Smarter Systems for a Smarter Planet

MVS Core Technologies Project Opening
z/OS Hot Topics

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Agenda

- Announcements
- IBM® Statements of Direction
- Operating Systems status
- Washington Systems Center Flashes
- Parallel Sysplex™

Today's Environment

Today… Many System z shops run their core, data-sensitive business processes on System z but also maintain distributed servers to accommodate a variety of processing that interacts with mainframe resources.

System z

Data Management Structure
Core Business Applications
Consolidation
Security
Low TCO

Distributed Systems

Cycles
Many ISV Applications
Large Skill Pools
Low TCA

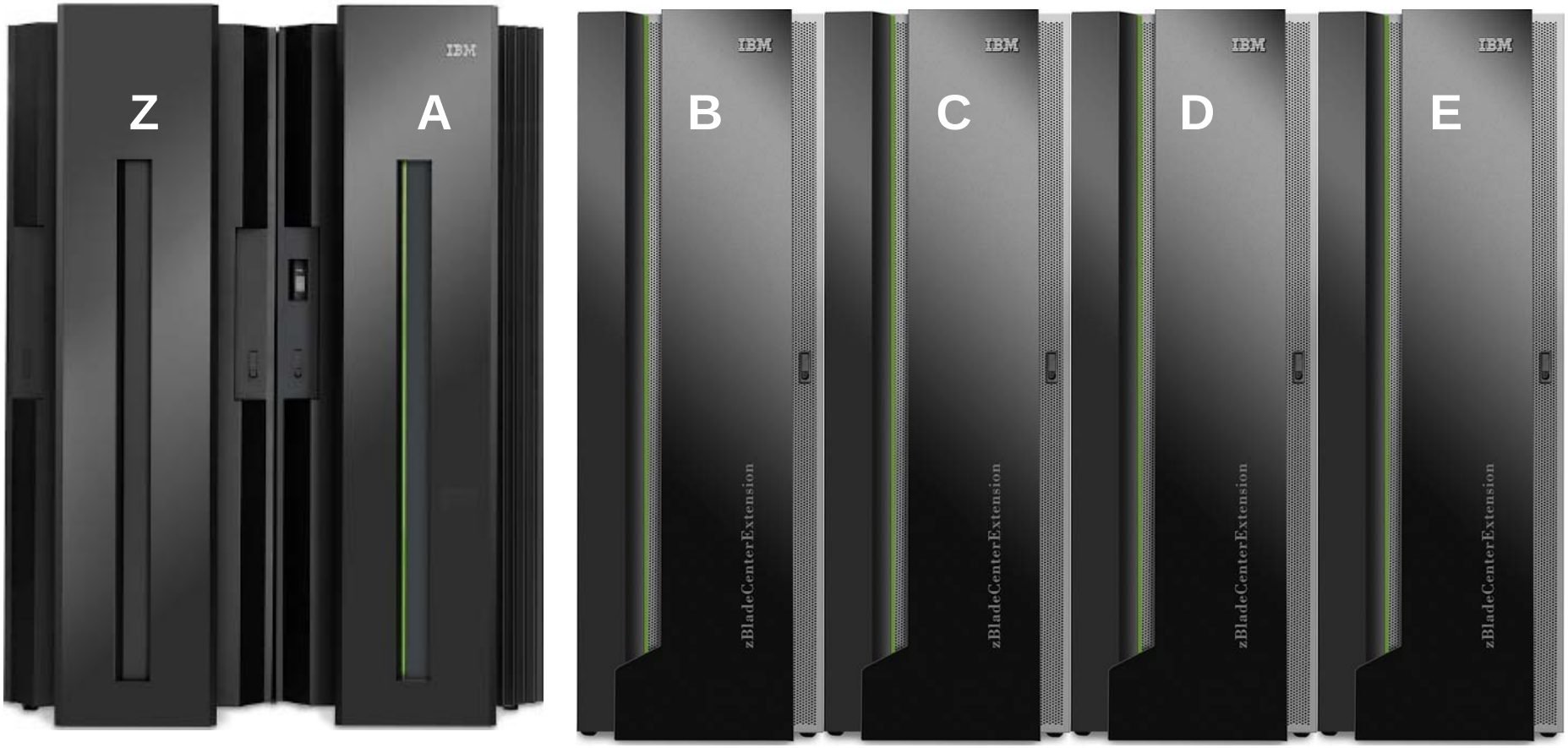
- **The mainframe has hosted most of the world's business data and executed a majority of core business transactions**
- **The mainframe is best suited for applications that require the highest levels of:**
  - Reliability
  - Security
  - Performance
  - Service
  - Scalability
- **However, the mainframe is not optimized for all workloads**

- **There are particular industry application where distributed topology is the standard.**
- **Distributed environments are suited for applications where:**
  - High levels resource sharing is not required
  - The workload is
    - CPU intensive
    - Does not require high levels of data sharing
    - Highest levels of availability are not required
- **Other Distributed System Characteristics -**
  - Multiple management interfaces
  - Redundancy required for availability
  - On-site assembly
  - End-user service for problem resolution

zEnterprise: A Natural Evolution, and a Virtualization Revolution

- **Application specialty engines**
  - Dedicated processors for key environments (e.g. Linux, Java™)
  - Improved price / performance for new workloads
  - Very low cost of large scale consolidation
- **Expanding the specialty engine concept to enable more applications**
  - Integrated / networked attached resources to optimization for cost, performance and quality of service
  - Take advantage of innovative new technologies
- **Next Generation: Integrated Virtual Server Management**
  - Integrated Platform Management across diverse platforms from a single control point to lower cost and improve service
  - Workload management of enterprise applications across virtual servers to improve quality of service

IBM zEnterprise System



IBM zEnterprise 196 (z196)

IBM zEnterprise BladeCenter Extension (zBX)

IBM zEnterprise Unified Resource Manager (zManager)

z196 Overview

Machine Type
- 2817

5 Models
- M15, M32, M49, M66 and M80

Processor Units (PUs)
- 20 (24 for M80) PU cores per book
- Up to 14 SAPs per system, standard
- 2 spares designated per system
- Dependant on the H/W model - up to 15,32,49,66 or 80 PU cores available for characterization
  - Central Processors (CPs), Integrated Facility for Linux (IFLs), Internal Coupling Facility (ICFs), System z Application Assist Processors (zAAPs), System z Integrated Information Processor (zIIP), optional - additional System Assist Processors (SAPs)
- Sub-capacity available for up to 15 CPs
  - 3 sub-capacity points

Memory
- System Minimum of 32 GB
- Up to 768 GB per book
- Up to 3 TB for System and up to 1 TB per LPAR
  - Fixed HSA, standard
  - 32/64/96/112/128/256 GB increments

I/O
- Up to 48 I/O Interconnects per System @ 6 GBps each
- 4 Logical Channel Subsystems (LCSSs)

STP - optional (No ETR)

zBX Overview

- **Machine Type/Model 2458-002**
  - One Model with 5 configurations for IBM Smart Analytics Optimizer
- **Racks – Up to 4 (B, C, D and E)**
  - 42U Enterprise, (36u height reduction option)
  - 4 maximum, 2 chassis/rack
  - 2-4 power line cords/rack
  - Non-acoustic doors as standard
  - Optional Acoustic Doors
  - Optional Rear Door Heat Exchanger (conditioned water required)
- **Chassis – Up to 2 per rack**
  - 9U BladeCenter
  - Redundant Power, cooling and management modules
  - Network Modules
  - I/O Modules
- **Blades (Maximum 112 in 4 racks)**
  - IBM Smart Analytic Optimizer Blades (up to 7 to 56)
    - Can not mix other Blades in the same Chassis
  - Customer supplied System p Blades (up to 112)
  - Customer supplied System x Blades* (up to 112)
  - WebSphere DataPower Appliances* (up to 28)
  - Non-IBM Smart Analytic Optimizer Blades can be mixed in the same chassis
- **Management Firmware**
  - Unified Resource Manager
- **Top of Rack (TOR) Switches - 4**
  - 1 GbE intranode management network (INMN)
  - 10 GbE intraensemble data network (IEDN)
- **Network and I/O Modules**
  - 1 GbE and 10 GbE modules
  - 8 Gb Fibre Channel (FC) connected to customer supplied disks
  - IBM Smart Analytic Optimizer uses DS5020 disks
    - DS5020s not shared with Customer supplied Blades

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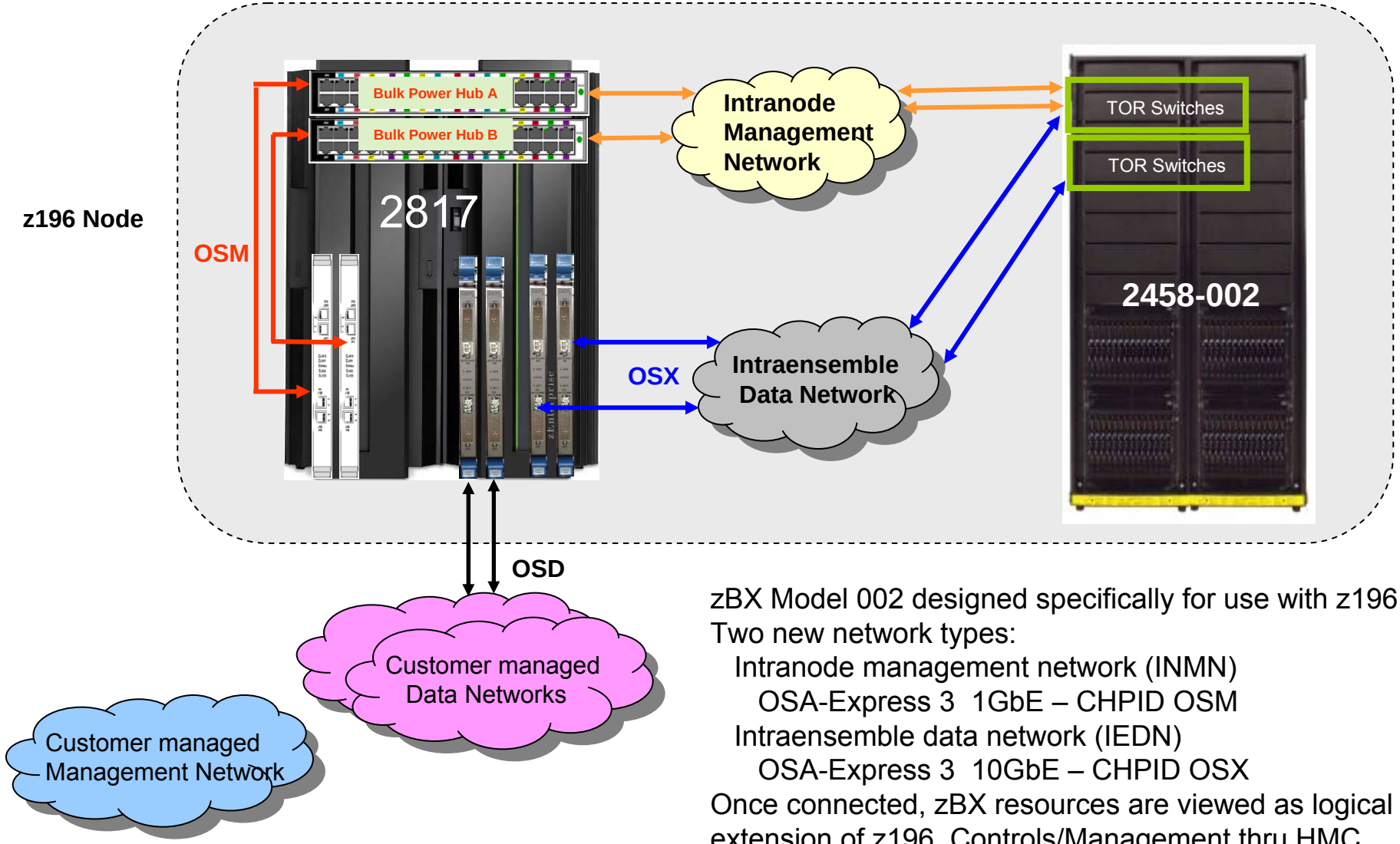
z196 – What are the INMN, IEDN and Customer networks

