



**SHARE**

Technology • Connections • Results

Anaheim, California



**Smarter Systems for a  
Smarter Planet**

***MVS Core Technologies  
Project Opening  
WSC Hot Topics***

*Session 11712 – August 6, 2012*

**Bette Brody for Riaz Ahmad  
IBM Washington Systems Center**



Permission is granted to SHARE Inc. to publish this presentation paper in the SHARE Inc. proceedings; IBM retains the right to distribute copies of this presentation to whomever it chooses.

## Trademarks and Disclaimers

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

AIX*	System z*
DB2*	zEnterprise
IBM*	z/OS*
IBM (logo)	z/VM*

\* Registered trademarks of IBM Corporation

**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 there from.

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 trademarks of Microsoft Corporation in the United States, other countries, or both.

InfiniBand is a trademark and service mark of the InfiniBand Trade Association.

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.

### zEnterprise Disclaimer

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

---

## Agenda

- Operating Systems status
  - Washington Systems Center Flashes
  - Announcements
  - Parallel Sysplex™

## z/OS Key Dates

- **z/OS Version 1 Release 13**
  - ▶ **February 15, 2011:** Preview Announcement
  - ▶ **July 12, 2011:** Announcement
  - ▶ **September 30, 2011:** General availability via ServerPac, CBPDO and SystemPac (**SystemPac no longer available – except EMEA**)
- **z/OS Version 1 Release 11**
  - ▶ **End of support:** September 30, 2012
  - ▶ **Lifecycle Extension:** October 1, 2012

- **z/OS is planning on a 2-year release cycle starting with the next release.**
- **z/OS “next release” is planned for 2H2013.**
- **FAQs**
  - <http://public.dhe.ibm.com/common/ssi/ecm/en/zsq03055usen/ZSQ03055USEN.PDF>
  - **z/OS home page: Under *Get more from z/OS***
    - <http://www-03.ibm.com/systems/z/os/zos/index.html>

# z/OS Support Summary

Release	z900/z800 WdfM	z990/z890 WdfM	z9 EC z9 BC WdfM	z10 EC z10 BC	z196 CPC	z196 w/zBX	z114 CPC	z114 w/zBX	End of Service	Lifecycle Extension for z/OS
z/OS V1.7 <sup>2</sup>	X	X	X	X	X				9/09 <sup>1</sup>	9/10 <sup>1</sup>
z/OS V1.8 <sup>2</sup>	X	X	X	X	X		X		9/09 <sup>1</sup>	9/11 <sup>1</sup>
z/OS V1.9 <sup>2</sup>	X	X	X	X	X		X		9/10 <sup>1</sup>	9/12 <sup>1*</sup>
z/OS V1.10	X	X	X	X	X	X	X	X	9/11 <sup>1</sup>	9/13 <sup>1</sup>
z/OS V1.11	X	X	X	X	X	X	X	X	9/12 <sup>*</sup>	9/14 <sup>1</sup>
z/OS V1.12	X	X	X	X	X	X	X	X	9/14 <sup>*</sup>	3 <sup>*</sup>
z/OS V1.13	X	X	X	X	X	X	X	X	9/16 <sup>*</sup>	3 <sup>*</sup>
z/OS V2.1 <sup>*</sup>			X	X	X	X	X	X	9/18 <sup>*</sup>	3 <sup>*</sup>

## Notes:

- 1 The IBM Lifecycle Extension for z/OS provides the ability for customers to purchase extended defect support for that release of z/OS for up to 24 months after the z/OS release's end of service date
- 2 See IBM GTS services for additional fee-based extended service
- 3 Optional extended service is planned to be offered
  - Planned. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

**WdfM** – Server has been withdrawn from Marketing

\* Planned. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

Out of Lifecycle Extension for z/OS support <sup>4</sup>
Defect support provided with Lifecycle Extension for z/OS
Generally supported

---

## IBM Lifecycle Extension for z/OS V1R11 (5657-A01)

- The IBM Lifecycle Extension for z/OS V1.11 provides fee-based corrective service (a fix, bypass, or restriction to a problem) for up to two years beyond the September 30th 2012 end of service date for z/OS V1.11
- This Lifecycle Extension for z/OS V1.11 enables z/OS V1.11 users to continue to receive corrective service for z/OS V1.11 for the 2 year period of October 1, 2012 through **September 30, 2014**.
- The Lifecycle Extension for z/OS V1.11 was announced February 15, 2011 and will be available October 1, 2012.
- **More details: Announcement Letter 212-025 Dated April 11, 2012**

## 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 was made available October 1, 2011.
- **More details: 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



## z/OS on DVD

- **z/OS and related software (such as ServerPac<sup>®</sup>, CBPDO) 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-03.ibm.com/systems/z/os/zos/serverpac\\_internet\\_delivery.html](http://www-03.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
  - z/OS Customized Offering Driver (COD) is also available on DVD, but requires the DVD drive in and installation from the HMC.



---

## Agenda

- Operating Systems status
- Washington Systems Center Flashes
- Announcements
- Parallel Sysplex™

## z/OS CPENABLE Settings for IBM zEnterprise 196, zEnterprise 114, System z10, IBM System z9, and eServer zSeries Processors

- **Flash10337**
- This document has the recommended settings for the z/OS CPENABLE parameter

Processor Family	Basic Mode	LPAR Dedicated	LPAR Shared
IBM zEnterprise 196	N/A	10,30	10,30
IBM zEnterprise 114	N/A	10,30	10,30
IBM System z10	N/A	10,30	10,30
IBM System z9	N/A	10,30	10,30
zSeries 990 (2084	N/A	10,30	10,30
zSeries 890 (2086)	N/A	10,30	10,30
zSeries 800/900 (2066/2064)	10,30	10,30	0,0
9672 G5, G6	10,30	10,30	0,0

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



## SMP/E Internet Service Retrieval and Shopz download servers will change hostname and public internet IP addresses

- **Flash10780**
- Public internet IP address and hostname changes will take place on August 26, 2012
- May affect downloads of z/OS products and service through ShopzSeries and service through SMP/E Internet Service Retrieval
- Action may be required to ensure uninterrupted downloads of products and service
  - ▶ Firewall rules may need to be updated to permit access even though the applications use a hostname
- Recommendation is firewall rule changes be made as soon as possible
- Do not remove the old hostnames and IP addresses because they are still used for other delivery functions, the new hostnames and IP addresses should be added
- Review the flash for the new hostname and IP addresses

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



## Cryptographic Support for z/OS V1R11 – V1R13 (HCR7790)

- **Flash10760**
- The newest version of ICSF, FMID HCR7790, was announced on July 12, 2011 and was available for download on September 9, 2011
- This new version of ICSF provides support for the latest updates to the IBM Common Cryptographic Architecture (CCA).
- The CCA has been updated to provide new functionality and to meet updated cryptographic standards
- Some of the CCA updates are implemented directly in ICSF, others are implemented in the most current IBM cryptographic hardware, in the new zEnterprise 114 and the zEnterprise 196 GA2

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



## SYNCHDEST and Synchronous WTOR Processing

- **Flash10761**
- The routing of “Synchronous WTOR” messages to consoles is under the control of the SYNCHDEST parameter for each z/OS System
- An understanding of how these messages are routed can be very important to help ensure the messages will be visible to the appropriate operations staff when they are issued
- This Flash explains the processing of synchronous WTORs and the availability implications associated with them, using a particular Parallel Sysplex example

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



## IBM System z DS8000 I/O Priority Manager

- **WP102074**
- In a System z environment, I/O priority manager collaborates with the z/OS Workload Manager (WLM) to handle specified performance requirements and to achieve the desired Qualities of Service (QoS).
- Specified in **IEAOPTxx** by **STORAGESEVERMGT=YES | NO**
  - ▶ Specifies whether SRM should pass service class importance and goal information to the storage I/O priority manager in the IBM System Storage DS8000 series. The passed information enables the storage I/O priority manager to provide favored processing for I/O requests of important z/OS workloads that are missing their goals.
  - ▶ Before specifying STORAGESEVERMGT=YES, verify that your IBM System Storage DS8000 model incorporates the storage I/O priority manager feature.

