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Exploiting z/OS – Tales From the MVS Survey

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Agenda

- MVS Program Survey
- Top 5 Functions That Provided the Most Benefit
- Some Important Functions That Aren't Being Implemented Fast Enough
- Major Misconceptions

MVS Survey

- In July 2012, the MVS program decided to conduct an online survey to determine how and whether installations were exploiting the enhancements in each z/OS release.
- The results were surprising, at the very least.
- The purpose of this session to explore those results.
- I'll be providing my personal recommendations in many cases.
- You can see the full results by going to www.share.org/mvs and signing up to be a member; then look at the Forum for MVS Program Announcements.

1. Which is your next release?

1. Which of the following best represents the next release upgrade that you plan to perform?			
	9	11.84%	z/OS 1.13 to z/OS 2.2
	20	26.32%	z/OS 1.13 to z/OS 2.1
	1	1.32%	z/OS 1.12 to z/OS 2.2
	7	9.21%	z/OS 1.12 to z/OS 2.1
	20	26.32%	z/OS 1.12 to z/OS 1.13
	10	13.16%	z/OS 1.11 to z/OS 1.13
	2	2.63%	z/OS 1.11 to z/OS 1.12
	2	2.63%	z/OS 1.10 to z/OS 1.12
	2	2.63%	No plans to upgrade
	3	3.95%	Don't know
	===	===	
	76		Total Percentage on 1.12 or higher: 75.01%

1. Next Release?

- 38% now on z/OS 1.13 planning to upgrade to z/OS 2
- 11% now on z/OS 1.12 planning to upgrade to z/OS 2
- 26% now on z/OS 1.12, planning to upgrade to 1.13
- 25% are on older releases or not planning to upgrade
- 74% plan on upgrade in 2012 or 2013
- Recommendation:
  - If it were me, I wouldn't be in the 11% going from z/OS 1.12 to z/OS 2

2. What z/Architecture Server?

3. What z/Architecture server(s) do you have installed?				
	34	29%	z196	45%
	15	13%	z114	20%
	21	18%	z10 EC	28%
	19	16%	z10 BC	25%
	8	7%	z9 EC	11%
	7	6%	z9 BC	9%
	1	1%	z990	1%
	6	5%	z890	8%
	1	1%	z900	1%
	3	3%	z800	4%
	3	3%	Other, specify:	4%
	===	===		
	118		Total	

2. What z/Architecture Server?

- Note that this was before the zEC12
- 14% have machines that won't run z/OS 2, which requires a z9 or newer machine

51. Which 5 functions provided most benefit?

- 1. Health Checker (21%)
  - 77% have implemented the IBM health checker
  - Primary complaint – too many alerts; too little time
  - Primary misconception – their systems are well run and Health Checker won't find anything of value
  - References -
    - IBM Redpaper REDP-4590-01 – *Exploiting the IBM Health Checker for z/OS Infrastructure*
    - SHARE SF Session 13118, Marna Walle, *Introduction and Getting Started with the IBM Health Checker for z/OS*
    - Website – www.ibm.com/systems/z/os/zos/hchecker/
    - SA22-7994-13 – *IBM Health Checker User's Guide*

51. Which 5 functions provided most benefit?

- 1. Health Checker (cont.)
  - Benefit -
    - Detect problems early; avoid outages
    - Provide more stable, reliable, and available systems
    - Teaches Best Practices
  - My recommendation -
    - If too many alerts, then maybe you REALLY need HC!
    - Run on test or development system first and work through most of the alerts
    - EVERY site should implement this on all production systems
    - Implement APARs for new checks when they come out – PSP bucket HCHECKER
    - Review checks on a yearly basis in case you've bypassed some that should be activated

51. Which 5 functions provided most benefit?

- 2. HyperPAV (21%)
  - 55% have implemented HyperPAV
  - Primary complaint – couldn't justify cost
  - Primary misconception – non-IBM storage vendors don't support it (but they do – just ask)
  - References –
    - ATS White Paper WP101175 – *DS8000 HyperPAV UCB and Alias Analysis Case Study*
    - IBM Redbook SG24-8886-02 - *IBM System Storage DS8000 Architecture and Implementation*
    - SHARE 2009 Denver session 2178, Anthony Mungal, *On the Importance of I/O Parallelism, I/O Priority Structures and Partitioning in z/OS Environments*

51. Which 5 functions provided most benefit?

- 2. HyperPAV (cont.)
  - Benefits –
    - Reduces number of PAV-aliases needed for each logical subsystem (LSS)
    - Reduces IOSQ time on volumes, especially on extended address volumes (EAVs)
    - Provides automatic configuration when workload changes
  - My recommendation –
    - Ask your IBM rep to run a free HyperPAV study using your SMF 70-78 record
    - Consider sharing cost and justification with zLinux and z/VM LPARs

