SHARE 2021 Virtual Experience August 2-13, 2021 Notes

By Ed Webb of SPARTA

SHARE 2021 Virtual Experience August 2-6 Pre-Event

https://www.share.org/Events/SHARE-Virtual-Experience then click on Access the Event Platform

Monday, August 2, 2021 (#1)

Overview of SHARE Virtual Experience

Starts August 2 On-Demand Presentations
- over 100 technical sessions

Live! starts August 9-13
- 5 per time slot
- Zoom
- Networking activities
- SHARE Partner sessions on Mon., Wed., Fri.

10 a.m. CT Opening Keynote each day (except Friday)
Use Zoom to engage with speakers and mute yourself when not speaking
All sessions will be recorded and available to watch on demand
Submit Session evaluations
Persons who attend 10 education sessions and 1 partner session will earn Optimus Badge
Hackathon (starts Aug. 2, 2021)

Partner on Wonder platform August 10 and 12

#SHAREVIRTUAL21 for social media

e-mail before event to access platform
SHARE >event page> access event platform
- Welcome page
- checkbox to participate in Networking
- complete name (add Volunteer after First Name)
- Then access event
- shows Feature Sessions
  - Profile on right side
  - Network link on right as well
- main navigation on left of page
  - Home
  - My schedule
  - Technical Agenda
  - OnDemand presentations
  - Speakers
  - Network
  - Contacts
    - persons you save in list
- Technical Agenda
  - search and filters

click add to my schedule
click vertical dots near time to download a calendar file
Speaker link
select speaker and chose connect to send a message

video platform during session breaks
"Wonder" platform is separate app, works best in Chrome or Firefox

this "how to use Wonder" video will be posted Attendee FAQ page
https://www.share.org/Events/SHARE-Virtual-Experience/FAQ

On-Demand Presentations
Monday, August 2

The Last Line of Defense on a Ransomware Attack
by Merritt Maxim, VP, Research Director | Forrester

large ransomware impact, pay-outs
insurance companies beginning to stop writing ransomware policies
ransomware appears to be very profitable
attack vectors
software vulnerabilities 1/3 of attacks
older systems with no available patches
new systems not patched
phishing 1/4 of attacks
users click wrong thing

ransomware and backups
malware may spread to backups
recover from uninfected backup is challenging to find clean version

build resiliency to critical locations and services
natural disasters, large scale power outages, other challenges

Zero Trust concept and principles
castle and moat method not working as well today
remote users not inside the castle
Zero Trust has no perimeter
all networks untrusted
work with least privilege
assume you will be breached so strong monitoring and inspection
Zero Trust Extended (ZTX)
data, people, devices, networks, workloads
air gaps and useful form of latency network
not sole solution
does eliminate all risks
hurts productivity and recovery time
Backup and Disaster Recovery are not the complete solution
customers expect your business to be available without disruption
competitive advantage
Resiliency helps with planned downtime as well and unplanned downtime

IBM Solutions for Resiliency
new solution

IBM Z is very resilient foundation
- IBM Z, Parallel sysplex, GDPS, Storage
- built to provide disaster recovery, not designed to thwart software error insertions (like ransomware)
- errors copied within microseconds

NotPetya crippled Maersk shipping (only recovered because of an air gapped system)
Solarwinds Orion
could just be error

IBM Z SafeGuarded Backup in Cyber Vault LPAR
- hackers frequently lurk before attack
- tools to diagnose error or attack
- restore whole or parts to recover faster

CyberVault System
- production software stack replica
- CV licensed tools
- All CV tools must be installed in actual production image even though not all are needed there
- check operational validation of backups that are air-gapped before they are needed
  - full validation has to delimited to reduce production environment
- separate LPAR of CyberVault can use for pen-testing (penetration testing) and ethical hacking and chaos engineering experiments
- IBM Z Batch Resiliency, other IBM tools including database specific ones

IBM Z CV detects sooner and recovers faster - design goal is hours to recover, not days or week
IBM Z CV Solution - IBM Storage, IBM Z and Software, IBM Services

Beyond the Performance Dashboard, Getting Ahead of Brewing z/OS Issues

by Norman Hollander, IT Consulting Specialist (zNorman@CPExpert.com)

z/OS Performance and real-time (RT) monitors
how to react to brewing issues before becomes serious
RT Monitors
- large amount of data, default or custom dashboards with various priorities
- system utilization, busy, transaction rates, device busy
- up to you to customize and to know how bad the situation is
- issues
  - growing issues, trends on a non-continuous basis, several other less obvious situations

Tuning and SRM
- iterative and continuous process
- shifting workloads or obtain more resources
- SRM and WLM can only deal with available resources
  - physical processors, LPAR and weight management, channel and i/O, real memory, virtual storage
- RT Monitors probably don't help with brewing issues

lots of metrics to identify and monitor
RTM may not provide complete picture of hidden parts of an issue
performance issues may be complex
understanding severity can be difficult
performance trending could cause an outage
understanding where to find a quick resolution of a specific performance issue is challenging

Product-specific benefits but may also highlight issues to review
CPExpert runs on IBM mainframe to analyze performance data from systems and subsystems
recommended solutions (cpexpert.com)
- easy to use, no-nonsense dashboard
- quickly identify and resolve issues

no need to customize reports (that is, no SAS skills required)
finding (rule)>impact>logic flow>discussion>suggestion>correct
data filtering
CPExpert 30.1 now available (including SAS ODS charting and reporting)
vast knowledge base, analysis, not just reporting, very affordable
45-day trial onsite or analyze data you submit

Introduction to Precision Time Protocol (PTP) (IEEE 1588 Standard)

by Steve Guendert, Ph.D.

2019 PTP V2.1 available (PTP has been a standard for almost 20 years)
sub-microsecond synchronization
primarily in telecom and utility industries and particle colliders but coming for finance
more accurate than NTP and GPS, less expensive than GPS

Finance and Banking
electronic trading platforms and automation
high frequency trading (HFT)
Tighter time synchronization required
new rules and regulations
USA - FINRA 2018 requires trading environments to be within 50 ms of NIST (UTC)
requires Consolidated Audit Trail provided to central repository
summer of 2020 enforcement began
EU - ESMA and MiFID II directives 2018
stricter than USA requirements
1 microsecond or better timestamp

PTP Technology Basics
new efforts to change terms to be leader and follower (replaces master and slave)
requires hardware support including switches and other equipment
ordinary and boundary clocks
IP-multicast over UDP (IPv4 or v6)
3 principles
uses best clock (Grandmaster) source available
synchronize each clock to parent
management
Sync closer to Physical Network
Boundary Clock
Ordinary clock
Transparent Clock
Delay Measurement mechanisms
Timestamps and corrections and combinations
Standards Organizations set PTP profiles for various industries
IEEE 1588-2019 defines Default profile for PTP
PTP Future Directions
CERN White Rabbit (CWR) paper to set nano- or pico-second accuracy
Support Thousands of nodes
CWR Being adopted by some European financial systems
More robust security for time synchronization

PTP on IBM Z
Sysplex Timer (external timers)
Server Time Protocol (2005-2006)
multiple Z servers coordinated with external time reference (CTN)
STP similar to NTP

STP maintains 10 microseconds synchronization within CTN
z15 1.5 in May2020 added PTP support
better support for non-Z servers
initial support via HMC/SE
Statement of Direction
full connectivity on Z to external PTP time server
re-introduce mixed CTN environment
New STP Redbook draft since 2020 being updated

Wednesday, August 4, 2021
SHARE Virtual All-Hands Meeting

nn attendees

Best of the Best Session Awards
User: Do You Feel Invisible?
Vendor: Building Women into Leaders in IT
User Best Session
CICS Explorers
Gender Diversity
zVM Sponsor User Experience Panel
Vendor Best Session
DASD use for Cyber Data Protection
What's new with SUSE Linux off Z
WLM Response Time Goals
Strategic Partners Best Sessions
Embracing Apprenticeships for Women
Introducing REST-enabled BCPii

Service Awards
15 Years for Keith Moe
35 Years for Skip Robinson

Volunteer Spotlight
James Lund, MVS Program
Mike Shorkend, MVS Requirements

Rave Awards

Year-Round Education Program Update
SHARE Security Webcast Series Aug 2021-July 2022
50 Year anniversary Software Security Project
21 webcasts from top mainframe security professionals
Looking for other projects to work with
SHARE Communities
Building out new Security Community
Launching new SHARE Open Discussion community Q3
Reinvigorate Women in IT and zNextGen