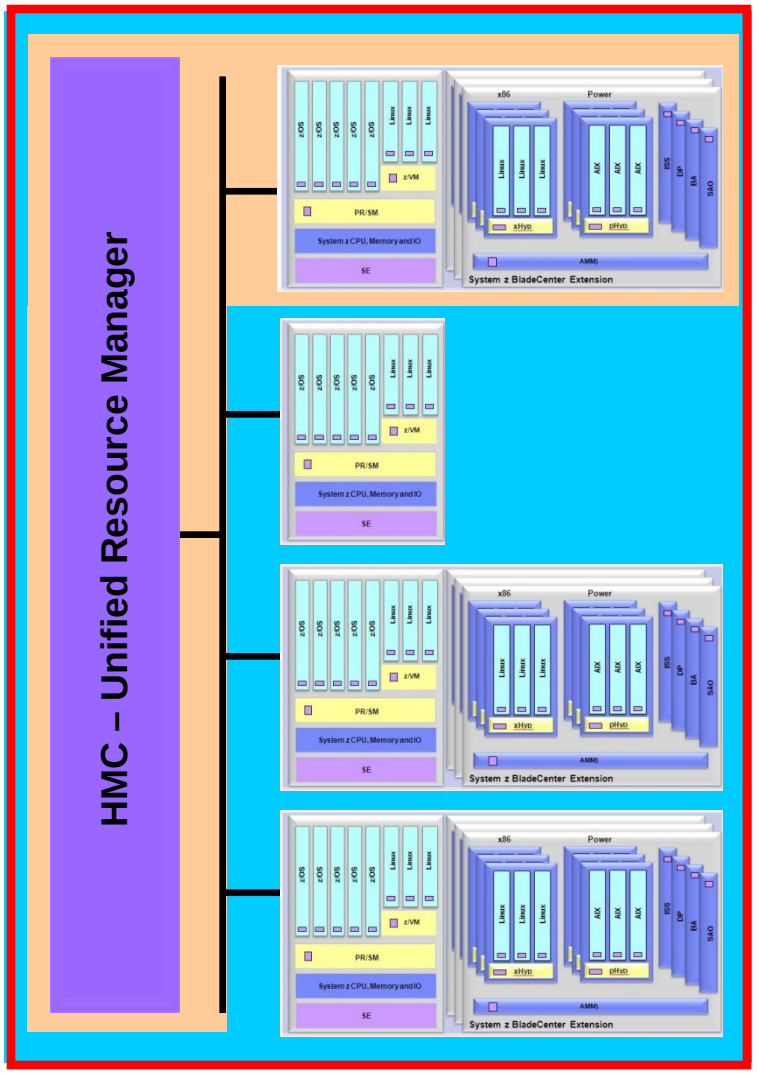


zBX Model 002 designed specifically for use with z196
Two new network types:
- Intranode management network (INMN)
  - OSA-Express 3 1GbE – CHPID OSM
- Intraensemble data network (IEDN)
  - OSA-Express 3 10GbE – CHPID OSX

Once connected, zBX resources are viewed as logical extension of z196. Controls/Management thru HMC

What is a zEnterprise Ensemble?

- A zEnterprise ensemble is a collection of 1 to 8 z196 CPCs with/without zBX managed collectively by the Unified Resource Manager as a single logical virtualized system
- A zEnterprise node is a z196 CPC with 0 to 4 racks up to 2 BladeCenters per rack
  - zEnterprise nodes are deployed within a single site
  - A zEnterprise node can be a member of at most one ensemble
- Blade based fit-for-purpose Solutions
- Integrated Advanced Virtualization Management
- Implements well-defined external interface to Data Center Service Management functions
- Virtual Resource Management and Automation



How is the Role of the HMC Changing?

- **Prior to the ensemble management functions in zEnterprise, HMC availability was not a critical concern**
  - HMC was not the authoritative holder of any configuration or state information other than configuration info for the HMC itself
  - HMC was not involved in any flows supporting ongoing operation other than call-home, for which redundancy was provided
  - You could turn the HMC off and there would be no effect on operations of the managed systems
- **Addition of ensemble-related function in zEnterprise changes this:**
  - The HMC will now be authoritative holder of ensemble-scoped configuration not held by any of the Nodes in the ensemble
  - Configuration actions will be available ONLY from the HMC managing the ensemble
  - HMC will have a role in monitoring of Workload performance
- **This change in role drives a need to provide additional redundancy in the HMC configuration to improve availability**

IBM zEnterprise System – Best in Class Systems and Software Technologies

The integration of technologies

Unified management for a smarter system: zEnterprise Unified Resource Manager

- Unifies management of resources, extending IBM System z® qualities of service end-to-end across workloads
- Provides platform, hardware and workload management

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

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

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

- Selected IBM POWER7® blades and IBM System x® Blades[1] for tens of thousands of AIX® and Linux applications
- High performance optimizers and appliances to accelerate time to insight and reduce cost
- Dedicated high performance private network

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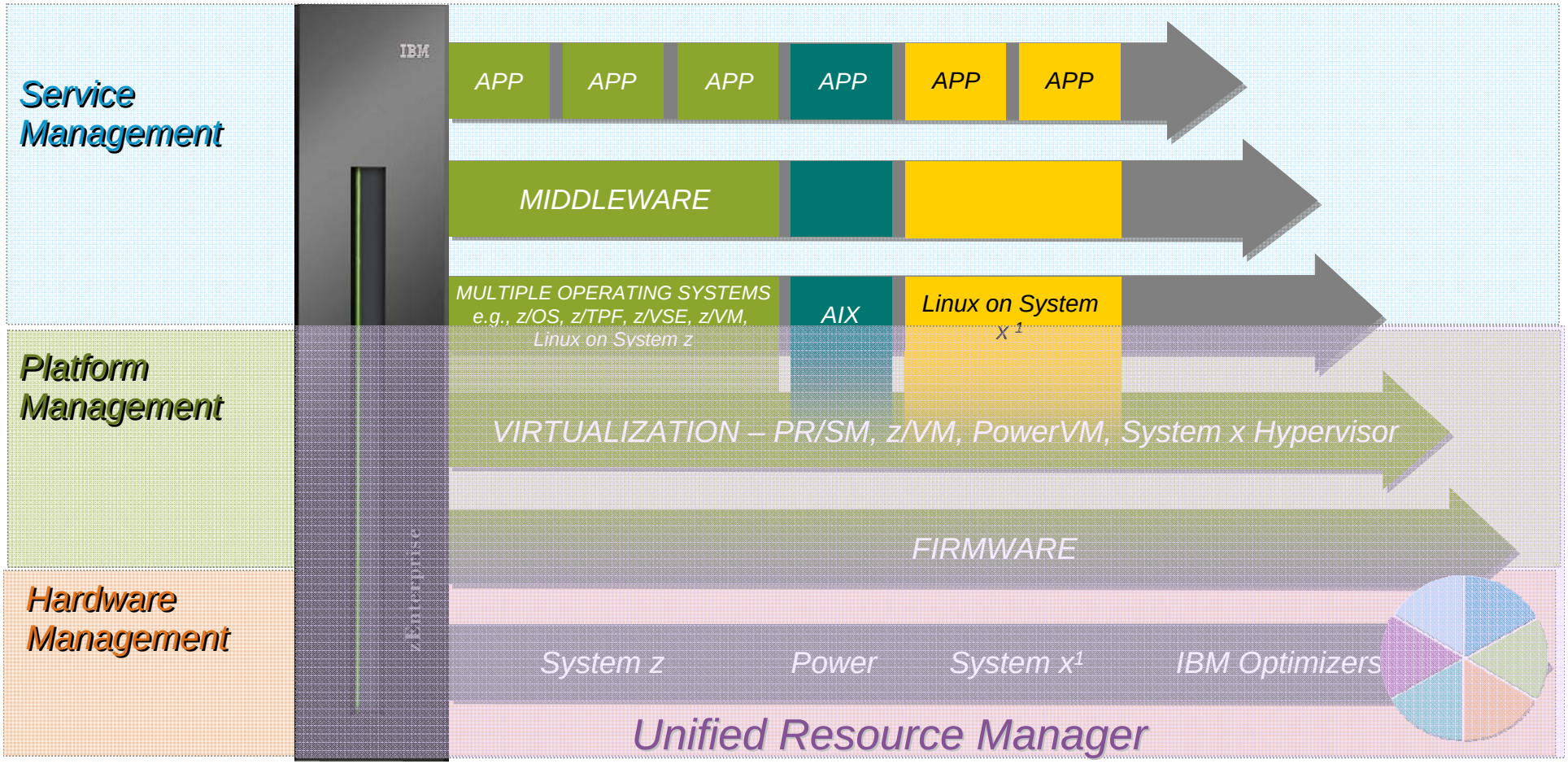
zEnterprise extends Resource Management for improved governance



Focused, collaborative innovation

A "complete systems" approach

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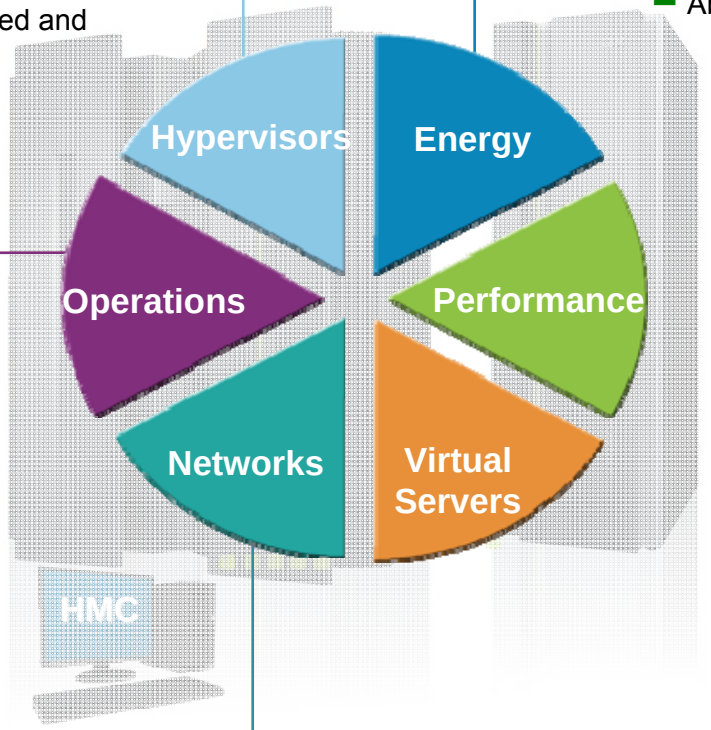
zEnterprise Unified Resource Manager
Hardware Management

Hypervisor Management
- Integrated deployment and configuration of hypervisors
- Hypervisors (except z/VM) shipped and serviced as firmware.
- Management of ISO images.
- Creation of virtual networks.

Energy Management
- Monitoring and trend reporting of CPU energy efficiency.
- Ability to query maximum potential power.



