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IBM

Smarter Systems for a Smarter Planet

MVS Core Technologies Project Opening z/OS Hot Topics

Session 8678 - February 28, 2011

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IBM Washington Systems Center

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Agenda

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

z/OS Key Dates

- **z/OS Version 1 Release 12**
  - **February 24, 2010:** Preview Announcement
  - **July 22, 2010:** Announcement
  - **September 24, 2010:** GA via ServerPac, CBPDO and SystemPac
  - **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 Version 1 Release 13**
  - **February 15, 2011:** Preview Announcement
  - **September 2011**: Planned General Availability

z/OS Support Summary

Out of service

Lifecycle Extension withdrawal 2 years later

Service Withdrawal Dates

z/OS®	z800/ z900	z890/ z990	z9® EC /BC	z10 EC™	z10 BC™	z196	DS8000® DS6000™	TS1130	End of Service	Coexists with z/OS...	Planned Ship Date[2]
R7	X	X	X	X[4]	X[3]	X[4]	X[4]	X	9/08	R9	
R8	X	X	X	X	X	X	X	X	9/09[1]	R10	
R9	X	X	X	X	X	X	X	X	9/10[1]	R11	
R10	X	X	X	X	X	X	X	X	9/11	R12	
R11	X	X	X	X	X	X	X	X	9/12[2]	R13[2]	
R12	X	X	X	X	X	X	X	X	9/13[2]	R14[2]	
R13[2]	X	X	X	X	X	X	X	X	9/14[2]	R16[2]	9/11[2]
R14[2]	X	X	X	X	X	X	X	X	9/15[2]	R16[2]	9/12[2]

1. Fee-based service extension available
2. All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.
3. IBM Lifecycle Extension for z/OS V1.7 (5637-A01) was required
4. Fee-based service extension required for support

z/OS Support for IBM zEnterprise 196

- **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 V1R10 (5665-A01)

- The IBM Lifecycle Extension for z/OS V1.10 provides fee-based corrective service (a fix, bypass, or restriction to a problem) for up to two years beyond the September 30th 2011 end of service date for z/OS V1.10

- This Lifecycle Extension for z/OS V1.10 enables z/OS V1.10 users to continue to receive corrective service for z/OS V1.10 for the 2 year period of October 1, 2011 through September 30, 2013

- The Lifecycle Extension for z/OS V1.10 was announced February 15, 2011 and is planned to be available October 1, 2011

- **For more information: Announcement Letter 211-002 Dated February 15, 2011**

IBM Lifecycle Extension for z/OS V1R9 (5645-A01)

- The IBM Lifecycle Extension for z/OS V1.9 provides fee-based corrective service (a fix, bypass, or restriction to a problem) for up to two years beyond the September 30th 2010 end of service date for z/OS V1.9 (5694-A01).
- This Lifecycle Extension for z/OS V1.9 enables z/OS V1.9 users to continue to receive corrective service for z/OS V1.9 for the 2 year period of October 1, 2010 through September 30, 2012.
- The Lifecycle Extension for z/OS V1.9 was available as of October 1, 2010
- **For more information:** Announcement letters : 210-027

Shopz Adds Powerful Access Controls

- Shopz is the strategic solution for ordering and delivery of System z® software products, operating systems and service used by customers to plan, order and track delivery online, 24/7.
  - Shopz is used regularly by **10,000+ client users** and fulfills about **60% of all zSW orders**
  - Shopz is available **worldwide** (currently in 44 countries, and growing)
- Shopz user's **#1 request** has been for access and usage controls within the enterprise
  - IBM has addressed this request with the October 25 announcement of Roles Authorization Management (RAM**),** providing flexible management controls for Shopz access and usage within an organization. These controls enable the users to define and manage group profiles, access levels, and authorization requirements.

z/OS on DVD

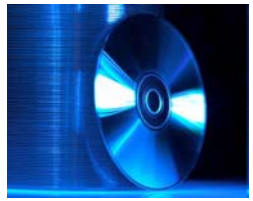
- z/OS and related software (such as ServerPac, CBPDO, SystemPac®, ProductPac®) are available on DVD media.
  - z/OS (such as ServerPac® or CBPDO) is **no longer available** on 3480, 3480 Compressed (3480C), and 3490E tape media.