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



## Best Practices Upgrading a Coupling Facility Version 2

- **WP101905**
- This paper documents the best practices for installing a new CF, doing a POR of CEC with a coupling facility image on it and reactivating a coupling facility image.
- IBM recommends that the best practices be followed to prevent unplanned down time, other adverse impacts to applications and minimize the maintenance upgrade window.
- Version 2 of the Best Practices:
  - ▶ Upgrading a CF procedure simplify the removal of the last CF link which is also the last timing link, or ensure STP timing will not be disrupted.
  - ▶ Version 2 procedures have been updated to use the CF SHUTDOWN command instead of the DEACTIVATE command
  - ▶ SHUTDOWN is safer as it will not complete if there are still structures in the CF
  - ▶ SHUTDOWN was specifically added to avoid a sysplex outage as a result of the incorrect CF being DEACTIVATED

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)





---

## Mission: Available

### *How to achieve high availability in Parallel Sysplex*


- **WP101966**
- The paper details all of the latest z/OS functions and features, as well as new functions of the System z196 and z114 hardware platform that promote parallel sysplex high availability

[ibm.com/support/techdocs](http://ibm.com/support/techdocs)



---

## Agenda

- Operating Systems status
- Washington Systems Center Flashes
-  Announcements
- Parallel Sysplex™

# z/OS support z196 Functions and Features (GA2)



Five hardware models
Quad-core 5.2 GHz processor chips
Up to 80 processors configurable as CPs, zAAPs, zIIPs, IFLs, ICFs, or optional SAPs (up to 32-way on R7, 64-way on R9, 80-way on R11)
Out of order instruction execution
Improved processor cache design
Up to 15 subcapacity CPs at settings 4, 5, or 6
Up to 3TB real memory (1TB per LPAR)
Improved availability with Redundant Array of Independent Memory (RAIM)
Power save functions
On Demand enhancements
IBM zEnterprise Unified Resource Manager (from HMC)
New and enhanced instructions
Changes to the Common Cryptographic Architecture, Crypto Express3, and Trusted Key Entry
IPL from an alternate sub channel set
PCIe-based I/O infrastructure -- FICON Express8S and OSA Express4S
32 sub channels per CHPID for PSIFB links
Large send for IPv6 packets



z196

zBX

(z/OS support in blue)

(Sept 2011 support in red)

Capacity Provisioning enhanced
6.0 GB/sec InfiniBand I/O interrupt
Three subchannel sets per LCSS
FICON Discovery and AutoConfiguration (zDAC)
OSA-Express3 Inbound Workload Queing (IWQ)
IWQ for Enterprise Extender
Low latency virtual network between logical partitions with HiperSockets Completion Queue (preview)
CFCC Level 17 enhancements
Up to 104 External Coupling Link
Up to 128 Coupling Link CHPIDs Defined
Optional water cooling
Optional High Voltage DC power
Optional overhead I/O cable exit
Support for OSX and OSM CHPIDs
zBX-002 IBM Smart Analytics Optimizer
zBX-002 select POWER7 and IBM System x Blades
zBX-002 IBM WebSphere DataPower Integration Appliance X150 for zEnterprise
HiperSockets optimization for IntraEnsemble Data Network (preview)

## zEnterprise 114 Functions and Features (GA Driver 93 – September, 2011)

<b>Two hardware models</b>
<b>Up to 10 processors configurable as CPs, zAAPs, zIIPs, IFLs, ICFs, or optional SAPs</b>
<b>Up to 26 subcapacity settings across a maximum of 5 CPs</b>
<b>Up to 256 GB of Redundant Array of Independent Memory (RAIM) for System</b>
<b>Dedicated Spares on the Model M10</b>
<b>Increased capacity processors</b>
<b>Out of order instruction execution</b>
<b>Improved processor cache design</b>
<b>New and additional instructions</b>
<b>On Demand enhancements</b>
<b>CFCC Level 17 enhancements</b>
<b>Cryptographic enhancements</b>
<b>6 and 8 GBps interconnects</b>
<b>2 New OSA CHPIDs – OSX and OSM</b>



<b>Doubled HiperSockets to 32</b>
<b>Additional STP enhancements</b>
<b>Doubled Coupling CHPIDs to 128</b>
<b>Improved PSIFB Coupling Link</b>
<b>Physical Coupling Links increased to 72 (Model M10)</b>
<b>New 32 slot PCIe Based I/O Drawer</b>
<b>Increased granularity of I/O adapters</b>
<b>New form factor I/O adapters i.e FICON Express8S and OSA-Expres4S</b>
<b>Humidity and altimeter smart sensors</b>
<b>Optional High Voltage DC power</b>
<b>Optional overhead I/O cable exit</b>
<b>zBX-002 with POWER7, DataPower XI50z and IBM System x Blades</b>

---

## z/OS Support for z196 and z114

- **The minimum z/OS requirements:**

- ▶ z/OS R11, R12, R13 and higher
- ▶ z/OS R8, R9, R10 with Lifecycle Extension for z/OS and **z/OS R11** after September 30, 2012
- ▶ IBM System z BladeCenter Extension (zBX) and Ensemble support with z/OS R10 and later

# IBM zEnterprise and Unified Resource Manager Enhancements

(March 6, 2012)

## Available Now (Requires Driver 93 with current MCLs):

- Support for HiperSockets Completion Queue
- Support for Improved Network Monitoring and Metrics
- Support for HiperSockets Integration with the IEDN
- SAP Support for Linux on System x and Windows
- Sever Application State Protocol (SASP) Load Balancing Support
- Additional Fibre Channel optics for BladeCenter Chassis
- Support for System x Blades with 192 and 256 GB of Memory

## Available March 30, 2012 (Requires Driver 93 with current MCLs):

- Support for 56 System x blades in a zBX

## Available April 13, 2012 (Requires Driver 93 with current MCLs):

- z/VM V6.2 Support for Guest Exploitation of System z High Performance FICON (zHPF)
- z/VM V6.2 Support for HiperSockets Virtual Switch Bridge
- z/VM V6.2 Networking Enhancements
- z/VM V6.2 Support for HiperSockets Integration with the IEDN
- z/VM V6.2 Support for Improved Network Monitoring and Metrics

## Available April 24, 2012 (Requires Driver 93 with current MCLs):

- RPQ 8P2607 Additional FC Optics for BladeCenter Chassis in zBX
- Support to move a zBX Model 2 to a different managing CPC



**z196**

**z114**



**zBX**

## IBM System x blades: IBM BladeCenter HX5 7873 Models A6x\* and A7x\* (Supported March 6, 2012)



- **Two New Configurations: Client acquired, not configured or shipped by System z manufacturing**
- **Processor Chips**
  - Intel® Xeon® E7-2830 processors
    - Nehalem microarchitecture
    - Westmere-EX core (32 nm)
- **Memory DIMMs**
  - DDR3, 1333 MHz, VLP, RDIMM
  - Operating frequency 1066 MHz
  - 6.4 GT per second
- **Speed Burst Card**
- **SSD Expansion Card**
- **SSD Internal Disks (Two 50 GB)**
  - Hypervisor storage controlled by Unified Resource Manager
- **10 GbE 2-port Expansion Card**
  - CFFh PCIe 2.0 x16 slot
- **QLogic 8Gb FC Expansion Card**
  - CIOv PCIe 2.0 x4 slot
  - 2 ports

Description	SBB Part Number	Order Option for SSCT	Feature Code	Config 2	Config 3
<b>Model to order if using the SSCT Configuration Tool &gt;&gt;&gt;&gt;&gt;&gt;&gt;</b>				<b>7873-A6x*</b>	<b>7873-A7x*</b>
<b>HX5 EX Blade Base and Planar</b>	69Y3056	See SSCT Models Above	A16M	Single wide 30 mm blade Two processor sockets CFFh and CIOv slots	
<b>Intel® Xeon® Processor E7-2830 8 core, 2.13 GHz, 24 MB L3, 105 watt</b>	69Y3071 69Y3072	69Y3074 69Y3074	1st: A16S 2nd: A179	Two Xeon E7-2830 8-core processors 2 threads per core	
<b>Memory DIMMs: 8 GB, DDR-3 RDIMM 16 GB, DDR-3 RDIMM</b>	46C0558 49Y1527	46C0570 46C0599	A17Q 2442	8 8	0 16
<b>GB/Blade GB/Core Frequency</b>				192 12 1066 MHz	256 16 1066 MHz
<b>HX5 1-Node Speed Burst Card</b>	46M6843	59Y5889	1741	1	1
<b>HX5 SSD Exp Card 50GB SATA MLC SSD</b>	46M6906 43W7727	46M6908 43W7726	5765 5428	1 2	1 2
<b>Broadcom 10 Gb Gen2 2-port Ethernet CFFh</b>	46M6170	46M6168	0099	1	1
<b>Qlogic 8 Gb FC Expansion Card CIOv</b>	44X1946	44X1945	1462	1	1

\* The 7873 model numbers are country-specific. For example, the U.S. orderable model numbers end in "U". To order with SSCT for the U.S., the 7873-A6x is 7873-A6U. For other countries, see the country product-specific official IBM announcement letter for orderable model numbers.

