IBM Systems & Technology Group

What's New in z/OS

Session 1191

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A SHARE NextGen Bonus!

Session 9842:

Mastering System z –

IBM System z Entry Level Mastery test (Test Z01)

No charge for SHARE attendees

(Usual test fee waived)

Monday 6:00

Asia 2 (Walt Disney World Dolphin Resort)

Sponsored by

The IBM Academic Initiative System z team

z/OS Support Summary*

Out of service

Lifecycle Extension withdrawal 2 years later

Service Withdrawal Dates

z/OS®	z800/ z900	z890/ z990	z9® EC z9 BC	z10 EC™ z10 BC	z196	zBX	z114	DS8000® DS6000®	TS1130	End of Service	Coexists with z/OS...	Planned Ship Date[2]
R7	x	x	x	x[4]	x[4]			x[4]	x	9/08	R9	
R8	x	x	x	x	x[4]		x[4]	x	x	9/09	R10	
R9	x	x	x	x	x[4]		x[4]	x	x	9/10[1]	R11	
R10	x	x	x	x	x	x	x	x	x	9/11[1]	R12	
R11	x	x	x	x	x	x	x	x	x	9/12[2]	R13	
R12	x	x	x	x	x	x	x	x	x	9/13[2]	R14[2]	
R13	x	x	x	x	x	x	x	x	x	9/14[2]	R15[2]	9/11
R14[2]	x	x	x	x	x	x	x	x	x	9/15[2]	R16[2]	9/12

Sessions 9701 & 9702:
Migrating to z/OS 1.13: Part 1 Wednesday 9:30
Migrating to z/OS 1.13: Part 2 of 2 Wednesday 11:00

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, or for some features

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IBM zEnterprise 196 (z196) System Functions and Features

- 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 capacity 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 subchannel set**
- **PCIe-based I/O infrastructure – FICON Express8S and OSA Express4S**
- **Large send for IPv6 packets**

Session 10099: Everything a z/OS System Programmer Needs to Know to Exploit a z196 Server Friday 8:00

z196 **zBX**

Session 9688: IBM zEnterprise™ 196 (z196) Hardware Overview Tuesday 11:00

(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 Queueing (IWQ)
- **IWQ for Enterprise Extender**
- **OSA-Express4S checksum offload for IPv6 and for LPAR to LPAR traffic (both IPv4 and IPv6)**
- CFCC Level 17 enhancements
- Up to 80 External Coupling Link Ports
- 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 networks (SoD)**

IBM zEnterprise 114 (z114) Functions and Features

- 2 hardware models (M05, M10)
- Quad-core 3.8 GHz processor chips
- Up to 14 cores with 10 that are user configurable as CPs, zAAPs, zIIPs, IFLs, ICFs, and up to 2 dedicated spares
- Out of order instruction execution
- Improved processor cache design
- Up to 26 subcapacity settings across a maximum of 5 CPs
- Up to 248 GB real memory (with an additional 8 GB of fixed memory for the HSA)
- Improved availability with Redundant Array of Independent Memory **(**RAIM)
- 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 subchannel set**
- **PCIe-based I/O infrastructure - – FICON Express8S and OSA Express4S**
- **Large send for IPv6 packets**

Session 9796: Latest System z Hardware Update Tuesday 3:00

z114 **zBX**

(z/OS support in blue)

(Sept 2011 support in red)

- Capacity Provisioning enhanced
- 6.0 GB/sec InfiniBand I/O interrupt
- Two subchannel sets per LCSS
- FICON Discovery and AutoConfiguration (zDAC)
- OSA-Express3 Inbound Workload Queueing (IWQ)
- **IWQ for Enterprise Extender**
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- zBX-002 IBM WebSphere DataPower Integration Appliance X150 for zEnterprise
- **HiperSockets optimization for intraensemble data networks (SoD)**

It’s a Hybrid World Out There…

Session	Title	Time
9674	A Mainframe Guy Discovers Blades - as in zEnterprise "Blade" Extension	Mon 4:30
9801	More Power and Flexibility to IBM System z®	Tues 9:30
	zEnterprise eXposed!	
10002	Part 1: The Intersection of WLM, RMF™, and z/Manager Performance Management	Tues 11:00
10003	Part 2: Experiences with the z/Manager Guest Platform Management Providers	Tues 1:30
10004	Part 3: zManager and z/OS Workload Manager	Tues 3:00
9690	IBM zEnterprise zBX Hardware Overview	Tues 1:30
9686	IBM System z Hardware Management Console (HMC) 2.11.0	Tues 4:30
9738	zEnterprise Unified Resource Manager	Wed 9:30
9687	IBM zBX HMC Hardware and Operational Management	Wed 8:00

z/OS 1.13

A smarter operating system with designs for:

Improving Usability and Skills

New and updated z/OSMF applications & web-enabled ISPF, User-level mount command for z/OS UNIX® System Services, Automatic UCB updates, SDSF Sysplex functions to work without MQ, Catalog parmlib member, Better O/C/EOV Messages, Health Checks, …

Integrating new Applications and Supporting Industry and Open Standards

Java™/COBOL interoperability, RESTful API for batch, Improved Support for unnamed sections, ISPF Edit Macros, Subsystem and Unauthorized XTIOT support, dbx hookless debug, DFSORT™ improvements, Job level return codes, …

Scalability & Performance

Fully-shared zFS in a sysplex, IEBCOPY performance, RMODE 64 extensions, 1 TB volumes*, IFASMFDL improvements, 500K+ aliases per user catalog, Larger VVDSs, FREEVOL=EOV, FTP support for large format data sets and EAS,…

Enhancing Security

RRSF over TCP/IP, LDAP improvements, enhanced SAF security for z/OSMF, NAS address checking and encryption negotiation, New restricted QNAMEs, PKI support for DB2® backstore, ICSF support for new HMACs, FTP & TN3270 password phrase support, …

Improving Availability

Warn before TIOT exhaustion, CMDS enhancements, Parallel FTP for dump transfers, PFA ENQ tracking, RTD improvements, zFS Refresh, DADSM Dynamic Exits, JES2 spool migration, JES3 dynamic spool addition, Better channel recovery, More ASID reuse, …

Self Managing Capabilities

WLM and RMF to provide response time distribution for all goals, DFSMShsm™ Journal Backup and space management improvements, Hybrid-wide monitoring…

Extending the Network

IDS IPv6 support, NAT Traversal for IKEV2, NMI extensions, More VLANs per OSA port, more 64-bit TCP/IP, EE improvements, …

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z/OSMF R13 improvements

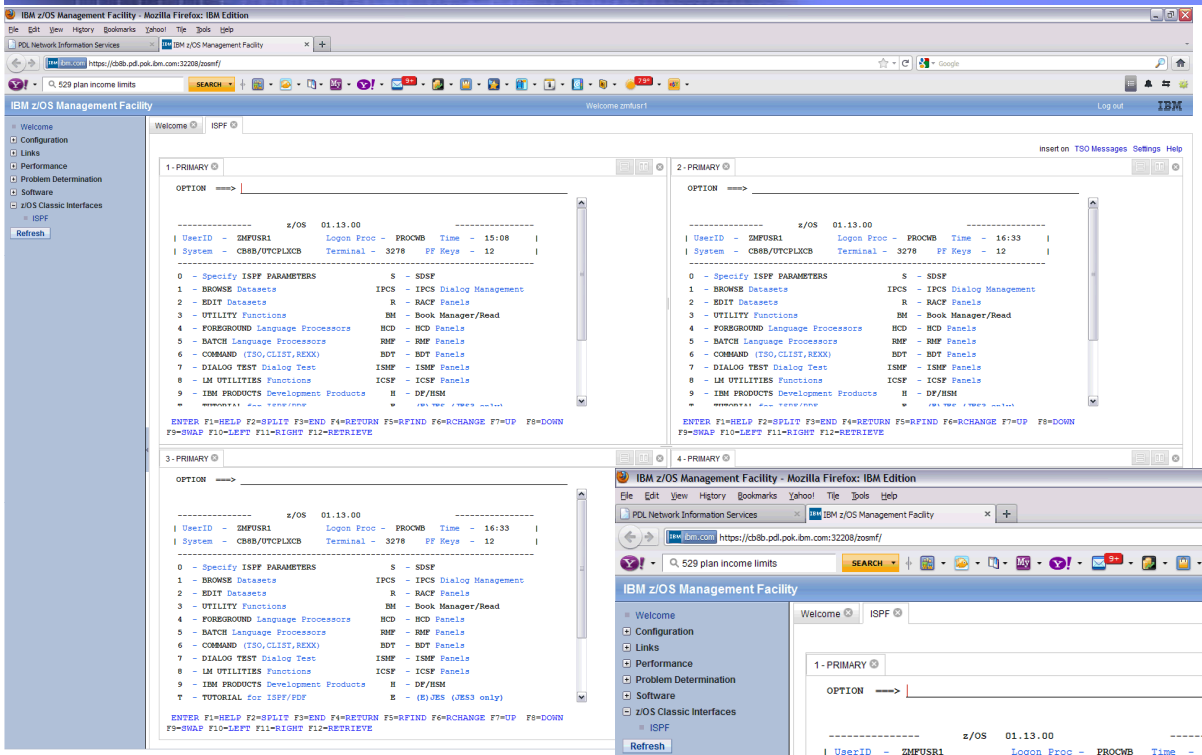
- z/OSMF Capacity Provisioning Manager application
  - Designed for easy monitoring of CPM status
- z/OSMF Configuration Assistant for Communications Server
  - Multiple release configuration support (both R12 and R13 systems)
  - Sysplex-wide policy definitions
  - IP address discovery from stacks
- Expanded SAF-based security for z/OSMF user authorization and roles
  - In addition to current z/OSMF security
  - Intended to be used in place of the current z/OSMF repository-based authorization support
- Consolidated workload monitoring
  - With RMF and z/OSMF you can monitor z/OS, AIX®, and Linux workloads
  - Monitor across zHybrid ensembles and other network-accessible AIX and Linux systems from within z/OSMF
- z/OSMF support for application linking
  - Allow z/OSMF applications to link directly to others via URL
  - Both in-context linking and simple linking
  - Intended to make it simpler to navigate across apps…such as…

Session 9734: z/OSMF Overview Monday 3:00

Session 9733: z/OSMF 1.13 Implementation and Configuration Monday 4:30

Session 9804: What's New in z/OSMF 1.13 Tuesday 9:30

Improving Usability and Skills



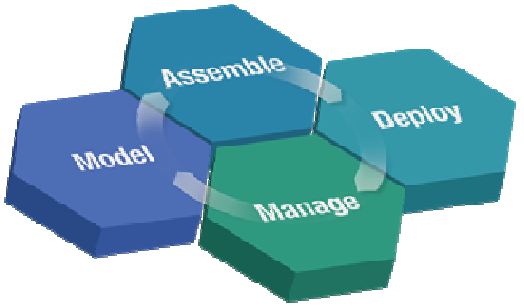
New web-enabled ISPF interface in z/OSMF R13 on z/OS R13