- Your choice for z/OS delivery media is now:
  - **Over the Internet**.
    - Internet delivery is the most popular delivery option, see :

http://www.ibm.com/systems/z/os/zos/serverpac_internet_delivery.html

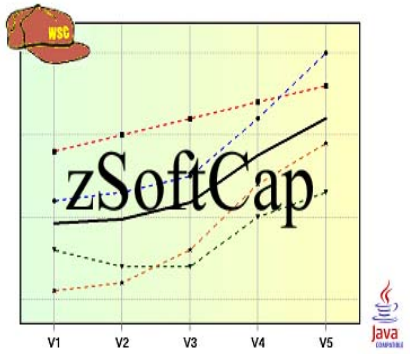
  - **IBM 3590 and 3592 Enterprise Tape**
  - Our highest-density media means there are much fewer tapes to manage!

  - **DVD**
    - Requires a workstation with a DVD drive that can read discs in DVD-5 (single-sided, single layer) format and a network connection to your z/OS system
    - Service Orders -and- Customized Offering Driver are also available on DVD



zSoftCap - *New !*

- What is SoftCap ?
  - SoftCap is a work station based tool that evaluates the effect on z/Architecture and System z processor capacity when migrating to newer levels of software, including z/OS, CICS and IMS
- z/OS 1.13 Planning will refer to zSoftCap
  - Old SoftCap will remain available for some time
- What's removed from zSoftCap ?
  - Goal Mode and 31bit to 64bit Migration
- What has been added to zSoftCap ?
  - Changes to IMS workload Algorithms
    - Results will not exactly match when compared with results from SoftCap
  - Both SoftCap and the new zSoftCap can co-exist
  - Plan to add z/VSE support in the future
- Customer version will be made available 2Q 2011



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ESCON Statement of Direction - February 15, 2011

- The IBM zEnterprise 196 (z196) will be the last high-end server to support ESCON channels: IBM plans not to offer ESCON channels as an orderable feature on high-end System z servers which follow the z196. In addition, ESCON channels cannot be carried forward on an upgrade to such a follow-on server
- This plan applies to CHPID types CNC, CTC, CVC, and CBY and to feature codes 2323 and 2324. System z customers should continue migrating from ESCON to FICON. Alternate solutions are available for connectivity to ESCON devices
- IBM Global Technology Services offers an ESCON to FICON Migration solution, Offering ID #6948-97D, to help facilitate migration from ESCON to FICON. This offering should help you to simplify and manage a single physical and operational environment.
- Notes:
  - This **new** Statement of Direction **supersedes the previous ESCON SOD in Announcement letter 110-170 of July 22, 2010**. It also confirms the SOD in Announcement letter 109-230 of April 28, 2009 that "ESCON Channels will be phased out."

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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 was made generally available on September 10, 2010.
- 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 (MSA-4 Instructions)
  - New functionality in the CEX3
  - Enhanced logging for PCI Audit requirements
  - CKDS constraint relief
  - 64 bit APIs and TKE 7.0
- This flash provides details on the new facilities

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Configuring z/OS to Ensure Successful DASD Swap using the CRITICALPAGING Function

- **Flash10733**
- During a DASD Swap, using Basic HyperSwap, GDPS HyperSwap Manager or other swap technologies, a system may require access to a page that is currently paged out.
- To resolve the page fault, I/O to a paging DASD device is required. If the page device is among the devices that are frozen/suspended during the DASD Swap, the page fault will not be immediately resolved. The page fault will be resolved when I/O to the device is resumed.
- If the page fault is not resolved in a timely fashion the DASD Swap may fail due to a timeout.
- Depending on the Sysplex Failure Management (SFM) policy, SFM may remove the system. Alternatively, in a GDPS HyperSwap Manager environment, GDPS may remove a system if it fails to respond to a phase of the HyperSwap
- IBM strongly recommends enabling CRITICALPAGING function

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STP – Server Time Protocol
When the operating system doesn't support it !

