> No

User Experience What's New – Design for Details Tasks

- No more tabs. All fields available in a single scrollable window
- Quickly jump from section to section with the navigation area links
- Collapse or expand sections



- Where possible, validation will happen immediately as the user moves from field to field
- Immediate validation notifications will be non-intrusive
- Allows for faster feedback and smoother experience

HMC 2.13.0 (Driver 22) – RSF Infrastructure Changes

- **Continuation of enhanced IBM Support System for RSF call-home (Remote Support Facility)**
 - Same supported functions as in HMC 2.12.1
 - Scope of new supported functions in HMC 2.13.0
 - **eBoD support**
 - Support for all Capacity on Demand records that may be ordered from Resource Link (CIU Permanent, On/Off CoD, CPE, CBU)
 - **Fix delivery**
 - Full fix deliverable capabilities
 - **PMV (Problem Management Viewable) “update” support**
- **Enhanced Infrastructure always attempted first if possible**
 - Traditional IBM support system used as backup during migration period

DNS resolution – Enhanced IBM Support structure

- DNS host name resolution is required for connectivity to the Enhanced IBM infrastructure
 - If RSF connection is not configured to use an SSL Proxy Server
 - Network Settings on call-home HMCs must include DNS configuration
 - Recommend a backup DNS for reliability
 - If RSF connection uses an SSL Proxy Server, customer has choice where the IP address resolution is done:
 - Can be resolved on HMC, using Network Settings on HMC
 - Can be resolved at SSL Proxy, if Proxy has DNS available

Note: Use of hostnames facilitates dynamic management of redundant servers

Customize Outbound Connectivity Panel: Proxy usage

Indicates if proxy required to connect to the internet, and how to reach it

Resolve setting dictates whether hostnames or ip addresses passed to SSL Proxy

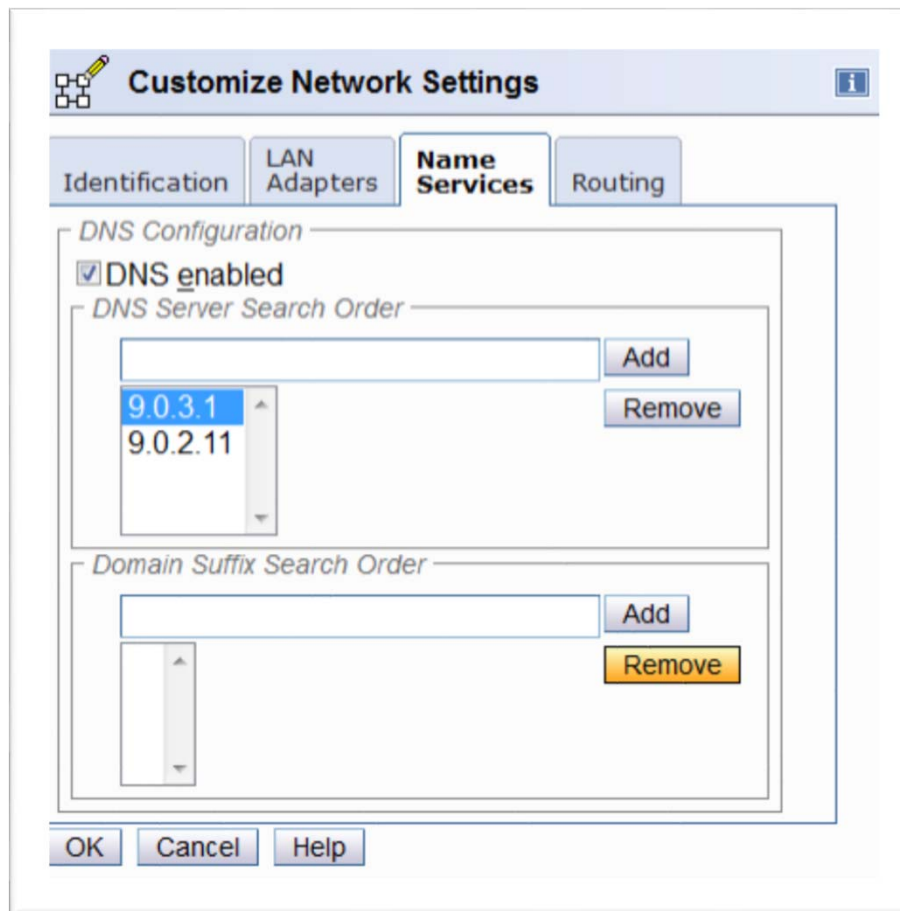
✓ if checked, DNS is required on HMC

☐ if unchecked, DNS is required from SSL Proxy



Network Setting customized on HMC for DNS

- Name Services is defined using Customize Network Settings Task
- Select DNS enabled
- One or more DNS Servers must be defined in search order
 - Recommendation that at least 2 be defined to avoid single point of failure
- Domain Suffix Search Order is not used by RSF, can be configured for other reasons



Customize Network Settings

Identification LAN Adapters **Name Services** Routing

DNS Configuration

DNS enabled

DNS Server Search Order

Add

9.0.3.1 Remove

9.0.2.11

Domain Suffix Search Order

Add

Remove

OK Cancel Help

z Systems RSF TCP/IP Addresses Changes

If using IPV4, firewall outbound connectivity must be permitted to port 443 to the following destinations:

129.42.26.224 (traditional)

129.42.34.224 (traditional)

129.42.42.224 (traditional)

[129.42.50.224](#)

129.42.56.189 (enhanced)

129.42.58.189 (enhanced)

129.42.60.189 (enhanced)

[129.42.54.189](#)

If using IPV6, firewall outbound connectivity must be permitted to port 443 to the following destinations:

2620:0:6c0:1::1000

2620:0:6c1:1::1000

2620:0:6c2:1::1000

[2620:0:6c4:1::1000](#)

2620:0:6c0:200:129.42.56.189 (enhanced)

2620:0:6c1:200:129.42.58.189 (enhanced)

2620:0:6c2:200:129.42.60.189 (enhanced)

[2620:0:6c2:200:129.42.60.189](#)

If using an SSL Proxy, and plan for it to resolve host names, it must accept the following host names:

www-945.ibm.com (traditional)

[esupport.ibm.com](#) (enhanced)

z Systems Phone Home Change impact

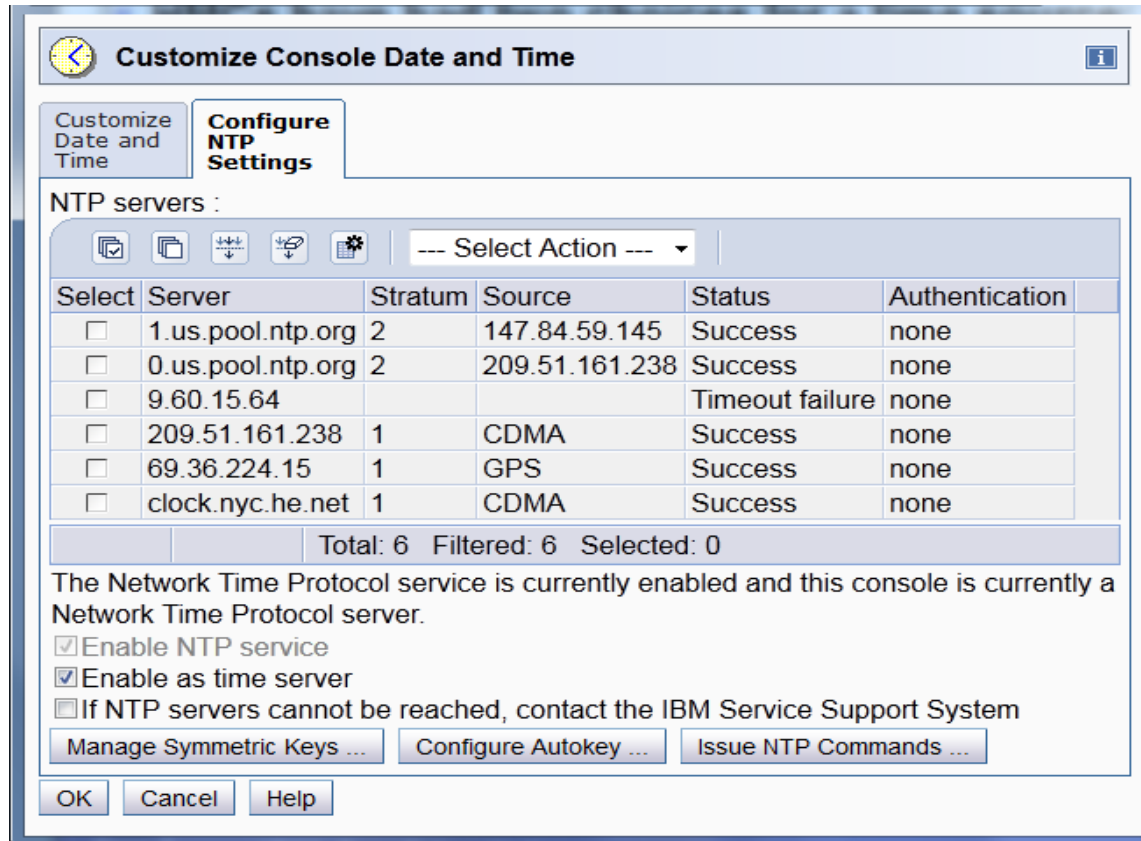
Machine Family	Machine Type	Firmware Driver	SE Version	Impact
z13	2964	22	2.13.0	Affected
zBX Node	2458 Mod 004	22	2.13.0	Affected
zBC12	2828	15	2.12.1	Affected
zEC12	2827	12 or 15	2.12.0 or 2.12.1	Affected
z114	2818	93	2.11.1	Affected
z196	2817	86 or 93	2.11.0 or 2.11.1	Affected
z10 BC	2098	76 or 79	2.10.1 or 2.10.2	Affected
z10 EC	2097	73 or 76 or 79	2.10.0 or 2.10.1 or 2.10.2	Affected
z9 BC	2096	67	2.9.2	Not Affected
z9 EC	2094	67	2.9.2	Not Affected

