The Cheryl and Frank zRoadshow

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Welcome!

- Cheryl Watson, President of Watson & Walker Inc. since 1986, working on IBM mainframes since 1965
- Frank Kyne, Editor and Technical Consultant with Watson & Walker since 2014.
- We publish Cheryl Watson's Tuning Letter (since 1991), teach classes, provide consulting, and have three software products: BoxScore, BoxScore II, GoalTender.
- Our latest passion is our SCRTPro Service Offering, where we help clients get the maximum value from their z/OS systems.
- We've also expanded our team to include Brenda White, Mario Bezzi, and Alan Murphy!
- We are here to talk a little bit about a ~~lot~~ few things we are think important.

SCRT Support for ISVs

- We have customers that spend more on software upgrade fees than they do on the hardware when they upgrade their CPCs.
- Software licenses based on full capacity make no sense.
  - Nearly all vendors that we are aware of will agree to charging for software on a sub-capacity basis (like z/OS) either voluntarily, or if pressed.
  - But the time to negotiate this is NOT on the last day of the quarter, when you are just about to sign for the CPC upgrade. Start these discussions *now*. If the vendor refuses to be flexible, that gives you time to migrate to an alternative product/vendor before your next CPC upgrade.
- To make the administration of such agreements easier, IBM added support to SCRT in 2017 to let ISVs use SCRT, and to let you create SCRT reports showing only that vendor's products.
- If you would like this capability, **Tell Your Vendors <u>Now</u>**. It is NOT difficult for them to implement the SCRT support.
- If you have a question about this topic, email us <u>technical@watsonwalker.com</u>.

IBM Container Pricing

- IBM announced three new pricing options last year:
  1. DevTest Container
  2. New Application Solution (we prefer zCAP at the moment)
  3. Payments Processing Solution
- We think that the first one is *great* for most customers.
  - Lets you increase capacity available to Dev/Test LPARs without increasing the MLC of those LPARs. Now your application developers will stop throwing rotten eggs at you!
  - Be careful if you have lots of IPLA software, especially if it is licensed on sub-cap basis.
  - Take your time, review your SCRT reports, price out your options, then select the best 3 consecutive months from the last 6.
- For more info *and tips*, see:
  - Session 23523, *Container Pricing Update*, by **Andrew Sica**.
  - Session 23516, *Container Pricing: The Answer to Your Accountant's Wishes?*, by **Cheryl Watson**.

IBM Documentation

- Customer Complaints:
  - Website redesign
  - Disappearance of z/OS V2R1 KC and Google links
  - Difficulty of using IBM Knowledge Center
  - Lack of currency of documents
  - Loss of LookAt

- Sponsor Users
  - https://www-01.ibm.com/marketing/iwm/iwmdocs/web/cc/earlyprograms/zwelcome.shtml

IBM Websites

- IBM is going through a redesign of its websites, driven by IBM marketing organization.

- At the same time, there is an initiative to remove 'obsolete' information.

- Starting around June 5th, many technical pages and manuals disappeared completely, some were moved to other IBM websites, some were moved to github, and some got rerouted to the wrong place.

- If you have been affected by the changes, let your IBM account team know.
  - If you encounter missing pages or broken links, go to https://www.ibm.com/systems/campaignmail/z/zos/contact_z and report the URL or information that is missing.

- DO complain – 115 Redbooks have been restored this week because of customer feedback.

- See our blog post from June 21 for more info.

IBM Documentation Changes

- Major enhancements to KC
  - See Bill Keller's session 23533 – *z/OS Documentation By Design*
    - Instead of quarterly, z/OS 2.3 doc has weekly updates
    - You can subscribe to notifications of changes to PDFs
    - BookManager-like search is now available
    - Look@ in KC
    - Indexed PDF kits
    - IBM Z Content Solution
      - Comprehensive Content Collections (C3)
      - Workflows
      - Try two and comment: Container Pricing, Pervasive Encryption