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

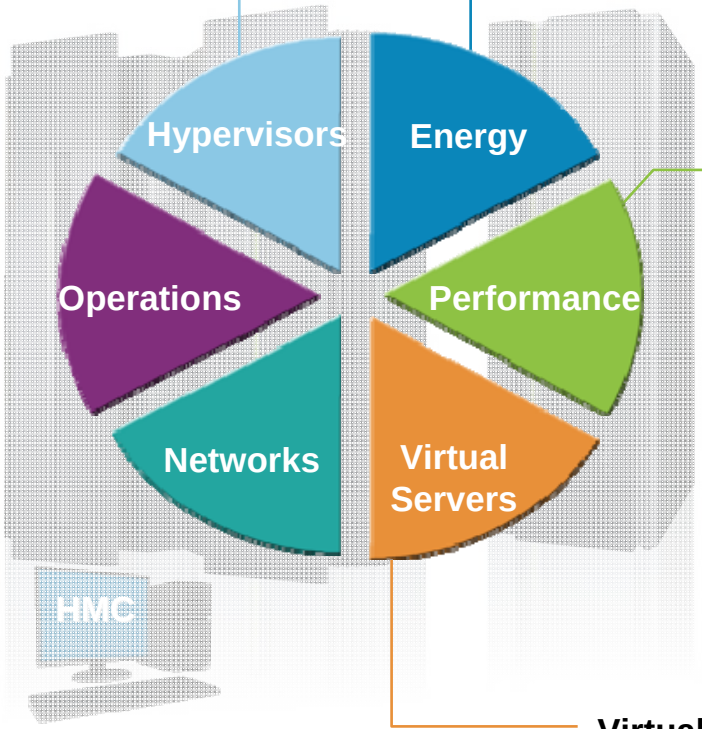
Network Management
- Management of virtual networks including access control

Key
- Manage suite
- Automate suite

zEnterprise Unified Resource Manager
Platform Management

Hypervisor Management
- Manage and control communication between virtual server operating systems and the hypervisor.

Energy Management
- Static power savings



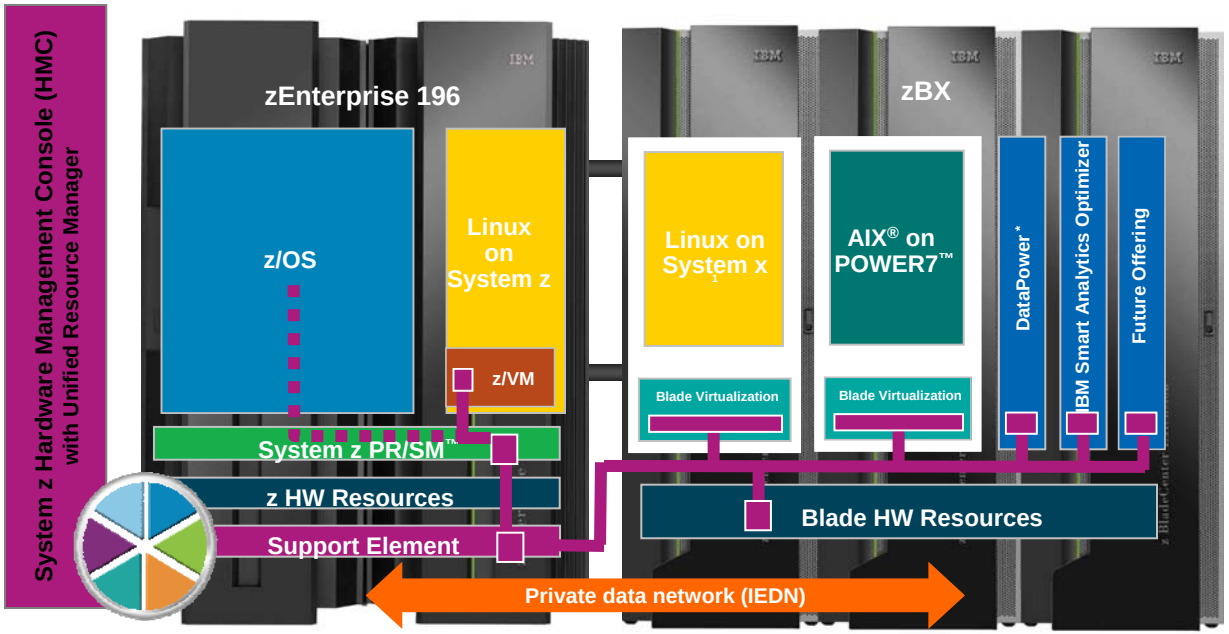
Workload Awareness and Platform Performance Management
- Wizard-driven management of resources in accordance with specified business service level objectives
- HMC provides a single consolidated and consistent view of resources
- Monitor resource use within the context of a business workload
- Define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

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

Key
- Manage suite
- Automate suite

z/OS and the IBM zEnterprise Unified Resource Manager

- **z/OS integrates with zEnterprise 196 and zEnterprise BladeCenter Extension seamlessly**
- Unified Resource Manager defines the ensemble and provisions the new management and data networks
- New HCD (and HCM) definitions for the new management and data networks
  - New OSA CHPIDs: OSM for management network and OSX for data network
- z/OS Comm Server configuration to enable z/OS to participate in a zEnterprise ensemble



- **Also … IBM zEnterprise Unified Resource Manager:**
  - Can manage 'virtual servers' (z/VM and blade)
  - Can monitor 'virtual server' workloads and z/OS workloads.
- **New** z/OS agent (Guest Platform Management Provider (GPMP)) can send high level z/OS WLM data to zEnterprise Unified Resource Manager

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… Value Made Possible By the Unified Resource Manager

Simplified installation of hypervisors

Gain significant time to market with improved speed of deployment

Simplified energy management

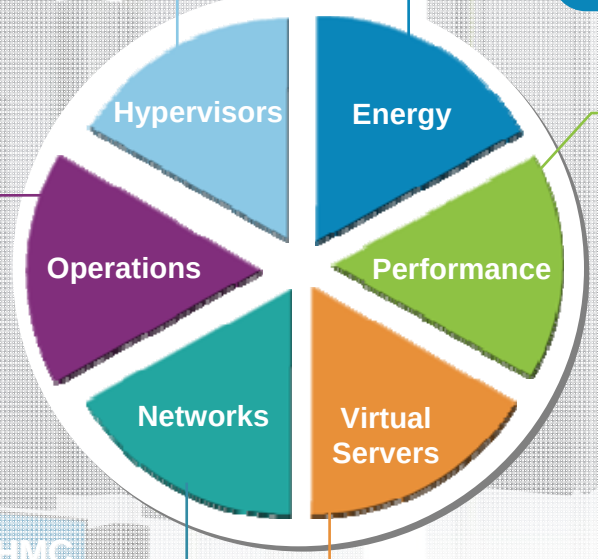
Energy cost savings

Save time, cost and simplify asset management

Decrease problem determination and resolution time for cross-platform resources

Improve and simplify cross-platform availability procedures

Enable broader and more granular view of resource consumption



Allow critical workloads to receive resources and priority based on goal-oriented policies established by business requirements

Smart business adjustments based on workload insight

Provide deep insight into how IT resources are being used

Factory installed and configured network

Improved network security with lower latency, less complexity, no encryption/decryption

Gain flexibility, consistency and uniformity of virtualization

Provide the business with faster time to market

Simplified network management for applications

z/OS Version 1 Release 12

Smart technologies for a new dimension of computing

... simplified management

- z/OS Management Facility provides more applications and function, and provides more value to operators and administrators.

… Predicting problems

- z/OS Predictive Failure Analysis (PFA) is to monitor the rate at which SMF records are generated. When the rate is abnormally high for a particular system, the system will issue an alert to warn you of a potential problem, potentially avoiding an outage.

… Real-time decision making

- A new z/OS Run Time Diagnostics function is planned to help you quickly identify possible problems in a very short time

… Automatic partitioning

- sysplex components can automatically initiate actions to preserve sysplex availability to help reduce the incidence of sysplex-wide problems.

… Avoiding data fragmentation and planned outages for data reorganizations

- With the new CA (Control Area) Reclaim capability, applications that use VSAM key-sequenced data sets (KSDS), benefit from improved performance, minimized space utilization, and improved application availability.

... Workload driven provisioning

- Capacity Provisioning will use CICS and IMS monitoring data to determine if additional resources are needed to meet service-level requirements for these workloads.

… Storage management and scaling

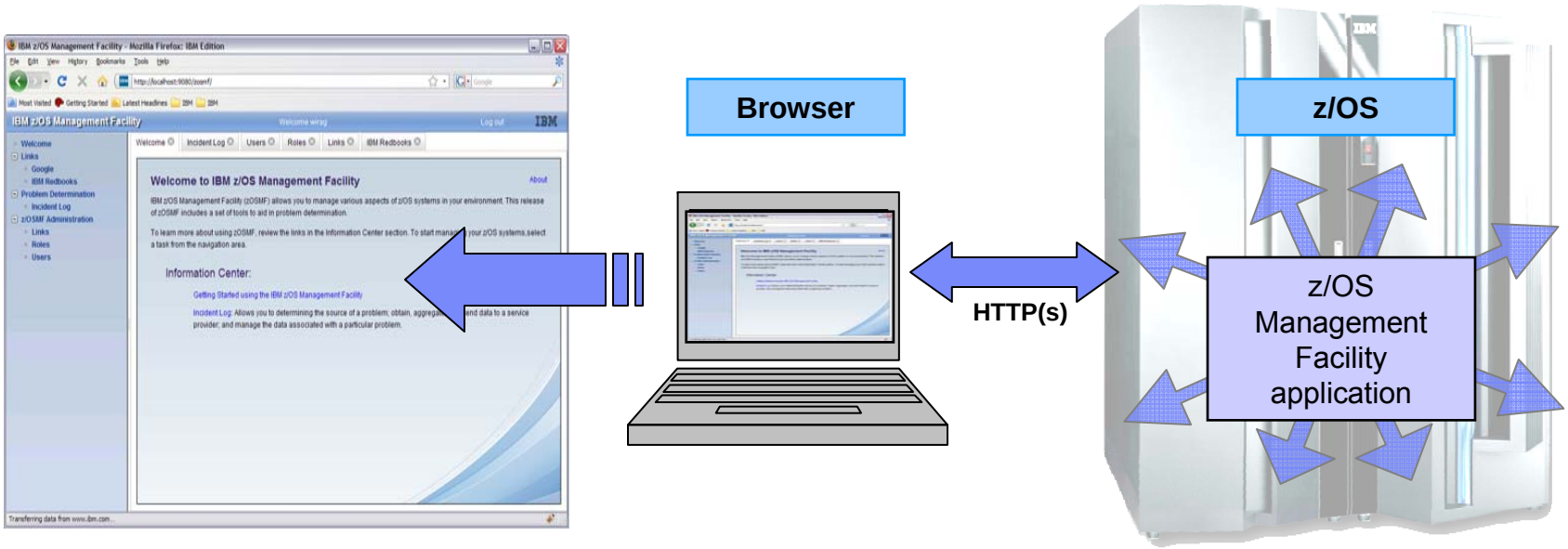
- Extended Address Volumes to support additional data set types. Overall, EAV helps you relieve storage constraints as well as simplify storage management by providing the ability to manage fewer, large volumes.

… Advanced cryptography

- Support for Elliptic Curve Cryptography (ECC), Internet Key Exchange version 2 (IKEv2), Federal Information Processing Standard (FIPS) FIPS 140-2, and more.