Prior HMC time source configuration

- HMCs had two choices for a time source:

1) NTP enabled on HMC

- Configured on Customize Date and Time panel
- HMC's clock in synch with NTP time source's clock
- Preferred method of setting HMC time when running STP



z13 HMC time source configuration

- NTP support – new setup panel

Date and Time

Battery Operated Hardware Management Console Clock

Date: * May 16, 2014 Time: * 10:03:16 AM

Time zone: America/New_York

Time Source

- Network Time Protocol (NTP) ...
- Selected CPCs ...
- None

Details for Network Time Protocol (NTP)

NTP Servers

Select	Server	Str	Authentication
<input type="checkbox"/>	2.us.pool.ntp.org	2	None

Total: 1

- Enable as time server
- Automatically contact IBM

Refresh

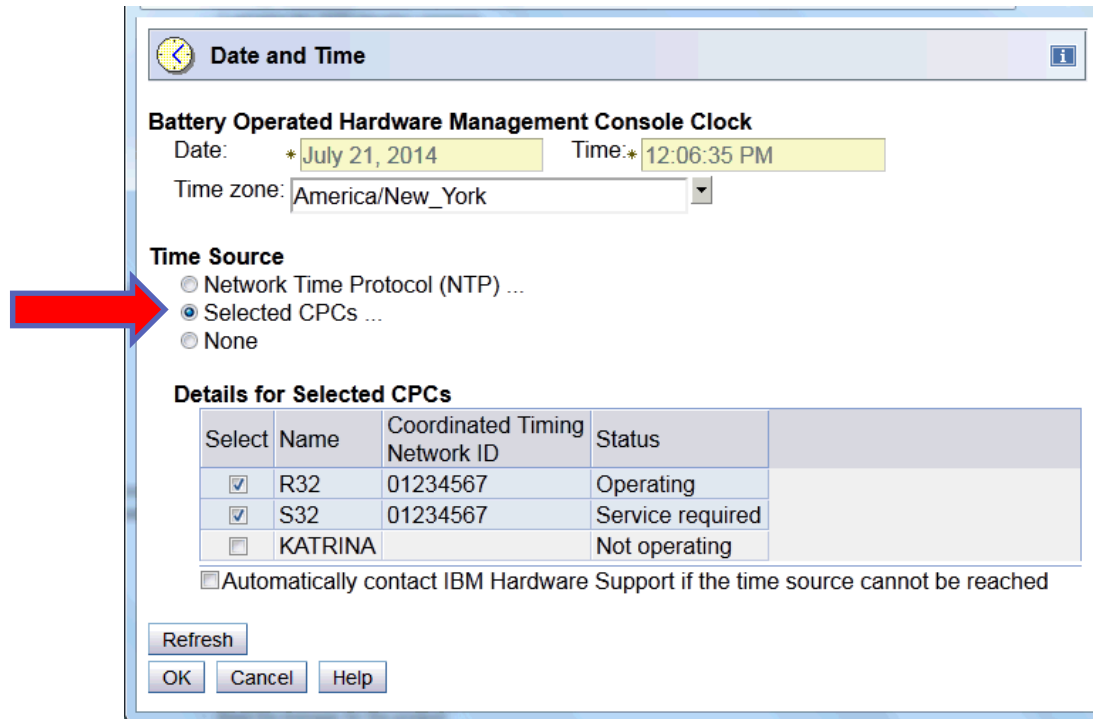
OK Cancel Help

--- Select Action ---

- Select Action ---
- Edit Server ...
- Remove Server
- Add Server ...
- Query Servers
- Manage Symmetric Keys ...
- Configure Autokey ...
- Issue NTP Commands ...
- **Table Actions** ---
- Select All

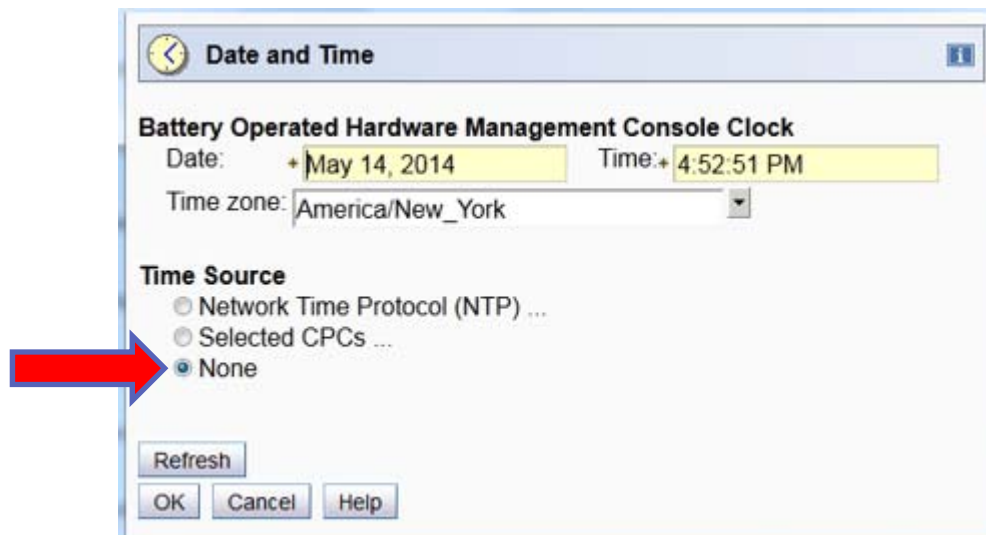
HMC time source configuration for z13 (cont'd)

- Added configuration support for time retrieval from selected CPCs
 - One location for configuration and checking all CPCs used as a time source
 - Additional checks added to promote homogenous time sources when using multiple CPCs as time sources (same STP CTN)
 - Warning if not same CTN (Coordinated Timing Network) sources selected



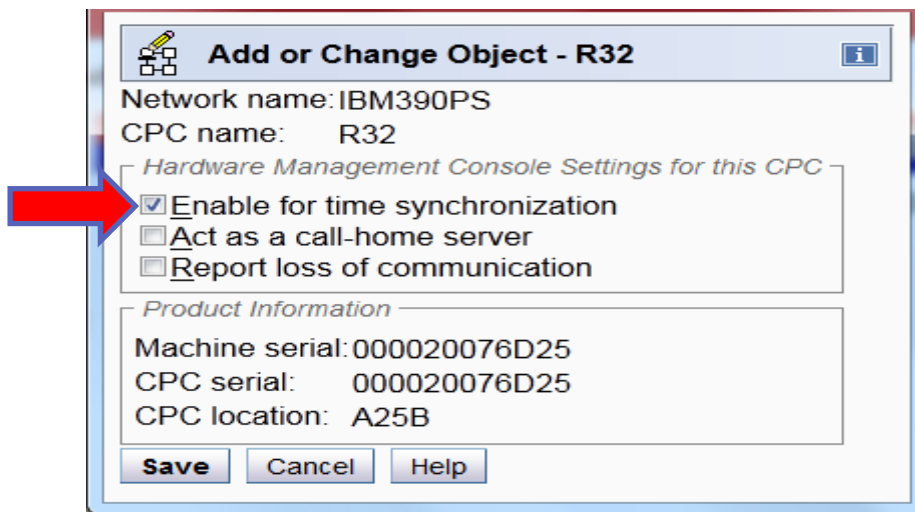
z13 HMC time source configuration (cont'd)

- HMC Customize Console Date and Time panel redesigned
 - Clear selection of HMC time source
 - Manual setting of date and time only when Time Source set to None

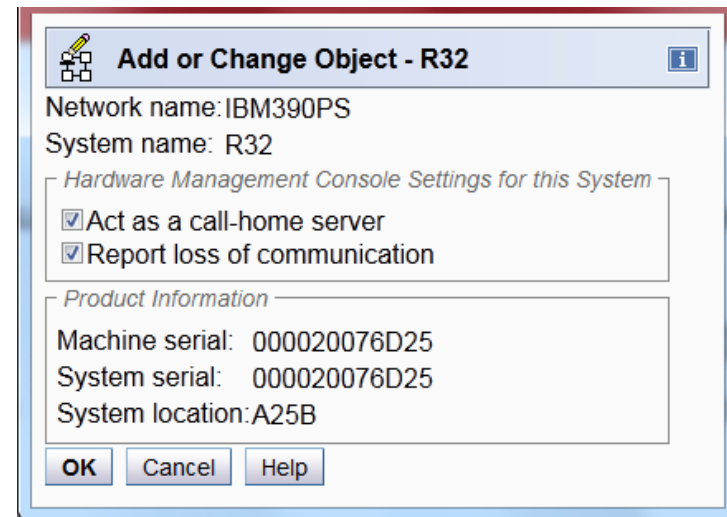


HMC add/change CPC object

- CPC selected for Add [Change] Object Definition task
 - “Enable for time synchronization” checkbox removed
 - Selection of CPC as a time source moved to Customize Console Date/Time task
 - If NTP is used by the HMC, this enhancement is not relevant.



OLD



NEW

No need to go to every Object/CPC (Add/Change Object) to specify Enable Time Synchronization.

Increase in number of Crypto domains

- **Number of usage and control domains increasing from 16**
 - Increasing to 85 for z13
 - Supported on Crypto Express5S
 - Changes to the Firmware Stack and Operating Systems
 - Changes to the SE/HMC Panels
- **Number of supported Crypto adapters remains at 16**
- **Affects these customer tasks:**
 - Activation profiles
 - Migration of data from 16 domains to 85 domains
 - Change LPAR Crypto Controls
 - View LPAR Crypto Controls
 - Enhanced to identify conflicting crypto id / domain assignments
 - Usage Domain Zeroize

Crypto Express5S as viewed under the CPC

The screenshot displays the IBM Support Element interface. The main window title is "Support Element" and the breadcrumb path is "System Management > SCZP501 > Cryptos". The left sidebar shows a navigation tree with "Cryptos" selected. The main content area shows a table of Crypto Express5S components. A blue arrow points to the row with PCHID 017C and Crypto ID 03.