The link to the IBM Standalone Solutions Configuration Tool (SSCT) V1.44 or later and updates is:

<http://www.ibm.com/support/entry/portal/docdisplay?brand=5000008&indocid=MIGR-62168> © 2012 IBM Corporation

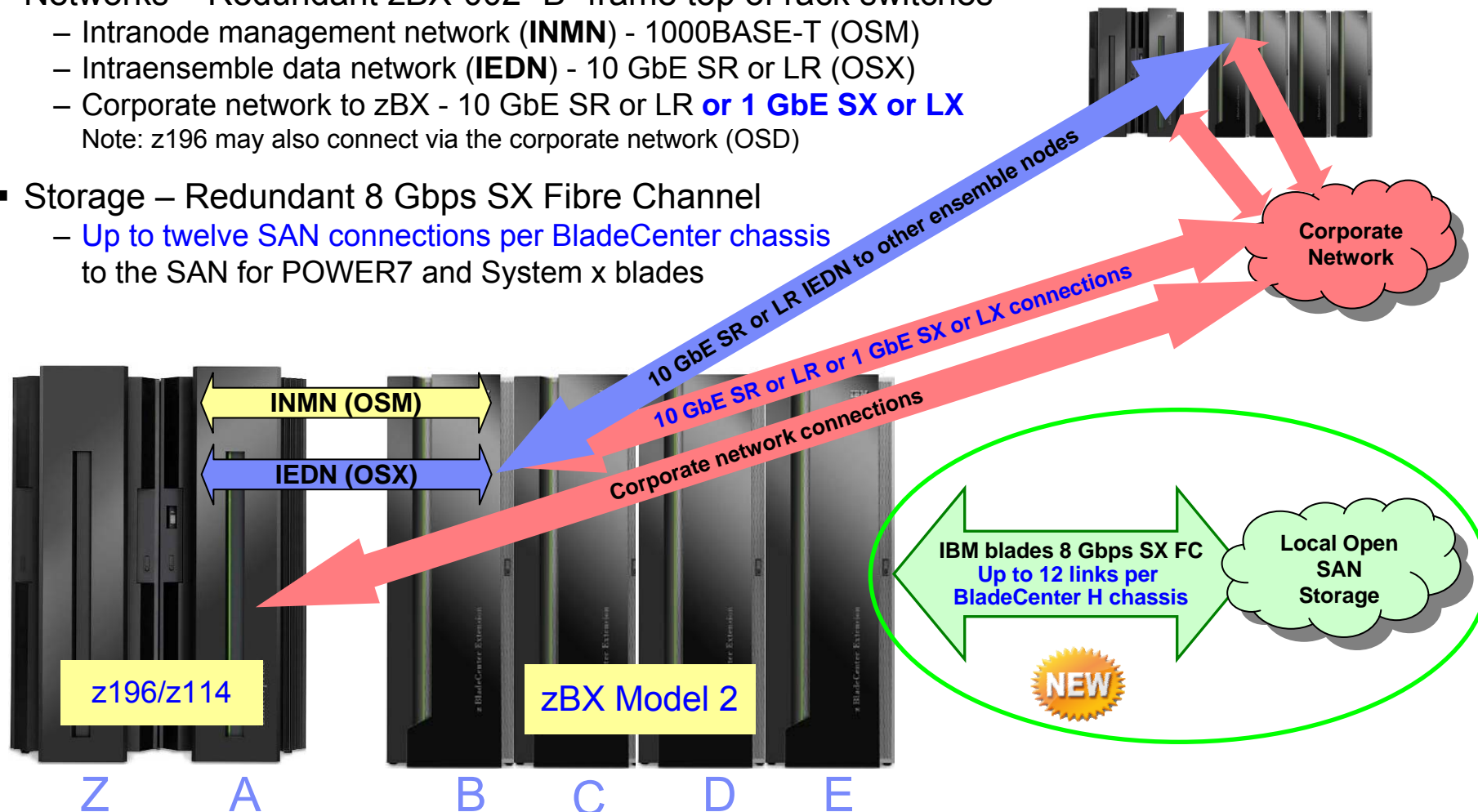
## Support for 56 System x Blades in zBX Model 2 (Available March 30, 2012)

- **General Purpose Blade Configuration (POWER7 and System x)**
  - Number allowed in a zBX is determined by **blade enablement features** ordered
  - Supported blades and software must be procured and installed (**entitled**) into slots by the client
  - Select System x blades, singlewide, up to 14 per BladeCenter chassis, **56** per zBX
  - Select POWER7 blades, singlewide, up to 14 per BladeCenter chassis, 112 per zBX
  - POWER7, System x and DataPower XI50z blades can all coexist in the same BladeCenter chassis
- **Optimizer Blade Configuration (DataPower)**
  - Optimizer blades are shipped with the zBX OR can be installed by MES in the field by an SSR
  - DataPower XI50z blades, doublewide, up to 7 per BladeCenter, 28 per zBX
    - Can coexist in the same BladeCenter with general purpose blades
- **zBX Hardware Infrastructure**
  - Slots required to hold the **enabled** blades determine the number of zBX BladeCenters and racks
  - Maximum configuration:
    - Up to eight BladeCenter H chassis (each provides slots for 14 single wide blades)
    - Up to four racks (no more than two BladeCenter H chassis per rack)
  - Racks and BladeCenters are shipped for new build or can be installed by MES in the field by an SSR
  - TOR switches, cabling and power internal to the zBX is shipped with the zBX and installed an SSR



# New 1 GbE SX or LX zBX to Customer Network Connections Increased SAN Connections (Available Now)

- Networks – Redundant zBX-002 “B” frame top of rack switches
  - Intranode management network (**INMN**) - 1000BASE-T (OSM)
  - Intraensemble data network (**IEDN**) - 10 GbE SR or LR (OSX)
  - Corporate network to zBX - 10 GbE SR or LR **or 1 GbE SX or LX**
  - Note: z196 may also connect via the corporate network (OSD)
- Storage – Redundant 8 Gbps SX Fibre Channel
  - **Up to twelve SAN connections per BladeCenter chassis** to the SAN for POWER7 and System x blades




---

## z/VM V6.2 Support for zHPF Guest Exploitation (Available April 13, 2012)



- **Support for High Performance FICON (zHPF) Guest Exploitation**
  - IBM provides support for guest virtual machines utilizing the High Performance FICON for System z (zHPF) I/O protocol. z/VM supports guest operating systems issuing single track as well as multiple track zHPF I/O.

## HiperSockets Completion Queue (Available March 6, 2012)

- **HiperSockets Completion Queue: (Statement of Direction July 12, 2011 – Satisfied)**
  - IBM supports transferring HiperSockets messages asynchronously, in addition to the current synchronous manner on z196 and z114. This could be especially helpful in burst situations. The Completion Queue function is designed to allow HiperSockets to transfer data synchronously if possible and asynchronously if necessary, thus combining ultra-low latency with more tolerance for traffic peaks.
- **Operating System Support**
  - **z/OS V1.13 (Toleration, no exploitation)**
  - **Linux on System z distributions**
    - Red Hat Enterprise Linux (RHEL) 6.2 
    - Novell SUSE Linux Enterprise Server (SLES) 11 SP2

## Support for HiperSockets Integration with the IEDN (Available March 6, 2012)

- **HiperSockets integration with the IEDN: (Statement of Direction July 12, 2011 – Satisfied)**
  - Within a zEnterprise environment, HiperSockets are integrated with the intraensemble data network (IEDN), extending the reach of the HiperSockets network outside of the central processor complex (CPC) to the entire ensemble, appearing as a single Layer 2 network.
- **Operating System Support:**
  - **z/OS V1.13 with PTFs**
  - **z/VM V6.2 with PTFs**





## ▪ z/OS (planned)

**\*All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice. Any reliance on these statements of general direction is at the relying party's sole risk and will not create liability or obligation for IBM.**

### ▪ Reversion: z/OS V2R1

- 5 year service support starting with GA

## – Product documentation

### – “going GREEN”

- DVDs will no longer be available
- Electronic delivery via the Internet
- Discontinue use of BookManager®
  - Focus on Information Center

Session 11763  
The Future of z/OS Documentation –  
Going Green  
Tuesday 4:30PM

- IBM plans to make secure delivery via FTP using secure Sockets Layer (FTPS) an option for Internet Delivery of ServerPac, CBPDO and internet delivery of PTFs using ShopzSeries and the SMP/E RECEIVE ORDER in the 4Q2012

- 4Q2013 IBM plans to require the use of FTPS for direct downloads to z/OS systems

- z/OS 2.1 is the last release where JES2 will support the z2 level for checkpoint data sets

- z/OS 1.13 is planned to be the last release to support Windows-based Capacity Provisioning Control Center (CPCC) function for use with Capacity Provisioning Manager

- Plans to add function to z/OSMF

## z/OS Version 1 Release 13...

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

### ***z/OS V1.13 has 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.

**11718 – What's New in z/OS**

**Monday 1:30 PM**

**11719 – JES2 Product Update and Latest Status**

**Monday 4:30PM**

# z/OS Management Facility – *the new face of z/OS*

**Streamlined processes and built-in guidance address a broad scope of activities and helps create a more integrated z/OS experience.**

- Configuration**
  - Configuration Assistant for z/OS Communication Server (R11) – Simplified configuration and setup of TCP/IP policy-based networking functions
- Performance**
  - Capacity Provisioning (R13) - simplified monitoring of CP status for domains
  - Resource Monitoring and System Status (R12) – single view of sysplex and Linux® performance status and dynamic real time resource metrics.
  - Workload Management – creation, editing, and activation of WLM policies (R12)
- Problem Determination**
  - Incident Log (R11) – Simplified capture, packaging, sending of SVC dump diagnostic data
- Software**
  - Deployment (R13) - Clone z/OS images, deploy software more easily and consistently
- z/OS Classic Interface**
  - ISPF Task integrates existing ISPF into z/OSMF to launch to ISPF functions directly (R13)
- Base**
  - A new web-based (REST) interface enables you to z/OSMF with jobs and dataset data from non-z/OS systems (R13)
  - Leverage IBM System z® Specialty engines
  - IBM Assistance available to help with pre-planning, early discovery, and readiness review for new z/OSMF environment

**11837 - z/OS MF User Experience  
Wednesday 3:00PM**

**11573 – z/OSMF Hands-On Lab  
Thursday 11:00 AM**

**10656 – z/OSMF Roundtable  
Thursday 12:15 PM**

**11574 – z/OSMF Software Deployment Hands-On Lab  
Friday 11:00 AM**

---

## Revised Availability: z/OSMF V1R13 DASD Management Task

The enhancements to z/OSMF to offer a new DASD Management Task, described In Software Announcement Letter 211-252, dated July 12, 2011, will not be available In the first quarter 2012 with a PTF for APAR PM40869.