- **Flash10631**
- STP is designed to accurately coordinate time among z/OS operating systems on System z servers
- Customers are increasingly implementing STP to provide an accurate timestamp to operating systems that do not have STP support
- This flash includes important information that customers need to know when implementing STP if they are using pre-z/OS 1.7 or any other operating system release which does not have STP support

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Important Considerations for STP Server Role Assignments

- **WP101833**

- If you have configured a Server Time Protocol (STP) Coordinated Timing Network (CTN) with three or more servers, and have assigned the roles:
  - Preferred Time Server (PTS), the server preferred to be the Stratum 1 (S1)
  - Backup Time Server (BTS), whose role is to take over as the S1 server when planned/unplanned outages affect the PTS.
  - Current Time Server (CTS), that is the Active Stratum 1 server. There can be only one Active S1, and only the PTS or the BTS can be assigned as the CTS. Typically the PTS is assigned as the CTS, and is therefore the Active S1. The BTS is typically the Inactive S1.
  - Arbiter, which provides a means to determine if the Inactive S1 should take over as the Active S1 when unplanned outages affect the CTN
- Recommendations for reassigning STP server roles when any of the assigned role servers has a planned or unplanned outage are documented in this Flash.

  NOTE: The recommendations, if not followed, MAY result in all the servers in the CTN becoming unsynchronized, a condition that results in a sysplex wide outage.

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WSC zEnterprise Experience and Usage

- **WP101857**
- The purpose of this document is to provide a collection of the early installation and usage experiences, tips and guidance on IBM zEnterprise from IBM Washington Systems Center, Gaithersburg Maryland.
- Early hands-on experience has been gathered in Internal Early Support Programs (IESP) and by working with customers who received the product during customer ESP.
- In general, this document is not meant to repeat information that is readily available in product publications, announcement letters

- This document will be delivered in “editions,” each of which will build on the previous edition. In the second edition, the topics in the first edition will be updated and new topics will be added.

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The zEnterprise System …

Designed to significantly enhance the user capabilities to implement and manage multiple platforms and applications as an integrated whole

- zEnterprise 196 (z196)
- zEnterprise BladeCenter Extension (zBX)
  - Select IBM Blades
  - Optimizers
- Unified Resource Manager (zManager)
- Mathematically:
  - zEnterprise = z196 + zBX + zManager

IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (**DataPower XI50z**) extends the value of zEnterprise

Purpose-built hardware for simplified deployment and hardened security helps businesses quickly react to change and reduce time to market

What is announced?

The IBM® zEnterprise BladeCenter® Extension (zBX) Model 002 is part of the zEnterprise System, built to support the multiplatform environment. IBM fulfilled a Statement of Direction and introduces support for the WebSphere® DataPower® Appliance in the zBX as described in Hardware Announcement 110-177, dated July 22, 2010, "IBM zEnterprise BladeCenter Extension (zBX)."

Power Integration
rise (DataPower XI50z),
ise System, is a high-
liance that:

- **Provides fast and flexible integration with any-to-any transformation between disparate message formats**
- **Provides web services enablement for core System z® applications to enable web-based workloads**
- **Enables SOA and XML applications with System z web services for seamless integration of distributed and System z platforms**
- **Offers centralized and extreme reliab operational contro integration with R a secured private**

Value and Benefits of DataPower **XI50z**

Achieve Highest Cost-Optimization

- Less power usage – up to 35% more energy efficient than rack mount servers
- Lower maintenance and operational costs through shared chassis
- Security- Highest Crypto- XI50z increased processing of security request