Select	PCHID	Crypto ID	Status	State	Location	Type
<input type="checkbox"/>	0108	01	Operating	Online	Z22B-LG03	Crypto Express5S
<input type="checkbox"/>	013C	02	Operating	Online	Z22B-LG19	Crypto Express5S
<input type="checkbox"/>	017C	03	Operating	Online	Z22B-LG38	Crypto Express5S
<input type="checkbox"/>	0188	04	Operating	Online	Z15B-LG03	Crypto Express5S
<input type="checkbox"/>	0100	05	Operating	Online	Z15B-LG20	Crypto Express5S

Max Page Size: 500 Total: 8 Filtered: 8 Selected: 0

Crypto Express5S as viewed in the LPAR

The screenshot shows the IBM System Management console interface. The breadcrumb navigation is: System Management > SCZP501 > Partitions > A01 > Cryptos. The left-hand navigation tree shows the following structure:

- System Management
 - SCZP501
 - Processors
 - Channels
 - Cryptos
 - Flash
 - Partitions
 - A01
 - Processors
 - CHPIDs
 - FIDs
 - Cryptos
 - A02
 - A03
 - A04
 - A05
 - A06

Select	Crypto ID	PCHID	Status	State	Type
<input type="checkbox"/>	00	020C	Operating	Online	Crypto Express5S CCA Coprocessor
<input type="checkbox"/>	01	0108	Operating	Online	Crypto Express5S Accelerator
<input type="checkbox"/>	02	013C	Operating	Online	Crypto Express5S CCA Coprocessor
<input type="checkbox"/>	03	017C	Operating	Online	Crypto Express5S CCA Coprocessor
<input type="checkbox"/>	04	0188	Operating	Online	Crypto Express5S Accelerator
<input type="checkbox"/>	05	01C0	Operating	Online	Crypto Express5S CCA Coprocessor
<input type="checkbox"/>	06	01F8	Operating	Online	Crypto Express5S CCA Coprocessor
<input type="checkbox"/>	07	01FC	Operating	Online	Crypto Express5S CCA Coprocessor

Max Page Size: 500 Total: 8 Filtered: 8 Selected: 0

Status: Exceptions and Messages

Tasks: Cryptos

Crypto Express5S on the Crypto Configuration task

Support Element

Cryptographic Configuration - SCZP501

Cryptographic Information

Select	Number	Status	Crypto Serial Number	Type	Operating mode	TKE Commands
<input checked="" type="radio"/>	0	Configured	YH10DV512327	X5 CCA Coprocessor	IBM Default	Denied
<input type="radio"/>	1	Configured	YH10DV512349	X5 Accelerator	IBM Default	Not supported
<input type="radio"/>	2	Configured	YH10DV512334	X5 CCA Coprocessor	IBM Default	Denied
<input type="radio"/>	3	Configured	YH10DV512314	X5 CCA Coprocessor	IBM Default	Denied
<input type="radio"/>	4	Configured	YH10DV512335	X5 Accelerator	IBM Default	Not supported
<input type="radio"/>	5	Configured	YH10DV4CX424	X5 CCA Coprocessor	IBM Default	Denied
<input type="radio"/>	6	Configured	YH10DV51C327	X5 CCA Coprocessor	IBM Default	Denied
<input type="radio"/>	7	Configured	YH10DV512321	X5 CCA Coprocessor	IBM Default	Denied

Select a Cryptographic number and then click the task push button.

View Details... Test RNG/CIS Zeroize Usage Domain Zeroize TKE Commands... Crypto Type Configuration...

Zeroize All Test RNG/CIS on All UDX Configuration... Refresh Cancel Help

- Toggle Lock
- Daily
- Recovery
- Change Management
- Remote Customization
- Operational Customization
- Channel PCHID Assignment
- Cleanup Discontinuance
- Cryptographic Configuration**
- Cryptographic Management
- Display Adapter ID
- FCP Configuration
- Input/output (I/O) Configuration

Customize Image profile – Add Domains

Customize Activation Profiles: SCZP501 : SCZP501 : A01 : C

Add Domains - SCZP501

Choose an assignment for the selected domains.

Assigned Domains

Select	Index	Control
<input type="checkbox"/>	0	✓
<input type="checkbox"/>	1	

Assigned Cryptos

Select	Number	Candid
<input type="checkbox"/>	0	
<input type="checkbox"/>	1	✓
<input type="checkbox"/>	2	✓
<input type="checkbox"/>	3	✓
<input type="checkbox"/>	4	✓

Unassigned Domains

Select	Index
<input type="checkbox"/>	73
<input type="checkbox"/>	74
<input type="checkbox"/>	75
<input type="checkbox"/>	76
<input type="checkbox"/>	77
<input type="checkbox"/>	78
<input type="checkbox"/>	79
<input type="checkbox"/>	80
<input type="checkbox"/>	81
<input type="checkbox"/>	82
<input type="checkbox"/>	83
<input type="checkbox"/>	84

Domain type:

Control
 Control and Usage

OK Cancel Help

Attention: You must install the 'IBM CP As (CPACF) feature if a cryptographic candid Otherwise, some functions of Integrated C

Cancel Save Copy Profile Paste Profile Assign Profile Help

Change LPAR Crypto controls

Change LPAR Cryptographic Controls

Change LPAR Cryptographic Controls: LP01 (Inactive) - LP01

Assigned domains

Select ^	Index ^	Control ^	Usage ^
<input type="checkbox"/>	15	✓	✓
<input type="checkbox"/>	16	✓	✓
<input type="checkbox"/>	17	✓	✓
<input type="checkbox"/>	18	✓	✓
<input type="checkbox"/>	19	✓	✓

Assigned cryptos

Select ^	Number ^	Candidate ^	Online ^
<input type="checkbox"/>	0	✓	✓

Attention: You must install the 'IBM CP Assist for Cryptographic Functions' (CPACF) feature if a cryptographic candidate is selected from the list box. Otherwise, some functions of Integrated Cryptographic Service Facility (ICSF) may fail.

Save and Change Save to Profiles Change Running System Reset Cancel Help

View LPAR Crypto controls – no conflicts identified

View LPAR Cryptographic Controls - SCZP501

Installed Crypto Express5S: 00 01 02 03 04 05 06 07

Cryptographic Candidates

Partition	Active	Crypto Numbers	Conflicts
A0A	Yes		
A0B	Yes		
A0C	Yes		
A0D	Yes		
A01	Yes	0-7	View
A02	Yes		

Usage Domain Indexes

Partition	Active	Indexes	Conflicts
A0A	Yes		
A0B	Yes		
A0C	Yes		
A0D	Yes		
A01	Yes	1	
A02	Yes		

Conflicts
This function displays a list of the inactive partitions that will create conflicts with activated partitions if they become activated. The inactive partitions listed could be in conflict with other inactive partitions in the list if they become activated

View LPAR Conflicts

Conflicts: A01

Crypto numbers in conflict: 7
Usage domains in conflict: 0

Conflicts

Partition	Crypto Number	Domain Index
A01	7	0

Close Help

Increase in supported LCSSs

- **Number of supported LCSSes is increasing to 6**
 - In order to support the increase in the number of customer partitions, the number of supported LCSSes had to be increased.
 - The system is limited to 15 partitions per LCSS (LCSS 5 = 10 LPARs)
 - Each partition has access to 1 LCSS
 - Partitions increasing from 60 customer partitions to 85

- **Number of supported Coupling Channels is increasing to 256**
 - CS5s + ICPs + CIBs channels
 - Before z13, maximum number of permitted coupling channels was 128
 - Several customers are already approaching this limit
 - With the introduction of the ICA SR (Integrated Coupling Adapter) channels, the limitation of 128 coupling channels is inadequate for z13

- **No change to the current support of 128 channels per CF partition**

SAN Explorer for FCP (Fiber Channel Protocol)

- **Enhances channel problem determination abilities**
 - FCP only
 - No active operating system required
 - SAN discovery performed by
 - New option “SAN Explorer” under the SE Channel Problem Determination task
 - Data provided:
 - Device number, WWPN, assigned FC-ID
 - All the remote ports available to this initiators zone
 - Inquiry information and or RNID data
 - For each remote N-Port the Report LUN’s data
 - LESB
 - Test Unit Ready response
 - Echo
 - FC trace route and FC Ping

SAN Explorer for FCP - Devices

SAN Explorer - PCHID0514

CSS.CHPID: 0.8A PCHID: 0514

Partition ID: 0 MIF image ID: 1

NPIV: Disabled Physical port WWPN: C05076FFFC005141 Physical port FC-ID: E10400

Devices

--- Select Action --- Filter

Select ^	Device Number ^	World Wide Port Name ^	FC-ID ^
<input checked="" type="radio"/>	5140	C05076FFFC005141	E10400
<input type="radio"/>	5141	C05076FFFC005141	E10400
<input type="radio"/>	5142	C05076FFFC005141	E10400
<input type="radio"/>	5143	C05076FFFC005141	E10400
<input type="radio"/>	5144	C05076FFFC005141	E10400
<input type="radio"/>	5145	C05076FFFC005141	E10400
<input type="radio"/>	5146	C05076FFFC005141	E10400
<input type="radio"/>	5147	C05076FFFC005141	E10400
<input type="radio"/>	5148	C05076FFFC005141	E10400
<input type="radio"/>	5149	C05076FFFC005141	E10400
<input type="radio"/>	514A	C05076FFFC005141	E10400
<input type="radio"/>	514B	C05076FFFC005141	E10400
<input type="radio"/>	514C	C05076FFFC005141	E10400
<input type="radio"/>	514D	C05076FFFC005141	E10400
<input type="radio"/>	514E	C05076FFFC005141	E10400
<input type="radio"/>	514F	C05076FFFC005141	E10400

