

## Cheryl's Hot Flashes #9

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## Agenda

- Survey Questions
- User Experiences
  - Few CPs, 64-Bit, Interesting APARs
- Interesting Items
  - IBMLink2000, CICS and DB2 CPU Time, Redpaper, VSAM
- 6-Month Update
  - SORT & 64-bit, WLM Velocities, WLM Initiators
- This SHARE

## Agenda



- WLM & WebSphere Transactions
- HFS Out-of-Space
- Run z/OS on a Laptop?
- IBM Residency
- Useful Redbook
- Useful Web Resources

## Survey Questions



- How many of you are running WLM compatibility mode in production?
- How many of you are running OS/390 R10 on at least one image?
- Of those, how many also have at least one z/OS image installed?
- How many of you are running older releases of OS/390? (We won't even ask about MVS/SP!)

## You Might Be Interested...



- z/OS 1.2 (last compatibility mode release) goes out of service on 10/2004 (19 months).
- OS/390 R10 goes out of service on 9/2004 (18 months).
- Strong recommendation: don't be one of the last to migrate!

[www.ibm.com/servers/eserver/zseries/zos/support/zos\\_eos\\_dates.html](http://www.ibm.com/servers/eserver/zseries/zos/support/zos_eos_dates.html)

## More Survey Questions



- **How many of you are running goal mode in production?**
- **How many of you are generally happy with goal mode?**
- **How many of you are using any IRD features?**
- **How many of you are running parallel sysplex?**

**Thanks for your time!**

## User Experiences



- Two major complaints during the last six months:
  - Problems when moving from small CPs to fewer, but larger, CPs
    - See WSC White Paper **WP100258**
    - Goal mode helps the situation, but velocities must be changed
    - See my article on processor upgrades at [www.watsonwalker.com](http://www.watsonwalker.com), select “Sample Issues”, select 1998 No. 6
    - Note from **Kathy Walsh** – velocities drop when moving to fewer CPs

## User Experiences



- Second major complaint:
  - 64-bit Mode
    - See WSC **Flash10185**, **Flash10086** and **WP100269**
    - Ask vendors twice about applicable APARs/fixes
    - Ask them again
    - Keep current with maintenance from all ISVs
    - See **Kathy Walsh’s** session 2500 for some important RSM APARs
    - See **Bette Brody’s** session 2855 for good pointers
      - Remove MSO (I recommend MSO=0; IBM MSO=0.0001)
      - You will probably need to increase page data sets

## User Experiences



- Interesting APARs
  - Branch Trace
    - APAR **OW55947** corrects a problem in 64-bit where you can't turn off branch tracing once you start it.
    - Not marked HIPER, but should be.
  - SRM
    - HIPER APAR **OW53698** corrects a SRM problem in 64-bit when a transition swap is issued. Opened in 3/02, PTFs available on 1/29/03. Prior to APAR, IBM's recommendation was to set REAL=0 and RSU=0.

## User Experiences



- VLF
  - **OW57477** (OS/390 R10-z/OS 1.4, 1/29/03) - VLF Provides Wrong Module in Storage after New LNKLST Set Is Created and Activated and LLA Refresh Occurs. Flagged as HIPER IPL FUNCTIONLOSS. Four prior PTFs are now PE.
  - Thanks to **Jerry Urbaniak** of Acxiom
- CA-SORT
  - Installation used the NON-SWAP option of CA-SORT (per recommendation from manual)
  - Sorts used 12 MB out of 16 MB below the line of sorts that had fixed frames!
  - Thanks to **Max Scarpa** of CESVE (Italy)

## Interesting Items



- IBMLink2000
  - IBMLink is being replaced by IBMLink2000 by April 16, 2003
  - Has common IBM user id
  - New link: [www.ibm.com/ibmlink/link2](http://www.ibm.com/ibmlink/link2)
  - It looks good and stops some of the problems with 'back' not working
- Redpaper
  - **SG24-6894 – DB2 for z/OS and OS/390 Version 7 Selected Performance Topics** (11/12/02)

## Interesting Items



- CICS and DB2 Accounting
  - See **Barry Merrill's** MXG Newsletter #41 at [www.mxg.com](http://www.mxg.com).
  - If running CICS TS 2.2 \*and\* DB2 V6 (called OTE – Open Transaction Environment), then DB2 CPU time (TCB) is recorded in CICS 110 SMF records.
  - Previously, you had to accumulate CPU time from DB2 101 records with CICS 110 records.
  - See Redpaper **REDP0162**, "DB2 for z/OS and OS/390 Version 7 Selected Performance Topics", February 19, 2002,

## Interesting Items



- VSAM Cluster Index CI
  - Size calculation changed in z/OS R3
  - See WSC **Flash10206** and **Flash10180**

## 6-Month Update



- Based on my Hot Flashes #8
  - See session 2543 from San Francisco Proceedings – [www.share.org](http://www.share.org)
  - Note: SF proceedings move to the Members-Only section as soon as the Dallas proceedings are online
  - Here are some updates