Centralized Manageability

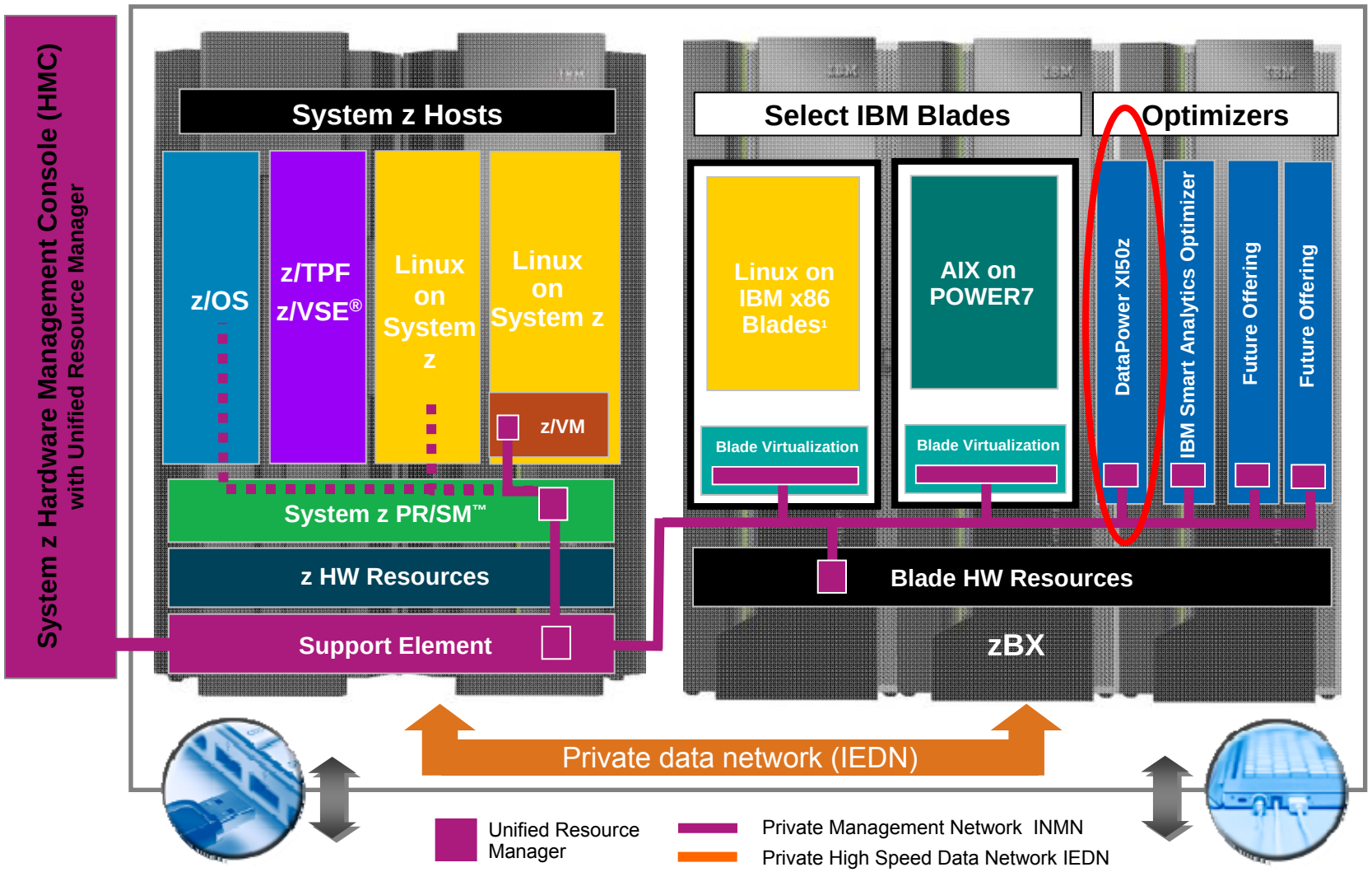
- Hardware, network management and monitoring with zManager though the HMC
- Single console management monitor for multiple blades
- Datacenter consolidation reduces overall IT footprint and energy costs

Integration with System z

- Reduced networking hops provides increased performance of application
- Integration with zBX provides reduced management of appliance with “call home” technology of System z
- Direct connect to 10 gigabit Ethernet that reduces network latency

The zEnterprise

Use the smarter solution to improve your application design



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z/OS and z/OS Management Facility Release 13* Preview…

….. get more value from your workloads with performance, programming, and operations improvements.

z/OS V1.13 plans several enhancements designed to:

- **Help you shorten batch windows** using JCL improvements in JES2 environments.
- **Simplify application programming** with a new z/OS base component, z/OS Batch Runtime environment, designed to enable COBOL and Java to interoperate for DB2 with transactional integrity so you can enhance and extend existing COBOL batch application programs using Java.
- **Improved performance for z/OS UNIX workloads** in a Parallel Sysplex using direct I/O with fully-shared zFS file systems, and improve zFS availability with a new zFS internal restart function.
- **Help you get early warning of system issues** before they become obvious to help you act quickly and decisively with updated z/OS Predictive Failure Analysis and Runtime Diagnostics functions.
- **Provide more options you can use to secure your data** with newer, faster, and more scalable encryption and security capabilities incorporated in IBM Tivoli Directory Server for z/OS (LDAP), RACF, z/OS System SSL, and z/OS PKI Services.
- **Provide a simplified set of XCF interfaces** for passing messages within a parallel sysplex

