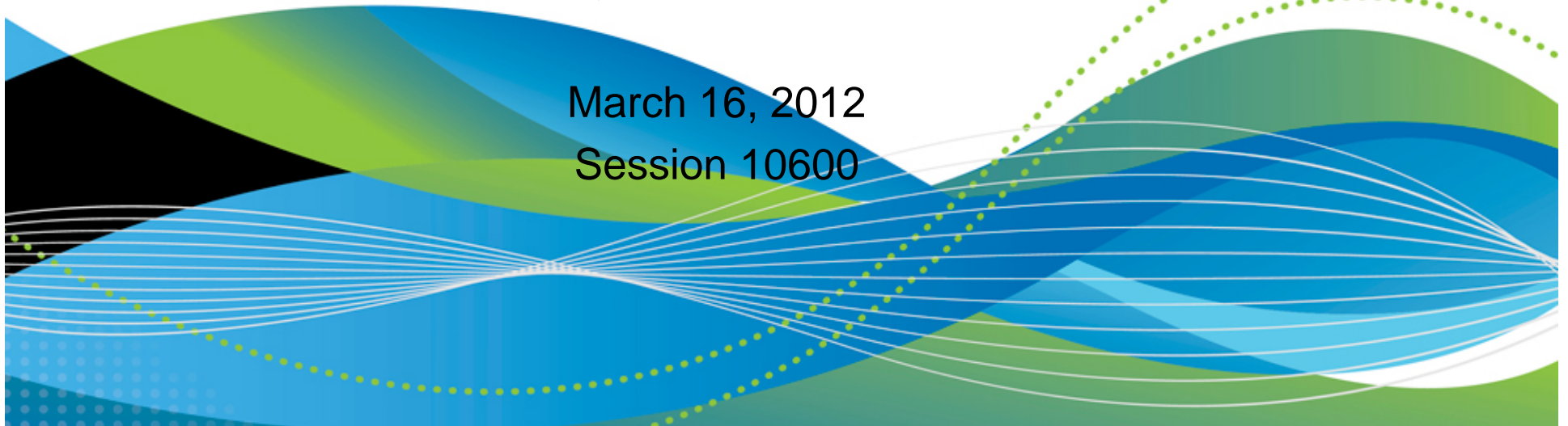# Cheryl's Hot Flashes #27

Cheryl Watson

Watson & Walker, Inc.

www.watsonwalker.com - home of Cheryl Watson's Tuning Letter,
CPU Charts, BoxScore and GoalTender

March 16, 2012

Session 10600

Agenda

- Introduction
- Leaving Soon?
- Big Data
- z/OS 2-Year Cycle
- z/OS Exploitation
- Outsourcing, Tuning, Chargeback
- Faves at This SHARE

Introduction

- Currently
  - Author of *Cheryl Watson's Tuning Letter* (40-60 pages six times a year) and *Cheryl Watson's CPU Charts*
  - Author of free email – *Cheryl's List* (sign up on website)
  - Developer of two Watson & Walker's software products, *BoxScore* and *GoalTender*
  - Long-time SHARE member/contributor (ribbon wearer since 1978)
  - CMG past director/contributor
  - CMG A. A. Michelson Award winner
  - zJournal Mainframe Hall of Fame
  - Presenter of "Hot Flashes" at every SHARE to talk about the things I'm passionate about

Introduction

- History
  - 1965 – Math & physics major at Portland State; worked at Consolidated Freightways, wrote Autocoder on 1401 and 7010; installed MFT in 1966; wrote Assembler & COBOL
  - 1967-1982 – Several software companies, Amdahl, and EDS (training, CICS admin, performance and capacity)
  - 1982-1986 – Morino Associates (England, Germany, Virginia)
  - 1986 – Met Tom Walker, partner and future husband, started Watson & Walker, Inc. as a training company (taught SMF, RMF, performance, WLM, capacity planning until 1999)
  - 1991 – Started *Cheryl Watson's Tuning Letter*
  - 1995 – Created WLM QuickStart Policy
  - Never met an SMF record I didn't like!

Leaving Soon?

- Important Items to Take Away
  - Two new red alerts in the last two weeks; subscribe to these at
    http://www14.software.ibm.com/webapp/set2/sas/f/redAlerts/home.html.
  - **2012.03.15** – *APAR PM51093 is required for DB2 10 for z/OS NFM (New Function Mode) customers executing data recovery in a Data Sharing environment*. Potential data loss.
  - **2012.03.07** – *Possible data loss for EAV Users on releases z/OS 1.11, 1.12, and 1.13 using DSS Logical Dump or HSM Migrate and Backup processing*. Apply ++APAR for OA38942.