Page 1 of 1 Total: 16 Filtered: 16 Displayed: 16

Close Refresh

SAN Explorer for FCP – Zone Data

SAN Explorer - Zone Data - PCHID0514

CSS.CHPID: 0.8A PCHID: 0514

Partition ID: 0 MIF image ID: 1

NPIV: Disabled Physical WWPN: C05076FFFC005141 Physical FCID: E10400

Device number: 514C Logical WWPN: C05076FFFC005141 Logical FCID: E10400

Zones

Select	World Wide Port Name	FC-ID	Manufacturer	Type/Model	Sequence number	Plant	Tag	World Wide Node Name	Symbolic Port Name
<input checked="" type="radio"/>	C05076FFFC005141	E10400						5005076400C57488	IBM 2827 020000000574 88 PCHID: 0514
<input type="radio"/>	5005076304014739	E36100	IBM	002107/922	0000000CLTZ1	75	0011	5005076304FFC739	
<input type="radio"/>	50000972C00B411C	E37800						50000972C00B4000	SYMMETRIX::0001949 00720::SAF- 8eA::F C::5876_251::EMUL B80F0000 40E32A8B 94555C 09.03.13 09 :36
<input type="radio"/>	50060E8005430E5E	E39800						50060E8005430E5E	
<input type="radio"/>	50050763081386D0	E3A600	IBM	002107/951	0000000LX521	75	0232	5005076308FFC6D0	
<input type="radio"/>	500507630813C6D0	E3A700	IBM	002107/951	0000000LX521	75	0233	5005076308FFC6D0	
<input type="radio"/>	50050763081806D0	E3A800	IBM	002107/951	0000000LX521	75	0300	5005076308FFC6D0	
<input type="radio"/>	50050763081846D0	E3A900	IBM	002107/951	0000000LX521	75	0301	5005076308FFC6D0	
<input type="radio"/>	50050763081886D0	E3AA00	IBM	002107/951	0000000LX521	75	0302	5005076308FFC6D0	
<input type="radio"/>	500507630818C6D0	E3AB00	IBM	002107/951	0000000LX521	75	0303	5005076308FFC6D0	
<input type="radio"/>	C05076FFFC005351	E3D700	IBM	002827/H20	000000057488	02	F09B	5005076400C57488	IBM 2827 020000000574 88 PCHID: 0535
<input type="radio"/>	5005076801404DAA	E3E000						5005076801004DAA	

Page 1 of 1 Total: 12 Filtered: 12 Displayed: 12

Close Refresh

SAN Explorer for FCP – Remote N_Port - LUNs

SAN Explorer - Remote N_Port - PCHID0514

Local Port

CSS.CHPID:	0.8A	PCHID:	0514		
Partition ID:	0	MIF image ID:	1		
NPIV:	Disabled	Physical WWPN:	C05076FFFC005141	Physical FCID:	E10400
Device number:	5140	Logical WWPN:	C05076FFFC005141	Logical FCID:	E10400

Remote Port

WWPN: 5005076304014739 FCID: E36100 Symbolic port name:

LUNs

Select	LUN
<input checked="" type="radio"/>	4010409000000000
<input type="radio"/>	4010409100000000
<input type="radio"/>	4010409200000000
<input type="radio"/>	4010409300000000
<input type="radio"/>	4010409400000000
<input type="radio"/>	4010409500000000
<input type="radio"/>	4010409600000000
<input type="radio"/>	4010409700000000
<input type="radio"/>	4010409800000000
<input type="radio"/>	4010409900000000
<input type="radio"/>	4010409A00000000
<input type="radio"/>	4010409B00000000
<input type="radio"/>	4010409C00000000
<input type="radio"/>	4010409D00000000
<input type="radio"/>	4010409E00000000
<input type="radio"/>	4010409F00000000

SAN Explorer for FCP – Remote N_Port – Node ID

9.56.194.241:8080/hmc/wcl/Tad1

SAN Explorer - Remote N_Port - PCHID0514

Local Port

CSS.CHPID:	0.8A	PCHID:	0514		
Partition ID:	0	MIF image ID:	1		
NPIV:	Disabled	Physical WWPN:	C05076FFFC005141	Physical FCID:	E10400
Device number:	5140	Logical WWPN:	C05076FFFC005141	Logical FCID:	E10400

Remote Port

WWPN: 5005076304014739 FCID: E36100 Symbolic port name:

LUNs | **Node ID** | Link Error Status

World Wide Node Name:	5005076304FFC739	Node status:	Valid
Flag/Parm:	00410100	Type/Model:	002107/922
Manufacturer:	IBM	Plant:	75
Sequence number:	0000000CLTZ1	Tag:	0011

Close Refresh

SAN Explorer for FCP – LUN Details

SAN Explorer - LUN Details - PCHID0514

Local Port

CSS.CHPID:	0.8A	PCHID:	0514		
Partition ID:	0	MIF image ID:	1		
NPIV:	Disabled	Physical WWPN:	C05076FFFC005141	Physical FCID:	E10400
Device number:	5140	Logical WWPN:	C05076FFFC005141	Logical FCID:	E10400

Remote Port

WWPN: 5005076304014739 FCID: E36100 Symbolic Port Name:

Logical Unit

LUN: 4010409000000000 UUID:

Inquiry Test Unit Ready Extended Inquiry Read Capacity

Standard Inquiry:
PQual=0 Device_type=0 RMB=0 Version=0x5 [SPC-3]
[AERC=0] NormACA=1 HiSup=1 Response_data_format=2
SCCS=0 ACC=0 TPGS=1 3PC=0 Protect=0
[BQue=0] EncServ=0 VS=0 MultiP=1 [MChngr=0] Addr16=0
[RelAdr=0] WBUS16=0 SYNC=0 [Linked=0] CmdQue=1

Peripheral Device Type: disk
Vendor Identification: IBM
Product Identification: 2107900
Product Revision Level: 36.5

Raw Inquiry Data:
0000: 00000532 9F101002 49424D20 20202020
0010: 32313037 39303020 20202020 20202020
0020: 33362E35 3735434C 545A3131 30393020
0030: 20202020 20202020 00600DA0 0A000300

Close Refresh

SR-IOV for 10 Gbps RoCE

■ RoCE

- Shareable by up to 31 LPARs

- Shared using SR/IOV framework
- Up to 31 Function IDs (FIDs) per PCHID
 - These FIDs can be assigned to customer LPAR

- More on FIDs

- FIDs => unique across the CPC
- FIDs => can be configured to only on LPAR at a time
 - CSS.CHPIDs can be configured to multiple LPARs

- Sample IOCDS

- Function FID=B2,PCHID=5F8,VF=1,PART=((VMALT1),(VMALT1,VMALT2))
- Function FID=B3,PCHID=5F8,VF=2,PART=((VMALT1),(VMALT1,VMALT2))
- Function FID=B4,PCHID=5F8,VF=3,PART=((VMALT1),(VMALT1,VMALT2))

- Notes on Sample

- FIDs can be configured to VMALT1 or VMALT2
- Currently configured to VMALT1

SR-IOV for 10 Gbps RoCE

S32: Primary Support Element Workplace (Version 2.13.0)

Support Element

System Management > S32 > Channels

Channels | Topology

Select	PCHID	IDs	Status	State	Swapped	Cage-Slot-Jack	Type
<input type="checkbox"/>	4501 0190		Not defined	Reserved		A06B-LG00- - 01	OSA-Express4S
<input type="checkbox"/>	5501 0194		Not defined	Reserved		A06B-LG07-	OSA-Express5S
<input type="checkbox"/>	zEDC 0198		Not defined	Reserved		A06B-LG08-	zEDC Express
<input type="checkbox"/>	4501 019C		Not defined	Reserved		A06B-D109-	FICON
<input type="checkbox"/>	4501 019D		Not defined	Reserved		A06B-D209-	FICON
<input type="checkbox"/>	4501 01E0	0.E1	Definition error	Online		A06B-D130-	FICON Express16S
<input type="checkbox"/>	4501 01E1	0.F1	Definition error	Online		A06B-D230-	FICON Express16S
<input type="checkbox"/>	4501 01E4	0.12	Operating	Online		A06B-LG31- - 01	OSA-Express4S
<input type="checkbox"/>	5501 01E8	0.22	Operating	Online		A06B-LG32-	OSA-Express5S
<input type="checkbox"/>	4501 01F0	0.32	Operating	Online		A06B-LG35-	OSA-Express4S
<input type="checkbox"/>	4501 01F4	0.42	Operating	Online		A06B-LG36-	OSA-Express4S
<input type="checkbox"/>	RoCE 01FC	0011 0012	Operating	Online		A06B-LG38-	10GbE RoCE Express

Max Page Size: 500 Total: 44 Filtered: 44 Selected: 0

Tasks: Channels

- Two shared FIDs

Status: Exceptions and Messages

Monitors Dashboard Complete Functionality

■ **Monitors Dashboard**

- Introduced for z196 as new and improved display of system activity

■ **For z13 drop support for classic SAD and SAD Profiles**

- Tasks can still be launched for older systems

■ **Monitors Dashboard enhanced**

- Logical partition activity by processor type
 - New fields for z13 system only
- Processor activity by keys
 - Supervisor state and problem state for each key
 - New panel for z13 system only

Launching Classic SAD and Profiles

Monitors Dashboard

Pause Display Open Workloads Report Open Network Monitors Dashboard

Overview

Select	Name	Type	Machine Type - Model	Processor Usage (%)	I/O Usage (%)	Power Consumption (kW) (Btu/hr)	Ambient Temperature (°C) (°F)
<input type="checkbox"/>	R32	CPC	2817 - M15	1		10.598 36,162	23.5 74.3
<input type="checkbox"/>	S32	CPC	2965 - N10	0		4.079 13,918	28.1 82.58

Page 1 of 1 Max Page Size: 100 Total: 2 Filtered: 2 Displayed: 2 Selected: 0

Details

- zEC12 → R32
- z13 → S32
- SAD Profiles → R32
- SAD → R32
- Detailed Settings for Monitors Dashboard → Details panel

Logical partition activity by processor type

- z13 only

Logical Partitions

-- Select Action -- Filter

Select	Name	All Processor Usage(%)	CP Processor Usage(%)	IFL Processor Usage(%)	ICF Processor Usage(%)	ZIIP Processor Usage(%)
<input type="checkbox"/>	CF01		30	0	0	
<input type="checkbox"/>	LP01		5	0	5	0
<input type="checkbox"/>	LP02		26	20	0	

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

All

CP

IFL

ICF

zIIP

Processor activity by keys

Key	Total Usage (%)	Supervisor State Usage (%)	Problem State Usage (%)
0	2	1	1
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	1	1	0
9	0	0	0
A	0	0	0
B	0	0	0
C	0	0	0
D	0	0	0
E	0	0	0
F	0	0	0
			Total: 16

Close Help

HMC Data Replication Overview

■ Data replication...