IBM z/OS Management Facility

Manages z/OS from z/OS



- z/OS Management Facility is an application on z/OS
  - Browser communicates with z/OSMF via secure connection, anywhere, anytime
  - Uses industry standards, such as Java™, DOJO, and CIM
  - Parts of z/OS Management Facility, such as the Incident log capability (R11) and WLM Policy Editor (R12), use Java and CIM (eligible for zAAP and zIIP)

IBM z/OS Management Facility

Welcome page

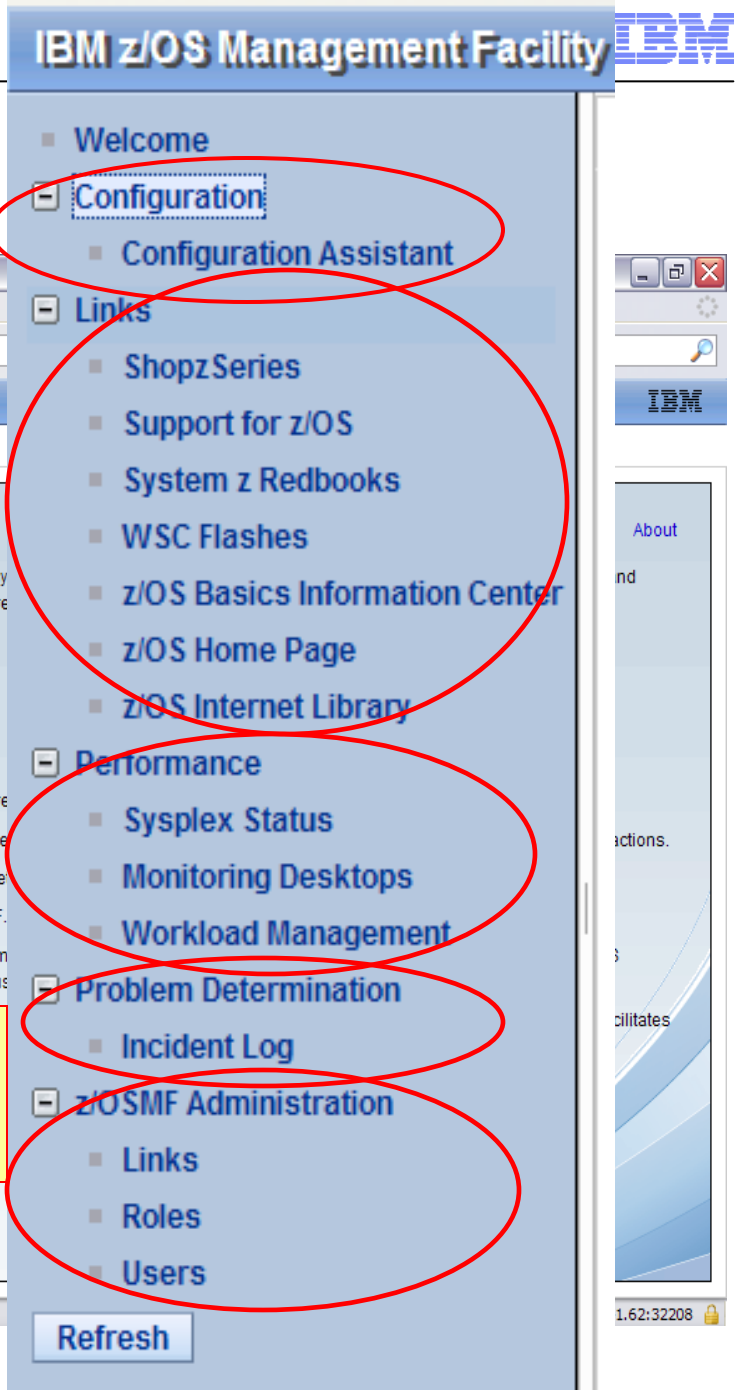
Configuration Assistant for z/OS Comm Server
– Simplified configuration and setup of TCP/IP policy-based networking functions (with z/OS V1.11)

Links
Links to resources - provides common launch point for non-z/OSMF resources

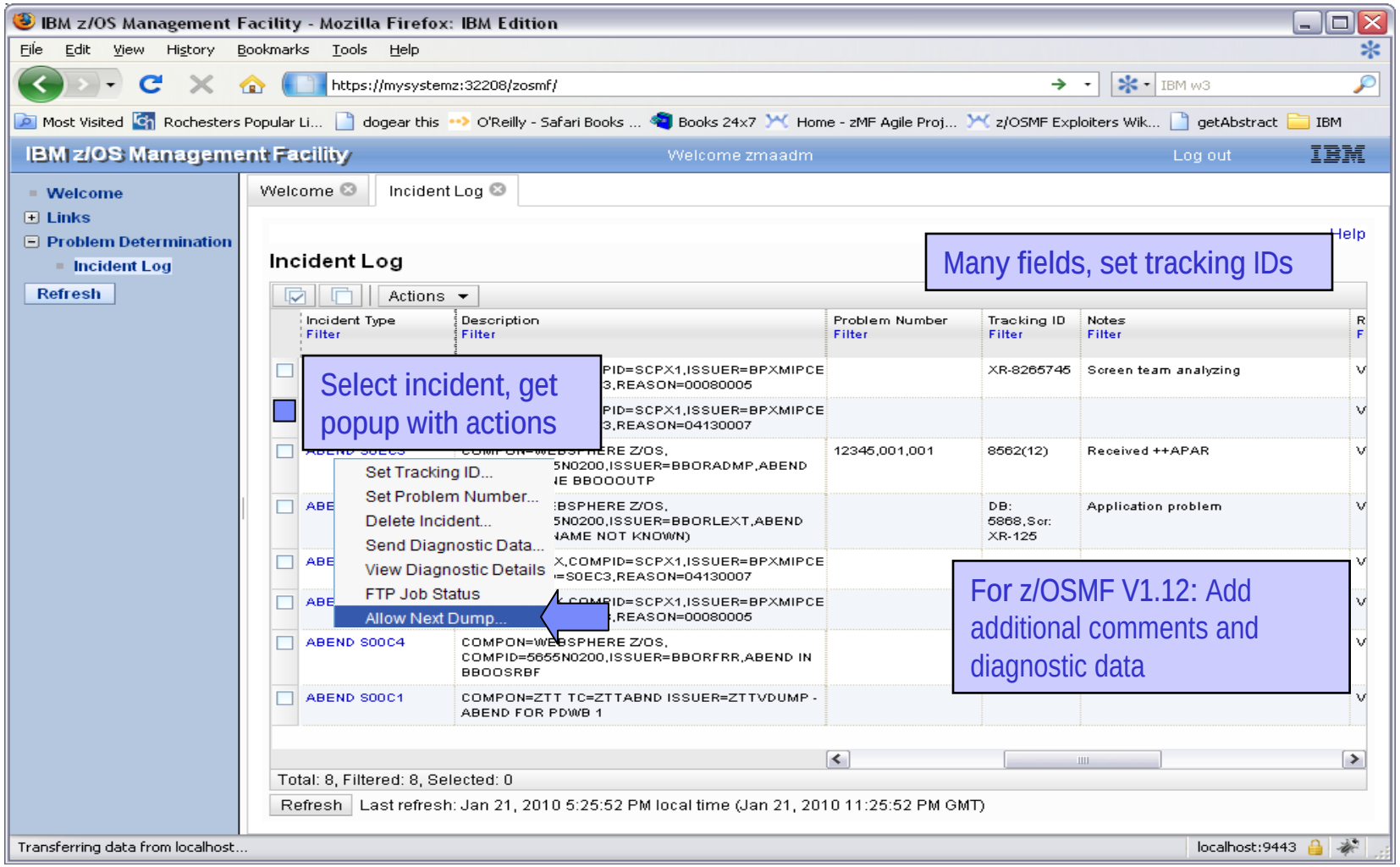
Performance (with z/OS V1.12)
Sysplex status – single view of sysplex and Linux® performance
Monitor desktops – dynamic real time metrics for system performance
Workload Manager Policy Editor – Simplified

Problem Determination
Incident Log – Simplified capture, packaging, and sending of SVC dump diagnostic data. (Available with z/OS V1.10)

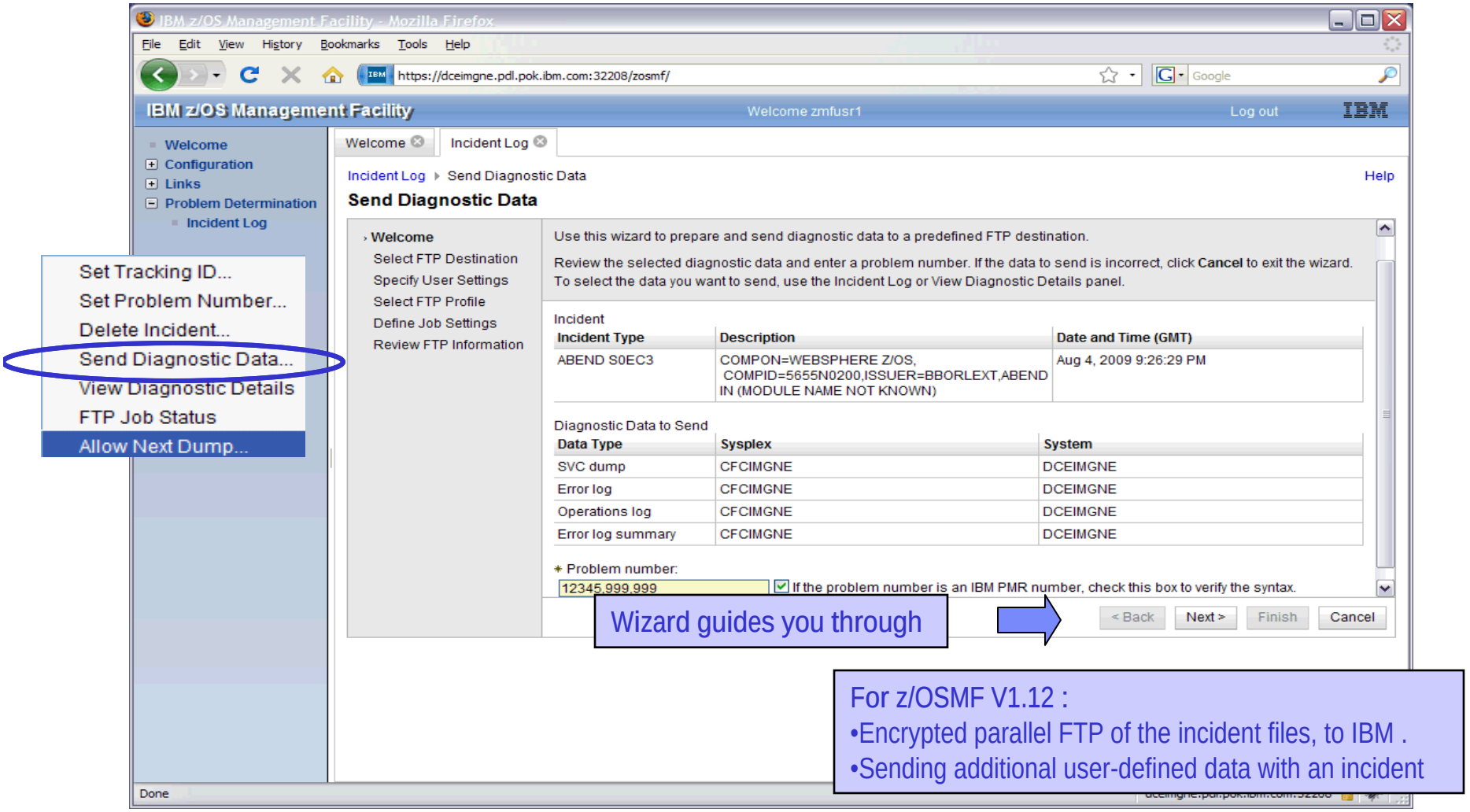
z/OSMF Administration
Authorization services, add users, define roles, add links.