- Used by Incident Log application
- Can be linked to by other z/OSMF applications
- Can be used for other ISPF applications

z/OSMF Software Deployment

- New application to clone system software
- Support for all SMP/E-installed software
  - Anything packaged with SMP/E; no additional SMP/E metadata required
- Designed to let you:
  - Identify, modify, delete software instances
  - Generate jobs to copy a software instance
  - Verify cross-system and cross-product requisites
  - Compare source/target environment HOLDDATA
- Copies include SMP/E target CSI data sets
  - Can opt to omit the DLIB zone for images you do not intend to service
  - Intended to help assure rigor in the cloning process
  - Help ensure you have a good inventory for service
- Designed to support both local copies (within a shared DASD environment) and remote copies (across a network)
  - Remote copies will require a running, remote z/OSMF
- Planned for 1H2012: *
  - z/OS UNIX file system mount table
  - Additional security
  - Configuration reuse

Session 9732: z/OS Software Deployment Tuesday 4:30



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z/OSMF DASD Management application*

- Define role for storage administrator capabilities
- Define policies to assist in storage administration tasks
- Define pools of ready-to-use predefined volumes”
- Find any pool storage groups exceeding utilization thresholds
- Use add storage wizard to manage many tasks required to increase pool storage group capacity:
  - Decide how much storage to add (default will be system-recommend based on policy)
  - Select and initialize volumes from a predefined pool
  - Update SCDS with selected volumes
  - Optionally, vary the volumes online and activate the changed SCDS
- Planned for 1Q12 with the PTF for APAR PM40869*

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Improving Usability and Skills

- JCL Improvements with JES2
  - Stop journaled jobs on step boundaries
  - Job-level return codes
    - ✓ JOBRC=HIGHEST, LAST, STEPRC
  - Support for instream data sets in PROCs
    - ✓ //ddname DD *
  - SPIN= DD JCL (and dynamic allocation) support for spin interval specification similar to that on JESLOG
    - ✓ SPIN=(UNALLOC,interval|time|size)

Session 9998: Better Batch: Exploiting New Functions to Improve Batch Processing Tuesday 9:30

Session 9676: Batch Modernization Tuesday 1:30

- Remaining SDSF Sysplex functions no longer to require WebSphere MQ (aka MQSeries):
  - WLM enclaves (ENC)
  - z/OS UNIX processes (PS)
  - Health checks (CK)
  - Resource monitor (RM) (JES2 only)

Session 9720: z/OS 1.13 SDSF Update Thursday 4:30

- New Catalog parmlib Member
  - New optional IGGCATxx member
  - CATALOG=(xx,yy, …) in IEASYSxx
  - Default is IGGCAT00
  - Parmlib concatenation & multiple members supported
  - Catalog defaults taken if no parmlib member found
  - Support for specifying:
    - ✓ VVDS space defaults
    - ✓ Catalog utilization warning message threshold
    - ✓ Limit on CAS service tasks (overrides any specification in SYSCATxx)
    - ✓ Whether to enable extension records for user catalog aliases
    - ✓ A number of other things you also specify using MODIFY CATALOG
    - ✓ Some keywords inadvertently omitted from R13 Init & Tuning draft: EXTENDEDALIAS(YES/NO), DELFORCEWNG(YES/NO), DSNCHECK(YES/NO), SYMREC(YES/NO), UPDTFAIL(YES/NO), VVRCHECK(YES/NO), DELRECOVWNG(YES/NO)
- Warning message for usercatalog delete
  - For catalogs with RECOVERY attribute with DELRECOVWNG(YES) in IGGCATxx
  - Bypassed for those with ALTER authority to the master catalog
- Automatically fix SMS CDS data set attributes
  - Health check for NOREUSE in R12
  - Automatically changed to REUSE in R13

Session 9949: DFSMS Latest and Greatest - V1.13 Overview Monday 3:00

Improving Usability and Skills

- Automatic cross-sysplex UCB updates for DFSMSdss™ RESTORE and DFSMShsm Fast Replication Backup and Recovery processing
  - Specify a new REFUCB keyword in DEVSUPxx:
    - ENABLE|DISABLE(REFUCB)
  - Designed to issue VARY automatically on sharing systems when these operations change volume serial, VTOC pointer
- Better OPEN/CLOSE/End of Volume Messages
  - Additional information so you don't have to look up the message
  - New DEVSUPxx parameter to activate:
    - ✓ OCE_ABEND_DESCRIP = YES | NO
  - Example:

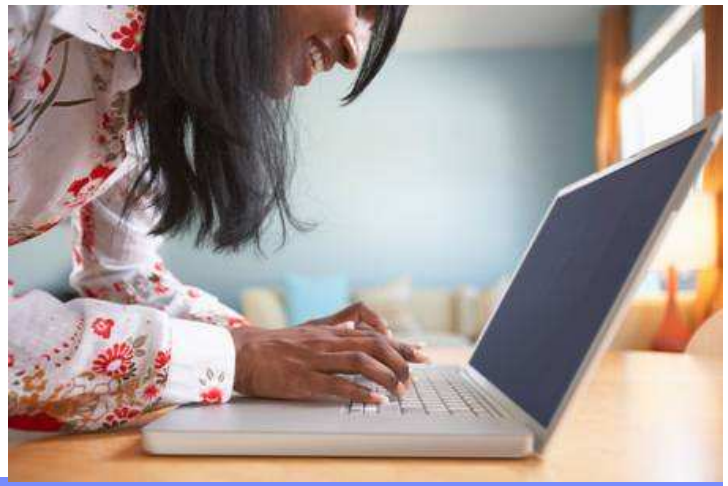
IEC145I 413-40,IFG0194F,RDASL1,RDSL1,SYSUT1,0920,,DATASETX
ERROR DESCRIPTION:
THE DEVICE DOES NOT SUPPORT THE RECORDING MODE REQUESTED BY THE USER OR DETERMINED BY THE SYSTEM.
END ERROR DESCRIPTION: IEC145I

Session 9945: What's New in DFSMSdss and System Data Mover Wednesday 11:00

DFSMSrmm improvements

- Automatic recovery for missing or out-of-sequence tape volumes
  - For multivolume data sets, DFSMSrmm will attempt to return the corrected list
  - New message: IEC716I ddname: TAPE MULTIVOLUME LIST CORRECTED
  - Note: Not available when you specify OPTCD=B, which bypasses label anomaly processing
- Specify expiration date or VRS management for data sets
  - Help simplify retention policies, avoid batch VRS policy management, and enable you to determine how long a tape data set will be retained
- SEARCHDATASET command to allow searching tape data set metadata based on:
  - Date ranges
  - Relative values
  - SMS constructs
  - Catalog status

Session 9942:
What's New in DFSMSrmm
Thursday 1:30



Health Checking

- Health Checker Framework improvements
  - Better control of check scheduling
  - New SYNCVAL keyword in HZSPRMxx parmlib member and MODIFY
  - Checks can raise message severity as conditions change

- New migration health checks:
  - Warn when zFS configuration option is not set to sysplex=filesys
  - Verify new symlinks added to enable read-only root in z/OS R13, available on R11 and R12 for easier read-only with the PTFs for APARs OA35636 and OA35605
  - Warn you that the z/OS console mode of operation has not been specified, available for z/OS R10 or later with the PTF for APAR OA32930.

- New health checks:
  - Detect and report on tape library devices that had initialization errors at IPL time, provide explanation and suggested remedy
  - Allocation checks for options that can cause deadlocks, small TIOT
  - Tape library IPL initialization

True cross-system sharing of zFS across a sysplex

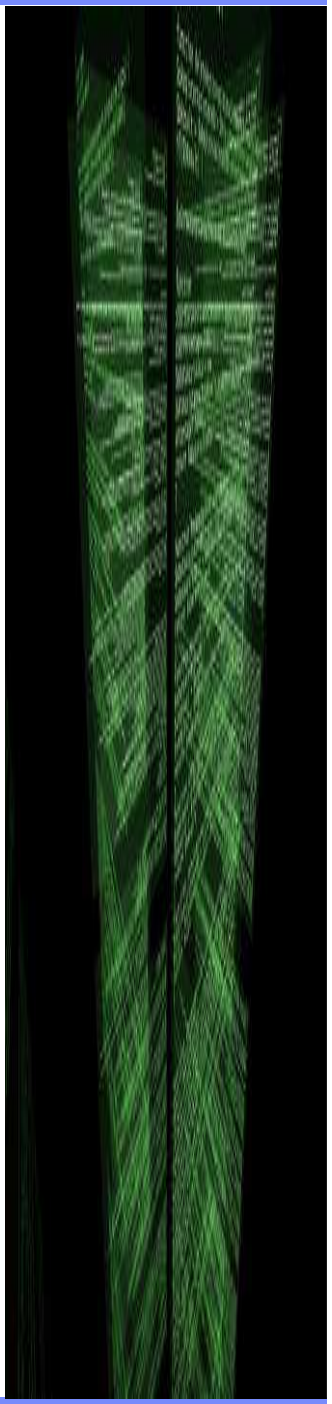
- Direct I/O from all sharing systems
- No more function-shipping
- Significant zFS file system performance improvements expected; most measurements showed a 50-150% improvement*

Session 9739: Significant Enhancements in z/OS V1R13 zFS Wednesday 3:00

IEBCOPY improvements

- Much better performance expected for some operations; we measured elapsed time reductions from 19-70%* for:
  - PDS-to-PDS COPY
  - PDS-to-sequential unload
  - PDS compress
- Also, removed requirement for APF authorization