Leaving Soon?

- Important Items to Take Away
  - Storage Flash S1004024 (8Mar2012) – *Potential DS8700/DS8800 Undetected Data Error on Release 6.2 code during System z High Performance FICON (zHPF) Format Writes during Recovery with zHPF Format Write feature enabled in z/OS 1.11, z/OS 1.12 or z/OS 1.13.* After applying the 6.2 microcode, user experienced sporadic EQC errors from the DS8800 and hangs when trying to run the HCD.
  - http://www-01.ibm.com/support/docview.wss?uid=ssg1S1004024&myns=s028&mynp=OCSTXN8P&mynp=OCSTUVMB&mync=E
  - Thanks to Dan Squillace of SAS Institute.

Big Data Has Arrived

- Per IDC, the amount of data created and replicated surpassed the zettabyte barrier (over one trillion gigabytes of data).

- Per IDC, the amount of data will grow at 44% each year over the next ten years

- To understand, read the following:
  - SHARE published four articles on *Big Data Analytics: Asking the Right Questions,* and four articles on *The Big Deal About Big Data.*
  - New York Times, Steve Lohr, *The Age of Big Data* (2/11/12)
  - The Economist, *Data, data everywhere* (2/25/2010)

Big Data Has Arrived

- And more reading:
  - SHARE sessions – search on *Big Data – Big Analytics – Big Needs* track for 11 sessions.
  - Learn about Apache's Open Source Hadoop

- Suggestion – Help guide your company by learning more about Big Data. Attend a couple of sessions at next SHARE.

Big Data Has Arrived

Slide below shown in several IBM sessions:

Information is at the Center of a New Wave of Opportunity...

44x as much Data and Content Over Coming Decade

2020 35 zettabytes

Velocity
Variety
Volume

2009 800,000 petabytes
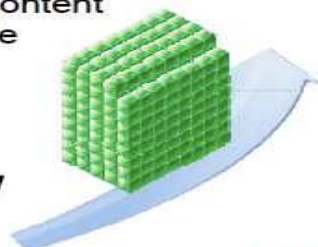
80% Of world's data is unstructured

... And Organizations Need Deeper Insights

1 in 3 Business leaders frequently make decisions based on information they don't trust, or don't have

1 in 2 Business leaders say they don't have access to the information they need to do their jobs

83% of CIOs cited "Business intelligence and analytics" as part of their visionary plans to enhance competitiveness

60% of CEOs need to do a better job capturing and understanding information rapidly in order to make swift business decisions

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SHARE in Atlanta 2012

z/OS Release Schedule

- Jeff Magdall, IBM z/OS Product Manager, spoke at the MVS Program Opening session 11017, about z/OS directions.

- The next release of z/OS will be in the second half of 2013 instead of September 2012.

- Future releases will be every two years instead of every year. Support for concurrent releases will be adjusted.

- There will be an official IBM Statement of Direction (SOD) within 60 days.

- IBM has found that only 5% of customers migrate every year, while the majority migrate every two years (or even less frequently).

z/OS Release Schedule

- I provided a statement for IBM to publish indicating that I support this move because I think it will help my customers. I also sent out a *Cheryl's List* indicating my support.
- Feedback has been more than interesting:
  - Most comments have been positive (including one "yippee!")
  - At SHARE, a few of the 5%ers were afraid that this would result in a reduction of staffing, while other 5%ers feel that it will give them more time for other things.
  - Some IBM developers are concerned.
- My take – this is a great opportunity for both customers and SHARE.

z/OS Release Schedule

- My recommendations:
    - If you're part of the 5%, take this opportunity to exploit more of the enhancements.
    - If you normally migrate every two years, then plan to migrate to z/OS 1.13 this year, if you've not migrated yet.
    - Move up your maintenance frequency. (You can afford to keep more current now.)
    - Review Marne Walle's z/OS Migration (Part 1) for any positioning that you can do for z/OS 1.13. See session #10621. Activate Migration Health Checks.
    - Put a higher priority on New Function APARs.
    - Make a check list of things to exploit (next slides).

z/OS Exploitation

- Evaluate cost versus benefits of High Performance FICON for System z (zHPF)