…. become more responsive and efficient with built-in expert guidance to reduce time to perform tasks

The z/OS Management Facility V1.13 plans several enhancements designed to:

- **Clone z/OS images and deploy software** more easily and consistently, using a new z/OS Management Facility (z/OSMF) software deployment task.
- **Define new storage volumes quickly** and easily using a single UI, using a new z/OSMF disk management task.
- **More easily maintain highly secure network** connections with an updated z/OSMF-based Configuration Assistant for z/OS Communications Server.

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LARGE Pages Support – OA34024

- Large pages are backed by 256 contiguous 4-KB real storage frames and are allocated only from the virtual area reserved for large-page-frame allocations
  - Specified by the LFAREA keyword
    - If the system becomes constrained for lack of sufficient 4-KB pages to handle workload demands, free large pages can be used to back 4-KB page requests, thereby enabling the system to react dynamically on demand for system storage frames
    - Alternatively, if more 1 MB pages are needed, the frames reserved for backing 4-KB pages can be recombined for use as 1 MB pages. Note that a high use of this decomposition-and-recombine function can be indicative of a system configuration and tuning issue; the large-page allocation (LFAREA) may be too large or the demands for 4-KB frames may be higher than anticipated.
    - Using an understanding of the unique workload requirements, either the size of the large-page-frame area (LFAREA) can be decreased or adjustments can be made to the workload to reduce the demands for 4-KB frames.

LARGE Pages Support Considerations

- The IEASYSxx LFAREA parameter specifies the amount of real storage to be made available for 1 MB pages. The system requires an IPL in order to change the LFAREA value. Therefore, the following considerations:
  - If the value specified for LFAREA is too small, there may be no available 1 MB pages for applications that could benefit from 1 MB page utilization. Depending on the IARV64 GETSTOR invocation, either the request for 1 MB pages will get non-zero rc (when PAGEFRAMESIZE=1MEG is specified) or 4KB pages will be used instead of 1 MB pages (when PAGEFRAMESIZE=MAX is specified)
  - If the value specified for LFAREA is too large such that the system does not have enough 4 KB pages to satisfy workload needs, this may result in the conversion of 1 MB pages into 4 KB pages. Since there is a CPU cost for the system to convert 1 MB pages to 4 KB pages and vice-versa, it is recommended that another LFAREA value is selected that will accommodate both your 1 MB page application needs and leave enough 4KB frames available to accommodate your 4K frame workload needs.
  - Determine the total number of 1 MB pages that applications on the system plan to use. This should be the minimum LFAREA value.

LFAREA Display Command – APAR OA31116

Use the following command to list the high water marks for the number of 1MB pages used on behalf of 1MB requests as well as on behalf of 4 KB requests

These high water marks can be used to determine if the value specified for LFAREA is too small or too large. *See message IAR019I for further details.*

- **display virtstor,lfarea**

```
IAR019I  16.36.17 DISPLAY VIRTSTOR 171
SOURCE = { xx | (OP) | DEFAULT }
TOTAL LFAREA = aaaaaaaaaM
 LFAREA AVAILABLE = bbbbbbbbbM
 LFAREA ALLOCATED (1M) = ccccccccccM
 LFAREA ALLOCATED (4K) = ddddddddddM
 MAX LFAREA ALLOCATED (1M) = eeeeeeeeeeM
 MAX LFAREA ALLOCATED (4K) = fffffffffM
```