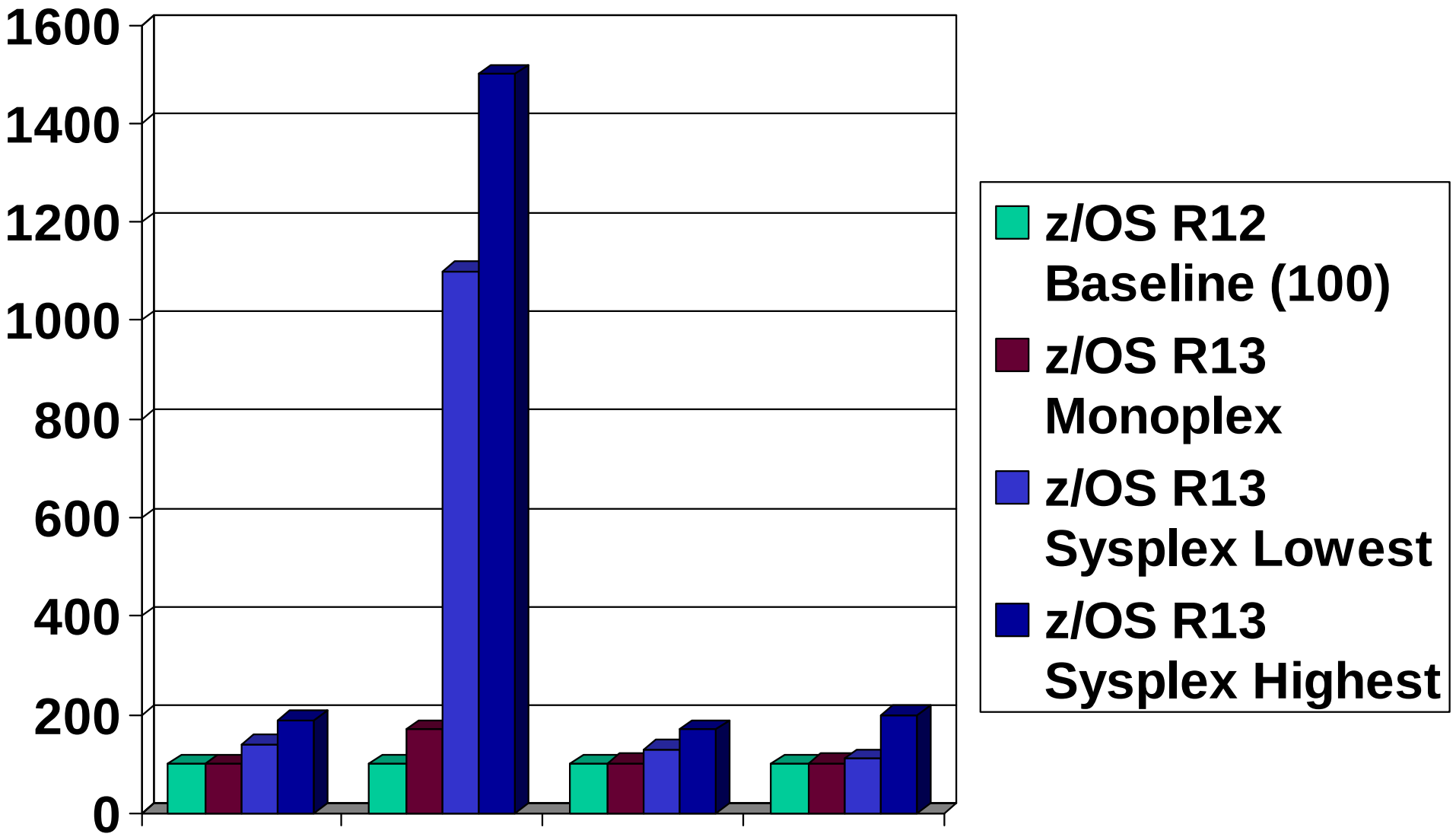
Session 9940: IEBCOPY - Teaching an Old Dog New Tricks Thursday 9:30



* Note: Performance improvements are based on internal IBM laboratory tests. Your results will vary. 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. IEBCOPY improvement will depend on the amount of data being copied, the record format, the record length, and the block size.

Scalability and Performance

zFS Performance, Transactions/second (relative improvement)*



* IBM Laboratory results; your results may vary. Measured zFS transaction rate varied with environment and operations performed.

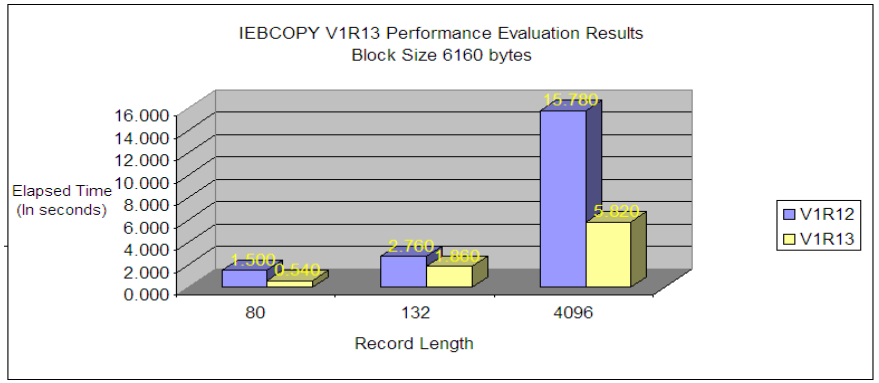
Scalability and Performance

IEBCOPY Performance*

Compress PDS Testing results
Block size 6160 Format (VB)

Elapsed Time measurements

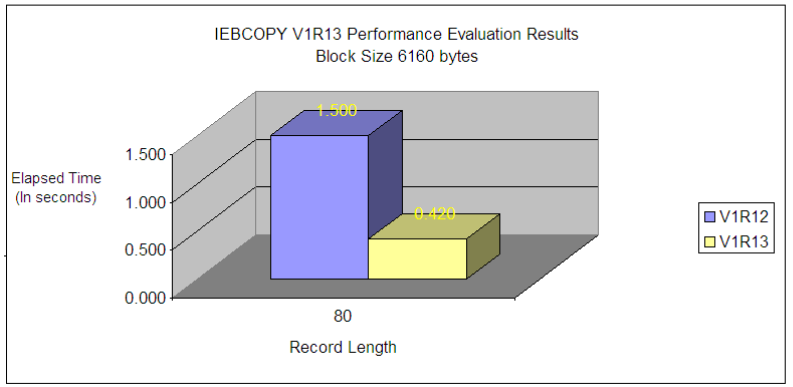
LRECL	V1R12	V1R13	Delta (%)
80	1.500	0.540	-64.00
132	2.760	1.860	-32.61
4096	15.780	5.820	-63.12



Compress PDS Testing results
Block size 6160 Format (FB)

Elapsed Time measurements

LRECL	V1R12	V1R13	Delta (%)
80	1.500	0.420	-72.00
132	*	*	---
4096	*	*	---

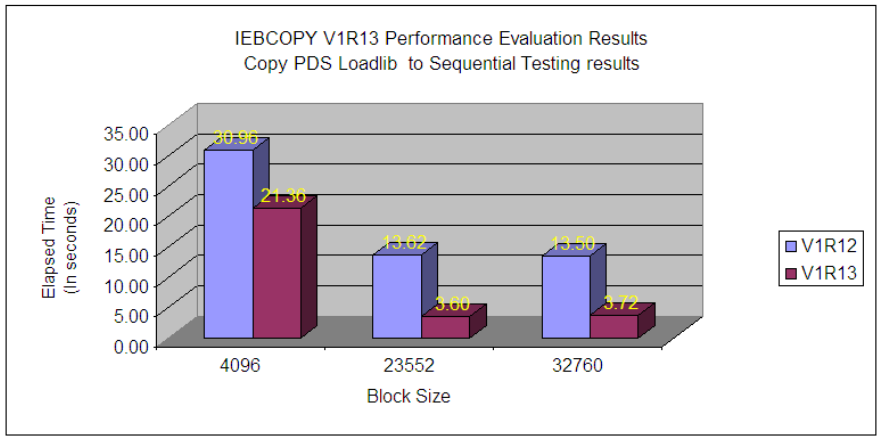


Note: * .- Record length is inconsistent with block size for this record format. Test not executed for this variation

Copy PDS Loadlib to SEQ Testing results
LRECL=0 Format (U)

Elapsed Time measurements

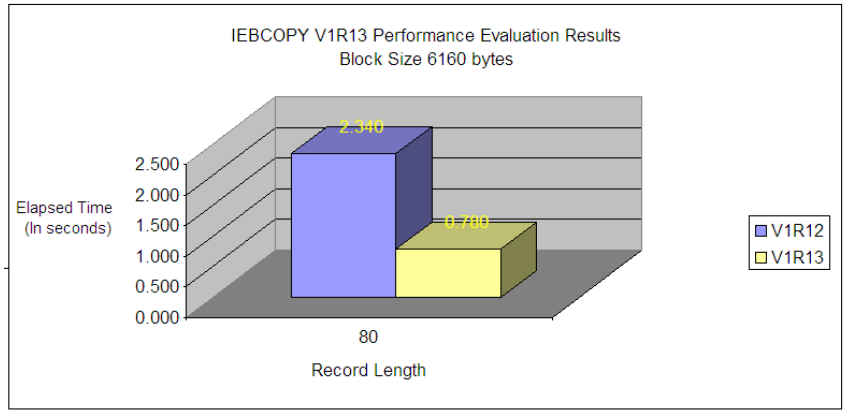
BLKSIZE	V1R12	V1R13	Delta (%)
4096	30.96	21.36	-31.01
23552	13.62	3.60	-73.57
32760	13.50	3.72	-72.44



Copy PDS to PDS Testing results
Block size 6160 Format (FB)

Elapsed Time measurements

LRECL	V1R12	V1R13	Delta (%)
80	2.340	0.780	-66.67
132	*	*	---
4096	*	*	---



Note: * .- Record length is inconsistent with block size for this record format. Test not executed for this variation

* IBM Laboratory results; your results may vary. Measured IEBCOPY performance improvements varied with the amount of data being copied, block size, record format, and record length.