2022 Event Strategy
Winter 2022 event
insights gathered>Event Modeling phase 1>Event Model phase 2 > Next Steps
poll - 87% want in-person event
- 44% companies will send, 44% not sure

initial plan was Dallas, site visit, but decided not to proceed

shorter event, reduce general session setup, reduce STE setup and contractor fees
remove the emcee
additional reductions in discussions

Futures Committee
Jim Erdahl, Brian Kithcart, Scott Fagen, Rick Barlow, James Vincent
recommended multi-day event in Winter 2022
RFP opened, P&L modeling, finance and audit committee works to determine registration rates and STE partner Program
Board of Directors will decide soon and then complete contracts before info posted

SHARE Virtual Experience
On-Demand is available now
Live! is 5 consecutive days August 9-13
45 minute sessions - audio access as well as chat
SHARE Partners with dedicated sessions on M, W, T
SHARE staff in each session
backstage and public chat are available

SHARE Volunteer Happy Hour 4:30-5:30 ET

Networking Tool Demo (WonderMe)
Hot Topics will be set up
request browser and allow and then add your name and answer first question
Help Desk room available

Friday, August 13, 2021
Hidden Treasures in z/OS (aka Bit Bucket x'3E')

Respect! by James Lund
Keep RSU level current
==> Use a Managed Services (3rd party provider) that keeps your system RSU current

JES2 Policy by Mike Shorkend
z/OS 2.2 had 60 possible exits!
JES2 Policy can take place of some of these
JSON- based
One policy type is Job Conversion (exits 2/52 and 3/53)
2 more types are coming in z/OS 2.5
A PDS for your policies
Import policies from the PDS via $POLICY JES2 command
Set conditions to test attributes and then take action

sample in JES2 manual and in Tom's excellent presentation
(see presentation for links)

Official CBT ISPF Dialog by Lionel B. Dyck
(OCD)
File043 cbttape.org (look at updates page first)
or on GitHub
$INSTALL member and create hlq.FILEIDX.PDS

if no FTP on z/OS, download FILE001 for use by OCD

SHARE 2021 Virtual Experience August 9-13 Live!

Monday, August 9, 2021 (#2)

SHARE Welcome and Opening Keynote

343 participants

Jim Erdahl, President, with opening remarks about SHARE and its resources

Security Project celebrating 50 years this coming March
- monthly webinar series
- security forum in SHARE Community

Jim Vincent and Rick Barlow talk about this SHARE virtual event
- meeting style session with Q&A
- complete session evaluations

SHARE Business meeting
- Appoint the Porte Brown as auditors for 2021-2022

IBM Keynote
- 60% of executives are speeding up digital transformations
- hybrid cloud
  - 2.5x value of public-only approach
  - business acceleration, developer productivity, infrastructure cost efficiency, compliance and security
- IBM Hybrid Cloud
  - built on RedHat OpenShift
  - IBM Cloud Paks
  - IBM expertise
- Agile, DevOps, familiar tools, optimize deployment based on best fit infrastructure

- Modernize in place or move to alternative platform
  - API enable, refactor or re-write, containerize, data optimization

- 67 of Fortune 100
- 45 of top 50 world banks
- 8 of 10 top insurers
- 4 of 5 top airlines
- 7 of 10 top retailers

- Don’t isolate mainframe, proactively integrate into your hybrid cloud platform
  - easily access IBM Z data without moving it

- Apply AI to most valuable data on IBM Z
- consistent approach to development across all platforms
  - use all Open Tools to work on IBM Z applications including COBOL
- IBM Z is cost optimized for enterprise scale
  - Hybrid cloud lower cost using IBM Z
  - ensure cyber resiliency with confidential computing, privacy assurance and business continuity
  - IBM Z with 7 x 9s application availability, fully encrypted transactions

optimize the foundation, ….

MVS Program Opening, Executive Overview, and Q&A

184 attendees
38 volunteers and 23 IBM reps. over 3 projects
new SHARE.org platform problems, Bit Bucket “troubles”

Critical APARs and Red Alerts

by John Shebey, IBM z/OS Software Service
R7D0 is z/OS 2.5
==> SDUMP HIPER APAR OA59744 (2.3 and up) - RSU2104 UJ04943 (2.4)
Overlays PSA - wait084 IPL required
==> New CPENABLE settings are recommended in IEAOPTxx for z14 and z15
see WSC Flash (March 2020)

z/OS Overview

by Dave Jeffries, VP, Development, IBM z/OS Software
first day back in POK lab on Monday, August 9, 2021
last 6 months
zCX Growth - no longer requires hardware option on z15 (monthly license)
IBM Container Hosting Foundation + IBM Container Repository
Container Registry - trusted registry for open-source container images
https://ibm.biz/zregeap
zCX Client Perspective
Proof of Concept was very successful
full port of z86 applications to zCX, better performance (business data on Z already), MIPS savings uses zIIP engines
AI on Z - micro-services (IBM Watson Machine Learning)
Ansible with z/OSMF, GDPS and Health Checks - Automation and Application Resilience
Ansible Collection for z/OSMF (ansible.com/intergrations/infrastructure/z-os)
Proactive Resilience Discovery Workshop offering - free IBM offering
contact zos@ibm.com

z/OS 2.5 Overview

by John Petreshock, IBM Z Development Manager Liaison
Workload Enablement, OS Management, Simplification, Cyberthreat Secure Z, Intelligent Resiliency
Design, development, test, General Availability
customer engagement - design thinking activities, z/OS Function Alpha, z/OS Function Beta, z/OS Release Beta
z/OSMF ServerPac - 80% of clients report running z/OSMF
30% faster install in some cases
Wants z/OS 2.5 adoption rate faster than z/OS 2.4

What’s New in z/OS V2R5: Summer 2021 Virtual Edition

by Gary Puchkoff, IBM
177+ attendees
z/OS 2.5 Release Overview
Hybrid Cloud/ application resiliency and Security
z/OS Anomaly Mitigation
OS Management Simplification for early tenure z/OS System Programmer
z/OSMF Software Install and Maintenance
Z Hardware Support for z15
Up to 16 TB in z/OS LPAR
Improved compression performance
more coupling links and 50% more CHPIDs
System Recovery Boost support
IPL (60 minutes) and Shutdown (30 minutes)

- Recovery Process Boosts (30 minutes per day)
  - Sysplex partitioning, CF structure recovery, Hyper Swap
- ICSF will not be web deliverable but via service stream

Foundation

- Application development
  - z/OS Container extensions (zCX) - run Linux workloads on z/OS
    - virtual appliance
    - same binary for Linux on Z run on z/OS
  - z/OS Container extensions performance enhancements (CD)
  - z/OS Container Hosting Foundation Product (CD) in place of hardware upgrade (CD)
  - zCX resiliency (CD)
  - IBM Z Container Image Registry
    - built by IBM and scanned by IBM, not supported by IBM
  - SOD - z/OS application containers
  - AI on z/OS - anaconda, Watson machine learning, ….
  - New compilers - COBOL 6.3, Binary Optimizer, Enterprise PL/I 5.3
  - C/C++ 2.4.1 download
  - Java 11 support coming - 64-bit only
  - COBOL-Java Interoperability
    - 31- and 64-bit LE support
  - ISPF enhancements
    - OVIEW for z/OS Unix files
    - SUBMIT has SUBSYS option
  - Web Enablement Toolkit including TLS 1.3?
  - Unicode 12
  - Unix Services - BXPBATCH can return codes from commands and executables
- Usability and Skills
  - z/OSMF Desktop - replace UI tab (CD)
  - z/OSMF create dataset (CD)
  - z/OSMF desktop and data set hot-links (CD)
  - z/OSMF runs officially under Chrome
  - z/OSMF Security Configuration Assistant (SCA) (CD)
  - z/OSMF DFSMSrmm plug-in
  - z/OSMF Workflows are key to new functions
    - z/OS Management Services Catalog - planned plug-in (SOD)
    - see link https://www.ibm.com/support/z-content-solutions/management-services
  - z/OS Release Upgrade Enhancement (CD)
    - available and serviced via z/OS service process
  - z/OSMF Software Management Installation of ServerPac (CD)
    - CICS, IMS, Db2 already being delivered via z/OSMF SM
    - after Jan. 2022, only z/OSMF ServerPac is supported
  - z/OSMF z/OS Software maintenance (CD)
  - Assembler Skills Reductions
    - more C Header files for z/OS control blocks
    - JES policy-based exit reduction
- Scalability and Performance
  - 16 TBs via 2M pages
  - WLM Batch initiators
  - SMF Python toolkit leveraging Python and Jupyter (SOD)
  - Faster mounts of zFS filesystems (CD)
  - More Concurrently “Open” datasets
    - moves some VSAM control blocks above the bar
  - JES2 memory - more moved above the bar
  - RMF enhancements (CD)
- Availability