IBM is assessing plans for delivering this capability at a later date.

Please see Announcement Letter 212-030 for details.

No change since last SHARE



## WARNUND in IEASYSxx

- **Starting with z/OS V1R13 you can specify WARNUND statement in IEASYSxx.**
  - ▶ When used, it indicates a warning message IEA660I be issued when undefined statements are encountered, rather than prompting for a correct statement
  - ▶ Rolled back to z/OS V1R12 and z/OS V1R11 with OA35929
  - ▶ If you want WARNUND processing for all IEASYSxx PARMLIB members, then put WARNUND at the beginning of IEASYS00 so it covers all subsequent system parameters within IEASYS00 and any other IEASYSxx members processed
  - ▶ If you want WARNUND processing for your reply to IEA101A SPECIFY STSREM PARAMETERS, you must specify it within the reply text:

`R 00,WARNUND,SYSP=01,NEWPARAM=VALUE`

- ▶ IEA247I USING IEASYS00 FOR z/OS 01.13.00 HBB7780  
 IEA325I IEASYS00 PARAMETER LIST  
 IEA321I INVALID PARAMETER SYNTAX - XLLOC=00 - UNDEFINED KEYWORD  
 IEA324I SYSP INPUT TERMINATED IN IEASYS00  
 IEA336A RESPECIFY PARAMETERS OR PRESS ENTER TO CANCEL
  
- ▶ IEA321I INVALID PARAMETER SYNTAX - XLLOC=00 - UNDEFINED KEYWORD  
 IEA660I PROCESSING CONTINUES AFTER UNDEFINED KEYWORD DUE TO **WARNUND**

## SETOMVS Command

- **SETOMVS command is used to dynamically change the options z/OS UNIX System Services is currently using**
  - ▶ These options are originally set in the BPXPRMxx member of SYS1.PARMLIB during IPL
  - ▶ Changes to all of the system-wide limits take effect immediately
  - ▶ When a process limit is updated, all processes using the system-wide process limits have their limits updated
  - ▶ LOSTMSG=ON | OFF Enables or disables the detecting of lost and duplicate XCF messages in a shared file system configuration. This parameter may be used for diagnostics purposes. LOSTMSG is ignored when a file system doesn't exist
  - ▶ MAXUSERMOUNTSYS= Specifies the maximum number of nonprivileged user mounts for the shared file system configuration environment
  - ▶ MAXUSERMOUNTUSER= Specifies the maximum number of nonprivileged user mounts allowed for each nonprivileged user.
    - ▶ The MAXUSERMOUNTUSER limit only applies to the nonprivileged users and does not affect the privileged mounts.

## SETSMS Command

- **Use the SETSMS command when the Storage Management Subsystem (SMS) is active to change a subset of SMS parameters from the console without changing the active IGDSMSxx member of SYS1.PARMLIB**
  - ▶ With z/OS V1R13 the SETSMS command is enhanced to dynamically suppress DELETE/RENAME messages from being logged to JOBLOG and HARDCOPY Log
  - ▶ SUPPRESS\_DRMSGS (YES|NO) Specifies whether SMS suppress DELETE/RENAME messages issued to the JOBLOG and HARDCOPY Log
    - ▶ Default is NO and Scope is SYSTEM

```

13.29.52 JOB07094 ---- WEDNESDAY, 07 MAR 2012 ----
13.29.52 JOB07094 IRR010I USERID AHMAD  IS ASSIGNED TO THIS JOB.
13.29.52 JOB07094 ICH70001I AHMAD  LAST ACCESS AT 10:17:52 ON WEDNESDAY, MAR
13.29.52 JOB07094 $HASP373 AHMAD1  STARTED - INIT 1  - CLASS A - SYS SYSB
13.29.52 JOB07094 IEF403I AHMAD1 - STARTED - TIME=13.29.52
13.29.52 JOB07094 Jobname Procstep Stepname CPU Time  EXCPs  RC
13.29.52 JOB07094 AHMAD1  --None-- S0      00:00:00      1  00
13.29.52 JOB07094 IGD17054I DATA SET NOT FOUND FOR DELETE/RENAME ON VOLUME ZOS011 DATA SET IS
AHMAD.A
13.29.52 JOB07094 AHMAD1  --None-- S1      00:00:00     36  00
13.29.52 JOB07094 IEF404I AHMAD1 - ENDED - TIME=13.29.52
13.29.52 JOB07094 $HASP395 AHMAD1  ENDED
  
```

## SETLOGR MONITOR Command

- Use the **SETLOGR MONITOR** command to modify specific system logger **IXGCNFxx PARMLIB** parameters pertaining to the z/OS System Logger monitoring
  - ▶ Before changing the MONITOR options, [D LOGGER,IXGCNF,MONITOR](#)

```

RESPONSE=SYSB
IXG607I  14.24.49  LOGGER DISPLAY 477
LOGGER PARAMETER OPTIONS
  KEYWORD          SOURCE  VALUE
  -----
  MONITOR OFFLOAD
  WARNALLOC        DEFAULT  00030
  ACTIONALLOC      DEFAULT  00060
  WARNRECALL       DEFAULT  00060
  ACTIONRECALL     DEFAULT  00120

```

## OPERLOG EMCS Console Name Change

- **Starting with z/OS V1R13 the OPERLOG EMCS console name \*OPLOGyy is generated using the two characters System Clone Value (&SYSCLONE)**
  - ▶ The default &SYSCLONE value is obtained from the System Name (&SYSNAME)
  - ▶ The change of OPERLOG EMCS console name spans all configurations
    - ▶ MULTISYSTEM, MONOPLEX
    - ▶ GRS RING or STAR mode
  - ▶ If you depend on the name of OPERLOG EMCS console in you automation, it must be adjusted to reflect this change
  - ▶ Following commands will display the OPERLOG EMCS console names:
    - ▶ D C,KEY=OPERLOG (Message IEE892I)
    - ▶ D EMCS (Message IEE129I)
    - ▶ D EMCS,CN=\*OPLOG\* (Message IEE129)
  - ▶ If APAR OA30757 applied to z/OS V1R11, or z/OS V1R10, and in z/OS V1R12, this change is already in effect.

## Default Change for CON= System Parameter

- **Prior to z/OS V1R13, the default console operating mode was SHARED**
  - ▶ Beginning with z/OS V1R13, the default console operating mode is changed from SHARED mode to **DISTRIBUTED** mode.
  - ▶ DISTRIBUTED Mode is the preferred mode of operations
  - ▶ SHARED mode will be removed in z/OS Release after z/OS 2.1
  - ▶ Examine the system parameters used to IPL the system. The mode is specified on the CON= parameter in IEASYSxx.
  - ▶ D OPDATA,MODE

```

CNZ9006I 14.56.24 DISPLAY O,MODE 217
CURRENT: SHARED
SYSTEM MIGRATION STATUS
MVS1 MIGRATION SUPPORTED
MVS5 MIGRATION SUPPORTED
MVS4 MIGRATION SUPPORTED
MVS2 MIGRATION SUPPORTED
MVS3 MIGRATION SUPPORTED
SYSPLEX ABLE TO MIGRATE: YES
  
```

## Accommodate HiperDispatch default of YES

- **Beginning with z/OS V1R13 when running on a zEnterprise Server, the IEAOPTxx keyword HIPERDISPATCH will default to YES**
  - ▶ If HIPERDISPATCH=NO is specified, the specification will be honored as it was on previous z/OS releases.
  - ▶ IBM z/OS Health Checker check SUP\_HiperDispatch checks whether the expected HiperDispatch check parameter state HIPERDISPATCH YES | NO, matches the actual HiperDispatch state of the system.