51. Which 5 functions provided most benefit?

- 3. zIIPs/zAAPs (16%)
  - 76% have zIIPs; 25% have zAAPs; 29% planning on zAAP on zIIP facility
  - Primary reason for no plans – not running DB2 or Java work
  - Primary misconception – zIIPS/zAAPs are ONLY useful for DB2 or Java work
  - References –
    - SHARE SF session 12446, Catherine Moxey, *CICS and Java: How the JVM Server Transforms Java in CICS*
    - Website - www.ibm.com/systems/z/hardware/features/ziip and http://www.ibm.com/systems/z/hardware/features/zaap

51. Which 5 functions provided most benefit?

- 3. zIIPs/zAAPs (cont.)
  - Benefits –
    - Lets work run on cheaper MIPS (e.g. $51/MIPS vs $1000/MIPS)
    - Reduces software costs more than enough to pay for the specialty processors
  - My recommendation –
    - Start running zAAPs on zIIPs; zEC12 last model to support zAAPs; software now lets you use both for evaluation
    - If you don't have a zIIP now, re-evaluate why not; more applications can let you run on a zIIP (z/OSMF is one)
    - Look into vendor products that exploit zIIPs (e.g. SHARE SF session 12424, Russ Teubner of HostBridge Technologies, *CICS Integration & Optimization: Tales from the Trenches*)

51. Which 5 functions provided most benefit?

- 4. zFS (12%)
  - 64% have migrated system files from HFS to zFS; 49% have migrated user files from HFS to zFS
  - Primary complaint – performance problems, especially with a large number of entries in directory; vendors still ship HFS; HFS easier to use; can't migrate without an outage
  - References –
    - Redbook SG24-6580-05, *z/OS Distributed File Service zSeries File System Implementation z/OS V1R13* (Oct2012)
    - Redpaper REDP-4328-00, *HFS to zFS Migration Tool*
    - Redpaper REDP-4769-00, *zFS Reorganization Tool*

51. Which 5 functions provided most benefit?

- 4. zFS (cont.)
  - References –
    - SHARE SF sessions:
      - 13023, Scott Marcotte, *Everything You Wanted to Know About zFS Sysplex Sharing*
      - 12730/12731, Scott Marcotte, *zFS Diagnosis 1 & 2*
  - Benefits –
    - HFS will stop being supported at some point in the future
    - Performance, error handling, and administration are greatly improved on z/OS 1.13
    - z/OS 2.1 provides a new file format to support very large directories (but even smaller directories see 33% improvement in directory updates)

51. Which 5 functions provided most benefit?

- 4. zFS (cont.)
  - My recommendation –
    - If you haven't migrated, wait until z/OS 2.1 to use new zFS file format
    - If you have migrated, be sure that you're getting the z/OS 1.13 improvements
    - If you have large directories (over 2,000 entries), don't migrate yet

51. Which 5 functions provided most benefit?

- 5. HiperDispatch (11%)
  - 46% have HiperDispatch turned on
  - Primary complaint – there are too many bugs; management is afraid
  - Primary misconceptions – there are still bugs; it's not useful for single-book installation (all hogwash!)

51. Which 5 functions provided most benefit?

- 5. HiperDispatch (cont.)
  - References –
    - SHARE SF session 13101, Kathy Walsh, *Configuring LPARs for Performance*
    - Redbook SG24-7853-00, *z/OS V1R12 Implementation*
    - SHARE Anaheim session 11609, Horst Sinram, *z/OS WLM Update for z/OS V1.13 and V1.12*
    - ATS White Paper WP101229, Kathy Walsh & Steve Grabarits, *z/OS: Planning Considerations for HiperDispatch Mode*

51. Which 5 functions provided most benefit?

- 5. HiperDispatch (cont.)
  - Benefits –
    - Reduction in CPU time and improvement in response time
  - My recommendation –
    - Turn HiperDispatch on unless told to turn it off by IBM (very few examples of this)
    - Why throw away CPU cycles? This is a no-brainer
    - Use the default of HD=YES in z/OS 1.13 on a z196 and newer machines

Very Important Functions

- zPCR
- z/OSMF
- CPU MF
- ITSO Pubs

10. Have you used zPCR?

- 45% have used zPCR
- Primary complaint – don't have confidence in it
- Primary misconception – it's only for upgrading to new CECs
- References –
  - Download from www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS1381
  - SHARE SF session 13097, John Burg, *zPCR Capacity Sizing Lab – Part 1 of 2: Introduction and Overview*

10. Have you used zPCR?

- Benefits –
  - It's free and keeps you from making capacity planning or configuration mistakes
  - It's the ONLY way you can estimate the impact of new hardware or hardware changes, such as the change in your LPAR configuration or use of specialty processors (zIIPs/zAAPs) – don't use MIPS tables for expectations
  - Can help you improve performance of your configuration
- My recommendation –
  - EVERYBODY needs to install and learn to use this before making any type of configuration change
  - Turn on type 113 records as input to zPCR

23. Have you used z/OSMF?

- 24% have used z/OSMF
- Primary complaint – takes too many resources; and “I have my own way of doing things”
- Primary misconception – it’s only for new sysprogs
- References –
  - z/OSMF website
    - www.ibm.com/systems/z/os/zos/zosmf/
  - IBM z/OSMF User’s Guide – SA38-0652