High-Performance FICON (zHPF) improvements planned for 4Q2011*

- zHPF to support certain I/O transfers for QSAM, BPAM, and BSAM
- Better I/O performance expected with no application changes
- Extends current zHPF support for VSAM, Extended Format sequential, zFS, and PDSE data sets to support:
  - Basic nonextended format Physical Sequential data sets
  - Basic and large format sequential data sets
- Will require:
  - z/OS V1.13, z/OS V1.12, or z/OS V1.11 with PTFs
  - zEnterprise System server with channels that support zHPF and a minimum Machine Change Level (MCL)
  - HMC V2.11.1
  - Support Element V2.11.1
  - IBM System Storage DS8700 or DS8800 series with new DS8000 licensed machine code
- Enable in IGDSMSxx member of parmlib: SAM_USE_HPF(YES|NO)
  - Default NO on z/OS R11-R12, YES on z/OS R13
- See Statements of Direction

Session 9934: Evolution of the System z Channel Monday 4:30

Session 9797: zEnterprise 196 I/O Infrastructure Update Tuesday 4:30

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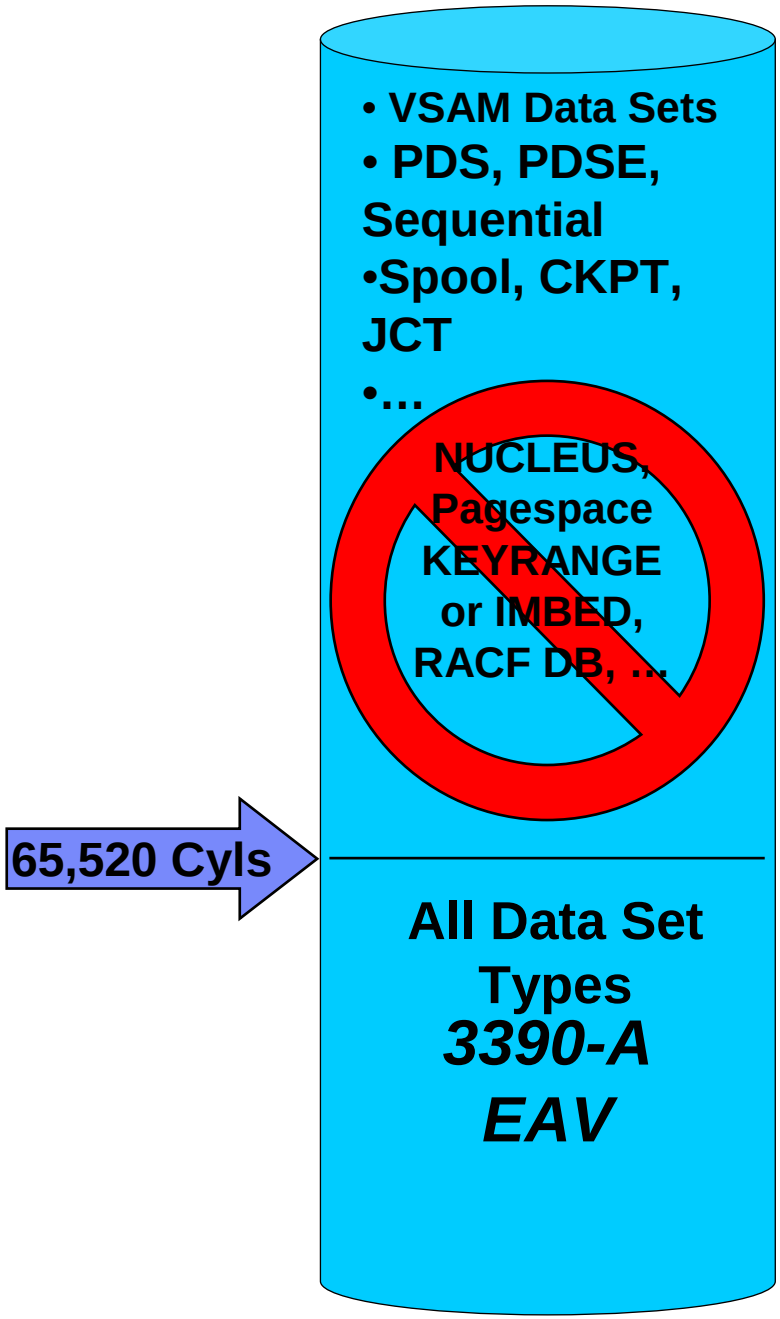
Scalability and Performance

EAV Support:

- z/OS R10 introduced EAV with support for VSAM (incl. zFS)
- z/OS R11 added Extended Format Sequential and support for data sets spanning the 64K cylinder line
- z/OS R12 added:
  - PDS and PDSE (including load modules and program objects)
  - Plain vanilla (nonextended format) sequential
  - BDAM
  - GDG
  - LPALIB, LPA list, link list data sets, SYSn.IPLPARM, SVCLIB
  - Catalogs, VVDSs
  - JES2 and JES3 spool and checkpoint, JES3 JCT
  - DFSMSrmm, DFSMShsm data sets
  - Standalone Dump data set and AMASPZAP support
  - VSAM AIX support in Language Environment®
- **z/OS R13 adds:**
  - Support for 1TB volumes (see next page)*
  - SDSF support for output data sets
  - FTP support for SMS-managed and non-SMS-managed PS basic and large format, PDS and PDSE, and GDG data sets
- No support for above the line for:
  - Imbed and Keyrange attributes, incompatible CA sizes for VSAM
  - NUCLEUS, SVCLIB, LOGREC, VTOC, VTOCIX, LOGREC
  - RACF® databases, Page data sets, HFS data sets
  - Parmlib concatenation data sets
  - XRC Control, Master, or Cluster non-VSAM data sets



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

1 TB EAVs*

- z/OS R13 planned to support EAVs up to 1 TB per volume
- Also planned for z/OS R12 with PTFs
- Will require:
  - IBM System Storage DS8700 or DS8800
  - New DS8000 licensed machine code
  - Intended to relieve storage constraints while helping you simplify storage management by providing the ability to manage fewer, larger volumes as opposed to many small volumes
  - Availability planned for 4Q11
- See Statements of Direction

VVDS maximum size increase

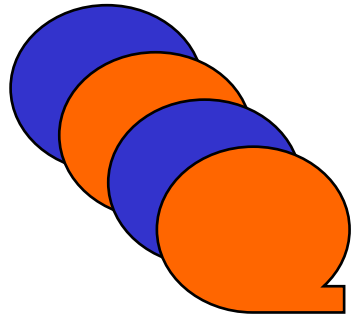
- For VVDSs in and out of EAS
- Maximum VVDS space increased from 5,460 tracks to 5,825 cylinders
- Increases practical maximum number of data sets from hundreds of thousands per volume to millions per volume

Session 9941: Need Space? How to Start Planning Now for Migration to EAV

Tuesday 4:30

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

New JCL parameter, FREEVOL=EOV



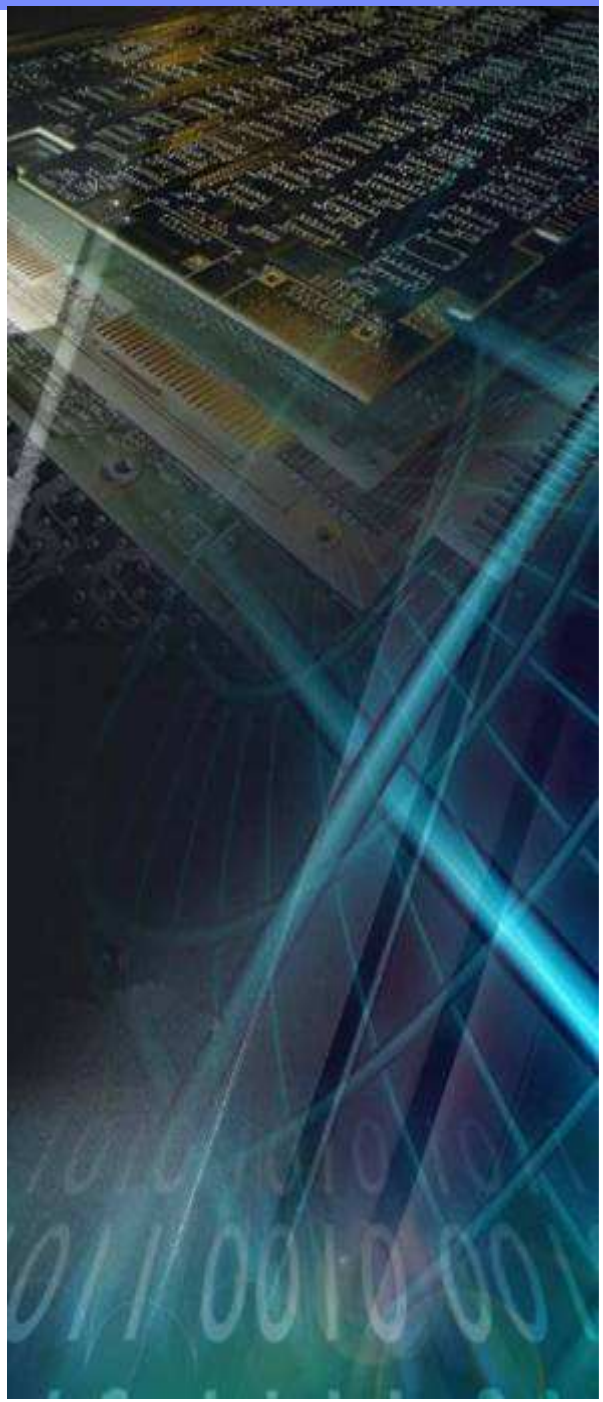
- Specifies that a tape for part of a multivolume data set be available at end of volume rather than end of step
- Can allow other jobs to use the tape immediately
- Can allow overlapped processing of multivolume tape data sets

Support for (lots!) more aliases per user catalog

- z/OS R12 increased the maximum catalog size dramatically (architectural limit now 140 TB)
- Existing limit on number of aliases is about 3,500 (depending on alias lengths)
- New limit in z/OS R13 expected to be over 500,000 (depending on alias lengths)
- New catalog connector extension record (Type V)
- Catalog parmlib member (IGGCATxx) keyword
  - EXTENDEDALIAS(YES|NO)
  - ✓ **Do not specify YES until all systems that will process the catalog are at R13!**
- New command:
  - ✓ MODIFY CATALOG,ENABLE(EXTENDEDALIAS)
  - ✓ **Do not issue until all systems that will process the catalog are at R13!**

Scalability and Performance

- **FTP support for large format data sets:**
  - FTP will be designed to allow you to transfer, restart transfers for, and allocate large format data sets
  - Support data sets larger than 65,525 tracks or more than 2 gigabytes of data, without requiring them to be SMS managed.
- **VSAM RLS improvements:**
  - Support for a new storage class (STORCLAS) attribute to specify whether VSAM RLS buffers and the associated resources are retained for a while (as before) or released immediately upon CLOSE
    - DCOLLECT to include information about this new attribute in SC records
  - Improved VSAM RLS buffer management of "aged" buffers
    - Expected to help improve performance when processing large RLS data sets with large buffer pools



IFASMFDL Improvements

- Avoid reading to end of log stream
  - IFASMFDL starts reading a log stream at a point (approximately) representing a specified time
  - New SMARTENDPOINT keyword to specify that IFASMFDL should stop reading a log stream when a point representing double the maximum MAXDORM value (2 hours) is reached
  - New SMARTEPOVER keyword to tell IFASMFDL to use a specified value rather than 2 hours
  - SMARTENDPOINT available on z/OS R10 and up with OA31737
  - SMARTEPOVER available on z/OS R10 and up with OA34374
- Allow entire log stream to be archived or deleted
  - Treat log streams as though they were SMF data sets
  - Will reset log stream starting point to next new block
  - Available for z/OS R11 and up with the PTF for APAR OA34589

RMODE 64

- The next step...
- Allow execution of enabled code above 2G
- Support for code above 2G that calls no system services and is not loaded by normal system “load” methods
- Handle and resume after I/O and external interrupts

Improving Availability

JES2 SPOOL Migration*

- Dynamically remove a SPOOL volume using $T M SPOOL
- Also, can enlarge an existing spool data set using $TSPOOL,SPACE
  - For example, in combination with Dynamic Volume Expansion
- Planned availability 4Q11 with the PTF for APAR OA36158