## Start Runtime Diagnostics (RTD) at System Initialization

- **Before z/OS V1R13, RTD ran as a started task under the master subsystem and had to be started each time you wanted an analysis**
  - ▶ RTD would start, do its analysis and then end
- ▶ **Starting with z/OS V1R13, you can start RTD to run as an address space under the master subsystem**
  - After you start RTD (HZR), it remains running until stopped using the STOP command
  - You will use, MODIFY HZR,ANALYZE command to generate a runtime Diagnostics analysis and report



## z/OS Availability Enhancements

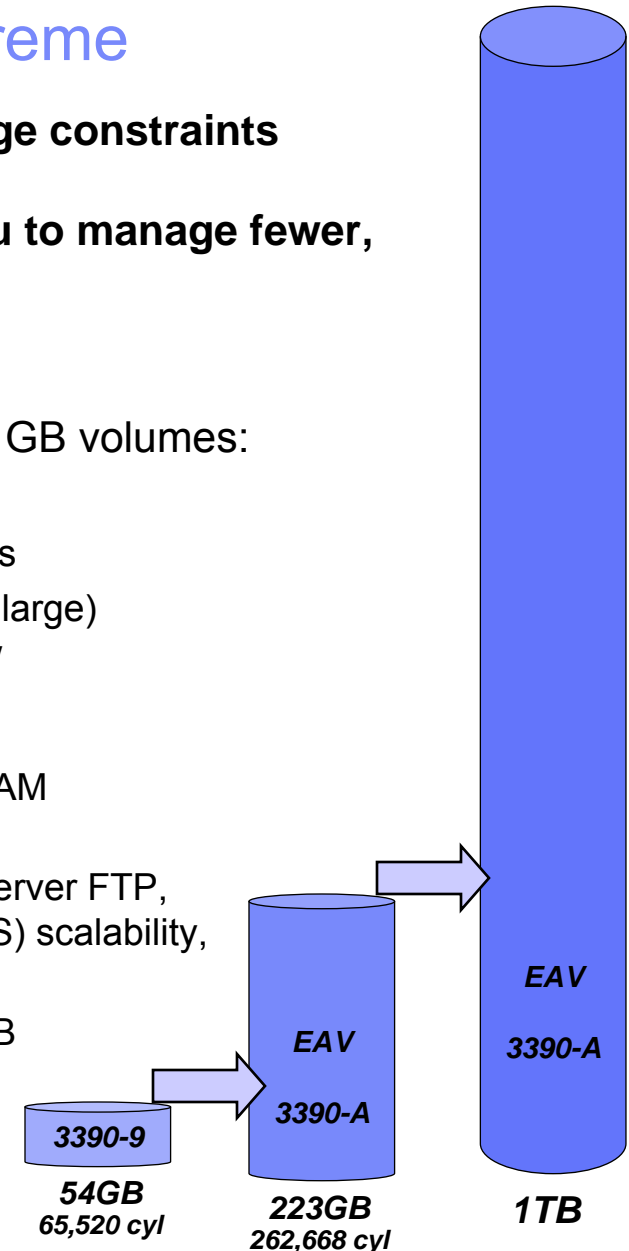
### *Parallel Sysplex updates for z/OS V1R13*

- **Fully shared zFS in a sysplex!**
  - ▶ **Between 50% (1.5x) and 150% (2.5x)\* I/O performance improvement** for any z/OS UNIX workload using shared zFS in a Parallel Sysplex®. Applications using zFS, such as z/OS UNIX System Services and WebSphere Application Server for z/OS, are expected to benefit
  - ▶ Less-disruptive recovery from most internal zFS problems (for both single system and sysplex-aware systems)
  - ▶ Also: A new health check for zFS configuration files
  
- Eliminate the need for WebSphere MQ for SDSF Sysplex environments.
- NEW Easier to use XCF signaling protocol
- Updated volume information on all systems in the sysplex when DFSMSdss™ or DFSMSHsm™ Fast Replication Backup and Recovery processing complete
- More responsive to VIPA changes
- Workload balancing of IPsec IKEv2 and IPv4.


\* I/O performance improvements measured for fully shared zFS ranged from very small to 900%, with the majority of workload conditions tested falling between 50% and 150%. The actual amount of improvement will depend on the environment (monoplex or Parallel Sysplex) and the type of file processing being done.

## Taking z/OS Storage Volumes to the Extreme

- **Extended Address Volumes (EAVs) help address storage constraints**
- **Can help simplify storage management by enabling you to manage fewer, larger volumes, as opposed to many small volumes**
  - ▶ Also IDEAL for large datasets, may improve storage utilization!
- DS8000® exploitation rolled out over time, starting with 223 GB volumes:
  - ▶ With z/OS R10, support for VSAM
  - ▶ With z/OS R11, support for extended format sequential data sets
  - ▶ With z/OS R12, support extended to sequential (both basic and large) data sets, partitioned (PDS/PDSE) data sets, catalogs (ICF now larger than 4 GB), BDAM data sets, JES spool and checkpoint data sets, standalone Dump extended format dump data sets, DFSMSrmm data sets, generation data groups (GDGs) and VSAM volume data sets (VVDSs).
  - ▶ With z/OS R13 - Support extended to z/OS Communications Server FTP, SDSF extended format print files, VSAM volume data set (VVDS) scalability, ISPF to display data sets eligible for EAV.
  - ▶ Support for larger extended address volumes (EAVs), up to 1 TB per volume, on IBM System Storage® DS8700 and DS8800 series, with new DS8000 licensed machine code.  
PTFs for APARs OA28553, OA35138, OA36148, PM08486




## z/OS and IPv6

- **IPv4 address pool is exhausted** February 3, 2011
  - ▶ <http://www.ipv6news.info/2011/02/04/ipv4-address-pool-is-exhausted/>
  - ▶ Now the IPv4 Internet only has the stock of IPv4 addresses held by the regional registrars and Internet Service Provides (ISPs) to keep it going.
- **z/OS is IPv6 certified!** ([http://jitc.fhu.disa.mil/adv\\_ip/register/certs/ibmzosv110\\_dec08.pdf](http://jitc.fhu.disa.mil/adv_ip/register/certs/ibmzosv110_dec08.pdf))
 
- **z/OS Communications Server is adding function for IPv6 networks:**
  - ▶ **For z/OS R11**
    - ▶ Support RFC4941 and RFC5095; and the AES-based AES-XCBC-MAC-96 and AES-XCBC-PRF-128 algorithms - intended to meet new government IPv6 standards
  - ▶ **For z/OS R12**
    - ▶ Health checks for IPv4 and IPv6 routing
    - ▶ Support for DFSMSrmm, IKEv2, ability to Send DNS Queries over IPv6, support for security-related RFC3484 and RFC5014
  - ▶ **For z/OS R13**
    - ▶ Support for IPv6 intrusion detection security equivalent to that provided for IPv4, integrated with the Configuration Assistant (in z/OSMF)
- ★ Support for IPv6 checksum and segmentation offload enhancements and for LPAR-to-LPAR checksum offload for both IPv4 and IPv6 packets available with OSA-Express4S QDIO (announced July 12 2011)
  - TCP/IP segmentation and checksum processing on OSA card and not on CP

---

## Agenda

- Announcements
- Operating Systems status
- Washington Systems Center Flashes
-  Parallel Sysplex™

---

## Server Participation in a Parallel Sysplex

- **z196/z114 do not support active participation in the same Parallel Sysplex with:**

- IBM eServer zSeries 900 (z900), IBM eServer zSeries 800 (z800),
- IBM eServer zSeries 990 (z990), IBM eServer zSeries 890 (z890),
- and older System/390® Parallel Enterprise Server systems

This means:

- Configurations with **z/OS** on one of these servers can't add a z196/z114 to their sysplex for either a z/OS image or a CF image
- Configurations with **CF** on one of these servers can't add a z196/z114 to their sysplex for either a z/OS image or a CF image

- **z196/z114 does not support connection to an ETR**

- Customers should migrate to STP *prior* to z196/z114

- **z196/z114 does not support ICB-4 Coupling Links**

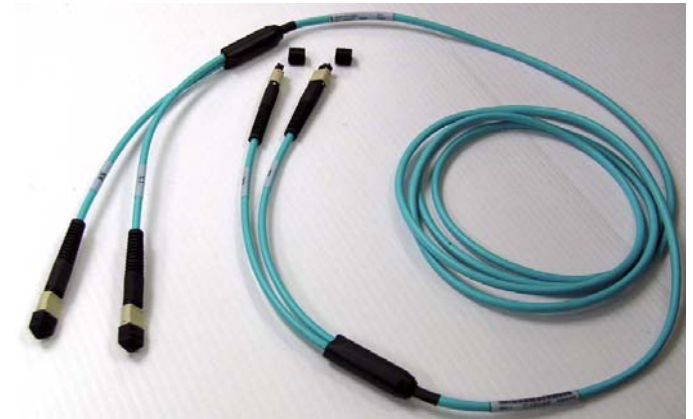
- Customers should plan their coupling link technology

## Parallel Sysplex using InfiniBand (PSIFB) *ready for even the most demanding data sharing workloads*

### ▪ **Simplify Parallel Sysplex connectivity**

#### ***Do more with less***

- Can share physical links by defining multiple logical links (CHPIDs)
- Can consolidate multiple legacy links (ISC and/or ICB)
- Can more easily address link constraints
  - Define another CHPID to increase available subchannels instead of having to add physical links