- BPXPRMxx improvements
  - syntax checker checks Mount and Root statements
- z/OS Anomaly mitigation for client pain points
  - PFA (Predictive Failure Analysis) and RTD (Run-Time Diagnostics) enhancements
- z/OS Catalog Enhancements
- Access Methods Services - IDCAMS
- System Recovery Boost

System Management
- z/OS System Provisioning
  - create a entirely new z/OS system
- Support for NFS to migrate from DFS/SMB
- zFS administation (CD)
- JES2 enhancements
  - SPOOL compression and encryption (CD)
  - JES2 exits supplemented with policies
- Tailored Fit Pricing Ease of Use Enhancements
- BCPii (CD)
- Advance Data Gatherer (with priced Enhanced mode)
  - runs all the time
  - current RMF customers are entitled to ADG and RMF at same pricing
- SDSF
  - SAF security only - no security via ISFPRMxx

Networking
- zERT can now do Policy Enforcement
  - zERT Reporting improved
- SMCv2 multiple IP subnet support
- TCP/IP extended services notifications
- CSSMTP replacing ….

Data Serving and Storage
- Logical data protection and Recovery (CD)
- Safeguarded Copy
- Enhanced Transparent Cloud Tiering (CD)
  - also available with full volume dumps
- Unix file backup and restore enhancements (CD)
  - DFSMShsm enhancements
  - recover to new directory
- Data Set File System (SOD)
  - Unix path to access z/OS data sets
- PDSE member level compression (CD)

Security
- Pervasive encryption enhanced
- RACF support for Restricted Profile Management
- RACF Health Checks
- Certificate fingerprinting
- System SSL, AT-TLS other enhancements
- Authorized Code Scanner feature

Upgrade to z/OS 2.5 Planning: Part 1 of 2

by Mark Wallen of IBM
126 attendees
z/OS 2.5 - order Security Level 3 features if needed (we at SAS always ordered it by default)

zCX (z/OS Container Extensions) HZDC7C0 FMID in 2.4
zACS - z/OS Authorized Code Scanner (CD)
zWIC (IBM z/OS Workload Interaction Correlator)

Removed functions in z/OS 2.4
- SRPI (use TCP/IP instead)
- BookManager
- User key common removal (RUCSA) - priced offering available
  - Australian Social Security is affected - will have to purchase RUCSA
- DFS/SMB - use NFS instead
  - 2 z/OSMF workflows to help with migration from DFS/SMB to NFS

Removed functions in z/OS 2.5
- HFS - use z/OS utilities to help with conversion to zFS
- some functions lose native TLS support - require AT-TLS instead
- WLM service coefficients - now hard-coded to CPU=1,SRV=1,MSO=0,IOC=0
- z/OSMF “classic” tree mode

Removed after z/OS 2.5
- JES3 - major action required for affected customers (look at the Phoenix Software alternative)
- IBM Bulk Data Transfer - look at IBM MQ functions (or the Phoenix Software alternative)

Order z/OS 2.5 in mid-September 2021
- Incorporates ICSF FMID HCR77D2 (no more web-deliverable ICSF)

z/OS 2.4 EOS is 2024
z/OS 2.5 co-exists with 2.3 and 2.4
Use the z/OS v2.5 Upgrade Workflow and Planning for Installation (provided via PTFs for z/OS 2.4)
Driving system must be at least z/OS 2.3
- install coexistence on current system
- z/OSMF Software Management must be implemented to install z/OS 2.5 ServerPac
- Java 8 64-bit and 31-bit
  - z/OS BCP PFA requires 31-bit Java 8
  - z/OSMF and Knowledge Center requires 64-bit Java 8

z/VM 7.1 is minimum for z/OS 2.5
REPORT MISSING ZONES()… IBM.Coexistence.z/OS.V2R5 and IBM.Function.HealthChecker
34 health checks used by z/OS 2.5 Upgrade Workflows
- so get Health Checks installed on 2.4 now
- UJ05021 and UJ05022
- OA61406 is next update to z/OS 2.5 Upgrade Workflows

==> slide 31 is still wrong workkflow…
- workflow steps can be assigned to others
- updates to Upgrade Workflow will revise your already executed upgrade workflow so you can only run changed or updated steps

z/OSMF ServerPac only way to install z/OS as of Jan. 2022
- Only z/OSMF Core and Systems Management must be implemented; strongly recommend Security Configuration Assistant

==> See link to small example of ServerPac install “Try it” to test z/OSMF

Upgrade to z/OS 2.5 Technical Actions: part 2 of 2

- by Marna Walle of IBM

134 attendees
Health Checks - 10 new in 2.4, 4 new in 2.5, 2 changed in 2.4 and already 1 changed 2.5 check
Default changes
- DSLIMITNUM - prior to 2.5 4B, changed in 2.5 changed to 4096
  - See SMF30NumberofDataSpacesHWM
- ASCB and WEB are backed in 64-bit real by default
  - programs using LRA instruction may fail
- DIAG VSM CHECKREGIONLOSS(256K,30M) is new default
  - should avoid S822 or S878 abends

DFSMS Upgrades
- DFSMSdss SHARE keyword ignored for COPY and RESTORE of PDSE (in 2.4)
- DSFSMS has several other default changes (see slide 12)

HCD upgrade
    Remove out of service processors from HCD (z10 and earlier)
RMF structural changes
    Functions are same but split RMF into 2 priced products (Advance Data Gatherer) and RMF (reporting tool)
        may have to update IFAPRDxx
        data set names changed and SGRBxxx added for ADG
        RACF CLASS(PROGRAM) profiles have to be updated
Security (changes actually in 2.4)
    CIM: HTTP to HTTPS
    RMF: Configure AT-TLS to secure communication with RMF distributed data server
ICSF: CSFPARM (2.4) must use member name in CSFPARM DD
    may have to recompile much older CSF programs
z/OSMF
    Desktop interface required
    Data Set and File Search is handy for common tasks
    App Center folder has lots of the z/OSMF apps - drag favorites to desktop
    z/OSMF Diagnostic Assistant - see APAR PH11606, requires user authorization
    Network Configuration assistant (import Policy Actions function removed in 2.5)
SDSF
    SAF-based security required - ISFPRMxx security is not supported
        See ISFJCL APAR PH27387 and others to migrate older setup
==> Java 64 required (see slide 22)
RACF
    TSO/E HELP syntax for commands is removed
        save your RACF help data set?
    RACF Class Descriptor will be in IBM-supplied table
        remove from Dynamic Class Table - watch POSIX values
z/OS OpenSSH went to level 7.6p1 in z/OS 2.4
z/OS Unix
    BPXPRMxx LIMMSG default change from NONE to SYSTEM
        85% reached will now produce Console Messages
        remove FORKCOPY and KERNELSTACKS in 2.4, MAXSHRPAGES remove is 2.5
JES2
    z22 required - Activate today before z/OS 2.5
        CYL_MANAGED option required for z22
CommServer
    FTP now requires AT-TLS for secure connections
    in 2.4, CSM default in reased to 512K
    Storage changes in some other IP services
Big Migs for 2.4
    8 GB for z14 and later
    BCP: remove support for user key common
        only 1 part can be mitigated by the priced RUCSA product
    NFS instead of DFS/SMB
    HTTP to HTTPS for CIM, RMF, others
Big Migs for 2.5
    z/OSMF ServerPac driving system requirement
    HFS removal
    Use only SAF-based security to protect SDSF functions
    Activate JES2 z22 mode
    Perform updates for RMF structural changes
z/OS Next
    JES3 no longer shipped in 2023 release
==> get slide 30 for 2.5 Big Migs

zSecure 2.5 can be ordered as part of z/OS 2.5 ServerPac order

Tuesday, August 10, 2021 (#3)