JES3 Dynamic SPOOL Addition

- Add a SPOOL volume without a JES3 restart using the *MODIFY CONFIG command

Improved Channel Recovery

- Remove paths to all devices affected by a path error
  - Avoids repeated recovery for path errors as I/Os are driven to more devices along the path

zFS Internal Restart

- Automatic recovery from severe PFS layer problems
- Remounts all mounted zFS filesystems
- Accessing open files may result in I/O errors or EAGAIN until refresh completes
- No configuration changes incorporated during restart
- Can also be operator initiated with new commands
  - ✓ MODIFY ZFS,ABORT to refresh zFS
  - ✓ MODIFY ZFS,NSVALIDATE to validate control blocks and refresh if needed

Session 9718: z/OS 1.13 JES2 Product Update and Latest Status Monday 4:30

Session 9717: z/OS 1.13 JES2 New Functions, Features, and Migration Actions Tuesday 1:30

Session 9719: z/OS 1.13 JES3 Latest Status and New Features Tuesday 9:30

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Improving Availability

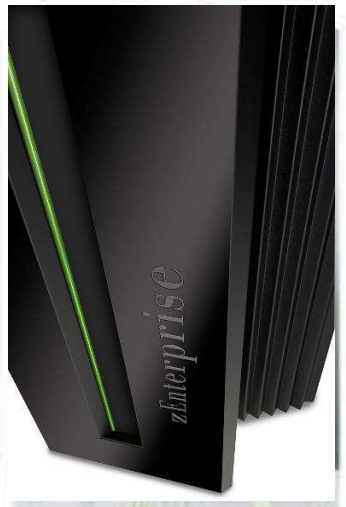
Predictive Failure Analysis and Runtime Diagnostics Enhancements:

- PFA ENQ tracking
  - High and low rates for selected address spaces
  - High and low overall system rate
- PFA JES2 SPOOL utilization tracking
  - Track jobs started within an hour of IPL
  - Model the persistent jobs that use the most SPOOL space
  - Look for unexpectedly high usage
- RTD improvements
  - Now a persistent started task—start HZR at IPL time
  - Latch contention detection
  - z/OS UNIX System Services file system latch-related delays
  - New F HZR,ANALYZE command replaces S HZR command
- PFA and RTD integration
  - PFA to call RTD when it detects a lack in some tracked metrics (WTOs, SMF records, ENQs)
  - Issue a health check exception if RTD detects a potential problem

Improving Availability

CMDS Command enhancements

- CMDS ABEND,CMD=xxxxxxxx,ID=nnnn introduced many moons ago
- Enhanced in R12 to enforce “non-abendable” commands
- CMDS FORCE command added for z/OS R13; intended to be used when only alternative is IPL

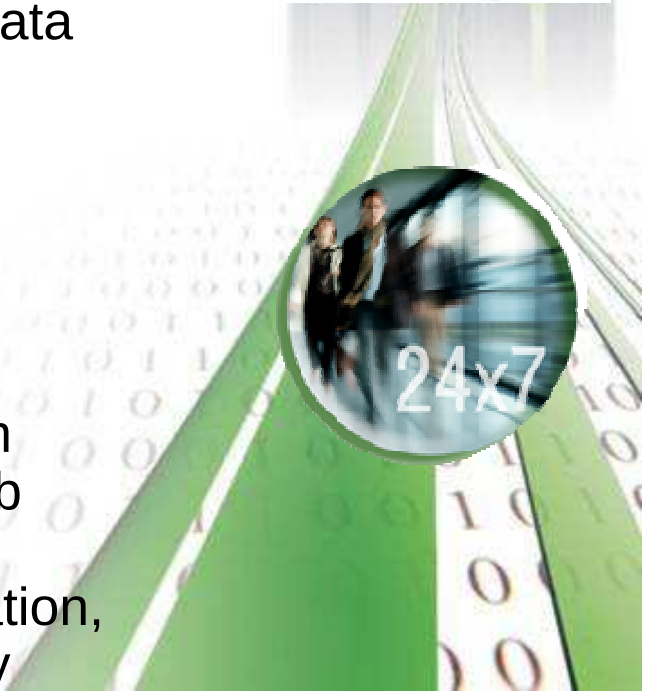


Parallel FTP tool now part of z/OS

- IBM z/OS Problem Documentation Upload Utility
- Messages to be split between SYSPRINT and DEBUG data sets
- New program name, AMAPDUPL
  - ✓ Alias MTFTPS for compatibility

Message flood automation processing improvements:

- Increase message ID limit from 50 to 1024
- Allow up to 128 address spaces to be tracked per system
- Allow the default message set to be identified in a parmlib member
- Intended to increase the scope of message flood automation, improve its usability, and help improve system availability

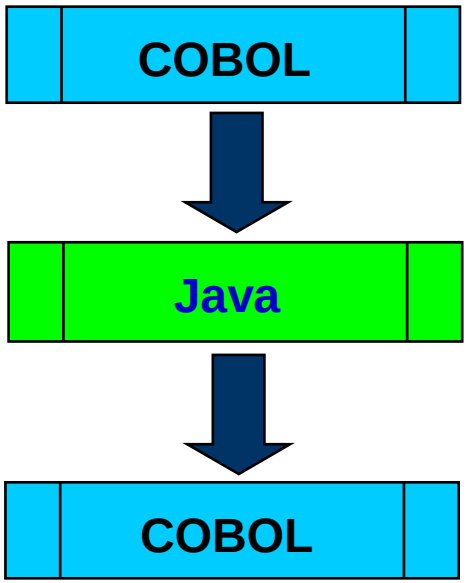


Improving Availability

- IPL devices in subchannel sets other than 0
  - IPL, IODF, SADMP volumes supported for IPL from Subchannel Set 1 or Subchannel Set 2
  - Allow use of PPRC secondary devices for IPL after primary fails
  - Requires:
    - zEnterprise System
    - HMC V2.11.1
    - Support Element V2.11.1
    - Minimum Machine Change Level (MCL)
  - Also available for z/OS R11 and R12 with the PTF for APAR OA35140
- DADSM dynamic exits support
  - IGGPRE00
  - IGGPOST0
- DADSM and CVAF support for concurrent service
  - Dynamically update without IPL to help improve system and application availability
- ASID Reuse
  - DEVMAN address space now reusable
  - CATALOG, LLA, VLF, z/OS UNIX RESOLVER, TCP/IP, DFSMSrmm, and TN3270 already reusable

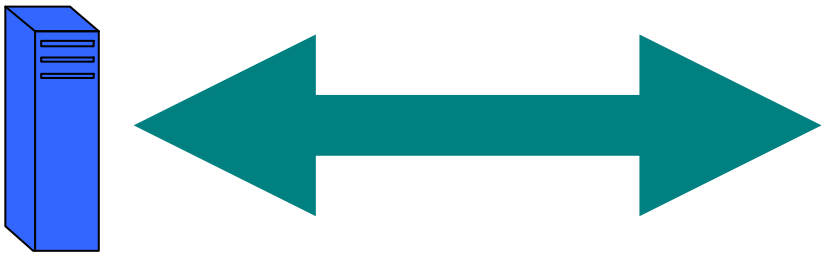
z/OS Batch Runtime environment—Java/COBOL interoperability

- Intended to provide the framework for Java to COBOL interoperability for transactional updates to DB2 while sharing database connections
- Designed to enable you to extend valuable COBOL assets using Java
- Note: Java programs eligible for zAAPs
- Requirements include:
  - IBM 31-bit SDK for z/OS, Java Technology Edition, Version 6.0.1 (5655-R31)
  - DB2 V9.1 for z/OS (5635-DB2) or later with PTFs
  - Enterprise COBOL for z/OS V4.2 (5655-S71), or later
  - Web services included in the WebSphere Application Server OEM Edition for z/OS packaged with the z/OS Management Facility (z/OSMF, 5655-S28) V1.13, or later.



RESTful z/OS Batch Submit API

- Allow you to use z/OS batch from other z/OS systems and from other platforms using HTTP and HTTPS:
  - Submit a batch job
  - Obtain job status
  - List and retrieve spool files for a job
  - Cancel a job and purge it from the spool
- Can help create web-enabled applications that leverage batch
- Requirements include:
  - z/OS V1.13
  - z/OSMF V1.13



Session 9721: z/OS 1.13 UNIX System Services Latest Status and New Features Tuesday 11:00

User-level mounts and unmounts for z/OS UNIX

- BPXPRMxx support for limiting user mounts
- SAF-based security for allowing the function
- Can restrict which mountpoints a user may use and allow mounts only at empty mountpoints

Last stage of support for DSNTYPE=LARGE data sets in C/C++

- z/OS R8 implemented support using QSAM (noseek)
- z/OS R12 provided BSAM (seek) support for record I/O
- z/OS R13 adds support for BSAM (seek) for binary and text I/O for OS data sets

Better Binder support for unnamed sections

- Before, there was no way to remove them…and they can…accumulate
- Support now provided for:
  - Removing all unnamed sections with a new binder option, STRIPSEC=PRIV
  - Specifying unnamed sections and symbols on binder control statements
    - ✓ Name a previously-unnamed section
    - ✓ Replace an unnamed section
    - ✓ CHANGE and REPLACE support for unnamed symbols

DFSMS™ support for very long retention periods

- RETPD=9999 was old limit (a bit over 27 years)
- New design limit is 93,000 days (a bit over 254 years)
- Notes:
  - 1-byte fields and 1900 TOD epoch date limit most expiration dates to YE2155
  - 99000 and 99366 remain as “never expire” dates no matter how derived
  - OAM and DFSMSrmm to support expiration dates up to the year 2264

SDSF support for REXX™ and Java access to OPERLOG

- In addition to access to syslog
- Use ISFLOG command for REXX
- Use ISFLogRunner class for Java

Key 8 program access to Key 9 DCBEs for OPEN

- No longer need to copy Key 9 DCBEs to Key 8 storage before OPEN
- Allow both DCB and DCBE to be in only Key 9 storage

XTIOT support for subsystem ACBs and DCBs

- Open processing support for being passed either a subsystem ACB or DCB
- DFAXTBAM must be set; subsystem must set DSABSSXT

XTIOT and DSAB above support for unauthorized programs

- Allow when either S99TIOEX or S99ACUCB is set

SMB Server support for Common Internet File System (CIFS)

- Provide improved support for Linux on System z clients
- Add CIFS support to existing SMB FS support

ISPF support for line command-level Edit macros

- In addition to initial and command line-level macros

Authorized programs to be able to extend currently open allocations to new volumes

- New support in MODIFY TYPE=DEVICELIST
- Will update SMF and Allocation control blocks as needed

New IEBPDSE utility

- Designed to verify PDSE structures

Session 9939:
What We've Done for You Lately With PDSE
Tuesday 9:30

New XL C/C++ support for:

- IPA and HOT options for Metal C
- A qsort() function
  - Allows an array to be sorted using a function you supply
  - Intended to relieve Metal C programmers from having to write sort routines with similar capabilities
- New ARCH(9) functions for programs running on zEnterprise System servers:
  - Interlocked storage access instructions
  - Multiply and Add in hexadecimal floating-mode with a new combination of FLOAT(MAF) and FLOAT(HEX) options
- New C++0x function, trailing return type, for which the compiler deduces the type of an auto variable from the type of its initializer expression
- – Debugging enhancements:
  - Hookless debug, intended to allow you to debug programs whose sizes and performance characteristics are more closely aligned with production programs.
  - New debugging APIs provide easier access to debug information in .mdbg and .dbg files.
  - Debug information for inline procedures, gives the ability to set entry breakpoints at all inlineinstances.
- …and more (see announcement or Summary of Changes)

Language Environment now supports recovery from more I/O-related abends

Session 9650: What's New in LE for z/OS Monday 11:00

- For output and close operations for C/C++ programs
- Return to C/C++ programs indicating that an I/O error has occurred rather than issuing an abend
- Intended to provide a more predictable recovery environment when I/O errors are encountered

Language Environment support for initializing multiple CEEPIPI main environments under one TCB

- Designed to provide access to a user word for each environment
- Intended to help you migrate Preinitialization Compatibility Interface (PICI) environments to CEEPIPI

dbx “hookless” debug support

- In prior releases, dbx inserted EX instructions, aka “hooks,” at compilation time to provide debugging breakpoints
- In R13, dbx provides support for programs compiled without hooks

z/OS Unicode Services improved bidirectional character support

- For applications that process scripts that are read from right to left with imbedded strings that are read from left to right
- Samples included to show how to use these extended bidirectional services, with a sample object file you can include with C applications

z/OS Unicode conversion information service provides more CCSID information

- Identifies substitution, newline, line feed, carriage return, end-of-file, and space characters

Support for access to 64-bit storage for tasks using subspaces

- Designed to allow access to 64-bit private and 64-bit shared storage in subspace mode without using Branch in Subspace Group (BSG) instructions
- Intended to make it easier for applications to access 64-bit storage and improve performance
- Note: No subspace storage isolation for 64-bit storage

Simplified XCF interfaces for passing messages in a Parallel Sysplex®

- New services designed to allow a server to be established to process messages and for messages to be sent across the sysplex without first joining an XCF group
- Intended to make it easier to exploit XCF services for applications that do not require the member management and monitoring provided by the XCF group services interfaces

Session 9729: z/OS Parallel Sysplex: Update Thursday 8:00

Support to allow tasks having subtasks in a WLM enclave to leave it, and for subtasks of a task joining an enclave to be joined to it

- Available now on z/OS V1.11 and z/OS V1.12 with the PTFs for APARs OA33344 and OA33406

Session 10009: Workload Management Update for z/OS 1.13 and 1.12 Monday 4:30

z/OS XML System Services now supports a binary XML format

- Extensible Dynamic Binary XML (XDBX)
- XDBX supports a subset of XML
- Appropriate expected to provide performance improvements for validating parsing operations compared to conventional XML text documents
- Planned to be enabled on z/OS V1.13 with the PTF for APAR OA36712 in 4Q11

LDAP improvements

- SHA-2 password hashing
  - Support for salted and unsalted SHA224, SHA256, SHA384, and SHA512
- Set search limits by groups of users
  - Override server-wide limits imposed by sizeLimit and timeLimit
  - 500-entry maximum is the default
  - Range is from 1 to 2147483647, or no limit
  - Administrator searches not bound by any limits
- Support for paged results as described in RFC2696
  - Get back segmented results, a specified number of entries per “page”
- Support for server-side sorting as described in RFC2891
  - Sorted search results based on a list of criteria, where each criterion represents a sort key
- 64-bit support for TDBM
  - DB2 ODBC 64-bit support
  - 64-bit TDBM/Bulkload, ldif2ds, DSCONFIG, GDBM support.
  - Support more data in TDBM using DB2 9 for z/OS (5635-DB2) with PTF UK50918 or later
- Support to enable Kerberos binds to be processed by Microsoft's Active Directory Server
- LDAP administrative authority delegation

CIM Server

- Now provides sequence identifiers in the indications profile
- Designed to allow:
  - Unsuccessful deliveries to be retried by the CIM Server
  - Lost and duplicate deliveries to be detected by a WBEM listener
  - Listeners to reorder any indications that arrive out of order
- This new function can provide better reliability and robustness for event processing in CIM

Enhancing Security

System z Security Portal

- Want to be notified about Security and Integrity APARs? Sign up!
  - IBM recommends that you promptly install security and integrity PTFs
  - SECINT PTFs are included in RSUs periodically
  - The System z Security Portal can help you stay more current with SECINT PTFs by providing SMP/E HOLDDATA you can use to identify these fixes before they are marked RSU
  - The System z Security Portal also provides associated Common Vulnerability Scoring System (CVSS) V2 ratings for new APARs*
  - To get this information you must register!
    - Because widespread specifics about a vulnerability could increase the likelihood that an attacker could successfully exploit it
    - In response to customer requests to maintain the confidentiality
    - Other requirements on the website
  - IBM recommends that you visit the System z Security Portal site at http://www.vm.ibm.com/security/aparinfo.html to get the information you need to register
  - Questions can be directed to: syszsec@us.ibm.com

- Note: According to the Forum of Incident Response and Security Teams (FIRST), the Common Vulnerability Scoring System (CVSS) is an "industry open standard designed to convey vulnerability severity and help to determine urgency and priority of response." IBM PROVIDES THE CVSS SCORES "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. CUSTOMERS ARE RESPONSIBLE FOR ASSESSING THE IMPACT OF ANY ACTUAL OR POTENTIAL SECURITY VULNERABILITY IN THEIR SPECIFIC ENVIRONMENT. IBM DOES NOT PROVIDE A CVSS ENVIRONMENT SCORE. THE CVSS ENVIRONMENT SCORE IS CUSTOMER ENVIRONMENT SPECIFIC AND WILL IMPACT THE OVERALL CVSS SCORE. CUSTOMERS SHOULD EVALUATE THE IMPACT OF ANY ACTUAL OR POTENTIAL SECURITY VULNERABILITY IN THEIR SPECIFIC ENVIRONMENT.
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RRSF via TCP/IP

Session 9637: RACF Remote Sharing Support for TCP/IP Thursday 8:00

- In addition to APPC
- Secure the links via AT-TLS
  - AT-TLS required; RRSF will refuse to use an unsecured link
  - Server- and client-side authentication will be used
  - Sample rule will specify strongest available encryption method
  - More and better encryption algorithms available in AT-TLS
    - ✓ Note: RRSF via APPC uses 56-bit DES
- Can allow an EE link used for this purpose to be changed to native TCP/IP
- New operand on TARGET operator command or issued during RACF subsystem initialization:
  - PROTOCOL(TCP(ADDRESS(hostname_or_IP_address)))

Additional SAF-based security for z/OSMF

- New general resource class, ZMFAPLA
  - Similar to EJBROLES class
- New grouping class, GZMFAPLA, for application visibility control
- Intended to allow you to supplant repository-based security

Enhancing Security

z/OS Communications Server intrusion detection technology adds support for IPv6 and more attack types

- Intended to provide IPv6 intrusion detection security and help you prevent certain error situations and denial of service attacks
- Configuration Assistant for z/OS Communications Server can help you configure the new IDS support

z/OS UNIX file system security

- File system-level access control using SAF with the PTF for APAR OA35970
  - Also planned to be available for z/OS V1.12 in September 2011
- Optional access control check uses profiles in a new FSACCESS class
- When a user is authorized to use a file system, permission bits and ACLs used to control access to individual files and directories
- Intended to help improve security administration and auditability

IBM Ported Tools for z/OS (5655-M23)

- Provides the sudo utilities in the PTF for APAR OA34949, now available
- Included as part of the Supplementary Toolkit for z/OS feature
- Designed to deliver the sudo (su "do") open source tools that allow system administrators to delegate authority to users or groups of users

Enhancing Security

Support for NAS to perform RFC 4120 address checking

- New CHECKADDRS setting in the KERB segment of the KERBDFLT profile in the REALM class
- Kerberos server should interrogate the addresses in tickets when CHKADDRS is set to YES
- New data returned by R_kerbinfo service

Support for encryption type negotiation in NAS

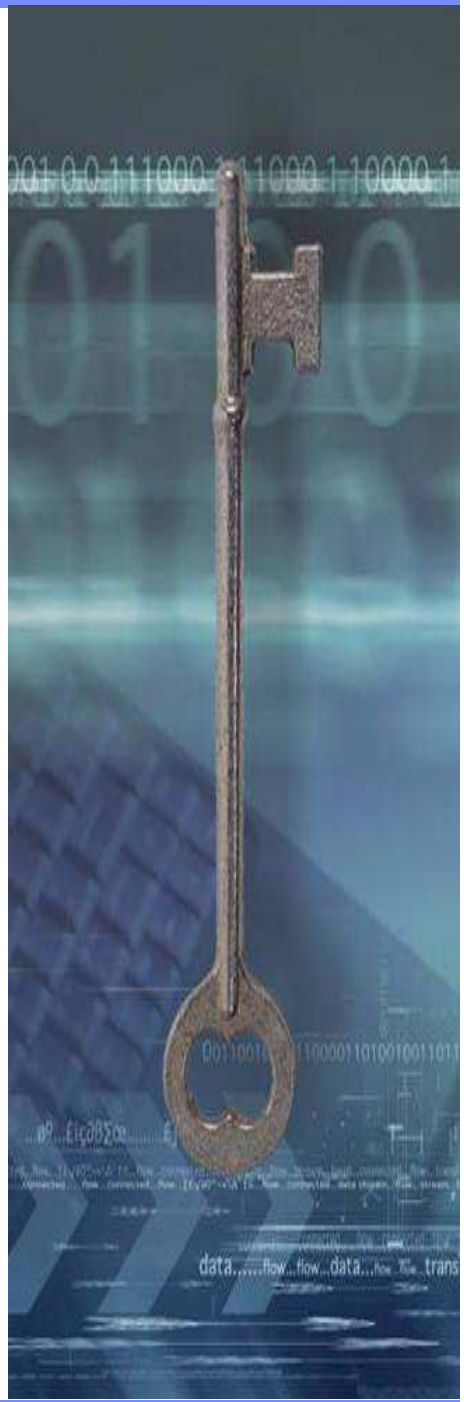
- Intended to work as described in RFC 4537
- Allow stronger encryption than that supported by a KDC