- Is an HMC task and underlying communication framework
- Allows the exchange of configuration data between linked machines
 - 'customer information'
 - 'user profile data'
 - etc
- Can be disabled preventing this exchange
- Exchanges of data (inbound and outbound) are logged

z13 - Versioning Implications

- Data Replication versioning introduced for different data types
- If Data Replication used:
 - All HMCs to be included in DataRep must be upgraded to HMC 2.13.0 level !!!
 - No data will be replicated if not at 2.13.0
 - Prior to 2.13.0, can have mixed HMC levels
 - Future 2.13.0 plus levels can also have mixed levels
 - Only if versioning changed, would need to update to certain HMC levels
 - Expect this to be somewhat an exception
- General recommendation to upgrade HMCs to newest
 - With understanding of potential change to HMC hardware in some cases

If there are plans to use the HMC Customizable Data Replication facility, customer is aware that all HMCs in the group must be at the same HMC Version.

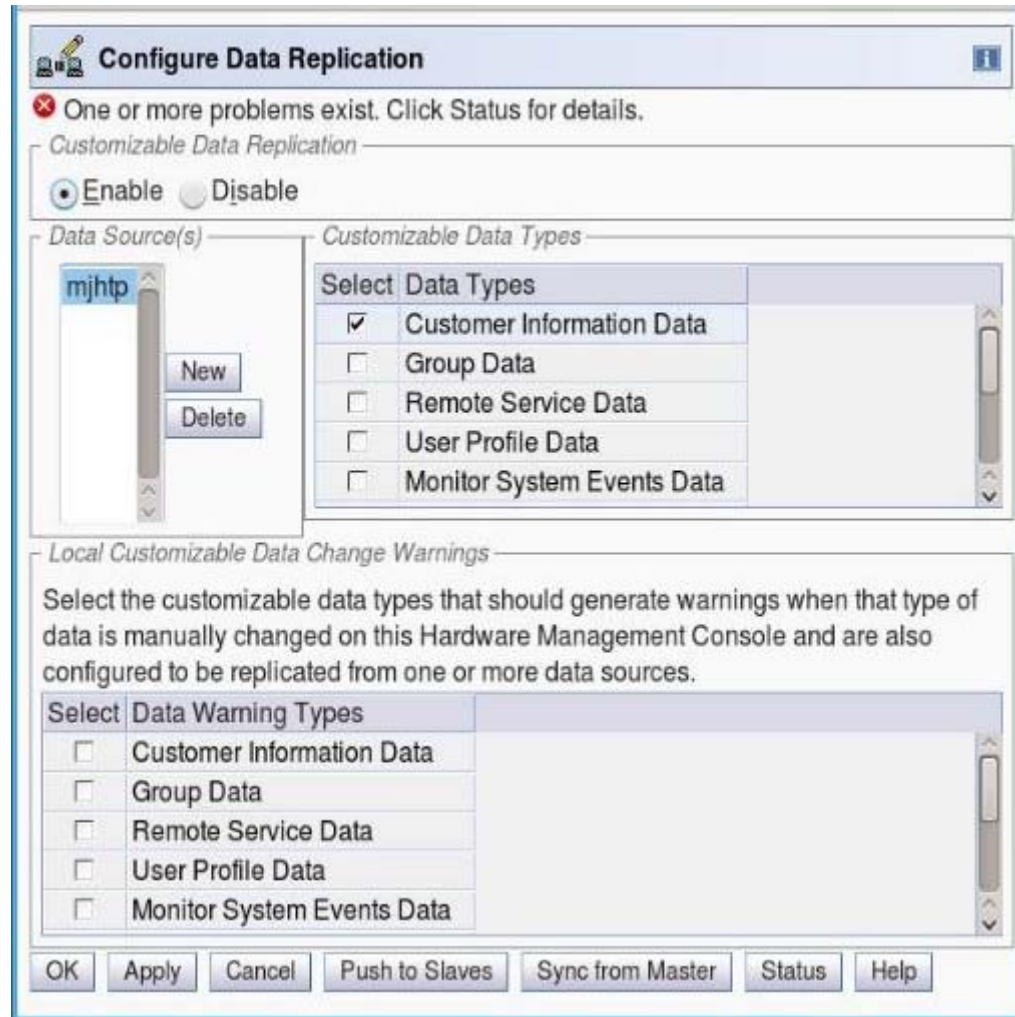
(V1.n.n to V1.n.n -or- V2.n.n to V2.n.n)

Business as usual, on z990 or higher, but this facility is not available for the Primary and Alternate Ensemble HMCs when using Unified Resource Manager.

HMC Data Replication on z13

- **If there are plans to use the HMC Customizable Data Replication Facility on z13, all participating HMCs must be at Driver 22**
 - Not available for the Primary and Alternate Ensemble HMCs when using Unified Resource Manager since they use mirroring
- **The Customizable Data Replication service provides the ability to configure a set of Hardware Management Consoles to automatically replicate any changes to certain types of data so that the configured set of Hardware Management Consoles automatically keep this data synchronized without manual intervention**
- **The following types of data can be configured:**
 - Acceptable Status Settings
 - Associated Activation Profiles
 - Customer Information Data
 - Group Data
 - Monitor System Events Data
 - Object Locking Data
 - Outbound Connectivity Data
 - Remote Service Data
 - User Profile Data
- **Can be disabled if desired.**

HMC Data Replication – You decide



Other HMC/SE System Support

- Other HMC/SE support for z13:
 - More partitions:
 - Max 85 Partitions
 - 85 partitions possible with more LCSSes (from 4 to 6) supported
 - More Physical Memory: 10 TB
 - The partition memory limit
 - 10 TB – if no I/O Drawers configured
 - 1 TB – if I/O Drawers configured
 - Operating systems support varies
 - zLINUX – 10 TB
 - z/OS V2.1 + PTFs – 4 TB
 - z/VM V6.3 – 1 TB and V6.2 – 256 GB
 - CF LPAR – 10 TB
 - Partition memory granularity updated for up to 10 TB
 - see next chart
 - More Processors: 168 PUs; up to 141 CPs
 - zAAP processor type is no longer supported
 - zIIP processor assumes workload usage for zAAP

z13 Storage Granularity

- **If a user specified origin is defined for a logical partition's central storage,**
 - the origin, initial, and optional reserved (additional) central storage values for the logical partition must all use at least 2 GB (2048 MB) granularity. It may be larger, refer to the table below.
- **If a user specified origin is not defined for a logical partition's central storage (system determined),**
 - following table defines the granularity requirement for the logical partition's initial and optional reserved central storage values. This is driven off the larger of the initial and reserved values: (LCSA in the table):
- **Note: Expanded Storage granularity always 256 MB**

Largest Central Storage Amount Specified (Initial and Reserved)	Storage Granularity Required
LCSA ≤ 256 GB	512 MB
256 GB < LCSA ≤ 512 GB	1,024 MB (1 GB)
512 GB < LCSA ≤ 1,024 GB	2,048 MB (2 GB)
1,024 GB < LCSA ≤ 2,048 GB	4,096 MB (4 GB)
2,048 GB < LCSA ≤ 4,096 GB	8,192 MB (8 GB)
4,096 GB < LCSA ≤ 8,192 GB	16,384 MB (16 GB)
8,192 GB < LCSA ≤ 10,240 GB	32,768 MB (32 GB)



IBM zAware Background

- IBM z Advanced Workload Analysis Reporter (IBM zAware) V1 was released with zEC12 in September 2012
- Features:
 - Cutting edge pattern recognition analytics applied to z/OS Operlog with minimal impact to z/OS workloads
 - Helps diagnose problems while they are occurring in near real time
 - Heightens awareness of small problems before they become big problems
 - Reduces mean time to recovery
 - A browser based view which can show the entire z/OS footprints in one window

IBM zAware is a chargeable feature

IBM zAware Background - cont...