Colleagues in Corvettes Getting Cappuccinos Keynote

by Greg Lotko (?) of Broadcom
258 attendees

Security
lock the door but don't give away the keys
use 2 factor authentication for mainframe just like non-mainframe
CyberSecurity Thinking Workshop from Broadcom

Trainee to Security Product support in a year

Zowe and DevOps
distributed tools for development such as Visual Code
leverage for mainframe
Brightside for DevOps, developer cockpit including COBOL

Automated Ops

z/OS Communications Server Technical Update: Summer 2021 Edition

by Sam Reynolds of IBM
064 attendees

four basic paths for communication security
TLS/SSL direct usage
AT-TLS
IPSec
OpenSSH
Monitor communication security
z/OS Encryption Readiness Technology (zERT)
discovery SMF 119 subtype 11 detail records
aggregation SMF 119 subtype 12 summary records
Network Analyzer Web-based (z/OSMF) UI plug-in for security admins such as sysprogs

z/OS 2.5 updates zERT
Policy-based enforcement
rules describe ports, address, etc. and acceptable or unacceptable attributes
z/OSMF Network Configuration Assistant to create rules and implement a Policy Agent
see **z/OS Encryption Readiness Technologies** session by Chris Meyers of IBM

IPSec certificate reporting enhancements
IPSec -k display command output is added

AT-TLS and IPSec Certificate Diagnostics
AT-TLS negotiation failures EZD1286I/EZD1287I may report Certificate Error
z/OS 2.5 comm Server can provide more certificate info about any AT-TLS errors
z/OSMF Network Configuration Assistant to enable and set error level
EZD2022I/EZD2023I/EZD2024I messages
similar help for IPSec certificates

Share Memory Communications (SMCv2)
SMC-R (over RDMA) direct over peer-to-peer communication

RoCE between multiple processors
dynamic transition from TCP/IP to SMC-R - transparent to applications
good for long-lived connections, maybe not for short-lived connections
also can used SMCD for direct LPAR to LPAR connections on same processor
Hypersockets are better for short-term connections
SMCv1 was limited to single IP subnet - not routable
SMCv2 allows “routable RoCE”
SMC-D v2 on z15 with PTF in 2020
SMD-R v2 available in z/OS 2.5
persistent connections still perform very well
Shared Memory communications V2 - Multiple IP Subnet Support session later today at SHARE

TCP/IP startup message and ENF notifications
when is TCP/IP available?
based services are available when EZAIN11I but not added services
v2.5 provide new messages and ENF signal and a Name/Token Pair to provide complete TCP/IP startup status
EZD1314I when all basic and extended services are available
EZD1315I will report services that are delaying initialization and later issue EZD1314I later
Control what services TCP/IP extended services to wait on
GLOBALCONFIG POLICYREQUIRED xxxxx

Functions removed in z/OS 2.5
native TLS/SSL support from TN3270E telnet server, FTP **server**, and DCAS
now these native services must be protected via AT-TLS
previously these were Statements of Direction (SoDs)
Statement of Directions
see July 27, 2021 z/OS 2.5 announcement
OSE configured CHPIDs will no longer be supported
DEVICE/LINK/HOME will no longer be able to configure OSA
use INTERFACE statement for now and future
New Function APARs for Communication Server webpages
documents continuous delivery (CD)
Performance for commserver z/OS 2.5 will be available in early 2022

Digital Badges for Networking
IBM Community for z/OS Communication Server
IBM Doc Buddy app for message documentation

What’s New in z/OSMF V2R5?

by “Joey” Xiao Zhen Zhu of IBM
159 attendees

data set, USS file and job operations
search for data sets, click for member list, click member to view in desktop “VS code-like” editor
language highlighting available
create data set based on existing data set or new data set with built-in templates
submit as JCL and produced a job output “widget” for viewing or an editor “widget”
“widget” available to plug-ins
Workflow can use VS code-like editor
Incident Log can now use desktop editor to view diagnostic data

Sysplex CFRM policy editor enhanced
show Coupling Facility structures

- update multiple structures at once
- best practice checks

Sysplex management
- create new Couple Data set (CDS)

Security Configuration Assistant (SCA) introduced in V2R4
- enhanced in z/OS 2.5
  - validate security groups instead of just a user
  - SCA now external products via JSON file import

Improved web-based z/OS Console view
- side view of WTOR/HOLD messages
- automatic Help for JES2 messages, just like z/OS messages previously
- simplified Console plug-in setup
  - attributes via UI instead of SAF

z/OSMF Web ISPF
- in z/OS 2.5, global settings for users rather than individual setup

New REST API for
- Storage Groups and Volumes
- authentication and password change
- retrieving OPERLOG messages
- issue TSO command simplified (4 REST calls reduced to 1 REST call)
- data set and file API
  - multiple enhancements
  - tuning guide specific to data set and file API
- Jobs API
  - more search capability

Ansible support added to z/OSMF
- z/OSMF Ansible Collection “ibm_zosmf”
- basically drive z/OSMF REST API remotely

Workflow Enhancements
- definition file can now be remote (another system)
- support saving all runs of job output for better tracking
  - in definition file or when creating workflow
- improved Workflow UX across Sysplex and remote Sysplex
  - WF creation now available in table
  - collapse workflow data section to view more steps
  - automatic deletion of completed workflow

Improve z/OSMF performance and management
- startup time improved even on zPDT (z/OS emulator running on x86)
- IZUPRMxx configuration can be managed by web-UI and provides additional option setting checking
- reduce WLM policy loading and response
- improved Zowe CLI performance
- z/OSMF Diagnostic Assistant updated in z/OS 2.5
  - set up Log level from the UI
  - display current use of z/OSMF data file system
  - user defined policy to automatic cleanup z/OSMF data file system
- reduce minimum session expiration time to 15 minutes from 30

Feedback collection
- z/OSMF menu option to provide feedback

z/OSMF Trial added Security Assistant section

Incident Log and other plug-in explanations provide z/OSMF savings

Enable SMT to improve performance but z/OSMF is usually not a heavy CPU consumer

==>> Wonder platform only for Chrome and Edge Browsers

==>> completed evaluation then exits to SHARE website not back to evaluation site
==>> enter evaluation site always resets back to Monday rather than current day

==>> Technical Agenda day tabs were very useful, we desperately need them for MySchedule

==>> Technical presentations made available by speakers are not available at SHARE site consistently

More Ways to Manage Your z/OS with SDSF for z/OS V2R5

by Rob Scott and Gary Puchkoff of IBM

130 attendees

Architectural Changes
- SDSF SVC removed
- Only SAF for Security
  - migration actions
  - new SDSF Security Migration Guide
  - REXX security migration tool “ISFACR” with sample JCL

==>> ISFUSER exit now only called for INIT, TERM, and PRE-SAF

New SDSF Primary Panels
- MEM panel to show memory for any address space and common storage
  - MEM 07FCE8, MEM 50_48CA000 CD, MEM adds ASID remotesysid
  - Actions: M for memory map to known structure (you chose map), S to show details about address, other commands available
  - Security to what you can view via ISFJOB.STORAGE.*.*.* with READ; CONTROL to profile allows look at unreferenced storage
- AD panel to view Address Spaces to list “job names” and you can proceed from there
- CFD couple data sets panel
- CS common storage panel (L action shows storage at subplot key level)
- LLS Linklist Set panel (DU and L commands)
- PC Program Control panels
- SVC Supervisor Call panel
- SYSP System Parameters at IPL panel
  - PARM, Value, Member, etc.
  - L issued on row will show PARMLIB concatenation to show sources

JCS - Job Common Storage
JM - Job Memory

new columns on existing panels
- FS space stats on file systems

new Help and Search Interface
- removed thousands of ISPF help panel - stuck at 24x80
- use help text from SDSF User Guide - stays more current
- HELP <section>
- SEARCH term term term to look through help
- COLH for column Help

ACTH for action help
CMDH for command help

log positioning
LOG shows outstanding messages as well as WTORs
wide screen z/OS Operator command if >34x141

z/OSMF Plug-In Enhancements
new look-and-feel
new panels, better graphics
z/OSMF user interface changes
Tiles
Settings within App, not separate app
breadcrumbs, more actions