### ▪ **More flexible placement of systems in a data center**

- 12x InfiniBand coupling links (FC 0171 HCA3-O and FC 163 HCA2-O)
  - Support optical cables up to 150 meters. No longer restricted to 7 meters between System z CPCs
- 1x InfiniBand coupling links (FC 0170 HCA3-O LR and FC FC 0168 HCA2-O LR)
  - Use the same single mode fiber optic cables as ISC-3 and FICON/FCP for unrepeated distances of up to 10 km, and metropolitan distances with qualified DWDM solutions

# z114 and z196 GA2 Parallel Sysplex Coupling Connectivity

## z9 EC and z9 BC S07

IFB 12x SDR, ISC-3

z9 to z9 IFB is NOT supported



HCA1

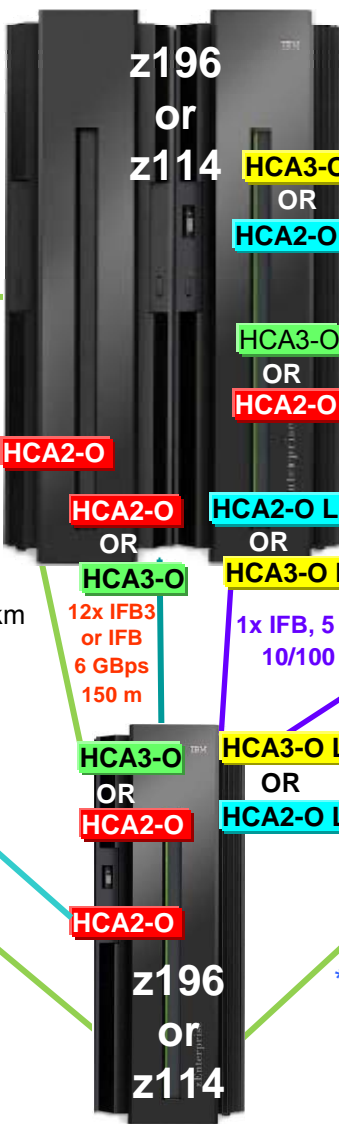
ISC-3, 2 Gbps  
10/100 km

12x IFB, 3 GBps  
Up to 150 m

ISC-3, 2Gbps, 10/100 km

12x IFB, 3 Bps, 150 m

## z196 or z114



HCA2-O

HCA2-O

OR

HCA3-O

OR

HCA2-O

OR

HCA3-O

OR

HCA2-O

OR

HCA2-O

OR

HCA2-O

OR

HCA2-O

OR

HCA2-O

OR

HCA2-O

## z196 or z114

## z10 EC and z10 BC

IFB 12x and 1x, ISC-3,

ISC-3, 2 Gbps, 10/100 km



HCA2-O LR

HCA2-O

HCA2-O LR

HCA3-O LR

OR

HCA2-O LR\*

ISC-3, 2 Gbps  
10/100 km

12x IFB, 6 GBps  
150 m

HCA2-O LR\*

HCA3-O LR

1x IFB, 5 Gbps  
10/100 km

HCA3-O LR

OR

HCA2-O LR\*

ISC-3, 2 Gbps, 10/100 km

HCA3-O LR

OR

HCA2-O LR\*

ISC-3, 2 Gbps, 10/100 km

HCA2-O LR\*

**z800, z900  
z890 and z990**

*Not supported!*

**Note: ICB-4 and ETR  
are NOT supported  
on z196 or z114**

**\*HCA2-O LR carry forward only on z196 and z114**

**Note:** The InfiniBand link data rates do not represent the performance of the link. The actual performance is dependent upon many factors including latency through the adapters, cable lengths, and the type of workload.

## System z CFCC Level 17

- **CFCC Level 17 allows:**
  - Up to 2047 structures per Coupling Facility (CF) image, up from the prior limit of 1023. This allows you to define a larger number of data sharing groups, which can help when a large number of structures must be defined, such as to support SAP configurations or to enable large Parallel Sysplex configurations to be merged. This function requires z/OS V1.12 and the PTF for APAR OA32807; PTFs are also available for z/OS V1.10 and z/OS V1.11.
  - More connectors to list and lock structures. XES and CFCC already support 255 connectors to cache structures. With this new support XES also supports up to 247 connectors to a lock structure, 127 connectors to a serialized list structure, and 255 connectors to an unserialized list structure. This support requires z/OS 1.12 and the PTF for APAR OA32807; PTFs are also available for z/OS V1.10 and z/OS V1.11.
  - Improved CFCC Diagnostics and Link Diagnostics
- **Structure and CF Storage Sizing with CFCC level 17**
  - May increase storage requirements when moving from CFCC Level 16 (or below) to CF Level 17
  - Using the **CFSizer** Tool is recommended
  - <http://www.ibm.com/systems/z/cfsizer/>
- **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 (without coexistence PTF installed) is NOT supported without sysplex IPL



## Supported CFCC Levels for z114 and z196 (GA2)

### Coupling with z10

- The minimal code level for z10 coupling to z196 is Driver 79
- CFCC Product Release 16 Service Level 2.25.
- MCLs recommended for coupling: Highest available level

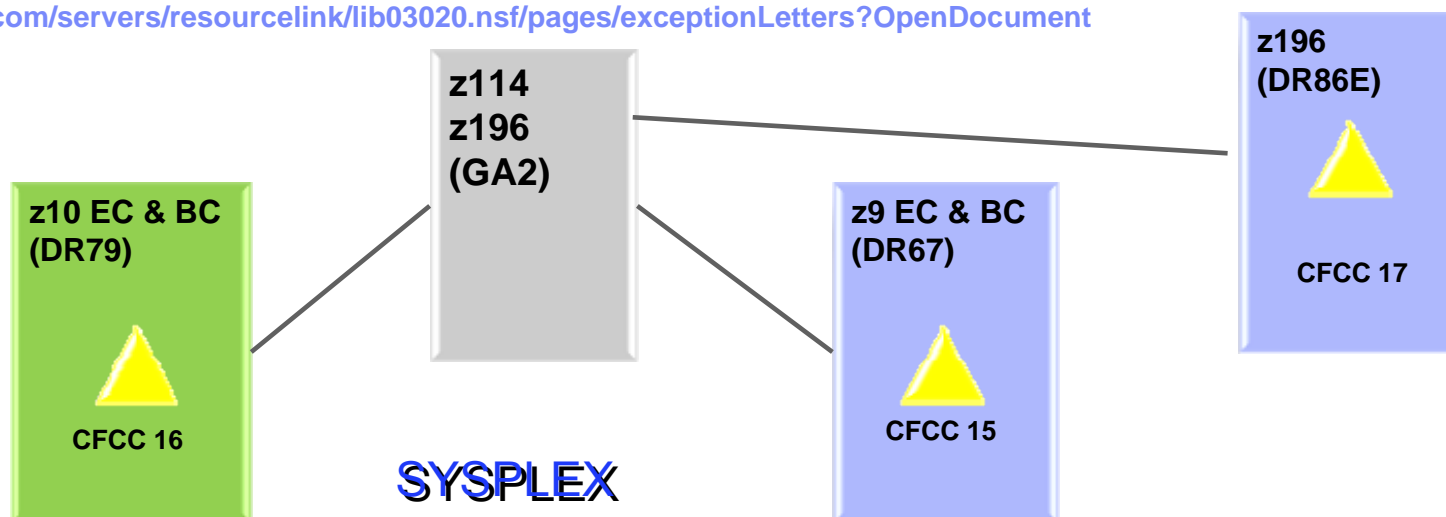
### Coupling with z9

- The minimal code level for z9 coupling to z196 is Driver 67
- CFCC Product Release 15 Service Level 2.11.
- MCLs recommended for coupling: Highest available level

### Coupling with z196 and z114

- The minimal code level for z196 coupling to z196 is Driver 86E
- CFCC Product Release 17 Service Level 2.24.
- MCLs recommended for coupling: Highest available level
- Latest information: z114 or z196 GA2 Driver Exception Letter on Resource Link

For latest recommended levels see the current exception letter published on Resource Link:  
<https://www-304.ibm.com/servers/resourcelink/lib03020.nsf/pages/exceptionLetters?OpenDocument>



# System z Social Media

- System z official Twitter handle:
  - ▶ [@ibm\\_system\\_z](#)
- Top Facebook pages related to System z:
  - ▶ [Systemz Mainframe](#)
  - ▶ [IBM System z on Campus](#)
  - ▶ [IBM Mainframe Professionals](#)
  - ▶ [Millennial Mainframer](#)
- Top LinkedIn Groups related to System z:
  - ▶ [Mainframe Experts Network](#)
  - ▶ [Mainframe](#)
  - ▶ [IBM Mainframe](#)
  - ▶ [System z Advocates](#)
  - ▶ [Cloud Mainframe Computing](#)
- YouTube
  - ▶ [IBM System z](#)