- Implement CIM and CEA

- Install z/OSMF
  - If you haven't installed this yet, start with z/OS 1.13

- Implement VSAM RLS
  - This now has a wider acceptance

- Convert MANx to SMF logstream

- Evaluate cost versus benefits of zIIPs and zAAPs

- Turn on and experiment with CPU Measurement Facility and HIS (SMF type 113s)

z/OS Exploitation

- Implement Health Checker
- Evaluate costs versus savings of new processor (e.g. z114)
- Evaluate Capacity Provisioning
- Start a performance or capacity planning effort
- Review and implement best practices for sysplex, such as Sysplex Failure Management (SFM)
- Learn to use zPCR for changes like number of LPs per LPAR
- Investigate use of Infiniband
- Exploit the coupling facility; ensure you have the most current CFCC
- Use the Distributed Data Server for RMF

z/OS Exploitation

- 1 TB extended address volumes (EAVs)
- WLM I/O priority management
- WLM enclave enhancements
- Turn on sysplex wide DAE (Dump Analysis & Elimination)
- Use both SYSLOG and OPERLOG
- Turn on HiperDispatch if turned off
- Set MSO Service Definition Coefficient to zero, and adjust durations
- Install CA's Mainframe Software Manager (MSM)
- Read and implement recommendations from Mean Time to Recovery (MTTR) Redbook – SG24-7816-00

z/OS Exploitation

- These are more from Frank Kyne's IPL Avoidance session:
  - Convert HFS to zFS
  - Implement Predictive Failure Analysis (PFA)
  - Implement Runtime Diagnostics (RTD)
  - Implement Auto IPL
  - Investigate use of z/OS BCPii
  - Implement System Status Detection Partitioning Protocol
  - Investigate Parallel Subsystem Initialization
  - Turn on SMF Record Flooding support
  - Turn on MVS Message Flooding support
  - Use Auto Reply
  - Implement CA Reclaim

z/OSMF

- Web-based admin tool for sysprogs
  - I've become a z/OSMF (technology) evangelist
    - Most important new facility since Workload Manager
    - IBM is firmly behind this (as evidenced by the amount of development and resources behind it) – this is NOT like eWLM, z/OS Software Manager, zMC
    - Fact – your company will need this
    - One attendee is expecting a mass exodus of MVS talent within 5 years; new sysprogs need this simplification
  - Early releases – too difficult to install and too many resources to run
    - This is constantly improving, best to be on z/OS 1.13
    - The benefits are worth the investment of time

Outsourcing, Tuning, Chargeback

- If you outsource your data center, or if you are an outsourcer, or if you do chargeback to your users, then be aware of the following:

  - Most people use a single normalization factor when moving between processors. But this doesn't work. Batch runs differently than CICS which runs differently than DB2, etc..
  - You need a normalization factor for each type of workload. One number doesn't work.
  - Tuning often changes the CPU time and/or I/Os. If you charge for these resources, tuning will normally reduce your income.

Outsourcing, Tuning, Chargeback

- If there is an existing outsourcing contract, it might need to be modified when moving to a z196 or z114 because a single number is very difficult to obtain.

- If tuning is done, who gets the benefit?

- Be aware that even in the same workload that response will vary a lot. The next slide shows the effect on hundreds of stable job steps after a processor change. The most stable job steps are on the bottom. The average speed improvement was 127%, but some steps saw no improvement, and some saw a 300% improvement.