## 6-Month Update



- Sort and 64-Bit
  - **Flash10185 - z/Architecture Migration Checklist** by **Bette Brody**
    - "DFSORT considerations - Possible system performance impact (paging) when using in 64-bit mode."
    - DFSORT users who specify any one of the following ICEMAC (installation) options: **HIPRMAX=OPTIMAL**  
**EXPMAX=MAX EXPOLD=MAX EXPRES=MAX**  
**HIPRMAX=p% EXPMAX=p% EXPOLD=p%**  
**EXPRES=p%** may see an increased usage of hiperspace on the z/900 CPU. *Increased paging may occur.*
    - The Flash was changed to remove this caution.

## 6-Month Update



- Sort and 64-Bit
  - User experiences:
    - One site had an aux storage shortage when SYNC SORT with CORE=MAX caused other address spaces to page out heavily.
    - Another site got AFC (available frame count) under 10 and 5-30 minute TSO logons when four DFSORTs with HIPERMAX=OPTIMAL were running.
  - Actual Solution:
    - Appears to be APAR **OW57718**, still open but appears to work in sites tested. SRM was returning an incorrect value for SYSEVENT STGTEST.



## 6-Month Update



- WLM Velocities
  - APAR **OW47277** - z/OS 1.1 changed how velocities are calculated (change was made for IRD). This code was then incorporated into later z/OS releases. Result: velocities are lower.
  - So, goals may need to be changed when you migrate from any release of OS/390 to any release of z/OS.

## 6-Month Update



- WLM Velocities (cont.)
  - APAR **OW55665** (10/15/02) addresses the impact.
  - IBM lowered the impact of the velocity change and provided a utility to show you both velocities (WLM Web site - [www.ibm.com/zseries/zos/wlm](http://www.ibm.com/zseries/zos/wlm)). You may or may not need to change velocities.
  - Major question: how do you set velocities for policies that have mixed OS/390 and z/OS images?
  - This was PEed with **OW57249** (abend if in compatibility mode)

## 6-Month Update



- WLM Inits
  - Problem: INITs were getting dispatched at too high a priority on a busy system and the more important onlines were being impacted. WLM doesn't allow the user to define or reset \*MASTER\*, INIT, or WLM.
  - **Update:** Inits run at PVLDP in compat mode and SYSSTC in goal mode. The INIT can use a large amount CPU, especially when there are a lot of DDs: the ACS routines are run here for allocations, SMF user exits are run here, and a SAF call for account code verification is also run here. See APAR **OW55344** (OPEN) for new IEAOPTxx parameter.

## 6-Month Update



- z/OS 1.4 - Duplicate TSO Logons
  - JES2 no longer checks TSO logons for duplicates (from session 2800, **Riaz Ahmed**, Hot Topics).
  - You can turn it off, but 1.4 is shipped allowing duplicates!
  - Why did they do this?

## This Share



- Great Sessions
  - 2564 – Managing Oracle Workload with z/OS Workload Manager, **G. Tom Russell** (my favorite session!)
  - 2884 – GRS: Forum at 6:00, **Scott A. Fagen** (lots of GRS goodies)
  - 2545 – WSC Experiences with WLM, **Kathy Walsh** (new presentation with great tips)
  - 2500 – z/OS and OS/390 Performance “HOT” Topics, **Kathy Walsh** (Enterprise Wide Capacity and Performance Project Opening)

## This SHARE



- Great Storage Reference Guide from DTS Software
  - [www.dtssoftware.com/guide.pdf](http://www.dtssoftware.com/guide.pdf)
- Good WLM Reference
  - Norman Hollander’s [Session 2571](#); recent WLM APARs
- Terminology
  - zArchitecture (z800 and z900)
    - IRD (LPAR CPU Management, Dynamic Channel Path Management, Channel Subsystem Priority Queuing)
    - Hipersockets
    - 64-bit real, 64-bit virtual
    - DB2 V8



and now from sunny Florida to snowy Virginia, here's Clark Kidd ...



## WLM and WebSphere Transactions

- For common WebSphere performance information
  - Refer to the WLM data
  - Not the SMF 120 records
- WLM subsystems used for classification

<u>Transaction Source</u>	<u>Subsystem</u>
HTTP Server (Standalone mode)	CB
HTTP Server (Scalable mode)	IWEB
HTTP Server (Enclave mode)	IWEB
HTTP Transport Handler	CB
IIOF Client	CB

## WLM and WebSphere Transactions



- Subsystem CB classification can be based upon
  - Collection Name (CN); Logical server name
  - Subsystem Instance (SI); Logical server instance
  - Transaction Class (TC)
- You can also use (but not as useful)
  - Userid (UI)
  - Sysplex Name (PX)
  - Transaction Name (TN); GET, POST, DELETE...