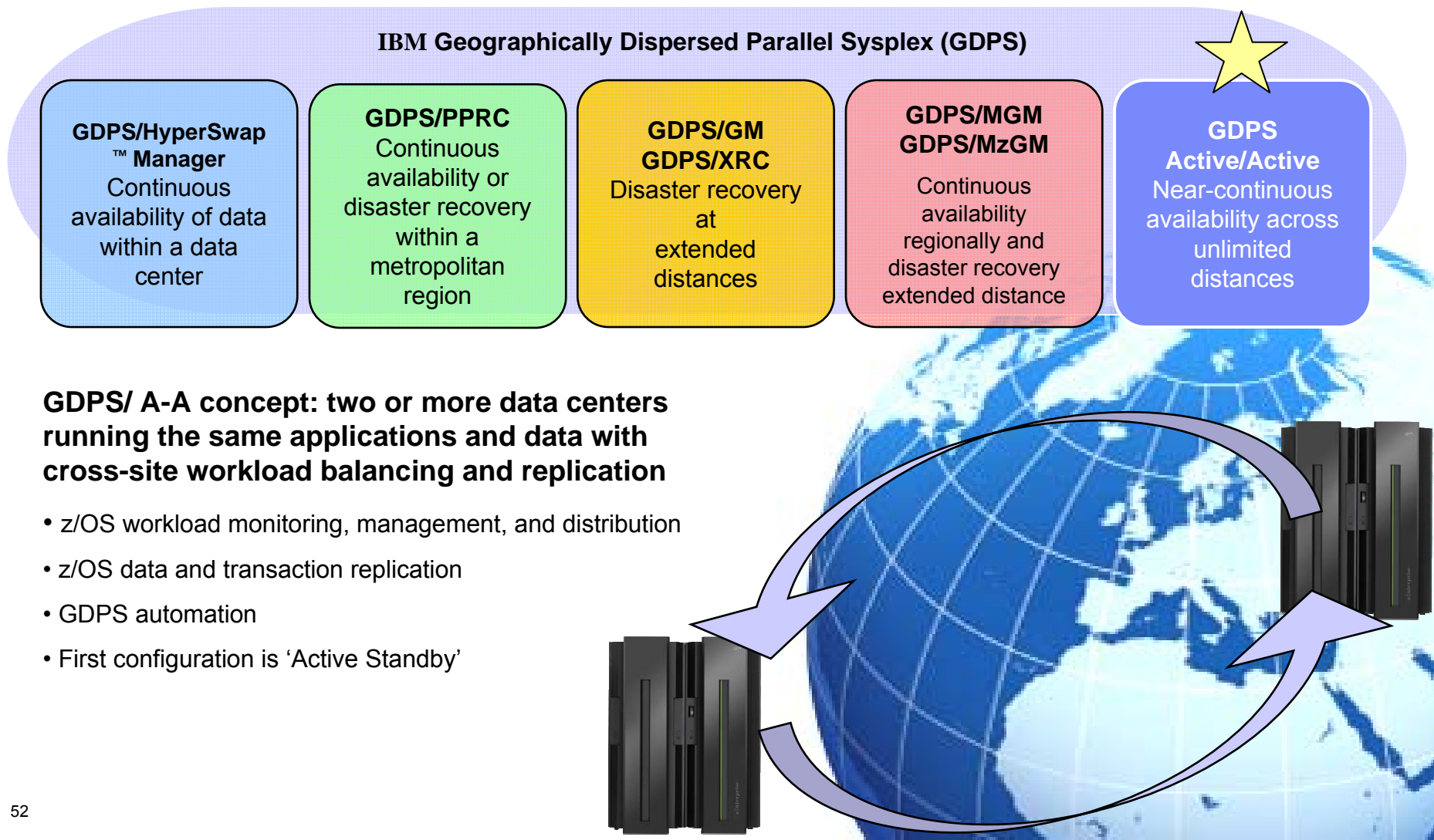


- Leading Blogs related to System z:
  - ▶ [Evangelizing Mainframe \(Destination z blog\)](#)
  - ▶ [Mainframe Performance Topics](#)
  - ▶ [Common Sense](#)
  - ▶ [Enterprise Class Innovation: System z perspectives](#)
  - ▶ [Mainframe](#)
  - ▶ [MainframeZone](#)
  - ▶ [Smarter Computing Blog](#)
  - ▶ [Millennial Mainframer](#)

**Thank You !**

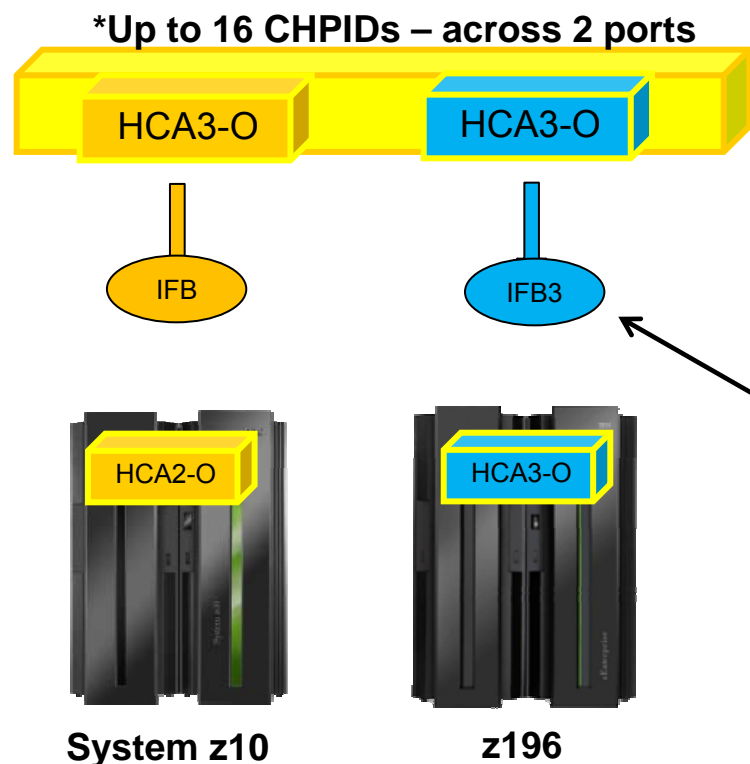
## NEW suite of GDPS solutions

*IBM GDPS active/active continuous availability family of solutions is the next generation of GDPS*



## HCA3-O 12x Details

New 12x InfiniBand fanout cards, exclusive to z196 and z114



**System z10**

**z196**

Attachment to System z9 HCA1 not supported

### Two protocols (IFB & IFB3)

1. 12x IFB = HCA3-O to HCA2-O
  2. 12x IFB3 = HCA3-O to HCA3-O (see below)
- Improved service times, 12x IFB3 service times are designed to be 40% faster than 12x IFB

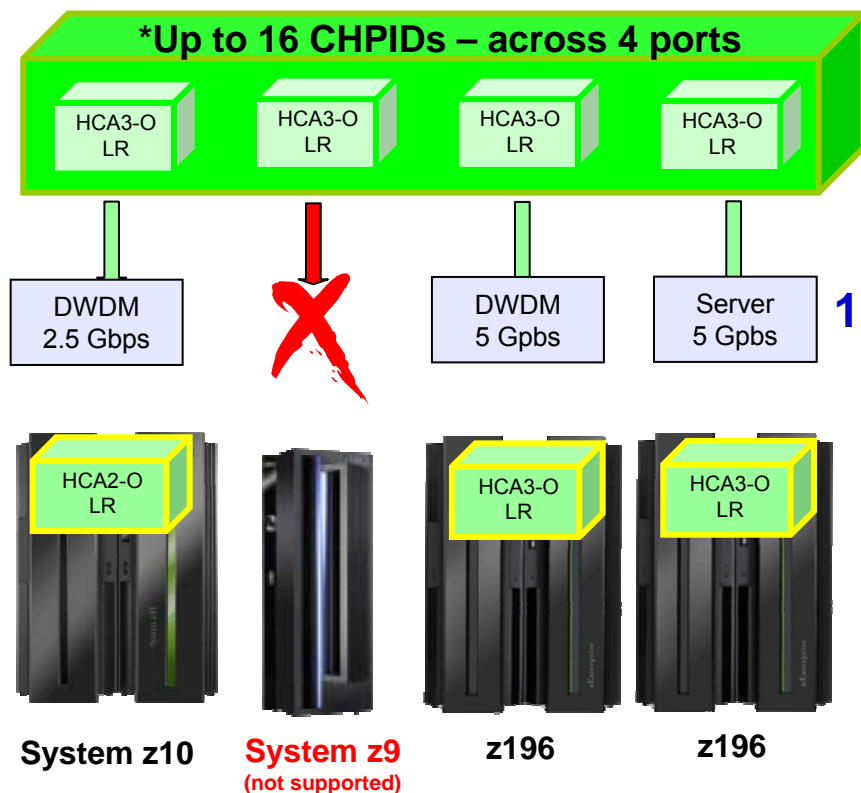
### 12x IFB3 protocol activation requirements

- Maximum of **four** CHPIDs per HCA3-O port
  - If more than four CHPIDs are defined per port, links will run at normal 12x IFB service times
  - IFB3 protocol activated as long as 4 CHPIDs or less are defined. No configuration settings required.
- Performance considerations may reduce the number of CHPIDs per port

Note: The InfiniBand link data rates of 6 GBps, 3 GBps, 2.5 Gbps, or 5 Gbps do not represent the performance of the link. The actual performance is dependent upon many factors including latency through the adapters, cable lengths, and the type of workload.