Incident Log



Incident Log – Send Diagnostic Data



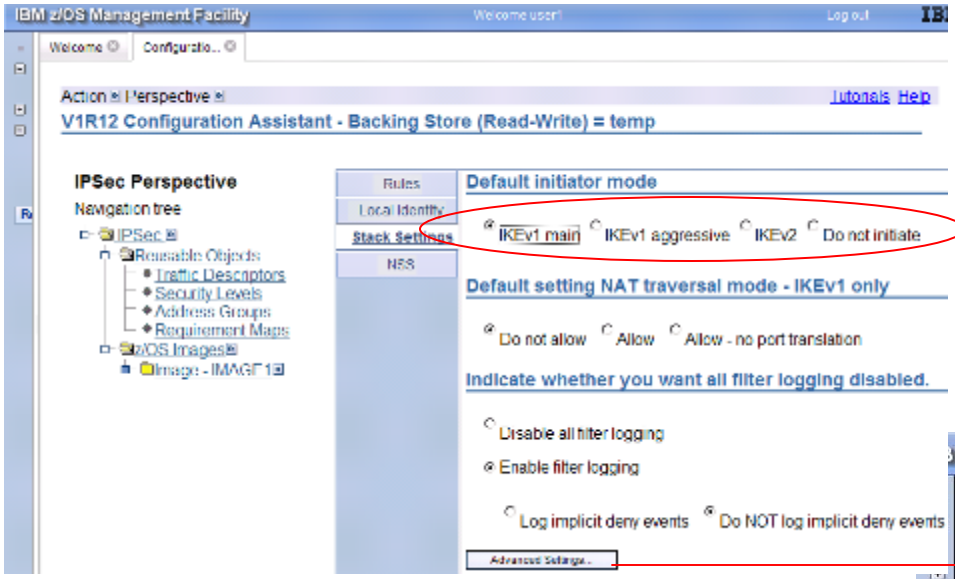
Wizard guides you through

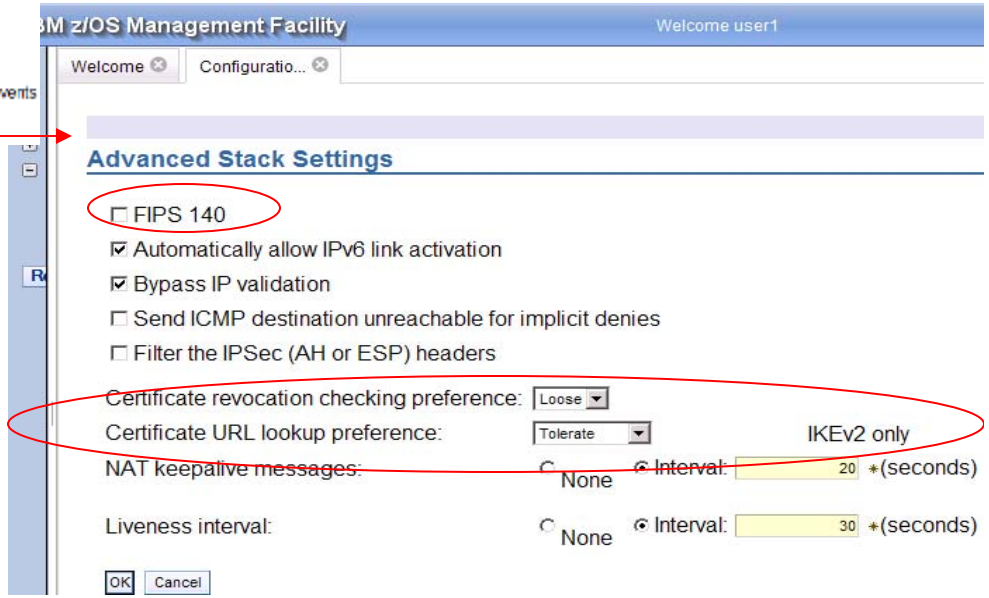
For z/OSMF V1.12 :

- Encrypted parallel FTP of the incident files, to IBM .
- Sending additional user-defined data with an incident

Configuration Assistant for z/OS Communication Server

Example, support for IKEv2 (for V1.12)





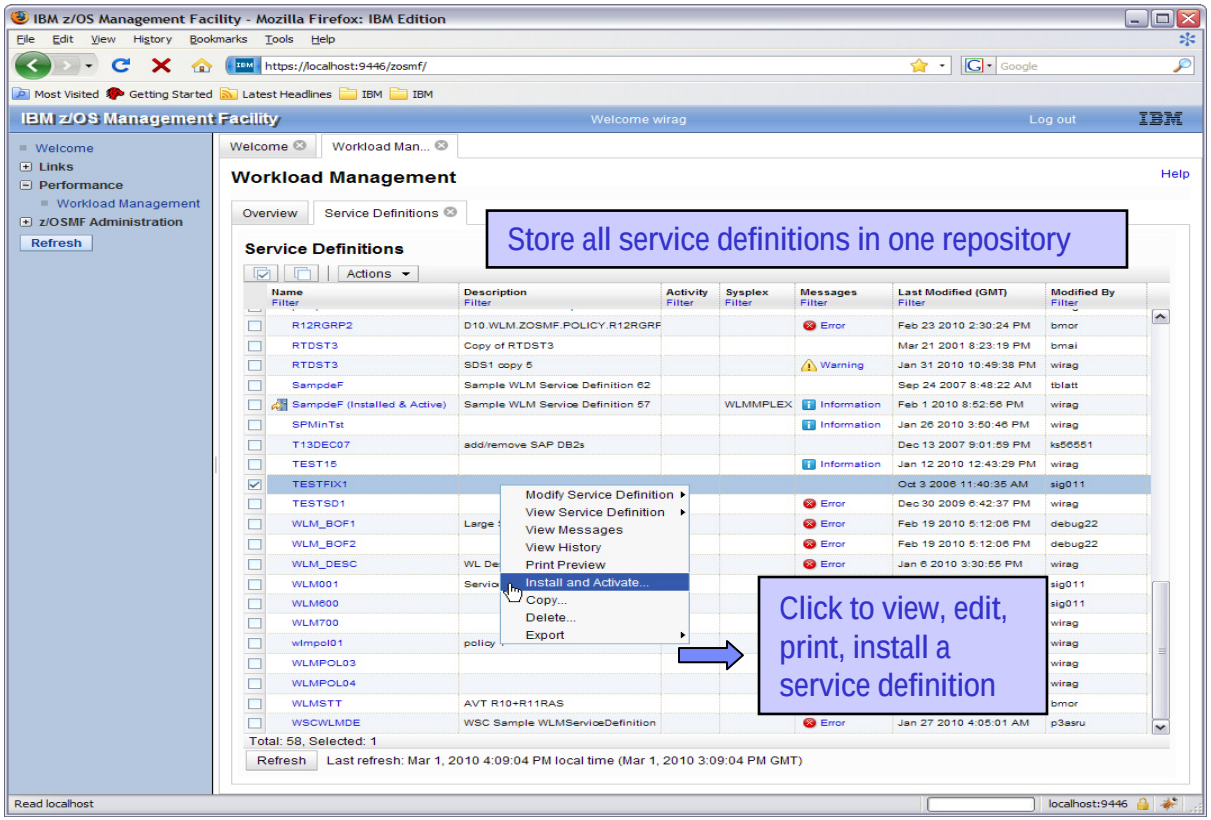
- **New networking security features in z/OS V1.12 are updated with and included in z/OSMF V1.12**

- **Such as ...**
  - Support for FIPS 140 (V1.12)
  - Support for IKEv2 (V1.12)
  - Support for CRL (V1.12)
  - Support for many new cryptographic capabilities (V1.12)

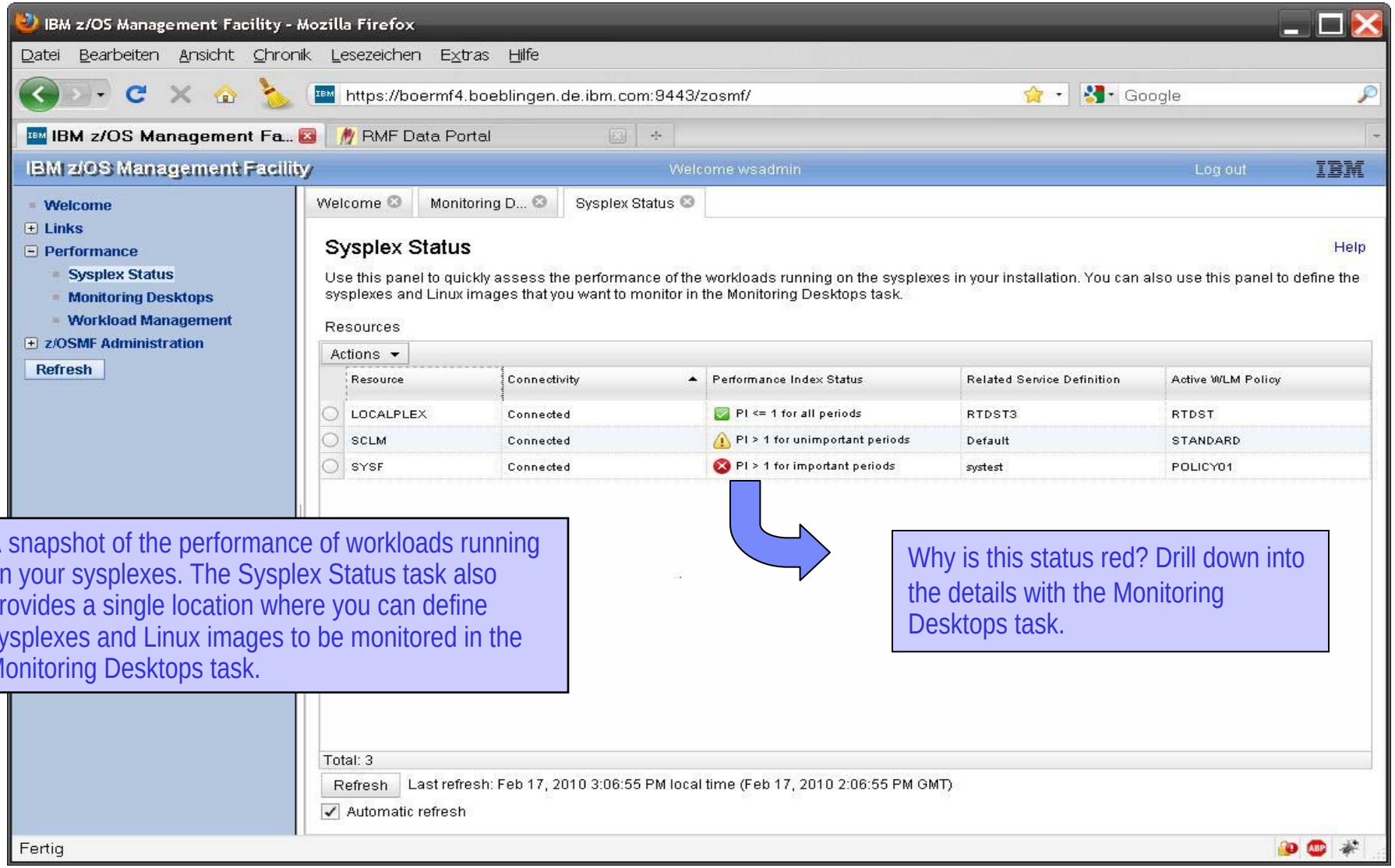
z/OSMF Workload Management (V1.12)

- **WLM Policy Editor is available on the z/OS Management Facility**
  - All the same function as in the Web-download tool and many new features
  - Direct access to the WLM Couple Data Set to install/extract service definitions. No need to FTP WLM policy files!
  - Activation of service policies and monitoring of the WLM status in the sysplex