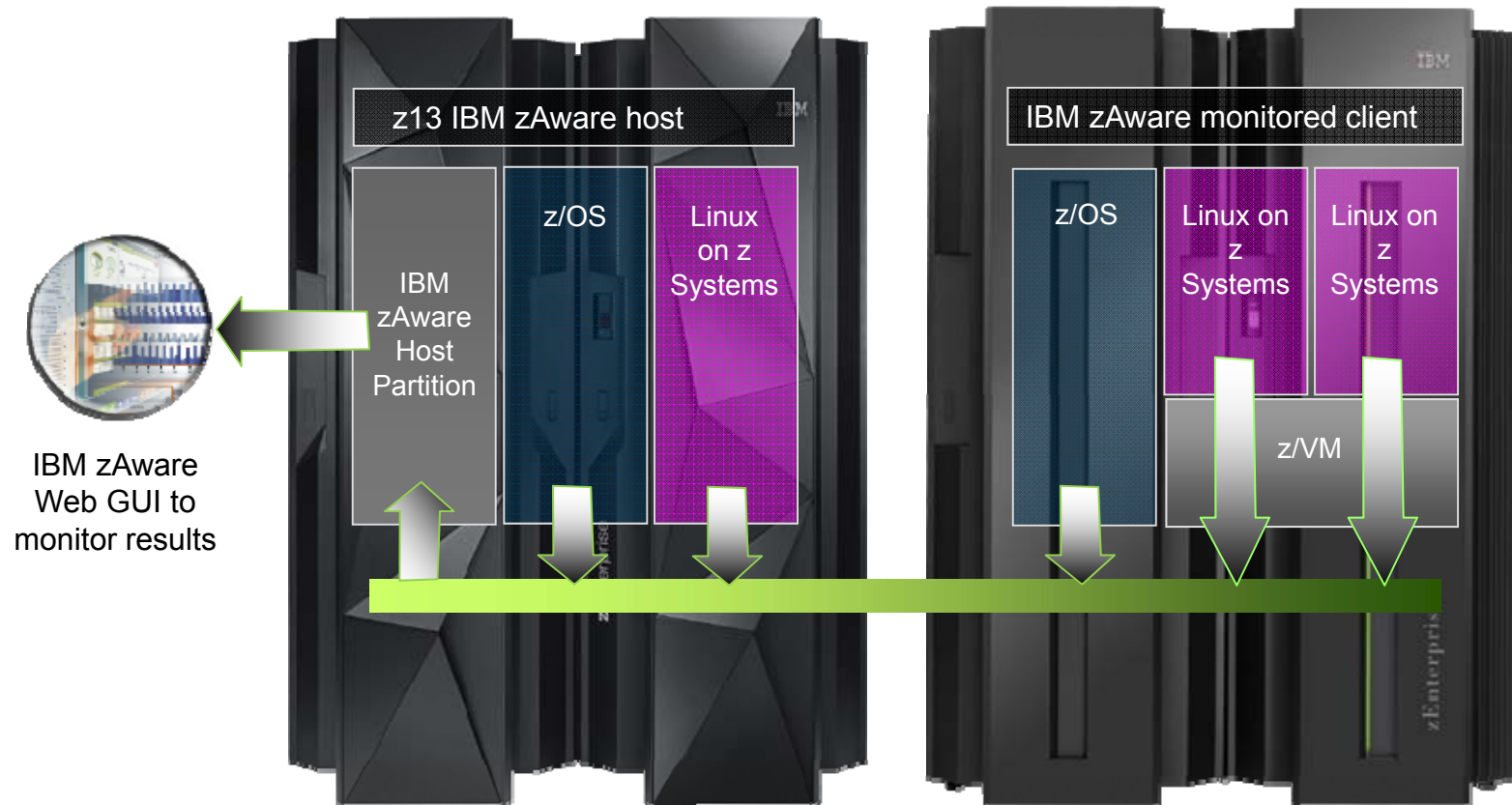
- IBM zAware monitors z/OS OPERLOG messages including all z/OS console messages, ISV and application generated messages
 - Reports on 10 minute intervals
 - Updated every 2 minutes
 - Uses 90 days baseline (customizable)
 - Detects anomalies monitoring systems miss:
 - Messages may be suppressed or rare
 - Messages may indicate a trend
 - XML Output is consumable through published API
 - IBM Products
 - ISV products

IBM zAware Version 1



- Identify unusual system behavior of z/OS images
- Proactively surface anomalies in z/OS operlog

IBM zAware V2.0 - Analyze Linux on z Systems



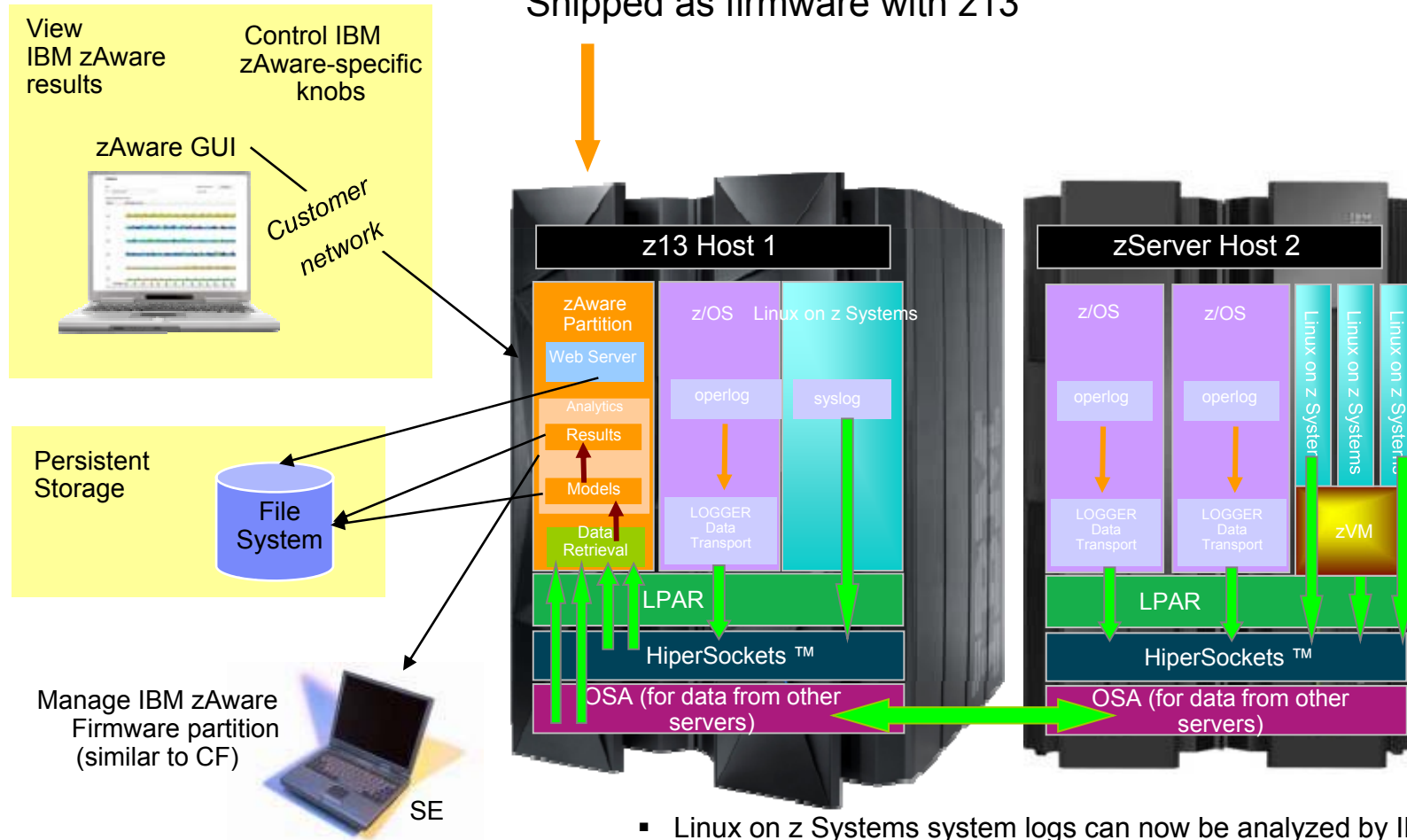
- Identify unusual system behavior of Linux on z System images
- Monitors **syslog*** from guest or native image in real time
- Improved analytics for z/OS message logs
- Upgraded internal database for improved RAS
- Completely rewritten UI, including heat map views

What's New in IBM zAware for z13 ?

- Linux on z Systems system logs (syslogd) can now be analyzed by IBM zAware
- Upgraded analytics engine for better results on z/OS analysis
- Upgraded internal database for improved RAS
- Completely rewritten UI, including heat map views

IBM zAware support for z/OS and Linux on z Systems

IBM zAware Partition
Shipped as firmware with z13



- Linux on z Systems system logs can now be analyzed by IBM zAware
- Upgraded analytics engine for better results on z/OS analysis
- Upgraded internal database for improved RAS
- Completely rewritten UI, including heat map views

Linux on z Systems versus z/OS Analysis

- The number of Linux on z Systems systems connected to IBM zAware is expected to be far greater than the number of z/OS systems
 - As such, we have created the concept of “Model Groups” for Linux on z Systems
 - This allows multiple systems to contribute to the generation of a single model
 - User defined groups can model running similar types of workload (e.g. WebServer, App Servers)
 - Also can allow for analysis to be done on a system as soon as it connects to IBM zAware as it can use its group model
 - Dynamic activation and deactivation is common on Linux on z Systems

Linux on z Systems Analytic Features

- For z/OS support, a model of “what’s normal” is created for each z/OS system
- For Linux on z Systems, multiple systems can be grouped into a combined ‘model group’
- This allows multiple systems with similar operational characteristics to contribute to the generation of a single model

- User defined groups can model systems running similar types of workload (e.g. webserver, app servers)
 - By workload (e.g. one for all web servers, one for all databases, etc.)
 - By ‘solution’ (e.g. one model for your Cloud)
 - By VM host

- Dynamic activation and deactivation of an image, common on Linux, is automatically recognized and the Model Group support allows for analysis to be done for a system as soon as it connects to IBM zAware, since it can use its group model
- ‘Model groups’ must be defined by the IBM zAware admin using hostname wildcards
 - Assumes well-defined Linux host naming conventions
 - As systems connect to IBM zAware, the model group is automatically determined

IBM zAware – V 2.0 improvements

- Analytics engine, developed by IBM Research in Haifa has been upgraded
 - This was a requirement to analyze Linux on z Systems
 - This should improve anomaly detection and reduce false positive for z/OS
- The internal data base has been upgraded for this release
 - The new data base is much more robust
- **Improved usability and GUI functional enhancements address many customer requirements**
 - enhanced filtering, visualization, better use of GUI real estate,
 - improved UI navigation
 - display local time in addition to UTC time
- New improved GUIs are based on IBM One UI guidelines
- Heat map display provides a high level consolidated and aggregated view and with ability to drill down to detail views
 - z/OS grouped by sysplex, Linux grouped by model group
 - Scores presented at the hour level
 - Quickly get to all systems in a specific group
 - See the interval summaries per system with the Bar Score view
 - Detailed messages and scores in the Interval view
- Expanded browser support with Firefox 31 and IE 9,10,11