TN3270 and FTP support for password phrases

- In addition to existing support for passwords

z/OS UNIX now provides the capability for IPv4 UDP datagram reply packets to flow on the same interface where the request arrived

- When server system has multiple home addresses with multiple routes back to the client or is using a DVIPA
- Designed to be similar to existing support for IPv6
- Intended to allow applications to require that the response to a request be restricted to the same IPv4 address from which the request was received



Enhancing Security

Cryptographic Support for z/OS V1.11 through z/OS V1.13 web deliverable*

- AES Key-Encrypting-Keys (KEKs)
- Diffie-Hellman key exchanges using ECC, and encryption of ECC keys under AES KEKs
- PKA RSA PKCS#1 Optimal Asymmetric Encryption Padding (OAEP) using SHA-256
  - Intended to help meet the requirements of the Japanese Banking Association
  - Planned to be available for z/OS V1.13 and the Cryptographic Support for z/OS V1.10 through z/OS V1.12 web deliverable with the PTF for APAR OA36705 in September 2011
- Storing up to 100 PIN decimalization tables inside cryptographic coprocessors
  - Intended to help you meet ANSI X9.8 PIN protection requirements
  - Requires a TKE V7.1 workstation, available on IBM zEnterprise servers
- Dynamic PKA Master Key Changes
  - Allow PKA callable services processing to continue
  - Aligns PKA master key change procedures with those for AES, DES, and ECC master key changes
  - Also available with a Crypto Express2 Coprocessor (CEX2C) card, available for IBM System z10 servers
- Dynamic CKDS Administration, CKDS Reencipher, and Symmetric Master Key changes
  - Designed to allow these operations to be processed in parallel with CKDS updates
  - Coordinated for all members of a Parallel Sysplex that share the same CKDS data
- Exchange DES and TDES keys with other cryptographic systems using ANSI TR-31 Key Blocks
  - TR-31 key blocks intended to allow keys to be exchanged between different cryptographic systems
- Support for hardware-based RSA 4096-bit cryptography using a Crypto Express3 Accelerator (CEX3A), available on zEnterprise System servers
  - In addition to existing support using the Crypto Express3 Coprocessor (CEX3C) available on IBM zEnterprise servers
- **Planned for September 9th, 2011, at:**
  - http://www.ibm.com/systems/z/os/zos/downloads/

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Enhancing Security

System SSL enhancements:

- ECC support for X.509 V3 certificates using the ECDSA and ECDH algorithms
  - Designed to let you to create them in key database files or ICSF PKCS#11 tokens
  - Certificate Management Services API support
- Extend use of ECC to enable TLS V1.0 and V1.1 handshakes with ECC cipher suites and digital certificates during connection negotiations per RFC 4492
- Support for ECC certificates residing in SAF key rings with their private keys stored in the ICSF PKDS
- Support for private keys in secure digital signature generation operations available through Crypto Express3 Coprocessor (CEX3C) cards on IBM zEnterprise servers

Session 9551: RACF Update Monday 1:30

RACF support for generating ECC secure keys

- Using the CEX3Cs available for zEnterprise servers
- New RACDCERT keywords designed to allow you to specify that an ECC key be stored in the ICSF public key data set (PKDS); corresponding hardware ECC key support for PKI Services.
- Intended to allow you to expand your use of certificates with ECC keys protected by hardware

Restrict additional QNAMES to authorized programs:

- Already restricted:
  - QNAMEs starting with SYSZ (such as SYSZVOLS)
  - ADRDFRAG, ADRDSN, ARCENQG, BWODSN,SYSCTLG, SYSDSN, SYSIEA01,SYSIEECT, SYSIEFSD, SYSIGGV1, SYSIGGV2, SYSPSWRD, SYSVSAM, and SYSVTOC
- Now also restricted:
  - ARCDSN, ARCBTAPE
  - ARCGPA, ARCBACV, and ARCMIGV, when converted from RESERVE to ENQ

PKI Services Support for DB2 Backstore

- Optional use of DB2 rather than native VSAM for Object Store (OST) and Issued Certificate List (ICL)
- Allows DB2-based queries and reporting
- Other advantages of DB2 apply (e.g., online REORG)
- Support for lots and lots (billions) of certificates
- Support for much larger CRLs
  - Without DB2, maximum CRL size extended from 32k to over 500k
- ICL duplexing via DB2
- Most value thought to be for large-scale certificate deployments

VIPARANGE DVIPA Security

- Support for RACF profiles controlling which user IDs can create and destroy VIPARANGE DVIPAs extended
- Allow you to specify ranges of VIPARANGE DVIPAs or individual VIPARANGE DVIPA addresses

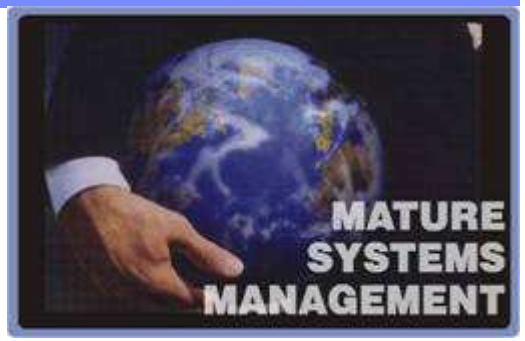
IPSec support for FIPS 140-2 cryptographic mode enhanced

- AES-GCM and AES-GMAC support when using sysplex-wide security associations in FIPS 140-2 mode
- IKE daemon uses new ICSF services in FIPS mode

IKEv2 support

- Added to z/OS Communications Server V1.12
- In V1.13, Communications Server adds Network Address Translation (NAT) traversal support using IKEv2 for IPv4
- Intended to make it easier to migrate to IKEv2 if you use NAT
- Also, sysplex-wide security associations support for IPSec tunnels negotiated using IKEv2 and IPv4 addresses

Self-Managing Capabilities



Better DFSMShsm journal backups

- Old way was to lock the journal for the entire backup
- New design:
  - Read control record
  - Back up journal data described by original control record
  - Lock journal, back up control record, back up balance of journal
- Expected to be much less disruptive for very active DFSMShsm systems
- Should be particularly nondisruptive if run when DFSMShsm activity is at its nadir for the day
- Note: Must use Concurrent Copy to back up CDS and specify SETSYS JOURNAL(RECOVERY) to use this function

Session 9943: What's New in DFSMShsm Thursday 11:00

DFSMShsm Space Management improvements

- New option to specify that space management to start when any volume in an automigration storage group exceeds the utilization threshold rather than using Interval Migration processing
- Intended to make DFSMShsm space management more responsive while reducing Interval Migration CPU utlization spikes
- Also, improvements in volume data set list processing so data movement can start sooner

Self-Managing Capabilities

RMF monitoring for zEnterprise ensembles:

- RMF provides CIM-based performance data gatherers for:
  - Linux on System z and Linux on IBM System x®
  - AIX systems
- Designed to provide a consistent monitoring solution for zEnterprise ensembles
- Along with the Resource Monitoring plug-in for the z/OS Management Facility, first made available with z/OSMF V1.12, this is intended to display performance metrics from those platforms and combine them with z/OS metrics in common graphic views

Response time distributions calculated by WLM and reported by RMF for velocity and discretionary goals

- As for response time goals, reported in 14 “buckets”
- Unlike response time goal reporting, mid-points can be recalculated and changed from time to time

Session 10011: RMF: The Latest and Greatest Monday 3:00

RMF support for additional contention reporting

- For system suspend lock, GRS enqueue, and GRS latch contention
- New Postprocessor Serialization Report available in XML output format
- New SMF Type 72 subtype 5 records
- Help make it easier to respond to serialization-related performance issues.

Self-Managing Capabilities

OAM improvements

- Support for file systems in the disk level for zFS and NFS, in addition to DB2-backed object storage
  - Allows you to use z/OS UNIX file systems to store, retrieve, and delete objects, and to move objects between file systems and other locations in the OAM hierarchy
  - Intended to provide you more flexible ways to configure your OAM storage hierarchy
- Wildcard support for the MODIFY OAM,START,STORGRP command to allow you to initiate OSMC storage group processing for multiple object and object backup storage groups in single commands
- Dynamic update capabilities to enable changing the maximum number of tape drives OAM allocates to an object or object backup storage group without restarting OAM
- Enhanced MOVEVOL to improve performance when moving objects from a source volume that contains a large number of OAM collections
- CTICBR00 now shipped in the SMP/E-managed parmlib so you can use parmlib concatenation rather than copying it from samplib to parmlib during migration
- SMF Type 85 records now include counter fields with higher maximum values, in addition to the existing fields in KB

Self-Managing Capabilities

InfoPrint improvements

- Support for specifying either a primary or a secondary JES2 subsystem
  - Intended to allow you to isolate print data on a secondary JES2 spool so unexpectedly large amounts of print output do not disrupt a primary JES2 subsystem
- PrintWay™ Extended Mode designed to allow you to select output to be printed based on the amount size of each job, and direct it appropriately
  - For example, direct large print jobs to high-speed, high-volume printers and small ones to lower-speed distributed printers
  - Intended to remove one of the last significant inhibitors for migrating from Infoprint® Server PrintWay Basic Mode to Extended Mode
- PrintWay Extended Mode enhancements for emailing documents:
  - Include text and line-data documents in the body of an email
  - Use a subset of RFC 2822-compliant email headers in line-data documents without modifying JCL or printer definitions
  - Send different documents from a print job to the same people or different people using email headers, job attributes, or JCL, with common introductory text
- Infoprint Central now supports:
  - Showing the age of print jobs, and displaying print jobs by age
  - Displaying new PrintWay Extended Mode fields used for job selection in printer properties

Session 9685: z/OS 1.13 Print Products Latest Status & New Features Monday 3:00

Continued focus on IPv6

- We have been talking about IPv4 address exhaustion for a couple of years now…
- The last IPv4 address was assigned to a regional pool by IANA in February 2011
- IPv4 address exhaustion started this year as Regional Internet Registry pools began to run dry
- RIR APNIC's pool exhausted 15 April 2011[1]
- More than you ever wanted to know at: http://www.potaroo.net/tools/ipv4/index.html

- If your z/OS system talks to the outside world and does not yet speak IPv6 you need to get going!
- z/OS R8 was IPv6 Ready
- z/OS R12 is IPv6 Phase 2 Ready
- z/OS R13 is intended to remain IPv6 Phase 2 Ready

IANA IPv4 Address Space Registry

Final Update:

3 February 2011

1. According to http://en.wikipedia.org/wiki/IPv4_address_exhaustion

Networking

- More flexibility for specifying reserved TCP/IP port ranges
- New CSSMTP server design for better memory and JES resource management when retrying mail send operations
- Improved z/OS system resolver processing when name servers are unresponsive
- More VLANs per OSA port
  - Define up to 32 VLANs per OSA port per IP version
- Autonomic recovery for APPN routing tree corruption
- New design to monitor for CSM-constrained conditions and taking specified recovery actions
- Enterprise Extender connectivity tests initiated using the DISPLAY NET,EEDIAG,TEST=YES command when firewalls block ICMP messages expected to complete more quickly