- **Requires z/OSMF V1.12 and z/OS V1.12**



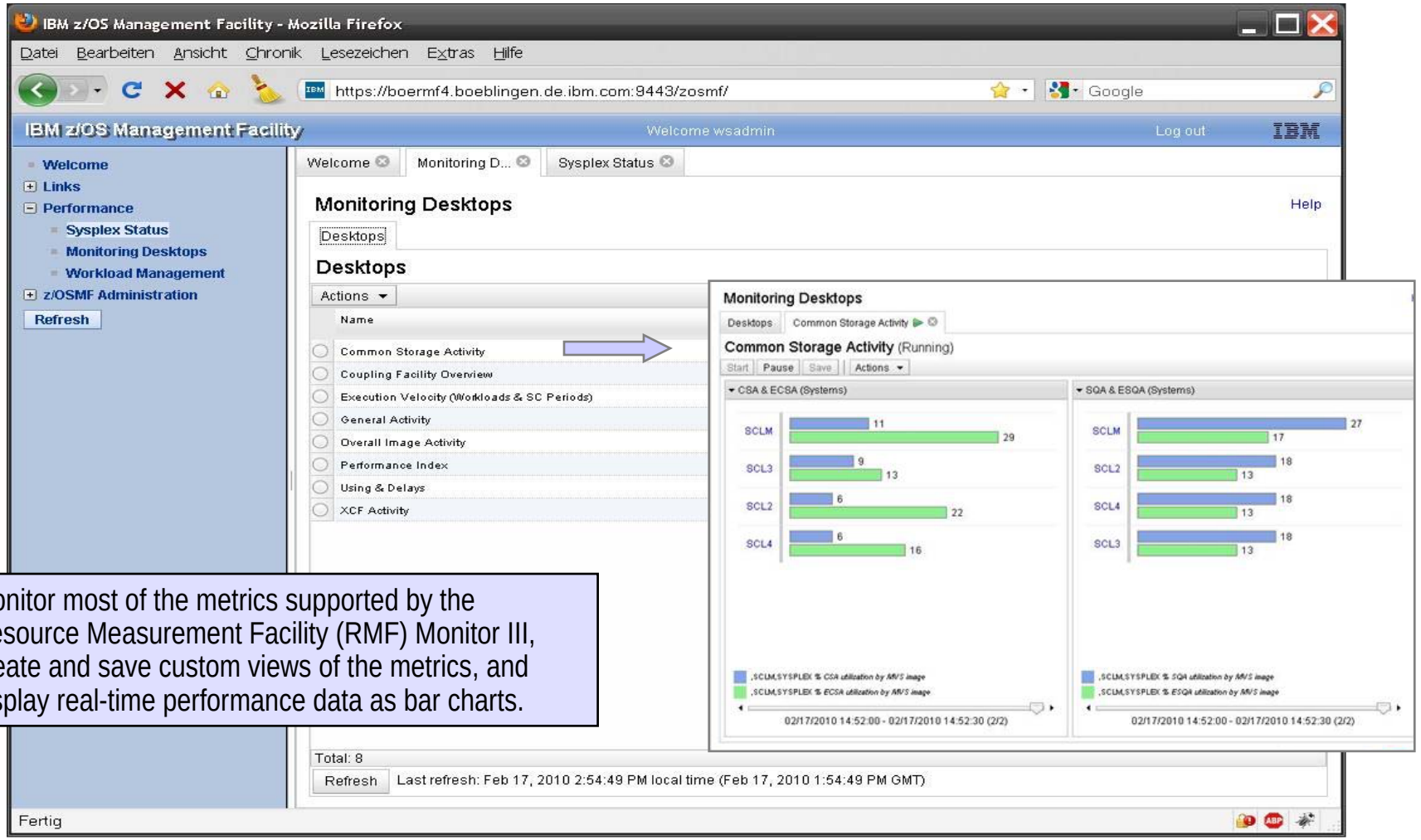
Resource Monitoring: Sysplex Status



A snapshot of the performance of workloads running on your sysplexes. The Sysplex Status task also provides a single location where you can define sysplexes and Linux images to be monitored in the Monitoring Desktops task.

Why is this status red? Drill down into the details with the Monitoring Desktops task.

Resource Monitoring: Monitoring Desktops



Monitor most of the metrics supported by the Resource Measurement Facility (RMF) Monitor III, create and save custom views of the metrics, and display real-time performance data as bar charts.

zAAP on zIIP capability

- Capability that can enable System z Application Assist Processor (zAAP) eligible workloads to run on System z Integrated Information Processors (zIIPs)
- Prerequisites
  - System z9 or z10
    - With zIIP(s) and no zAAP(s)
  - Available on z/OS 1.11, and z/OS 1.9 and 1.10 (with for with PTFs for APAR OA27495)
  - New IEASYSxx system parameter
    - ZAAPZIIP=YES or NO (or ZZ=YES or NO)
    - For z/OS 1.11 default = YES (enabled)
    - For z/OS 1.9 and 1.10 default = NO (not enabled)
    - If zAAPs are on the server, the zAAP on zIIP capability will not be honored
  - The zAAP on zIIP capability and ZAAPZIIP system parameter is described in z/OS V1R11.0 MVS Initialization and Tuning Reference (SA22-7592-18)
- For zAAP and zIIP information:
  - **ibm.com/**systems/z/advantages/specialtyengines/index.html

DISPLAY IPLINFO

- Users of ZAAP on ZIIP sometimes have difficulty in diagnosing why zAAP on zIIP is not enabled on their system
- The D IPLINFO has been enhanced
  - D IPLINFO,ZAAPZIIP
  - D IPLINFO,ZAAPZIIP,STATE

```
D IPLINFO,ZAAPZIIP
IEE255I SYSTEM PARAMETER 'ZAAPZIIP': YES

D IPLINFO,ZAAPZIIP,STATE
IEE256I ZAAPZIIP STATE: ACTIVE

D IPLINFO,PROG
IEE255I SYSTEM PARAMETER 'PROG': (00,01,EX,ZC)
```

DISPLAY IPLINFO …

- If the message IEE256I shows STATE: INACTIVE – *reason*

- *-reason-:*
  - ZAAPZIIP SYSTEM PARAMETER IS 'NO'
  - NO ZIIP(S) DEFINED TO THIS LPAR
  - ZAAP(S) DEFINED TO THIS LPAR
  - ZAAP(S) INSTALLED ON THE MACHINE
  - GLOBAL MACHINE DATA IS NOT AVAILABLE TO THIS LPAR

PDSE Verification – z/OS 1.12

- Currently if a PDSE in a LNKLST concatenation has structure errors, system is put in a wait state without a message to determine which data set has the error
- Now in z/OS 1.12 the system will call the PDSE validation tool to check the integrity of a PDSE in LNKLST when the system is initializing and when LNKLST is being changed
- Users can't call the service directly but will learn of PDSE structure errors earlier

- PDSE Verification Messages are issued
  - z/OS Systems Messages

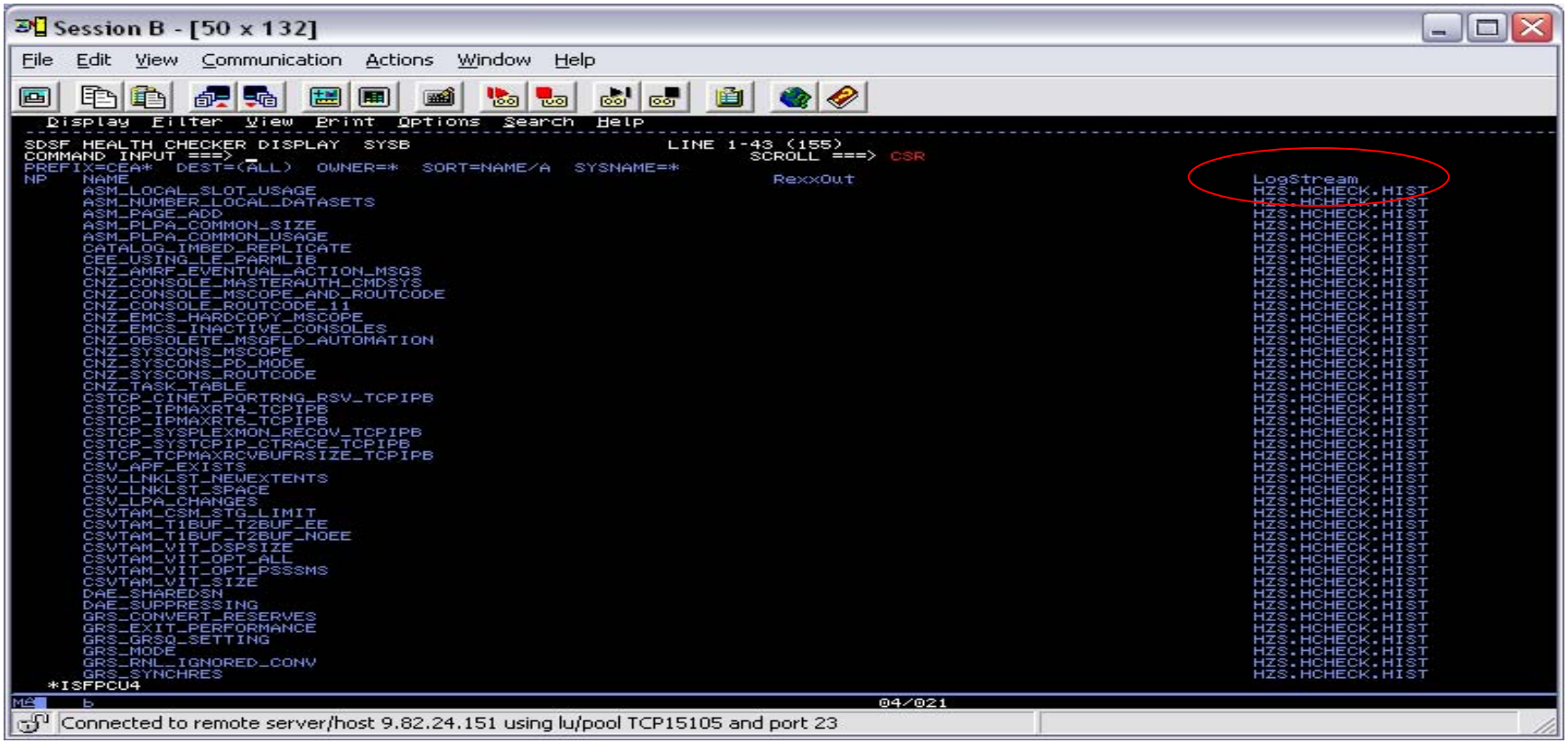
SDSF Health Checker History – z/OS 1.12

- The IBM Health Checker provides an option for saving Health Checks to a logstream for historical purposes. SDSF could only present the user with the current status of health checks via the SDSF Health Checker display

- SDSF now provides a new action on the SDSF Health Checker display to enable the user to view the history of a health check
  - View the frequency and results of previous health check runs
  - Compare historical results of health checks to evaluate the results of updating component parameters
  - Browse, save or print specific health check runs