IBM zAware Enhanced User Interface

IBM zAware

- Analysis
- Notifications New
- Systems
- Administration
 - Training Sets
 - Configuration

Analysis

Date (UTC): Analysis Source:

All monitored groups

Actions
Zoom: 24 hrs
View: Heat Map
Filter

No filter applied

System group	Type	24 Hour Peak	Peak Anomaly Score Per Hour																							
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
MEL15SHB	SYSPLEX	99.7	54.5	55.1	87.5	6.2	13.2	49.8	90.4	99.7	39.9	71.5	9.7	95.9	34.4	78.5	19.8	31	12.2	30.5	4.4	6				
LINUX	MODEL_GROUP	97.8	49.7	58.9	52.6	25.5	85.7	27.3	40.1	46.6	8.9	30.5	97.8	92.2	88.1	78.4	51	28.2	94.1	41.1	30.8	4				
LOGPLEX	SYSPLEX	94.8	78.5	31.6	65.7	47	45.9	47.5	28.3	88.8	61.8	70.2	5.9	4.5	78.6	78.5	94.8	94	22.8	1.8	47.1	4				
MYPLEX	SYSPLEX	93.8	93.8	45.5	49.2	26.8	27.4	92.5	76	10.4	79.8	75	64.5	9.2	42.1	64.3	52.1	35.1	50	86.3	54.1	2				
TESTPLEX	MODEL_GROUP	90.6	27.5	68.9	77.6	19.3	61.2	74.7	44.4	18.8	0	47.3	42.5	58.1	46.4	16.1	27.1	71.1	0.8	90.6	15.5	8				
NEWPLEX	SYSPLEX	90	1.4	54	19.3	86.1	29.8	82.5	9.1	65.2	67	2.5	82.4	90	42.6	12.9	68.2	71	67.8	33	59	2				

Aggregated analysis score for group with ability to drill down

Heat Map – All Systems in a group

- UI with Drill down system list (ModelGroup)

Firefox | IBM Analysis - IBM zAware

IBM zAware | admin | ? | IBM

Analysis

Notifications **New**

Systems

Administration

Date (UTC):

Analysis Source:

All systems in MEL15SHB

Actions | Zoom: 24 hrs | View: Heat Map Table | Filter

No filter applied

System group	System	24 Hour Peak	Peak Anomaly Score Per Hour																							
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
MEL15SHB	MEL15SHB.OSI1	101	96.6	99.8	84.2	69.2	95.3	94.5	95.3	96.8	94.5	90.1	101	101	100	100	95.9	94.7	98.4	93.9	91.5	96.4	97.1	89.4	99.7	94.5
MEL15SHB	MEL15SHB.OSI2	100	100	95.1	75	57.2	90.7	84.8	90.3	83.7	90.4	81.6	98.6	100	100	99	84.3	94.1	93.2	99	84.5	78.3	87.1	89.7	97.8	57
MEL15SHB	MEL15SHB.OSE1	98.9	73.5	98.6	74.7	82	65.4	79.5	88	94.4	97.1	93.9	97.4	97.2	95.6	95.6	96.8	97.8	97.1	95.4	84.1	85.7	95.8	93.4	83.5	98.9
MEL15SHB	MEL15SHB.OSE2	98.1	74.5	98.1	76.9	80.2	80.7	79.1	95.9	92.7	91.6	91.5	95.1	95.3	87.3	93.6	96.7	92.9	96.1	91.4	93	76.4	88.7	76.9	75.5	96.9

Details: MEL15SHB.OSI1

Interval view with interval detail, UTC and local time

- UI with Bar score view of sysplex

The screenshot shows the IBM zAware Analysis interface. The main content area displays 'Interval Anomaly Scores by System' for four systems: MEL15SHB.OSE1 (UTC -4), MEL15SHB.OSE2 (UTC +5), MEL15SHB.OSI1 (UTC +4), and MEL15SHB.OSI2 (UTC -4:30). Each system has a bar chart showing message activity over a 24-hour period. A tooltip is visible over the MEL15SHB.OSI1 chart for the interval 10:50 - 11:00 UTC, showing 80 unique message IDs and an anomaly score of 10.0. The interface includes a date selector for October 11, 2010, and a 'Change Source' button set to 'All systems in MEL15SHB'. A timeline at the bottom shows UTC hours from 0 to 23.

IBM zAware V2.0 requirements

- **Sizing CP or IFL requirements**
 - See the IBM z Advanced Workload Analysis Reporter (IBM zAware) Guide, SC27-2623
 - Updated for IFL and Linux on z Systems and for z/OS
 - Capacity recommendations expected by February 25, 2015
 - IFL/Linux on z Systems exploitation is planned for June 26, 2014

- **The IBM zAware requirements for z/OS:**
 - CP(s) or IFL(s) - shared or dedicated.
 - Network - Hipersockets and/or OSA - shared or dedicated
 - Logical Partition & related memory
 - Disk Storage. Start with ~500 GB of ECKD disk for IBM zAware to use.
 - z/OS V1.13 plus PTFs on all monitored clients
 - IBM recommends ninety days historical formatted operlog or archived syslog data to prime IBM zAware. There is a sample job that can be run that will allow you to take historical operlog data to prime IBM zAware.
 - Parmlib settings
 - Monitored images in a single-system sysplex (monoplex), a multisystem sysplex, or a member of a Parallel Sysplex®.
 - A browser to use the GUI.
 - Mozilla Firefox 24 and 31
 - Microsoft Windows Internet Explorer 9, 10 and 11
 - At least one OSA port (OSD or OSX) for connection from remote monitored client systems to the IBM zAware LPAR.
 - Only port-0 can be used today.

Capacity on Demand



CoD Offerings

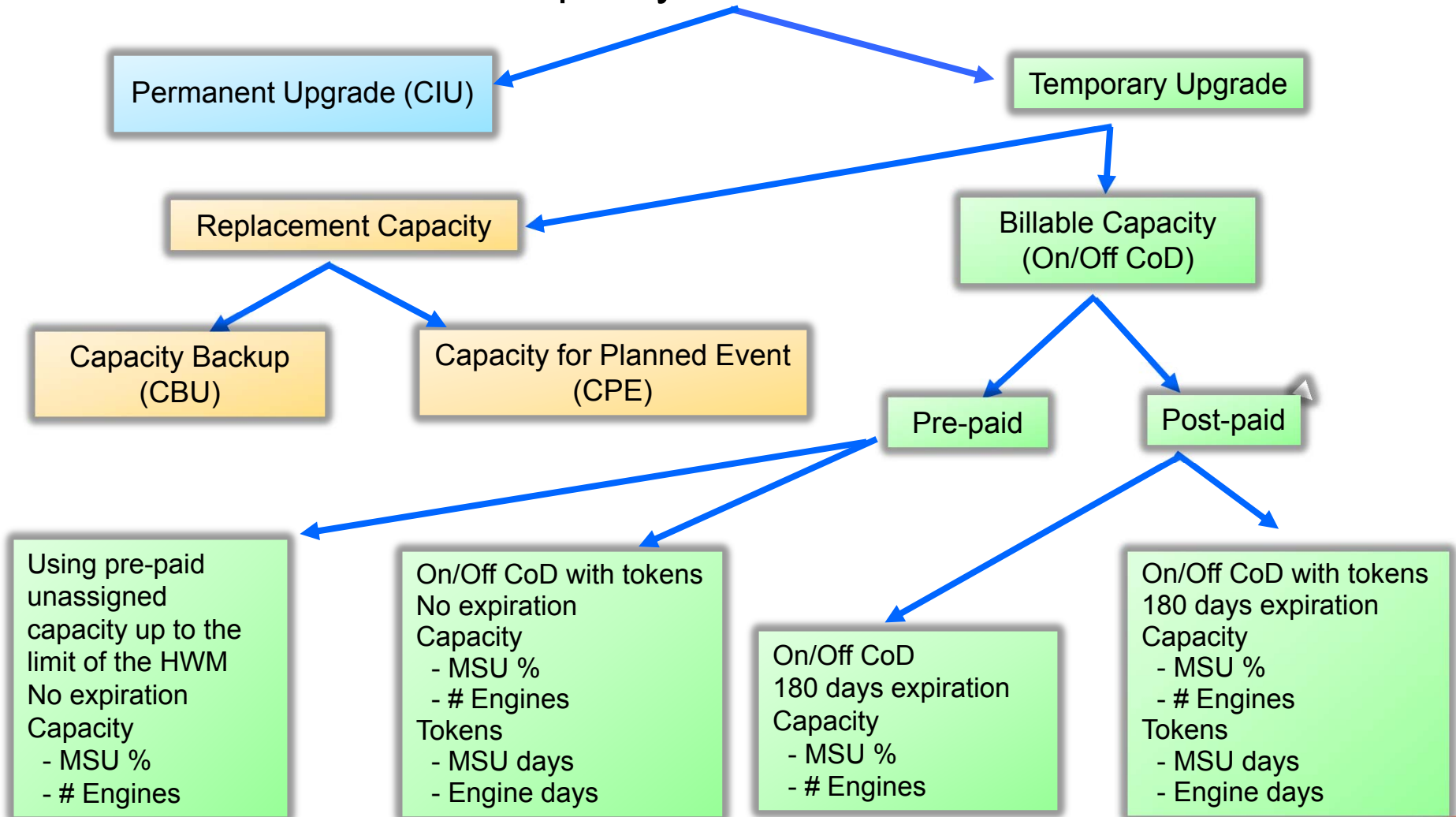
- **On-line Permanent Upgrade**
 - Permanent upgrade performed by customer (previously referred to Customer Initiated Upgrade - CIU)
- **Capacity Backup (CBU)**
 - For disaster recovery
 - Concurrently add CPs, IFLs, ICFs, zAAPs (not available on z13), zIIPs, SAPs
 - Pre-paid
- **Capacity for Planned Event (CPE)**
 - To replace capacity for short term lost within the enterprise due to a planned event such as a facility upgrade or system relocation
 - Predefined capacity for a fixed period of time (3 days)
 - Pre-paid
- **On/Off Capacity on Demand (On/Off CoD)**
 - Production Capacity
 - Supported through software offering – Capacity Provisioning Manager (CPM)
 - Payment:
 - Post-paid or Pre-paid by purchase of capacity tokens
 - Post-paid with unlimited capacity usage
 - On/Off CoD records and capacity tokens configured on Resource Link
- **Customer Initiated Upgrade (CIU)**
 - Process/tool for ordering temporary and permanent upgrades via Resource Link
 - Permanent upgrade support:
 - Un-assignment of currently active capacity
 - Reactivation of unassigned capacity
 - Purchase of all PU types physically available but not already characterized
 - Purchase of installed but not owned memory

z13 Basics of Capacity on Demand (zEC12 function unchanged)

Upgrade to z13: Installed On Demand records: zAAPs are converted to zIIPs and the record is migrated staged.