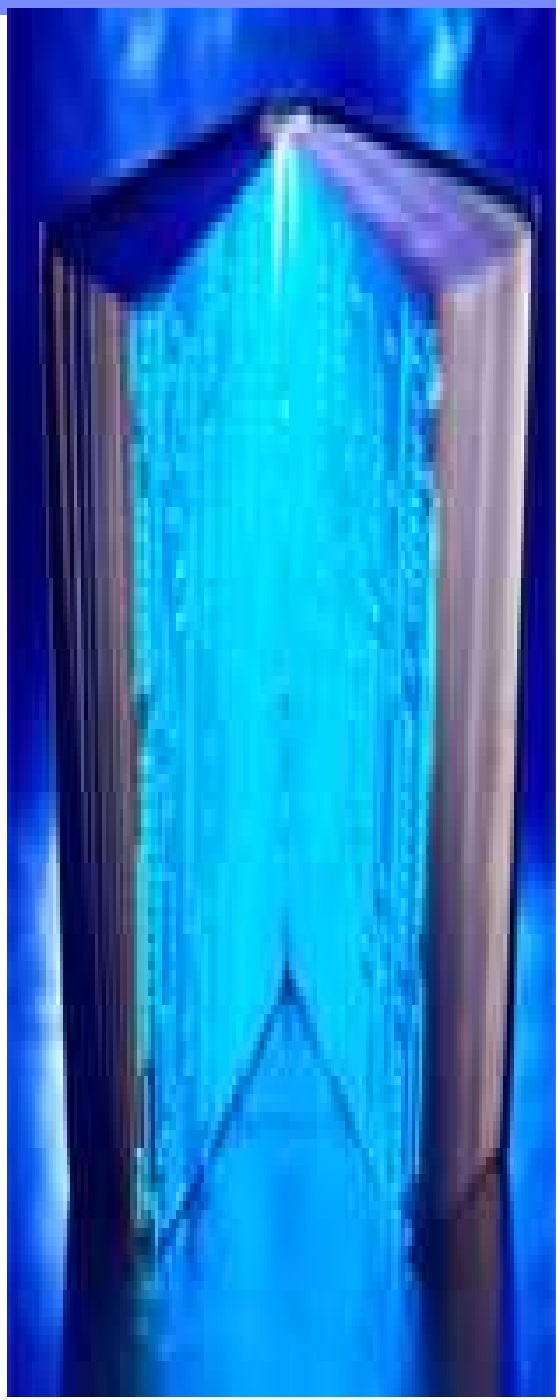
Session 9240: What's New in z/OS Communications Server? Monday 9:30

Session 9245: zEnterprise System - Network Architecture & Virtualization Overview - Part 1 Tuesday 11:00

Session 9246: zEnterprise System - z/OS IEDN Network Design & Implementation - Part 2 Tuesday 1:30

Networking

- New DISPLAY TCPIP,TELNET command you can use to display a list of TN3270E Telnet servers
- New Network Management Interface (NMI) functions for the system resolver, and improvements to the NMI TMI_Copybuffer callable services
- Sysplex Distributor takeover and distribution of IPSec tunnels and traffic for dynamic VIPAs using IKEv2 for better workload balancing
- New design for more-responsive VIPAROUTE processing when TCP/IP stacks join or leave the group and when OMPROUTE is recycled



What's Coming in z/OS Communication Server
Monday 1:30

Microsoft Windows Support

- The Microsoft® Windows®-based Capacity Provisioning Manager application supports 32- and 64-bit versions of Microsoft Windows 7 Professional Edition
- DFS SMB Server supports clients running both the 32- and 64-bit versions of Microsoft Windows 7 Professional, Microsoft Windows 7 Enterprise, and Microsoft Windows 7 Ultimate Editions
  - Also planned to be available for z/OS R11 and R12 with the PTF for APAR OA36149 by z/OS R13 general availability.
- NFS supports 32- and 64-bit versions of Microsoft Windows 7 Professional Edition with Open Text NFS Client or Open Text NFS Server installed
- HCM supports the 32- and 64-bit versions of Microsoft Windows 7 Professional Edition
- z/OS PKI Services provides support to enable Mozilla-based web browsers on Windows and Linux platforms to use smart cards when generating certificates and to enable Microsoft Internet Explorer 6, Internet Explorer 7, and Internet Explorer 8 to use an updated PKI application that includes its own ActiveX controls, which allows users to install renewed certificates

All now available on DVD:

- ServerPac®
- CBPDO
- Customized Offerings Driver (COD)
- SystemPac®, ProductPac®, and FunctionPac fee-based offerings and selective follow-on Service (SFS)
- ESO

- Notes:
  - IBM recommends using Internet delivery, but DVD support may provide an option for those who cannot use it
  - Installation for ServerPac, CBPDO, SystemPac, ProductPac, FunctionPac, and SFS using DVD requires a workstation with a network connection to the z/OS driving system
  - Installing the COD requires use of the HMC

Statements of Direction*

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

Statements of Direction*

Reminders:

- z/OS V1.13 is planned to be the last release to support multi-file system zFS aggregates, including zFS clones
  - Support for the zfsadm clone command and mount support for zFS file system data sets containing a cloned (.bak) file system will be removed
  - IBM recommends that you use copy functions such as pax and DFSMSdss to back up z/OS UNIX file systems to separate file systems.
  - Support for zFS compatibility mode aggregates will remain.
- z/OS V1.13 is planned to be the last release to support BPX.DEFAULT.USER
  - IBM recommends that you either use the BPX.UNIQUE.USER support that was introduced in z/OS V1.11, or assign unique UIDs to users who need them and assign GIDs for their groups.
- z/OS V1.13 is planned to be the last release to provide the z/OS Capacity Provisioning support that utilizes the System z API for communication with the Support Element (SE) or Hardware Management Console (HMC).
  - This protocol is based on IP network connection using SNMP.
  - IBM recommends configuring the Capacity Provisioning Manager for communication via the z/OS BCP Internal Interface (BCPii) protocol. The SE and HMC support for the System z API remains, and is not affected by this withdrawal of support.
- z/OS V1.13 is planned to be the last release in which the BIND 9.2.0 function will be available.
  - If you use the z/OS BIND 9.2.0 function as a caching-only name server, use the resolver function, which became generally available in z/OS V1.11, to cache Domain Name Server (DNS) responses.
  - If you use the z/OS BIND 9.2.0 function as a primary or secondary authoritative name server, investigate using BIND on Linux for System z or BIND on an IBM blade in an IBM zEnterprise BladeCenter® Extension (zBX).

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Statements of Direction*

- z/OS V1.13 is planned to be the final release for which the IBM Configuration Assistant for z/OS Communications Server tool that runs on Microsoft Windows will be provided by IBM
  - Currently an as-is, nonwarranted web download
  - Use the supported z/OSMF Configuration Assistant application instead
- z/OS V1.13 is planned to be the last release to support a staged migration for JES2 and JES3. Future releases will require you to migrate to all elements of z/OS at the same time, including JES2, JES3, or both.
- z/OS V1.13 is planned to be the last release to support changing the default Language Environment runtime options settings using SMP/E-installable USERMODs. IBM recommends using the CEEPRMxx PARMLIB member to set these options.
- With the introduction of the SAF mode authorization in z/OSMF 1.13, IBM intends to withdraw support for Repository mode authorization in a future release. Both modes are being currently supported to allow customers time to migrate to the new authorization mode.

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Statements of Direction*

- System z High Performance FICON (zHPF) planned to be extended to support certain I/O transfers for workloads using QSAM, BPAM, and BSAM access methods, with:
  - z/OS V1.13, z/OS V1.12, or z/OS V1.11 with PTFs
  - A zEnterprise System server with channels that support zHPF and a minimum Machine Change Level (MCL)
  - HMC V2.11.1
  - Support Element V2.11.1
  - IBM System Storage® DS8700 or DS8800 series with new DS8000 licensed machine code
- Significant I/O performance improvements expected without application changes
- Builds upon existing zHPF support for VSAM, Extended Format sequential, zFS, and PDSE data sets and provides support for these data set types when a new parameter is specified in the IGDSMSxx member of parmlib:
  - Basic nonextended format Physical Sequential data sets
  - Basic and large format sequential data sets

Availability planned for fourth quarter 2011.

Session 9958: System z and Storage Synergy Wednesday 9:30

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Statements of Direction*

New news

- With z/OS V1.13, new function is designed to provide improvements for DB2 list prefetch
  - Expected to provide significant performance improvements for certain DB2 queries and some DB2 utility operations
  - Will take advantage of new support planned in fourth quarter 2011 for IBM System Storage DS8700 or DS8800 series
    - New DS8000 licensed machine code
    - Also planned to be available on z/OS V1.11 and z/OS V1.12 with PTFs.

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Statements of Direction*

- In z/OS V1.13, Workload Manager (WLM) is designed to take advantage of new support planned for IBM System Storage DS8700 and DS8800 series, with new DS8000 licensed machine code, which enables more effective storage consolidation and performance management. This new function is intended to improve disk I/O performance for your most important workloads and is designed to drive I/O prioritization to the storage controller level by allowing high-priority work that is missing its performance goals preferred access to storage server resources. Availability is planned for fourth quarter 2011, and it will also be available on z/OS V1.11 and z/OS V1.12 with PTFs.

- z/OS V1.13 builds on existing EAV functionality and is planned to support 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. This enhanced support is intended to relieve storage constraints while helping you simplify storage management by providing the ability to manage fewer, larger volumes as opposed to many small volumes. Availability is planned for fourth quarter 2011, and it will also be available on z/OS V1.12 with PTFs.

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Statements of Direction*

New news

Session 9636: GDPS Overview and Recent Enhancements (Release 3.7 and 3.8) Wednesday 9:30

- HyperSwap™ support planned to be enhanced to improve recovery in HyperSwap-enabled configurations
  - Intended to mitigate impact of recovery scenarios
  - Targeted for GDPS/PPRC customers with IBM System Storage DS8700 or DS8800 series
  - GDPS/PPRC will be designed to initiate an unplanned HyperSwap that will allow the former primary PPRC DS8000 to complete its recovery while allowing host I/Os to proceed
  - Additional enhancements planned to reduce the amount of system resources consumed during a HyperSwap by GDPS/PPRC users with a large number of volume pairs
  - Availability is planned for fourth quarter 2011, and these functions will require the following:
    - z/OS V1.13
    - GDPS V3.8 with PTFs
    - An IBM System Storage DS8700 or DS8800 with new DS8000 licensed machine code

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