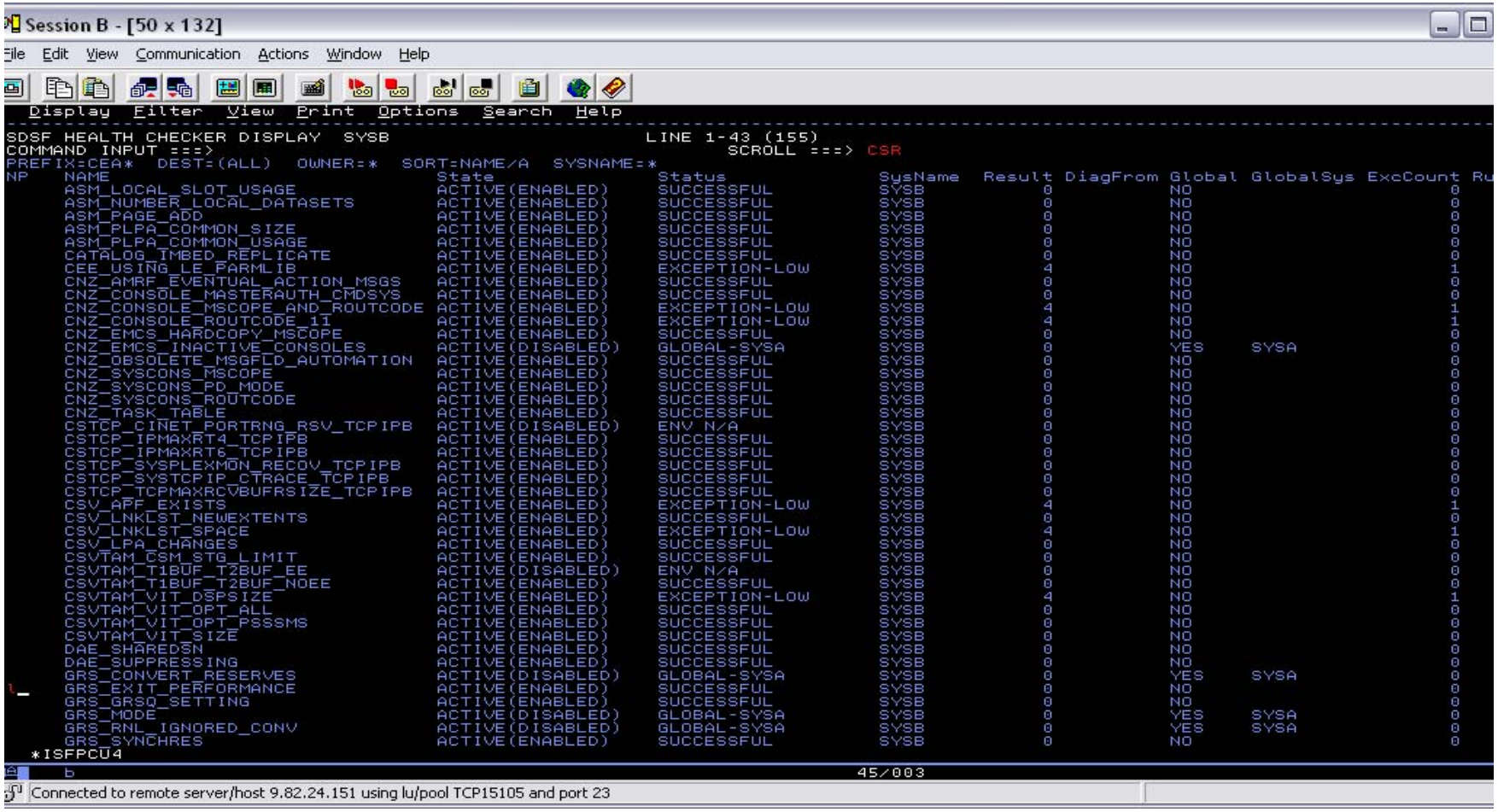
SDSF Health Checker History …

- For the new SDSF Health Checker History display there is a new column on the SDSF Health Checker display tilted **LogStream.** This column shows the current logstream the IBM Health Checker for z/OS is connected to from which history data will be gathered



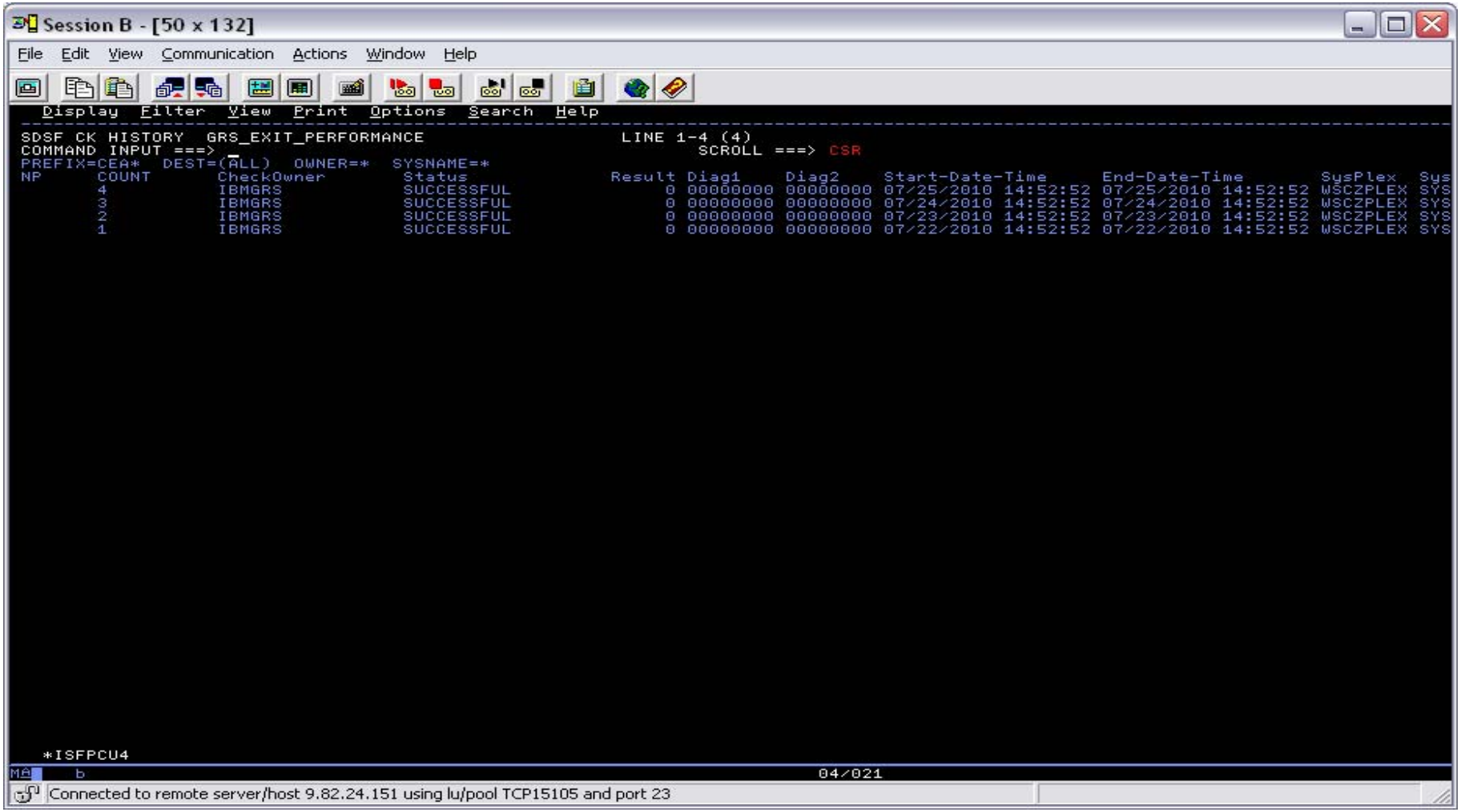
SDSF Health Checker History …

- For The new L (ListHistory) action on the SDSF Health Checker display
- This action is valid for checks that have logstream associated to them



SDSF Health Checker History …

- The “ L “ action presents the following display



SDSF - Health Checker History …

- SDSF by default will collect the last 10 iterations of a check.
  - The user can override this default using the new SET CKLIM command. The minimum number of checks can be 1 and the maximum is 999,999
- You can also override the SDSF default of 10 iterations using the new Panel.CK.DefaultCKLim custom property. Again, the user can override this default via the SET CKLIM command
- From the Health Checker History display the user can BROWSE or PRINT a specific iteration of a check

GRS Component Trace

- Today, GRS provides no Component Tracing for its Latch processing
- GRS' CTRACE maximum buffer size is significantly limited

- In ***z/OS 1.12***, GRS provides Component Tracing for Latch
  - GRS' CTRACE buffer, used for both ENQs and Latches, has moved above-the-bar
- GRS serviceability is significantly improved, especially for Latch services
- FLOWA is added for Latch processing
- Allowable CTRACE buffer size for GRS has changed
  - Default buffer size changed from 128K to 16M
  - Maximum buffer size changed from 16M to 2047M
    - 2047M is the maximum allowed by CTRACE
    - Still specified via CTnGRSxx PARMLIB member

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z/OS Key Dates

- z/OS Version 1 Release 11
  - **August 18, 2008:** Announcement
  - **September 25, 2009:** General Availability via ServerPac, CBPDO and SystemPac
  - **June 28, 2010:** Was recommended last date for submitting **z/OS 1.10** orders via SystemPac

- z/OS Version 1 Release 12
  - **February 24, 2010:** Preview Announcement
  - **July 22, 2010:** Announcement
  - **September 24, 2010:** Planned GA via ServerPac, CBPDO and SystemPac
  - **October 12, 2010:** Recommended last date for submitting z/OS 1.11 orders via the entitled offerings
  - **October 26, 2010:** Last date for processing orders for z/OS 1.11 via ServerPac and CBPDO
  - **June 29, 2011:** Recommended last date for submitting z/OS 1.11 via fee based customized offerings
  - **September 30, 2011:** z/OS 1.10 (5694-A01) EOS

z/OS Support Summary

	Z800/ z900	Z890 z990	z9 BC	z9 EC	z10 BC	z10 EC	z196	End of Service	Coexists with z/OS	Planned Ship Date
z/OS 1.7#	x	x	x	x	x	x	x	9/08	1.9	9/05
z/OS 1.8@	x	x	x	x	x	x	x	9/09	1.10	9/06
z/OS 1.9&	x	x	x	x	x	x	x	9/10	1.11	9/07
z/OS 1.10	x	x	x	x	x	x	x	9/11	1.12	9/08
z/OS 1.11	x	x	x	x	x	x	x	9/12	1.13	9/09
z/OS 1.12	X	X	X	X	X	X	X	9/13	1.14*	9/10*
z/OS 1.13	x	x	x	x	x	x	x	9/14*	1.15*	9/11*

Migrating to z/OS 1.12 Parts 1 and 2
Wednesday 3:00

Note: For HiperDispatch, z/OS 1.7 requires the zIIP Web Deliverable to be installed (but not a zIIP processor)

 # IBM Lifecycle Extension for z/OS 1.7 (5637-A01) - A fee-based corrective service offering AL: 208-283
@ IBM Lifecycle Extension for z/OS 1.8 (5638-A01) – A fee-based corrective service offering AL: 209-180
& IBM Lifecycle Extension for z/OS 1.9 (5646-A01) – A fee-based corrective service offering AL: 210-027

z/OS Support for z196

- **The minimum z/OS requirements:**
  - zEnterprise System with zBX - z/OS V1.10 and later + PTFs
  - zEnterprise System toleration and no zBX - z/OS V1.7, V1.8, V1.9 (October 2010) with IBM Lifecycle Extension for z/OS with PTFs.