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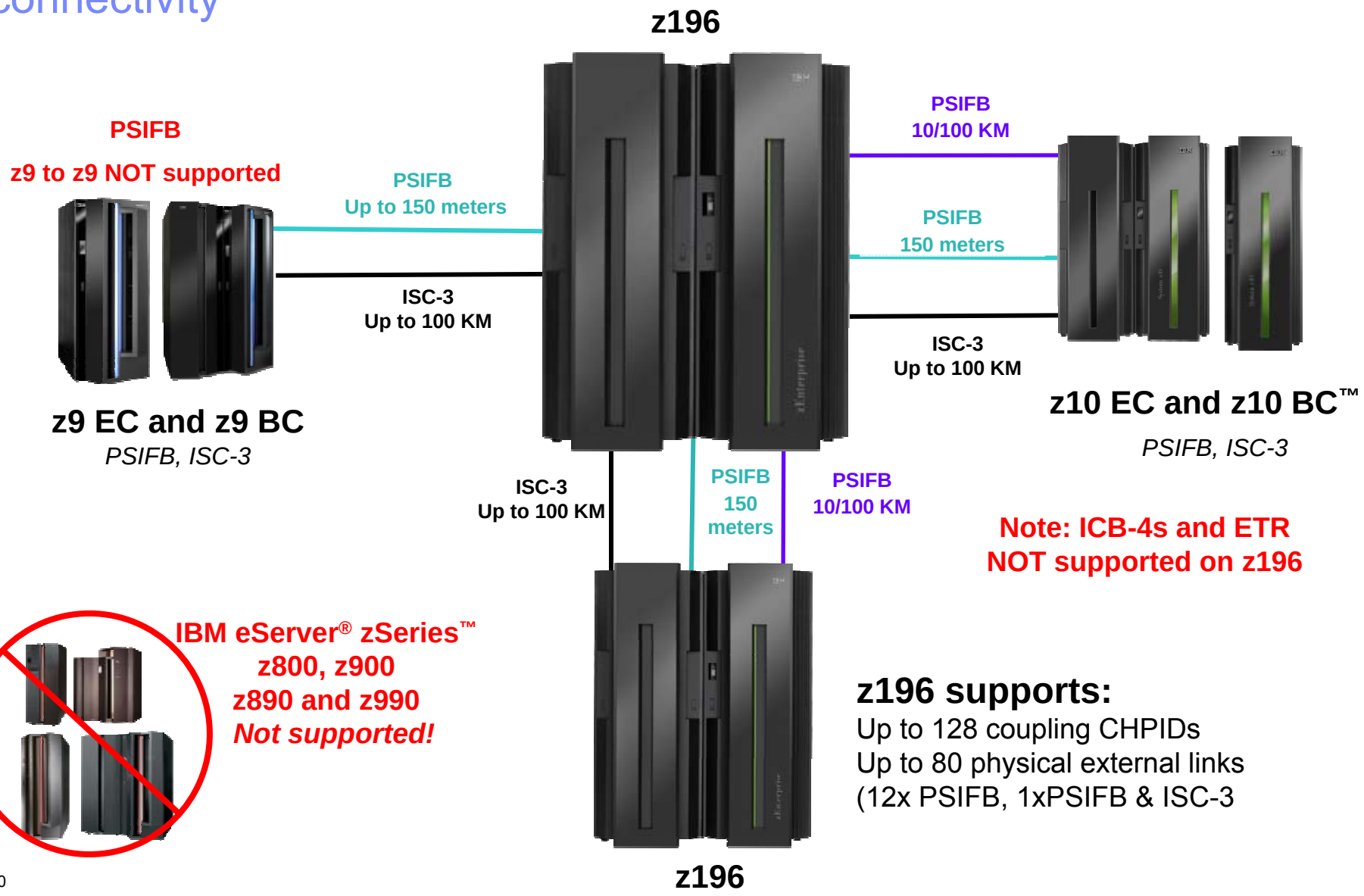
z196 Parallel Sysplex coexistence of Servers/CFs and coupling connectivity



System z196 CFCC Level 17

- **CFCC Level 17 allows:**
  - CFCC non-disruptive coupling facility dumping support, for improved coupling facility serviceability
  - CF structure expansion/contraction/reapportionment performance enhancement for list and cache structures
  - Increase in the maximum number of CF structure instances per CF image from 1023 to 2047
  - Support for greater than 32 connectors to a CF list/lock structure
  - Increase in the number of coupling CHPIDs that can attach to a CF image from 64 to 128
- **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
  - Use the **CFSizer**
  - http://www.**ibm.com**/systems/z/cfsizer/

Thank You !