Install and Configuration
PH29560 for 2.3 and 2.4 for Sharing ISFPRMxx in Sysplex
All SDSF security is SAF-based
ISFUSER exit review needed
SDSF and SDSFAUX address spaces are required
SDSF must be RACLISTed
ISF.CONNECT.sysname in SDSF class READ access
ISFPRMxx AUXSAF failure recovery options
FAILRC4 so no decision to access denied
NOFAILRC4 so no decisions access allowed

Documentation and Help

What is Site Reliability Engineering (SRE) and Why Does It Matter to Mainframe?

by Michael DuBois of Broadcom and Guilherme Cartier of IBM/Kyndryl

60 attendees

M.B. is leader of Broadcom Open Source team

Traditional Service Management Approach
System Administrator approach
Main responsibilities assemble, deploy, running and responding to events from software systems
Widely accepted, extensive talent pool
developers and sysadmins are divided into DEV and OPS
DEV to produce quickly and impress customers
OPS want systems and applications to run smoothly and reliably
communication problems and constant conflict

Site Reliability Engineering (SRE) (initially developed at Google)
SREs are engineers
focus on system reliability and on operating services
“SRE is what happens when you ask a software engineers to designing an operations team”

Tenets of SRE
Ensure focus on engineering
Avoid repetitive activities (automate)
Maximum change velocity without violating SLOs
error budget (99% availability means 1% error budget)
Monitoring

symptoms and root causes
Emergency response
SRE are focused to get system back up as fast as possible
avoid human intervention (automation)
framework of knowledge sharing and planned responses
Change management
automate as much as possible
Performance and Capacity Planning

How SRE Relates to DevOps
"Class SRE implements DevOps interface"
DevOps and SRE are generally treated separate but are related
first "SRE" was Margaret Hamilton at NASA for Apollo program
child pressed button not to be pressed, but MH asked for change to prevent failure
updated documentation to avoid problem (Apollo 8 actually pressed wrong key but doc. helped recovery)
SRE and Site Reliability Workbook at O'Reilly online for free

SRE for Mainframe
Why SRE for Mainframe?
cost of failure is too high!
mission critical workloads
shared infrastructure
unparalleled reliability of the platform
time is right
digital and cultural transformation
new generation of developers, tools, processes, languages
business requirements driven by technology advances

DevOps Driven
Automate and Improve - 50% of time work for improvement
Inspect and Adjust - playbooks, finding root cause
Right Skills for the Job - software engineer and good background in admin or highly skilled system programmers with knowledge of coding and automation

Differences for traditional and cloud model
high cost of failure means different from distributed
balance with application changes
less siloed infrastructure
collaboration with distributed is important
right skills, right focus
SRE into 2 areas - applications and infrastructure
monitor what matters
automation is critical including remediation of problems
leverage machine learning, use playbooks

Core Skills and Persona
I-shaped pro - experts in one thing
Generalist - know a little about a lot
T-shaped pro - like generalist but with expertise in one thing
Core Skills Groups
Data Analytics, Software engineering, Platform skills, tools, process, leadership
system thinking and security-focused
training and learning are required
SRE Team Organization

composition - diverse backgrounds, variety of skills and holistic view of environment
background and origin
z/OS System Support Teams
Automation Teams
Performance and Capacity teams
Networking, security, Storage
mainframe and distributed together?
cross-training similar to agile teams
Toolchain
Mainframe tools - Zowe, z/OSMF
automation tools - Jenkins, sensible, ZOA utilities,
scripting languages - shell, python, javascript, typescript, REXX
monitoring and performance - SNMP, Nagios, Grafan, Prometheus, Elastic
Software Management - z/OSMF and SMP/E
DevOps - Github,….

Hope is not a strategy

Wednesday, August 11, 2021 (#4)

Infrastructure and Application Modernization on IBM Z with Red Hat OpenShift

188 attendees

IBM Z fully integrated into a hybrid cloud infrastructure

7.9 clouds are used by an enterprise on average; 92% of clients have both public and private cloud environments

IBM Z remains the premiere data serving and transaction processing platform
99.99999% system availability; 4:1 better data-center footprint, 2:1 lower power envelope; 3.8x better Java throughput, 24x faster java garbage collection
Red Hat Open Shift is key to Hybrid cloud; IBM CloudPaks with IBM Z and LinuxOne

300 IBM clients worldwide with RHOS and IBM CloudPaks on IBM Z

Internal test
4x better throughput on IBM Z cores versus x86 cores
34% lower cost of ownership (TCO)

2021 Offering
LinuxOne III Express - G.A. May 2021 (starting at $135K) - fixed config with fixed cost
OpenShift Try and Buy starting 2Q2021

“Top Reasons to run Red Hat OpenShift on IBM Z” on Aug 12. at SHARE

Introducing the Data Set File System

by Kershaw Mehta of IBM

168 attendees

“Accessing z/OS data seamlessly from z/OS UNIX environments has been the 'Holy Grail' ever since UNIX System Services came onto the scene. This session will discuss a new technology we are making available in z/OS V2.5 to allow transparent access to data in traditional MVS data sets from the z/OS UNIX shell environment or from z/OS UNIX applications. Come and learn how easily you can read and write data in MVS data sets from your UNIX environment.”

See slide 3 for What is it?
    only cataloged data sets, no tape access cataloged or not
See slide 4 for more overview
    /dsfs mount point - new directory provided in z/OS 2.5
    data set serialization consistent with ISPF edit serialization
    access to data set governed by SAF user permission to data set, not Unix permissions
See slide 5 for /dsfs/txt and ../bin and ../rec
    User needs to know the type of data is in the data set that they want to use under z/OS UNIX
See slides 6 and 7 for data set name path name examples

file names are lower-case and case-insensitive

PARMLIB member BSUPRMxx - allow or disallow specific HLQs, other policies (similar to automount)

DSFS requires VSAM data set for its file system storage
    sort of like a page data set for dsfs when we run out of virtual memory
    z/OS Unix colony address space (not inside z/OS Unix); must be Started
    DSADM command to check usage and monitor DSFS and tailor the USER_CACHE_SIZE parameter
    Errors causes SIGDSIOER with exception so process probably will terminate

DSFS functions in Sysplex but locally mounted, no cross-plex communication
    data set in use on one system is not available for use on another, like ISPF Edit

grep, vi, tar, pax, sftp commands used with z/OS data sets; also Ansible
    transparent to Unix commands

no code page conversion but you could use iconv to convert
tagged as IBM-1047
Python autoconversion variable

no announced availability date; maybe in z/OS 2.5 only in 1Q2022

see slide 16 for Possible Future enhancements

First requested from GUIDE white paper in July 23, 1993 OpenEditionMVS: A First Look
A z/OS USS goal of longtime IBMer Bill Schoen

ISPF Latest Improvements From IBM and User Experience

by Sam Reynolds of IBM and Tom Conley of Pinnacle

154 attendees

ISPF Latest Improvements from IBM
Prior to 2.5, lost all ISPF development resources but some have been restored recently
Changes in z/OS 2.5 ISPF
    removal of support for ISPF Workstation Agent
        primarily because of Security issues
        Health check to monitor WSA connections (2.2 and 2.3)
        in 2.4, RACF profile required or WSA cannot be used
        it was a lot of work within ISPF product to remove WSA
    SUBSYS parameter on submit
        2.3 provided SUBSYS on TSO SUBMIT but ISPF submit command not updated
    PDSE V2 member generations enhancements
        lot of work in ISPF to be done

RFE 55041 provide message how many gens are in use
RFE 55908 caution messages were not helpful so messages updated for Edit and View
use relative numbers in message if invoked with relative number
other message improvements
ISRUDSIG new member info panel with generation information if configured for generations
otherwise use current member info panel
more coming
6 CD APARs in 2.4 to improve or support non-ISPF changes

ISPF Community Contributions
by Tom Conley

ISPF is Dead? Not So Fast….
see slide 32-33
Long Live ISPF!
PDSEGEN (Lionel Dyck)
PDSE member generations have many APARs, many surfaced by PDSEGEN
Provides a lot of Member Generation support that is Not in ISPF
CBT Usermod Collection (CUCI - kookie)
File 967 at cbttape.org
Edit Highlite for unsupported languages
V1R6 in May 2021
see slide 42 for CUCI functions
satisfied 37 RFEs with CUCI