IBM Lifecycle Extension for z/OS V1.9 (5646-A01)

- For customers that have not completed their migration from z/OS 1.9 to z/OS 1.10 or z/OS 1.1, IBM plans to provide a lifecycle extension with defect support
- Fee-based extended support (defect only)
- Available when support for z/OS V1.9 ends (Sept. 30, 2010)
  - Up to 2 years from October 1, 2010
- This support is not intended to change coexistence, migration, and fallback policies for z/OS

- **Announcement Letter: 210-027**

IBM Lifecycle Extension for z/OS V1R7 (5637-A01)

- For customers that had not completed their migration from z/OS V1R7 to z/OS V1R8 or V1R9, IBM offered a Lifecycle Extension with defect support in October 2008 for two years
- **This support will expire on September 30, 2010**
- If you require defect support for z/OS V1R7 beyond September 30, 2010, contact your IBM representative
  - You may consider purchasing an Extended Support Contract from IBM Global Technology Services in the US

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Cryptographic Support for z/OS V1R10-V1R12

- **Flash10716**
- The newest version of ICSF, FMID HCR7780, was announced on July 22, 2010 and is scheduled to be generally available on September 10, 2010. On that date it will be available via web download from http://www.ibm.com/systems/z/os/zos/downloads/
- This latest version of ICSF provides support for the newest IBM System z hardware, the zEnterprise 196
- This flash provides details on the new facility

ibm.com/support/techdocs

zFS R11 Performance Considerations V2

- **Flash10692**
- z/OS 1.11 has a new feature to enable the zSeries File System (zFS) to run sysplex-aware for zFS read-write mounted file systems
- This flash outlines the conditions which will enable significant performance and management benefits for the zFS and avoid performance issues
- Additionally, enhanced support is provided by APAR OA29619 and is the preferred method of running zFS in a shared file system environment

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IBM HyperSwap Considerations

- **Flash10710**

- The GDPS HyperSwap function allows transparent swap of z/OS, zVM and zLinux ECKD disks for planned and unplanned disk subsystem outage
- The planned and unplanned HyperSwap timings vary, but in planning a HyperSwap configuration, a few rules of thumb have been developed based on Lab measurements that should help to minimize swap times
- This Storage Flash outlines various HyperSwap considerations when deploying HyperSwap with various z/OS Volume types and sizes

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A Clear Key, Secure Key and Protected Key Primer

- **WP100647**

- With the latest z10 microcode and the new support in ICSF, FMID HCR7770, IBM cryptographic hardware supports three types of keys
- This paper describes the basic differences between clear key, secure key and protected key, and is an introduction to how the hardware provides additional protection for secure keys
- Understanding the difference between the three will help in designing the right cryptographic solutions and in determining the hardware requirements for the cryptographic work

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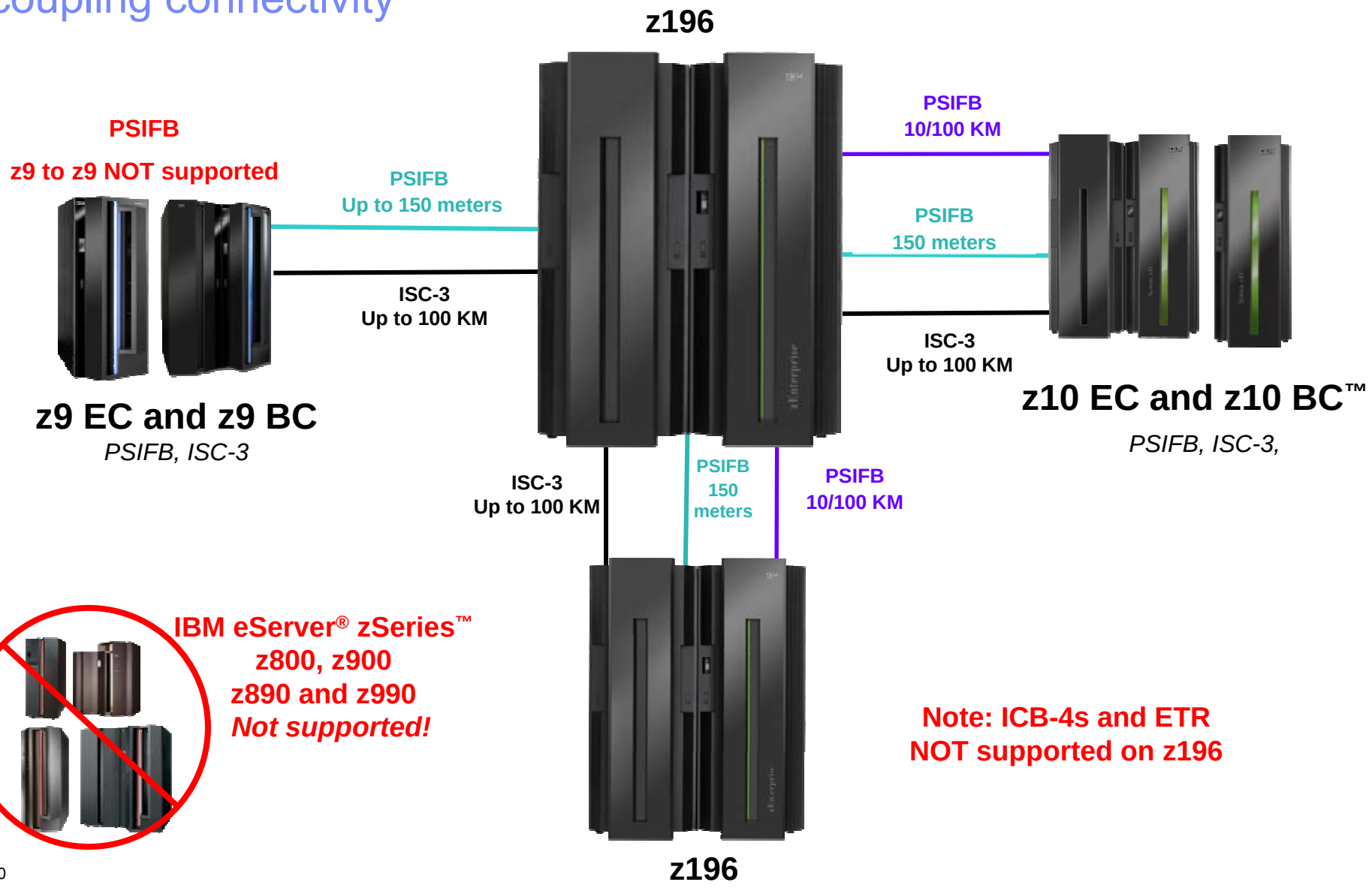
z196 Parallel Sysplex coexistence of Servers/CFs and coupling connectivity



System z196 CFCC Level 17

- **CFCC Level 17 allows:**
  - Up to 2047 CF structures (CFCC 16 allowed 1024). Improved CFCC Diagnostics & Link Diagnostics
  - Non-disruptive CF dump

- **Greater than 1024 CF Structures requires a new version of the CFRM CDS**
  - All systems in the sysplex must be at z/OS V1.12 or have the coexistence/preconditioning PTF installed.
  - Falling back to a previous level CFRM CDS will require sysplex-wide IPL

- **Structure and CF Storage Sizing with CFCC level 17**
  - May increase storage requirements when moving to CF Level 17
  - Use the **CFSizer**
  - http://www.**ibm.com**/systems/z/cfsizer/

REALLOCATE Enhancements – z/OS 1.12

- In z/OS 1.12 a new D XCF,REALLOCATE,*TEST* option to simulate the reallocation process
  - Provide information about changes the REALLOCATE command would attempt to make and any errors that might be encountered if an actual REALLOCATE were to be performed

- In z/OS 1.12 a new D XCF,REALLOCATE,*REPORT* command
  - Provide detailed information on the results produced by a previously executed REALLOCATE command
  - Intended to help you find such information without searching through the syslogs for REALLOCATE-related processing and exception mesaages

D XCF,REALLOCATE,REPORT

```
IXC347I  08.49.05  DISPLAY XCF 284

THE REALLOCATE PROCESS STARTED ON 07/23/2010 AT 06:48:51.58.
THE REALLOCATE PROCESS ENDED ON 07/23/2010 AT 06:49:06.29.
------------------------------------------------------------
STRUCTURE(S) WITH AN ERROR/EXCEPTION CONDITION
STRNAME: MXXDSG00_POLL                          INDEX: 64
   EVALUATED ON SYSTEM SYSA ON 07/23/2010 AT 06:49:06.26.
   0 REALLOCATE STEP(S): NOT ATTEMPTED BECAUSE
   A STRUCTURE REBUILD PROCESS IS IN PROGRESS
------------------------------------------------------------
STRUCTURE(S) WITH A WARNING CONDITION
NONE
------------------------------------------------------------
STRUCTURE(S) REALLOCATED SUCCESSFULLY

STRNAME: DSNZPLEX_GBP0                          INDEX: 16
   1 REALLOCATE STEP(S): REBUILD
   COMPLETED ON SYSTEM SYSA ON 07/23/2010 AT 06:49:04.02.

STRNAME: DSNZPLEX_SCA                           INDEX: 14
   1 REALLOCATE STEP(S): REBUILD
   COMPLETED ON SYSTEM SYSA ON 07/23/2010 AT 06:49:03.09.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

REALLOCATE PROCESSING RESULTED IN THE FOLLOWING:
        13  STRUCTURE(S) REALLOCATED - SIMPLEX
         0  STRUCTURE(S) REALLOCATED - DUPLEXED
         0  STRUCTURE(S) POLICY CHANGE MADE - SIMPLEX
         0  STRUCTURE(S) POLICY CHANGE MADE - DUPLEXED
        12  STRUCTURE(S) ALREADY ALLOCATED IN PREFERRED CF - SIMPLE
         0  STRUCTURE(S) ALREADY ALLOCATED IN PREFERRED CF - DUPLEX
         1  STRUCTURE(S) NOT PROCESSED
        43  STRUCTURE(S) NOT ALLOCATED
        11  STRUCTURE(S) NOT DEFINED
  --------
        80  TOTAL

         2  STRUCTURE(S) WITH AN ERROR/EXCEPTION CONDITION

         0  STRUCTURE(S) MISSING PREVIOUS REALLOCATE DATA
```

D XCF,REALLOCATE,TEST

```
IXC347I  08.59.32  DISPLAY XCF 295
COUPLING FACILITY STRUCTURE ANALYSIS PERFORMED FOR REALLOCATE TEST.
-------------------------------------------------------------------
STRUCTURE(S) WITH AN ERROR/EXCEPTION CONDITION
NONE
-------------------------------------------------------------------
STRUCTURE(S) WITH A WARNING CONDITION
NONE
-------------------------------------------------------------------
STRUCTURE(S) REALLOCATED SUCCESSFULLY
NONE
-------------------------------------------------------------------
STRUCTURE(S) ALREADY ALLOCATED IN PREFERRED CF(S)
STRNAME: DSNZPLEX_GBP0                              INDEX: 16
   CFNAME     STATUS/FAILURE REASON
   --------   ----------------------------------------------------
   CF1        PREFERRED CF 1
                                 INFO110: 00000104 CC007800 00000011
   CF2        PREFERRED CF ALREADY SELECTED
                                 INFO110: 00000104 CC007800 00000010

STRNAME: DSNZPLEX_LOCK1                             INDEX: 15
   CFNAME     STATUS/FAILURE REASON
   --------   ----------------------------------------------------
   CF2        PREFERRED CF 1
                                 INFO110: 00000104 CC007B00 00000010
   CF1        PREFERRED CF ALREADY SELECTED
                                 INFO110: 00000104 CC007B00 00000011
-------------------------------------------------------------------
REALLOCATE TEST RESULTED IN THE FOLLOWING:
         0  STRUCTURE(S) REALLOCATED - SIMPLEX
         0  STRUCTURE(S) REALLOCATED - DUPLEXED
         0  STRUCTURE(S) POLICY CHANGE MADE - SIMPLEX
         0  STRUCTURE(S) POLICY CHANGE MADE - DUPLEXED
        25  STRUCTURE(S) ALREADY ALLOCATED IN PREFERRED CF - SIMPLEX
         0  STRUCTURE(S) ALREADY ALLOCATED IN PREFERRED CF - DUPLEXED
         0  STRUCTURE(S) NOT PROCESSED
        44  STRUCTURE(S) NOT ALLOCATED
        11  STRUCTURE(S) NOT DEFINED
  --------
        80  TOTAL
         0  STRUCTURE(S) WITH AN ERROR/EXCEPTION CONDITION
```

Thank You !