## WLM and WebSphere Transactions



- Assigning Transaction Class
  - From the IBM HTTP Server in Scalable mode
    - Use the *AppEnv* directive
    - `APPLENV /Admin/*.html WEBAE TCLAS1 127.0.0.1`
  - From the IBM HTTP Server in Enclave mode
    - Use the *Enclave* directive
    - `ENCLAVE /Admin/*.html TCLAS1 127.0.0.1`
  - From the HTTP Transport Handler
    - Use a Mapping File (Level Set 4 required) -and/or-
    - `BBOC_HTTP_TRANSACTION_CLASS=class`
    - `BBOC_HTTP_SSL_TRANSACTION_CLASS=class`

## WLM and WebSphere Transactions



- HTTP Transport Handler Mapping File
  - Identify with a new directive
    - BBOC\_HTTPALL\_TCLASS\_FILE=<filename>

### – Sample Mapping File

```
TransClassMap www.acme.com:80 /av/serv1 TRANCLS1
TransClassMap www.acme.com:* /av/serv1 TRANCLS2
TransClassMap *:443 * TRANCLS3
TransClassMap *:* /av/serv1 TRANCLS4
```

## APAR OW43771



- HFS out-of-space error
  - Metadata updated with a *shadow write* technique
  - Some free space needed even for reading data
  - File Manager reserves 30-60 blocks for shadow write
  - Problems occur if reserved blocks exhausted
- APAR provides support for new keyword
  - MOUNT ... SYNCRESERVE (nn)
    - Where nn is 1-50 (percent)
  - Overrides quantity of reserved blocks
  - Largest value (keyword versus algorithm) is used

## Run z/OS On a Laptop?



- ThinkPad/EFS (Enabled for S/390)
  - ThinkPad with 512MB memory; 60GB hard drive
  - Red Hat Linux 8.0
  - FLEX-ES (S/390 emulation software) and dongle
  - z/OS 1.4 Application Developer's CD (ADCD z/OS)
- Power up Linux and see...
  - Linux desktop
  - z/OS 1.4 (shortcut)
  - x 3270 (shortcut)
  - FLEX-ES Documentation (file folder)

## Run z/OS On a Laptop?



- Logical FLEX-ES Components
  - Instruction Emulator
  - Resource Manager
  - Device Emulator
  - FLEX-ES Console
  - Terminal Solicitor
  - Utility programs

## Run z/OS On a Laptop?



- ThinkPad/EFS “IPL” Process
  - Click the “z/OS 1.4” shortcut on the desktop
  - FLEX-ES Control Window appears
  - localhost:CONS1 appears (master console)
  - Watch IPL on console (10 minutes); reply as needed
  - Click on “x 3270” shortcut; logon to TSO; run batch
  - Components/products started at IPL:
    - JES2, RACF, VTAM, TCPIP, IHS, zFS, SDSF, RMF
  - Products installed but not started:
    - DB2, CICS, IMS, MQ, WebSphere

## Run z/OS On a Laptop?



- For more information on ThinkPad/EFS
  - FLEX-ES - Fundamental Software Inc.
    - [www.funsoft.com](http://www.funsoft.com) or [support.funsoft.com](http://support.funsoft.com)
  - T3 Technologies (IBM Business Partner)
    - [www.t3t.com](http://www.t3t.com)
  - Cornerstone Systems Inc. (IBM Business Partner)
    - [www.esihome.com](http://www.esihome.com)
  - TUNING Letter, 2002, No. 4, pages 34-38
- Our impression thus far
  - Really neat system, but some learning curve



## IBM Residency Programs



- Sponsored by ITSO
  - International Technical Support Organization
  - The “Redbooks” people
  - [www.redbooks.ibm.com](http://www.redbooks.ibm.com)
- Cooperative effort between IBM and your company
  - Your company pays your salary
  - IBM pays other expenses
  - Groups of 3-6 people (IBM and non-IBM)
  - Usually lasts 4-7 weeks
- Result of your efforts is usually a Redbook

## Useful Redbook



- **ABCs of System Programming Volumes 1-5**
  - **SG24-5597 (Volume 1)**
  - Published in April of 2000
  - More than 1,800 pages of information
  - Lots of diagrams and illustrations
  - Useful for
    - Training new systems programmers
    - Learning about an unfamiliar component

## Useful Web Resources



- [www.passkeeper.com](http://www.passkeeper.com)
  - Windows utility program
  - Keep track of multiple online user names/passwords
  - Enter master password when starting the program
  - Define/edit/view entries for each online account
  - Data stored in encrypted PASS.DAT file
  - Free for individuals; \$10 for corporate users
- [www.ibm.com/contact/employees/us/](http://www.ibm.com/contact/employees/us/)
  - Locate IBM employees based on name search
  - Somewhat eccentric rules and restrictions

## Questions



- **Email:**
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  - [clark@watsonwalker.com](mailto:clark@watsonwalker.com)
- **Web site:** <http://www.watsonwalker.com>