## HCA3-O LR 1x Details

New 1x InfiniBand fanout cards, exclusive to z196 and z114



HCA3-O LR fanout for 1x InfiniBand coupling links

- CHPID type – CIB
  - Four ports per feature
  - Fiber optic cabling
  - Link sharing between multiple Sysplexes
  - 10 km unrepeated, 100 km repeated
  - Supports connectivity to HCA2-O LR
  - Link data rate server-to-server 5 Gbps
  - Link data rate with DWDM; 2.5 or 5 Gbps

**10617 – Introducing the new z196 and z114 PCIe I/O and Coupling Infrastructure**  
**Tuesday 4:30 PM**

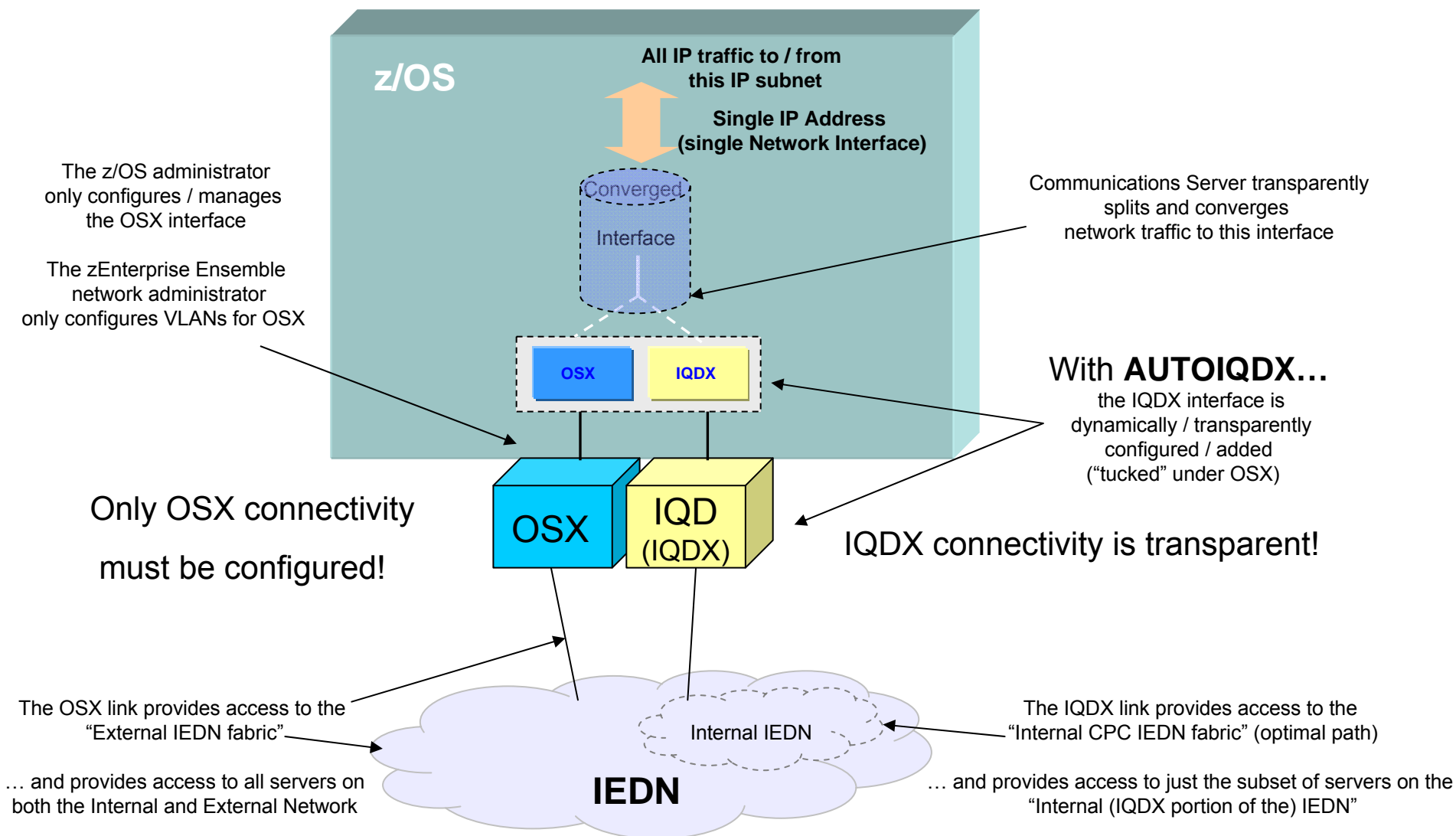
CHPID / Subchannel Options

- 32 subchannels per CHPID (default)
- Option to define 32 or 7 subchannels
- HCD will default to 32 subchannels.
- z114 or z196 GA2 to z114 or z196 GA2

\* Performance considerations may reduce the number of CHPIDs per port

Note: The InfiniBand link data rates of 6 GBps, 3 GBps, 2.5 Gbps, or 5 Gbps do not represent the performance of the link. The actual performance is dependent upon many factors including latency through the adapters, cable lengths, and the type of workload.

# HiperSockets Integration with the IEDN: z/OS “Converged IQDX Link”



## z/OS Availability Enhancements

- **Availability enhancements in z/OS V1R13**
  - ▶ **Avoid JES2 re-starts** with JES2 dynamic spool migration, rapidly discontinue and drain spool volumes quickly
  - ▶ **Avoid JES3 re-starts** with JES3 dynamic spool add
  - ▶ **Improved channel recovery** - track errors and automatically remove failing paths (on a controller level) faster
  - ▶ **zFS internal restart** - automatically recover disabled aggregates in Sysplex aware mode – avoiding lengthy manual system recovery process.
  - ▶ **Automatic rerouting and recovery of z/OS system name server resolver**
  - ▶ **Concurrent service for DADSM and CVAF and DADSM dynamic exits** – avoid planned outages



## HCA3 for Coupling Links

*New 12x InfiniBand & 1x InfiniBand Fanout Cards – Exclusive to z196 & z114*

### HCA3-O for 12x IFB & 12x IFB3



**Up to 16 CHPIDs – across 2 ports\***

### HCA3-O LR for 1x IFB



**Up to 16 CHPIDs – across 4 ports\***

#### – HCA3-O fanout for 12x InfiniBand coupling links

- CHPID type – CIB
  - Improved service times with 12x IFB3 protocol
  - Two ports per feature
  - Fiber optic cabling – 150 meters
  - Supports connectivity to HCA2-O
  - Link data rate of 6 GBps

#### – HCA3-O LR fanout for 1x InfiniBand coupling links

- CHPID type – CIB
  - Four ports per feature
  - Fiber optic cabling
    - 10 km unrepeated, 100 km repeated
  - Supports connectivity to HCA2-O LR
  - Link data rate server-to-server 5 Gbps
  - Link data rate with DWDM; 2.5 or 5 Gbps

\* Performance considerations may reduce the number of CHPIDs per port

Note: The InfiniBand link data rates of 6 GBps, 3 GBps, 2.5 Gbps, or 5 Gbps do not represent the performance of the link. The actual performance is dependent upon many factors including latency through the adapters, cable lengths, and the type of workload.

# z/OS and Server Support



	z800/ z900	z890/ z990	z9 EC/BC	z10 EC/ BC	z196	z114	DS8000 DS6000®	TS1130	End of service	Lifecycle Extension for z/OS	Coexists with	Ship date
R7	X	X	X	X (5)	X(1)	NO	X(1)	X	9/2008	9/2010	R9	9/2005
R8	X	X	X	X(5)	X	X(4)	X	X	9/2009	9/2011	R10	9/2006
R9	X	X	X	X	X	X(4)	X	X	9/2010	9/2012	R11	9/2007
R10	X	X	X	X	X(3)	X(3,4)	X	X	9/2011	9/2013	R12	9/2008
R11	X	X	X	X	X	X(3,4)	X	X	9/2012*		R13	9/2009
R12	X	X	X	X	X	X	X	X	9/2013*		V2R1*	9/2010
R13	X	X	X	X	X	X	X	X	9/2014*		V2R1*	9/2011*

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

- (1) IBM Lifecycle Extension for z/OS V1.7 (5637-A01) was required for the z10 BC, z196, and disk storage
- (2) IBM Lifecycle Extension for z/OS V1.7 (5637-A01) required for support for some z10 EC features
- (3) z/OS V1.10 and later required for zBX and Ensemble management exploitation
- (4) IBM Lifecycle Extension for z/OS V1.8 (5638-A01 ) and for z/OS V1.9 (5646-A01) required for z114.  
Lifecycle Extension for z/OS V1.10 (5656-A01) required starting October 2011.  
Lifecycle Extension for z/OS V1.11 (5657-A01) required starting October 2012.
- (5) See IBM GTS services for additional fee-based extended service options

Out of service (5)
Lifecycle Extension withdrawal 2 years later
General support