Appendix
PDSE V2 member generations
HTTPS access

Solving the Jigsaw Puzzle: Applying Zero Trust to Mainframe (pre-recorded)

by Broadcom
50 attendees
“Implementing Zero Trust is not an all-or-nothing endeavor nor does it have to be complex”
Plan, address issues piece-by-piece

compromised credentials - 80% of breaches brute force or lost or stolen credit cards
compromised devices - 40% of breaches

Zero Trust - trust no one
Protection Outside the Castle
stronger authentication
increase password length and character set (don’t publish rules publicly)
mandate Multi-factor authentication
activate AES256 Encryption for credentials at rest
Moved to enhanced Passticket authentication if Passticket in used
pass tickets are now quantum safe
store session keys also stored in CKDS
Multi-factor Authentication with Session Manager (such as Broadcom TPX)
privileged users to be required to MFA to Session manager
configure connections to enhanced Passticket
Identify Token Support (IDT)
IBM limits to TSO, CICS, MFA right now
Identity Token encode user details who can be trusted by token consumer
support for JSON Web Token (JWT)
In and Out of Castle

Connectivity to mainframe
SERVAUTH Class to lockdown NETSTAT, Net Access, Stack access, Port access, TN3270
Protection Inside Castle
Control Privileged Account Access
Monitor privilege accounts, watch for data
Implement Trusted Access manager for Z (Broadcom)
enable just in time access to privilege resources
time boxes evaluation session
granular auditing of user activity
Monitor Privilege User Access
audit how users are coming into your environment using the enhanced SMF sign-on information
Broadcom Compliance Event Manager
watch elevation and de-elevation to and from privilege state
Privileged Access
apply Principles of Least Privilege
Broadcom Security Insights to correlate security data and call attention to areas where risk can be reduced
some offerings are available for free to ACF2 and Top Secret customers
Granular Authorization
limit Security officers to least privilege mode
example, only change passwords, not other access to data
Protection for the Castle
Pervasive Encryption
discover privileged data
encrypt appropriately
Data Content Discovery to identify privileged data
Separate yet Parallel Systems
separate production and test
ACF2 Command Propagation Facility/ RACF RSF
One way communication from Production to Test if needed
Summary
Zero Trust model even for Mainframe (the Castle)

Installing z/OS 2.5 ServerPac Using z/OSMF (pre-recorded)

by Kurt Quakenbush of IBM
133 attendees
IBM and ISV working to use z/OSMF Software Management to provide a common install methodology
Portable Software instance

Jan. 2022 - only z/OSMF SM can be used to install any IBM Z software

z/OSMF is a z/OS Web Server with plug-in applications
Software Management (SM) application works on software instances
Software Instance is SMP/E-managed and non-SMP/E-managed software

Portable Software Instance
It's a Software Instance that has been copied into an archive to be sent off platform
download direct to z/OS or Store on your workstation and forward to z/OS

z/OSMF SM
select PSI from download server (like IBM or Broadcom or others)
or from z/OSMF or local workstation
see slide 27 for PTFs that are a minimum z/OSMF SM level including for 2.5
install the PSI
copying PSI into your z/OS system volumes (local or remote system)

==>Choosing between an existing or new Master catalog is a critical decision
==>Catalogs (Ed look at your notes about what catalog choice you made)
I think choose new Master Catalog with indirect catalog entries

Configure step to draw a logical picture of your target system
==>Model - Like existing system (such as 2.4) or New config

Deployment summary
several tabs to zones, data sets, volumes, catalogs ….

Deployment jobs
6 jobs on Kurt's examples
Run jobs to make actual changes
Perform workflows similar to ServerPac pre-IPL and Post-IPL jobs
z/OS ServerPac has 3 workflows
guided set of steps to perform a task or several tasks
YourOrder
PostDeploy
create JES2 operational data sets
create standalone dump IPL data sets
Verify
IPL
IVPs jobs for new z/OS
Complete install by Defining your new Software Instance in z/OSMF

https://www.ibm.com/support/z-content-solutions/serverpac-install-zosmf/
Tryit tab for small install
Merge JES zone into target afterward ?

Underlying Technologies Required for the Upcoming z/OS Containers Solution

by Kershaw Mehta kershaw@us.ibm.com
84 attendees
z/OS Container Solution coming in the future
see Statements of Direction
June 23, 2020 z/OS containers and Kubernetes
June 2021 z/OS 2.5 will be base for z/OS Containers and Kubernetes
z/OS technologies that support containers
Open Container Initiative (OCI) runtime and Kubernetes orchestration
existing tech on other platforms but new for z/OS

Slide 7 talks about container runtime technologies:
chroot already on z/OS but need pivot_root function for containers
Union File System - more of mounting system with merged view of other file systems
allow many containers to use one image
built specifically for z/OS containers, not a port from Linux
namespaces
isolate and virtualize certain resources
7 common namespaces in Linux today
5 (PID, IPC, UTS, Mount, Network) will be implemented on z/OS
cgroup and user namespaces will not be implemented on z/OS
cgroups
z/OS will use WLM instead of cgroups
/proc (slash proc) File System
/proc directory to provide process level info and processes and other system info

(on z/OS similar to control block data or operator commands)
directory already defined in z/OS 2.5 as read-only
70+ APIs being added via continuous delivery
Large number of syscalls - standard Unix and Linux-specific
updated existing syscalls
C/C++ interface and most will have ASM interface - 64-bit

z/OS Containers Solution will run as z/OS Unix processes
expects UTF-8 but EBCDIC will be involved as needed

Avoid Unconscious Bias to Become a Better Professional

by Misty Decker of Micro Focus
36 attendees
90% of decisions are made unconsciously
human brain can process only 40 out of 11 million pieces of information every second

AI often trained on biased data

bad thing is to persist in a known bias
actively work to counter bias

unconscious bias against yourself - may be similar to Impostor syndrome

afraid of being accused of bias can prevent action
#1 Pay attention - notice your bias so you can work on it
listen to everyone but particularly marginalized groups, respect their perception
#2 Believe them - doubting expertise of others may be a sign of bias
#3 Ask questions - most can accept questions if you ask respectably
#4 Respect Their Boundaries - preferred pronouns are an example; it's not about what you want but what they are comfortable with
#5 Speak up - "being an ally is not a feeling, it is action" - defend the person being harmed, speak up when you are uncomfortable
#6 Actively redefine Normal - affirmative action - equal counter action
look for best person with extra effort at women's colleges or HBCUs and other diverse sources
mentor and promote diverse colleagues
#7 Training Your Brain - rewire your brain, make the effort, expose yourself to diversity, spend time

Women of COBOL on TechChannel - 90% about technology presented by women

DFSMS Free for All

by Barbara McDonald, Cecilia Lewis of IBM
71 attendees
Encryption requires PDSE V2 which is default if you create a new PDSE with encryption attributes
COBOL copybook can be mapped to DFSORT descriptions
IDCAMS LISTVOL shows volume size for dynamically sized volumes

Thursday, August 12, 2021 (#5)