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Outsourcing, Tuning, Chargeback
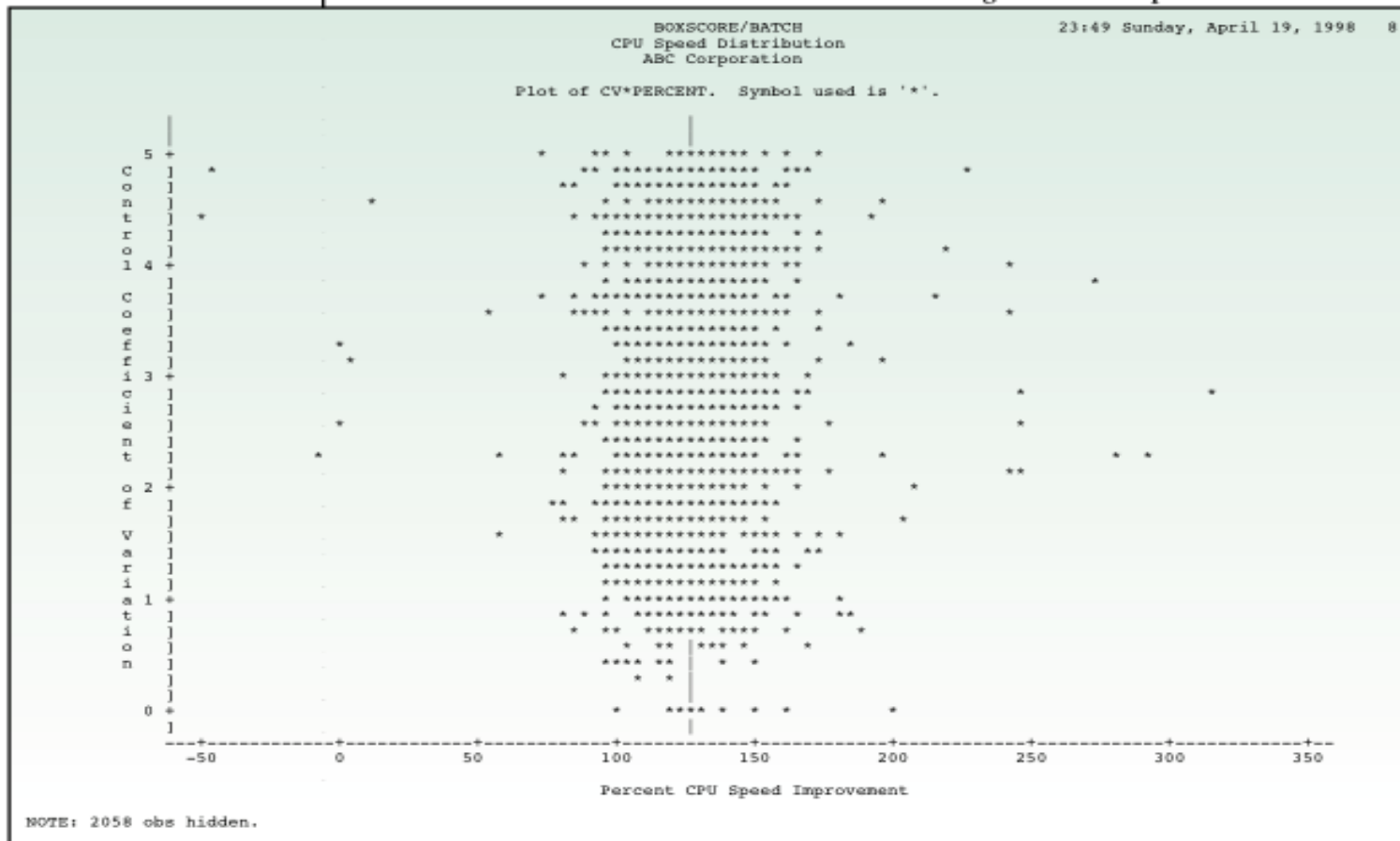
z196 Power Saving Mode

- Excellent new facility on z196 to reduce power consumption when not needed.

- BUT, CPU time measurements could be inaccurate.

- The service unit factor is changed, so all CPU times that are accumulated in service units are fine, but CPU times accumulated in seconds (milli-, micro-) are not modified.

- So a job that takes 10 seconds of CPU time during normal processing could take 12 seconds of CPU time during power saving mode.

- **Caution: Give chargeback and capacity planning departments plenty of notice before utilizing this feature!!**

Faves at This SHARE

- Frank Kyne, IBM ITSO
  - SHARE session 10650 - *z/OS Planned Outage Avoidance*
  - Redbook SG24-7328 describes facilities up to z/OS 1.7; this session expands on that by listing facilities after 1.7

- Nick Jones, IBM z/OS System Logger
  - SHARE session 10848 – *System Logger Update*
  - Logger hasn't been presented at SHARE since 2005
  - This 158-page handout is like a new Redbook, including some of the latest updated to improve availability
  - Also see his SHARE session 10849 – *System Logger Top 10 Problems*

Faves at This SHARE

Many thanks to
New Era Software
for sponsoring a
CNN studio tour!

At This SHARE

- 10373, Frank DeGilio – *Hex, Lies and Videoblogs – Debunking Mainframe Myths*

- 10192, 10194, 10195, Greg Boyd – *ICSF & Crypto* – see his White Papers at ATS Techdocs

- 10592 – Meral Temel – *Analyzing/Measuring/Monitoring Memory Usage*. Good preparation for 64-bit storage management.

See You in Anaheim!

Cheryl Watson Walker with partner,
husband, and best friend Tom Walker
in Iran in May
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