Upgrade to z13: Staged On Demand records: Records with zAAPs are rejected. Others are migrated staged.

Capacity on Demand



Recap of what is On/Off CoD

- **On/Off CoD gives customers the ability to enable temporary hardware capacity by the day:**
 - Turn on additional processing units or Integrated Facilities from the original configuration when needed
 - Turn off processing units or Integrated Facilities when the need subsides.
 - Additional charges only for the days the processing units or Integrated Facilities are turned on.
 - On/Off CoD helps customers plan for short-term growth.
 - It also helps accommodate unplanned short-term growth driven by temporary processing requirements (such as seasonal activity, period-end requirements, or special promotions).

Introduction of IBM Hardware Maintenance for z System On/Off Capacity Usage

Up to 2013

- Hardware Usage & Software License charges in place since introduction of On/Off CoD
 - Hardware charges applied based on 24 hour usage windows
 - Software charges applied on a monthly usage boundary
- Option to apply Hardware Maintenance charges deferred

2014 Announcement:

- IBM intends to begin charging maintenance for processing capacity activated through On/Off Capacity on Demand (On/Off CoD), provided the activated capacity is not under warranty and the machine is under IBM maintenance services.
 - Based on 24 hour usage window similar to Hardware
 - Usage data captured via ResourceLink
 - Billing performed by local country Customer Fulfillment
 - Billed monthly in arrears
 - Considered to be a price change event
 - No sale required, current contract language enables billing
- Dates for implementing Maintenance charges - refer to announcement letter for country or local IBM representative

z System Capacity Resource Availability by Server

	Capacity BackUp	Capacity Upgrade on Demand	Customer Initiated Upgrade – for ordering	On/Off Capacity on Demand	Capacity for Planned Event
z900	Yes (CP only)	Yes (CP, I/O, IFL, ICF, Memory)	Yes (CP, IFL, ICF, Memory)	No	No
z800	Yes (CP only)	Yes (CP, I/O, IFL, ICF)	Yes (CP, IFL, ICF)	No	No
z890/z990	Yes (CP only)	Yes (CP, I/O, IFL, ICF, zAAP, Memory*)	Yes (CP, IFL, ICF, zAAP, Memory*)	Yes (CP, IFL, ICF, zAAP)	No
z9	Yes (CP, ICF, IFL zAAP, zIIP)	Yes (CP, I/O, IFL, ICF, zAAP, zIIP, Memory*)	Yes (CP, IFL, ICF, zAAP, zIIP, Memory*)	Yes (CP, IFL, ICF, zAAP, zIIP)	No
z10/z196/z114 zEC12/zBC12	Yes (CP, ICF, IFL zAAP, zIIP, SAP)	Yes (CP, I/O, IFL, ICF, zAAP, zIIP, SAP, Memory*)	Yes (CP, IFL, ICF, zAAP, zIIP, SAP, Memory*)	Yes (CP, IFL, ICF, zAAP, zIIP, SAP)	Yes (CP, IFL, ICF, zAAP, zIIP SAP)
z13	Yes (CP, ICF, IFL, zIIP, SAP)	Yes (CP, I/O, IFL, ICF, zIIP, SAP, Memory*)	Yes (CP, IFL, ICF, zIIP, SAP, Memory*)	Yes (CP, IFL, ICF, zIIP, SAP)	Yes (CP, IFL, ICF, zIIP, SAP)

* Not supported for some memory upgrades

Note: Upgrades are non-disruptive only where there is sufficient hardware resource available and provided pre-planning has been done



■ Questions ?

– *Ewerson Palacio*

bird@br.ibm.com

– *Frank Packheiser*

F.Packheiser@de.ibm.com

– *Parwez Hamid*

pnh@us.ibm.com

IBM z13

Reinventing enterprise IT
for digital business



Views

Groups

Exceptions

Active Tasks

Console Actions

Task List

Help

A01 CPs Work Area

000 Online Operating	002 Online Operating	004 Online Operating	006 Online Operating	008 Online Operating	009 Online Operating	00A Standby Stopped	00C Standby Stopped
00E Standby Stopped	010 Standby Stopped	012 Standby Stopped	013 Standby Stopped				

```

2015045 15.11.36 SC76      IEE174I 15.11.36 DISPLAY M 954
CORE STATUS: HD=Y      MT=2  MT_MODE: CP=1  zIIP=2
ID   ST   ID RANGE  VP  ISCM  CPU  THREAD STATUS
0000 +   0000-0001  M   FC00  +N
0001 +   0002-0003  L   0000  +N
0002 +   0004-0005  LP  0000  +N
0003 +   0006-0007  LP  0000  +N
0004 +I  0008-0009  M   0200  ++
0005 -   000A-000B
0006 -   000C-000D
0007 -   000E-000F
0008 -   0010-0011
0009 -I  0012-0013

CPC ND = 002964.N63.IBM.02.000000008DA87
CPC SI = 2964.735.IBM.02.0000000000008DA87
      Model: N63
CPC ID = 00
CPC NAME = SCZP501
LP NAME = A01          LP ID = 1
CSS ID = 0
MIF ID = 1
                
```

- Daily**
- Hardware Messages
 - Operating System Messages
 - Activate
 - Reset Normal
 - Deactivate

Security Enhancements – User Management

▪ Reengineered user related UIs (based on customer feedback)s

- Consolidated user related tasks into a new User Management Dashboard task
 - Replaces the following tasks
 - User Profiles
 - Customize User Controls
 - Password Profiles
 - Manage Enterprise Directory Server Definitions
 - User Templates
 - User ID Patterns
 - New “consolidation” views available
 - E.g. viewing all tasks and objects permitted for a user
 - Existing permissions to replaced tasks, in custom user roles, are migrated to allow permission to equivalent function within the User Management Dashboard

Security Enhancements – User Management (cont.)

▪ User Enhancements

- Support for associating with a user the custom group in which groupable resources/objects, created by the user, are put
 - The specification of which group to use can be modified by the users themselves
- Support for a user to view their own profile/properties
 - e.g. their permitted resources/tasks
- Support for all users to be able to change their password before expiration
 - Before z13, only users given permission to the “Change Password” task could
 - Allows an individual low-privileged user to change their password if they believe it to be compromised or before it expires
- Unique in time ID (UUID) associated with every user
 - Helps distinguish between user IDs created with the same name at different times
 - e.g. User “Sally” is deleted and 6 months later a new user “Sally” is created.
 - recorded in security and audit logs

Security Enhancements – User Management (cont.)

▪ Custom User Role Enhancements

- Permission to custom groups of objects allowed
 - e.g. put a subset of “partition” resource objects into a group named “production partitions” and add the group to a custom user role
 - In prior releases, permission to each “partition” resource object had to be added to a custom user role
- Permission to a class of resources/objects allowed
 - e.g. “All partitions”
- Permission to resources/objects and task in the same role allowed
 - e.g. putting the “Activate” task and a specific “partition” resource object in a single custom user role

Security Enhancements – Security Auditing

▪ **Audit, Security and Console Event Log Enhancements**

- Information about the “logged on” user responsible for the entry being added to the audit log, security log or console event log is recorded and displayed
 - includes:
 - user name
 - unique non-repeatable ID (UUID) for the user
 - what HMC the user logged on
 - the session ID associated with the logon
 - whether the logon was via the UI or via Web Services APIs
 - Shown on the details of a log entry
- The text of the entries being logged has not been changed
 - the “logged on” user information is added to each log entry alongside the text

HMC 2.12.1 (Driver 15) - RSF Infrastructure Changes

- **Enhanced IBM Support System** for RSF (Remote Support Facility) call-home
 - Modernizing IBM support infrastructure for capacity and reliability
 - Scope of supported functions in HMC 2.12.1 limited to:
 - Problem Management (report, transmit service data, problem close via repair)
 - Transmit System Availability Data (scheduled operation)
 - Transmit VPD
 - Functionally equivalent to traditional IBM Service infrastructure
- Enhanced Infrastructure always attempted first if possible
 - *Traditional IBM support system* used as backup during migration period
- Fix and eBoD (eBusiness on Demand) RSF functionality continues to use Traditional IBM support system

RSF Infrastructure Changes Summary

- “Enhanced”, IBM infrastructure
 - Outside of initial setup, functionality is equivalent and transparent
- Depending on your current installation, there may be changes required to exploit this:
 - DNS enablement
 - Additional firewall rules
- Currently dual support is available, but IBM recommends you make changes to enable this now.
- Full description for RSF setup can be found in:
 - *SC28-6927-01: zEnterprise System Integrating the Hardware Management Console’s Broadband Remote Support Facility into your Enterprise*