IBM z/OS: The trusted foundation to sustain your journey to hybrid cloud

by Matt Whitbourne of IBM
160 attendees
IBM Hybrid Cloud
z/OS 2.4>2.5
2019>2021

Cyberthreat Secure
Pervasive Encryption (more data types), zERT (network policy enforcement), z/OS Authorized Code Scanner
Anomaly mitigation
IBM z/OS Workload Interaction Correlator and Navigator products
Easier installation
z/OSMF PSI (Portable Software Instance) means 30% faster installation time (for one beta customer)
Instant Recovery
System Recovery Boost very popular
Simplified Management
New and improved guided and automated interfaces and workflows
z/OSMF and Ansible
Enterprise hybrid cloud
zCX, AI enablement, cloud data storage
Continuous Delivery ongoing
SoD z/OS Management Services Catalog to automate and simplify more actions
SoD AI capabilities
SoD z/OS containers, zCX, Kubernetes orchestration
Sponsor Users are needed
z/OS client engagement Program Framework
z/OS Sponsor User, Function Alpha, Function Beta, Release Beta

z/OS JES2 Enhancements

by Tom Wasik of IBM
128 attendees
JES3 not shipped after z/OS 2.5
SPOOL Compression and Encryption
Applications using standard JES2 interfaces to access SPOOL data are not impacted
Application reading directly or using SSI 71's SPOOL read sub-function are impacted
New advanced format HDB to manage the new data sets on SPOOL - JES2 option
Key Labels like DFSMS Pervasive Encryption uses
slide 9 typo at bottom (CFSKEYS should be CSFKEYS)
SPOOL Compression requires z15
can do decompression (slower) in software on non-z15 processors
$TSPOOLDEF,ADVANCED_FORMAT [ADVF]=ENABLED for compression and encryption
down-level (pre-2.4) members cannot join MAS
JES2 Policies
APAR OA58190 and OA61230 and others implemented Policies on z/OS 2.4
Customize JES2 without exits
JSON object in human-readable editable z/OS data set
If policy paired to an exit, policy processing comes first
follows the rule that JES2 exits get the final say
z/OS 2.4
Policy Types
JobConversion (just before exit 44)
PreConversion OA61230 for 2.4 (no exit association)
SYSOUTGroup OA61230 for 2.4 (just about exit 40)
Scope - simple or complex
==> Does Tom Conley's CUCI support JES2 Policy in ISPF Edit Highlite? JSON highlighting is already in his package
Policies are stored in JES2 checkpoint in JES2 configuration directory
CKPTSPACE CDI=(CDINUM=) controls number of index entries
Standard functions available including Authoritycheck()
Standard actions - leave (exit policy), log message, send message, NoOp

Types have other attributes and actions
e-mail your Policy requirements to micah.nelson@ibm.com or submit RFEs at
See Bit Bucket x'3E' at this SHARE for User Experience with JES2 Policy
31-bit JES2 Private Storage APAR
track group map (TGM) moved to 64-bit private storage (reduced 31-bit private storage about 48M)
more changes coming
PROCLIB (z/OS 2.5 only - not CD)
2-8 character PROCLIB DD names for JOBCLASS PROCLIB= in JES2
If MAS is mixed with earlier releases, then name is restricted to 2 characters
SSJPPROD service enhanced to support MAS information and SUBMITLIB and POLICYLIB
SMF 84 and SMF1153
SMF84 created by JES3 for JMF processing
restricted to "never fixed" subtype location
SMF84 replaced by 1153
correct subtype location with similar data
eventually SMF 84 will not be used
OA58722 coexistence for 2.4 JES2 to tolerate z/OS 2.5 JES2

Future of Mainframe Testing (pre-Recorded)

by Sujay Soloman of Broadcom
78 attendees
1843 Ada Lovelace complained about debugging her code
1980 Grace Hopper complained that programmers don't document

Mainframe Applications
modern development using VS Code
Developer Testing
Broadcom developing VS Code support for VSAM and COBOL copybooks
also VS Code support for Abend "reports" Dumps
Collaborative Dev Testing being developed by GitHub as CodeSpaces
Share from Codespaces (code window) via a link
Share as READ-ONLY or READ/WRITE
Share to remote VSCode browser or VSCode local desktop
QA Testing
Current practices are slow, repetitive, delays function and correction delivery
Future Testing should pair SMEs (Subject Matter Experts) with Testing Engineers to automate testing process
Test4z coming from Broadcom
open testing frameworks for testing mainframe apps
focused on execution of batch application scenarios
construct complex data assertions using COBOL copybooks
goal to connect mainframe testing with test platforms like Blazemeter, Jira X-ray & CI/CD tools
Sponsor User Program
Code4z IDE for mainframe application environment
Test4z for Z QA testing automation
Q&A

Mainframe Education - Real (Life) Stories

by Broadcom panel
104 attendees
6 weeks of ASE (Application Support Engineer) training at Broadcom
Vitality program and residence with customer - about 6 months
including ASE training
Broadcom Education offerings

- New to Mainframe
  - Mainframe Academy
  - Associate Software Engineering Program
  - Vitality Program - low cost to current Broadcom customers
    - 90% move to customers (residence is paid by Broadcom)
    - in North America and Europe now
    - in 2022, expand to Australia
- Expanding Knowledge
  - mainframe eLearning
  - web-based and instructor-led courses

zRoadshow

by Watson and Walker (Frank Kyne and Marios Bezzi)

165 attendees

SHARE session presentations only available to members

RMF 2.5 restructure

- new data sets, FMIDs, two bookshelves, price for combo is same as RMF 2.4
- What's New in RMF Data Gatherer on-demand session was good about effects of the split

WLM SDC (Service Definition Coefficients)

- IBM Healthcheck
- Effective sysplex-wide when first z/OS 2.5 system IPLed into the sysplex

Db2 and z15 Sort Accelerator (Z Sort)

- data integrity APARs have been resolved
- SORTL instruction exploited by Db2 (PH31684) and its RDS (PH36930) (Relational Data Services)
  - undocumented zPARM to turn off automatic use of SORTL by Db2

IBM Documentation website replaced IBM KnowledgeCenter on April 1, 2021

- being improved but needs more work, send feedback in upper right of each page
- responding to customer feedback for update directions
- Slide 17 for zip file with all z/OS books in PDF (including draft 2.5 ones)
  - https://www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/zOSV2R5Library?OpenDocument
- Slide 20 for getting PDF index info

How to Find an APAR (slide 21)

- IBM Support Portal https://www.ibm.com/mysupport/s/?language=en_US
- IBM Granular Search site https://www14.software.ibm.com/support/customercare/psearch/search?domain=gapar

Software Drag Racing (slide 25)

- COBOL performance suggestions

z/OSMF (slide 30)

- does not eliminate an experienced sysprog
- APPLY all available z/OSMF service before you start

COBOL V4 goes End-of-Service on April 30, 2022 (slide xx)

- COBOL V4 produces 9672 code (ARCHLVL 2 or 4?)
- z15 is ARCHLVL 13! dramatic reduction in COBOL generated instructions
- use W&W AP4Z product - monitors dynamically called programs as well as static
  - identify heavily used routines
  - optimizelevel (IBM recommends 2, most are N)
- IBM has migration and performance online webinars that might help

Language Environment

- by Marios Bezzi of W&W
- Language Environment knowledge seems very limited
  - common run-time functions for use by compilers
    - Fortran, PL/I, COBOL, C/C++, **Java, Node.JS, Python, GO**
    - Assembler can use LE functions
  - foundation for seamless Inter-Language communication (such as COBOL and Java)

LE Run-Time Options (RTO) - CEEPRMxx, SETCEE commands, CEEOPTS DDname
LE uses two types of Storage
HEAPS - COBOL, C, PL/I
STACKS -save areas for COBOL, C and PL/I automatic variables
HEAP/HEAP64
use RPTSTG runtime options to help see initial and increment size for HEAP
caution: RPTSTG affects application performance, avoid using in production
STORAGE - initialize storage or not, avoid as it affects performance
STORAGE(NONE,NONE,NONE,0K)
HEAPPOOLS (C/C++ and Enterprise PL/I only)
HEAPSPOOLS64 for AT-TLS can significantly improve networking latency
disabled by default
RPTSTG has good info but affects performance
PH28966 new Function to provide 31- and 64-bit interoperability support that can run same Enclave
Available in July 2021
IBM SMFpy
by Marios Bezzi of W&W
IBM Statement of Direction to deliver an SMF data access toolkit (not a Packaged Solution)
IBM Applying Artificial Intelligence to IT Operations
too much data for humans, need automation
Improved access to SMF data by Python and Jupyter Notebooks
Python ported by Rocket to z/OS
large number of packages for use with Python
for example, IcalParser to read calendar ics file
Jupyter Notebook to run examples
SMFpy toolkit for Python to access SMF data and Jupyter Notebooks to run code against SMF data
you still have to do the work
familiar to data scientists so they can analyze data
powerful toolkit

z/OS Encryption Readiness Technology (zERT) Goes Live!