23. Have you used z/OSMF?

- References (cont.) –
  - SHARE SF sessions:
    - 13059, Anuja Deedwaniya, *z/OSMF What is it? And why would I want it?*
    - 13040, Doug Henry, Anuja Deedwaniya, Mary Anne Matyaz, *z/OSMF User Experience*
    - 13100, Juergen Baumann, *Manage your Workloads and Performance with z/OSMF*
    - 13082, Greg Daynes, *New z/OSMF Software Management Capabilities*

23. Have you used z/OSMF?

- References (cont.) –
  - SHARE SF sessions:
    - 13052, Toshiba Burns-Johnson, *Engaging Users and Reducing Complexity: z/OSMF Software Deployment Project Usability Discussion*
    - 13061, Anuja Deedwaniya, *z/OSMF Advanced Functionality*
    - 13099, Juergen Baumann, *Capacity Provisioning Update for z/OS*
    - Several labs this week

23. Have you used z/OSMF?

- Benefits –
  - Improves sysprog and performance analyst productivity
  - Provides easier training for new sysprogs
  - Implements “Best Practices”
  - Provides software management, which is a totally new feature unavailable through other techniques
  - Positions you for use of workflow scenarios to decrease the time to implement other features in z/OS 2.1

23. Have you used z/OSMF?

- My recommendation –
  - Install this on your test or development system as soon as possible (caution – it might run as slow as molasses on a small LPAR, but just have patience and see the benefits)
  - For small production LPARs, wait until z/OSMF 2.1 where it's expected to use the WAS Liberty Profile – potential for smaller footprint, better performance, and easier implementation

23. Have you used z/OSMF?

- My recommendation –
  - Install PTFs for December 2012 enhancements; see WSC Flash10794 – *IBM z/OSMF V1.13 Service Updates Available*
  - Implement WLM first because it is very easy and very popular;
    - then software management because it's new information you haven't had;
    - then configuration assistant for TCP/IP because the download version is going away;
    - then incident log because it implements best practices and reduces sysprog time (even if it takes a little more setup);
    - then ISPF because it's fun!

40. Have you used CPU Measurement Facility (CPU MF)?

- 34% have used CPU MF
- Primary complaint – haven't had time
- Primary misconception – don't see a use
- References –
  - SHARE SF session 13098, John Burg, *CPU MF – 2013 Update and WSC Experiences – Now More Than Ever*
  - SHARE SF session 13097, John Burg, *zPCR Capacity Sizing Lab – Part 1 of 2: Introduction and Overview*

40. Have you used CPU Measurement Facility (CPU MF)?

- Benefits –
  - Provides much better data for determining LSPR workload
  - Helps zPCR provide better capacity estimates
- My recommendation –
  - EVERYBODY needs to turn on the type 113 records
  - See John Burg's session for volunteering data

7/8 – Have you implemented recommendations from ITSO?

- ITSO produces Redbooks – www.redbooks.ibm.com
- Two were specifically written to reduce outages and mean time to recovery (MTTR):
  - SG24-7328-00 – *z/OS Planned Outage Avoidance*
  - SG24-7816-00 – *Mean Time to Recovery (MTTR)*
- Sadly, less than 50% of responders had tried any of these Best Practices
- Benefit – More reliable and stable systems; less downtime; training in Best Practices

Major Misconceptions

- Misconception means someone had it wrong!

Major Misconceptions

- 11. Common Information Model (CIM)
  - Only a few (< 5%) have implemented it for z/OSMF
  - Misconception – it's only needed for z/OSMF, but it's used for RMF, HTTP, Tivoli, and future products

- 12. Common Event Adapter (CEA)
  - Only a few (<12%) have implemented for z/OSMF
  - Most people don't see a need; but it will be used for many new uses by IBM

Major Misconceptions

- 13. SMF Logger
  - Less than 20% have implemented it
  - Misconception – it requires a coupling facility, but it can use a DASD-only logger and still provide all of the benefits

- 14. SMF Record Flooding (z/OS 1.12)
  - Less than 4% have implemented it
  - Misconception – we don't have a problem with record flooding (my comment – YET!)

Major Misconceptions

- 19. Using both SYSLOG and OPERLOG
  - 51% have implemented both
  - Misconception – it requires a coupling facility, but it can use a DASD-only logger and still provide all of the benefits
  - OPERLOG keeps recording after JES has shut down
  - zAware requires OPERLOG, but DASD-only is fine

- 22. BCPii
  - 34% have implemented it
  - Misconception – don't have a need
  - Sysplex Failure Management (SFM) will exploit BCPii
  - More and more ISVs will be needing this feature

Major Misconceptions

- 44. Using z/OS 1.12 Auto Reply
  - 26% have implemented it
  - Misconception – it's not needed because auto ops product handles everything
  - This can be used BEFORE auto ops and MPF starts; it's complementary to the other facilities
  - IBM distributed PARMLIB has AUTOR00, which is used as a default; so you ARE using it on z/OS 1.12 and later

See You in Boston!

Cheryl Watson Walker with partner, husband, and best friend Tom Walker In Cuba in December (www.tomandcheryltravels.me)

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