by Chris Meyer of IBM
61 attendees
Pervasive Encryption for Data in Flight
zERT Review (slide 5 for TCP/IP Crypto overview)
Which traffic is protected?
How is traffic being protected?
Who does traffic belong to?
Do existing and new configs adhere to company policies?
zERT shows this information
Stack observation (TLS, SSL,SSH) sees handshakes and starts recording
Advisory observation - direct from System SSL, ZERTJSSE provider, zOSOpenSSH, z/OS IPSEC
SMF 119 subtype 11 (zERT details)
SMF 119 subtype 12 (zERT summary)
z/OSMF UI zERT Network Analyzer
zERT in-memory collection enabled independent of destinations
GLOBALCONFIG ZERT …. (default is OFF)
SMFCONFIG …. to control SMF records (default is no Recording)
see slide 9 for products that use zERT data
limitations - zCX traffic not monitored, only monitors TCP, not Enterprise Extender (EE)
zERT Policy-based Enforcement in z/OS 2.5
final phase of zERT rollout (4 phases)
Policy Agent and Network Configuration Assistant (NCA)
Rules have conditions and actions

Rule sets apply to specific protocols but a connection can apply to more than one set
General, specifics and catchall rules in a set
new zERTDetailByPolicy (event type 7) in SMF-119-11 records
SMFCONFIG adds POLICY options
PH35304 APAR for z/OS 2.5 adds zERT function to z/OSMF NCA

Let's Learn SDSF Security

by Julie Bergh of Sirius
64 attendees
==> z/OS 2.5 SDSF security needs to be external
Security person's viewpoint
Started Task (SDSF and SDSFAUX)
SDSF Health Check to show source of SDSF security
SDSF should be RACFLISTed
Define these tasks in STARTED Class
One USERID per Started Task is STIG-recommendation
MVSADMIN.WLM.POLICY READ access?
ISPPARMS
ISFSPROG without SAF (lots of parameters) and with SAF (fewer parameters)
similar parameter reduction for ISFOPER and ISFPROG
SDSF Panels
Lots of resources now accessible via the panels
lots to manage security
z/OS 2.5 added panels, subpanels, new Help panels
SDSF Profiles
SDSF Class
ISFATTR, ISFCMDS, ISFAUTH, ISFOPER
other Classes that affect SDSF
JESSPOOL, LOGSTRM, OPERCMDS, WRITER, XFACILIT
SDSF in z/OSMF so be sure Security is set up to allow z/OSMF users access
ISF.SISFEXEC member ISFRAC
ISFACP Conversion Utility for ISFPARMS to generate RACF commands
ISFACR SDSF Security Conversion Assist panel to generate RACF commands
consider changing Profile default from READ to NONE and permitting ID(*) READ instead
avoid GSDSF profiles until you understand how they affect SDSF security
NTBLENT parm entries
Look at SDSF books for z/OS 2.5 circa June 2021

Be thoughtful and careful during this conversion

IBM Responses to SHARE Requirements

by Barbara McDonald and Peter Relson of IBM, Mike Shorkend for z/OS Project
79 attendees

Knowledge Center replaced by IBM Documentation which helped with search within a book

RFE 47890 SMP/E GROUPEXTEND on RESTORE will be reviewed again later (not declined)

Several Declined requirements were very old so, if still needed, review and resubmit as new RFE with additional information

RFE 139216 delivered via OA60198 PARMLIB member SOLUT provides solution id and place into SMF 89 records so SCRT can get info without SCRT parameters

RFE 148105 OA61080 for 2.3 and later for faster backup for z/OS Unix files APAR closing soon

RFE 107052 ISITMGD number of gens for PDSE v2 (what about LISTDSI?)
potentially coming during 2.5?

Join DFSMS Community for more info

RFE Voting matters so please do it!

Friday, August 13, 2021 (#6)

Debugging Program Checks

by John Shebey and Patty Little of IBM

78 attendees

IPCS on Abend Dump (slide 7)
ST FAILDATA (formats SDWA)
VERBX LOGDATA (formats SDWA)
SUMM FORMAT ASID(x'nm') (slide 9) (formats RTM2WA)
SYSTRACE ASID(x'nn')
PGM entry with following *RCVY entry is the failure

Abend 0C4 invalid address
PIC 10 or 11 below the bar invalid address
PIC 38, 39, 3A above the bar invalid address

TEA slide 14 shows format of Translation Exception Address

Storage Key and flags format slide 20

Abend 0C1 invalid instruction

BEAR (Breaking Event Address Record) helps
shows Branch or Load PSW instruction
BEAR stored in PSW by Hardware when any program interrupt
shows up in SDWA and RTM2WA

instruction length (ILC) of an invalid instruction, the hardware looks at the first 2 bits of the instruction. 00 = 2-byte instruction; 01 or 10 = 4 byte instruction; 11 = 6-byte instruction.

Summary slide 31

Language Environment (LE) Overview and Updates

by Naijie Li of IBM China
51 attendees

What is LE? common runtime for z/OS high-level languages
smaller load modules, better performance
isolate code from OS and hardware
better maintainability and portability
GUIDE and SHARE White Papers resulting in LE
LE CEL Functions
common functions used by all runtime routines

Setting Runtime OPTions
- slide 25 shows hierarchy of runtime changes
- slide 26 are Key Runtime Options for Tuning
  - ALL31 if app is always AMODE31
  - several Storage options - HEAP, STACK
  - PAGEFRAMESIZE - 4K or 1M for Heap and Stack
- slide 27 are Key Runtime Options for Diagnostics

What's New
- V2R4 Non-Executable Memory Support
  - 64bit library heap is non-executable
  - some 31bit is marked non-executable
  - CEENXSTG(OFF|ON) to mange this option
- V2R4 Golang support (PH30936)
  - Go and Golang can be used for cloud apps
- V2R5 64bit Java/31bit COBOL Interoperability
  - New CWIs CEL4RO31() or CEL4RO64() or CELxxxx()
  - not used by COBOL developers directly
  - sample code from LE, more samples from COBOL as well
- V2R5 CTRL Updates
  - above the bar mmap()
  - aligned_alloc()
  - support for multithreaded 64bit applications

How a Student Modernized a Legacy Banking Application

- by Misty Decker of Micro Focus and student Sudjanshu Dubey

44 attendees

via Open Mainframe Project Mentorship program

demo COBOL Banking application

Why application Modernization?
- change inevitable
- business critical application must be changed carefully

How to modernize
- analyze app
- identifying services candidate
- isolation and exporting as services
- connect to a new modern UI

Analyzing the Application
- understanding code
- extract business rules
  - document
- used MicroFocus Analyzer

Identify Services Candidates
- high business value
- low degree of required code changes
- use call maps, CICS flow diagrams, other reports

Isolating and exposing themas services
- MF Enterprise Developer
- clearly defined, gathers resources, secure them
- deploy together with rest of workload monolith or to another system

connect to modern UI
- interface for devices
- web service, RESTful service, Android apps, Flask Web App

Progress till Now
    Analyze
    Identify

Micro Focus Enterprise Server provides mainframe services
    MFE runs CICS and Db2 on other architectures, not zPDT
Python and COBOL code
    communicate between languages had to be built as it did not exist

Isolate and expose
    2 of 4 applications completed
connect to UI
    2 of 4 applications completed

COBOL business logic is still used in the background

Kill It with Fire book by Marianne Bellotti
    https://www.amazon.com/Kill-Fire-Manage-Computer-Systems/dp/1718501188
    Kill It with Fire: Manage Aging Computer Systems ….

OMFP (Open MainFrame Project) Github repo for code and documentation and notes
OMFP blogs
LinkedIn

How to Secure Mainframe from Increasing Cybersecurity Threats

    by Steve Hosie and Bala V. of Broadcom
79 attendees
Increasing Cybersecurity Concerns
    $4.24M average cost of data breach, 287 days to identify and contain a breach, 341 days to identify and contain breach by compromised credentials
    White House Order to Improve nation's Cybersecurity
    Does Your Cybersecurity Plan include Mainframe Cybersecurity Plans
        Why, what, who, How, Where, When
Increasing Cybersecurity ….

STIG - Security Technical Implementation Guide
    RACF, ACF2, and Top Secret
    Multiple STIG articles focused on specific for product and platform
    document standards to reduce risk in the enterprise
        includes why for the security based on NIST SP 800-53 references
Information Security Continuous Monitoring (ISCM)
    monitor critical security resources and changes
    monitor USS for privileged access, security changes
    business sensitive data - access control and encrypted
    NIST SP 800-137 ISCM

SHARE Security webinars start next week

SHARE Virtual Experience Closing

116 attendees
2022 Plans ? Not Yet