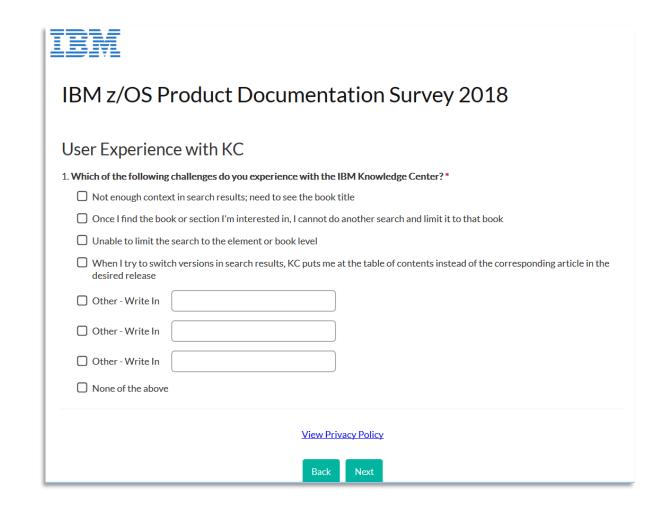- See BOF 23643 on Wednesday – see IBM survey on next slide

IBM Survey

z/OS Product Documentation Survey 2018

https://ibm.biz/BdY2HM

5 minutes of your time will help us improve your experience with our content.

IBM

IBM z/OS Product Documentation Survey 2018

User Experience with KC

1. **Which of the following challenges do you experience with the IBM Knowledge Center?** *

☐ Not enough context in search results; need to see the book title

☐ Once I find the book or section I'm interested in, I cannot do another search and limit it to that book

☐ Unable to limit the search to the element or book level

☐ When I try to switch versions in search results, KC puts me at the table of contents instead of the corresponding article in the desired release

☐ Other - Write In

☐ Other - Write In

☐ Other - Write In

☐ None of the above

View Privacy Policy

Back   Next

And The Audience Said…..

- How many people have z14/ZR1? z13/z13s? Older than z13?

- How many are using z/OSMF?

- Who is using IRD?

- Who is looking at Container Pricing?

- Who has already moved to CMP? Who is considering it?

- How many are using zHyperWrite?

- Is anyone using zHyperLinks yet? If you are, we would love to hear from you.

- How many are evaluating [Transparent Cloud Tiering](#)?

- Is your company considering moving mainframe applications to the cloud?

- How many are familiar with the SHARE requirements process?

Skills and Newbies

- We have LOTS of first-time attendees here – Welcome! We hope you will come back, and bring your friends.

- For your young, and young-at-heart colleagues, IBM is running a FREE Customer Internship week in Poughkeepsie, New York.

- Demos, Hands-On Instruction, and Workflows

- Topics may include
  - Pervasive Encryption   - z/OSMF
  - z/OS Migration   - Cloud Provisioning
  - BlockChain   - Analytics
  - zEscape room   - Tours, Demos, Labs
  - and more selected topics!

- Networking opportunities with z/OS developers

- Contact David Raften (raften@us.ibm.com) for more information.

z/OSMF

- z/OSMF – z/OS Management Facility is a browser-based management console for z/OS
  - Initially, z/OSMF was slow, took lots of resources, and was horrific to install
  - IBM improved all of those problems and it's now started up with z/OS 2.3 automatically
  - But customers are not over the initial impression and aren't trying it again
- Additionally, as IBM has added function, some customers are finding that it's slow again
  - But it's imperative that you install it and get accustomed to it:
  - JES2 Email facility requires z/OSMF
  - New common installation solution requires z/OSMF
  - Future migrations will require z/OSMF

z/OSMF

- What can you do today?
  - Review 23547 – What's New in z/OSMF 2.3?, Xiao Zhen (Joey) Zhu;
  - Session 23481 – z/OSMF Labs: Choose your own with new labs!, Marne Walle;
    - Learn about z/OSMF AUTOSTART
    - Learn about what's new in the product based on your z/OS release
  - IBM Redbook *IBM z/OS Management Facility V2R3*, SG24-7851.
  - For a list of all z/OSMF New Function APARs, see
    http://www-01.ibm.com/support/docview.wss?uid=isg3T1027687

- Install it and become familiar with it
  - Try WLM first – the z/OSMF interface is easier to use than the old ISPF one
  - Wait on the Incident Log – it's harder to install
  - If you're on z/OS 2.3, exploit JES2 Email on z/OSMF
  - Start using the migration workflows

z/OSMF

- Rumors that z/OS Migration Guide might be replaced by z/OSMF workflow as soon as z/OS 2.4.
    - For more information about z/OSMF Workflows, refer to *z/OS V2.3 Migration Book Is Transformed to a z/OSMF Workflow IBM Systems Magazine* article by **Marna Walle**.
- Rumors that ServerPac install for z/OS 2.4 will require z/OSMF.
- IBM Statement of Direction that Product Migration Assistant in SMP/E will be discontinued in z/OS 2.4 – replacement is EOS Function in z/OSMF.
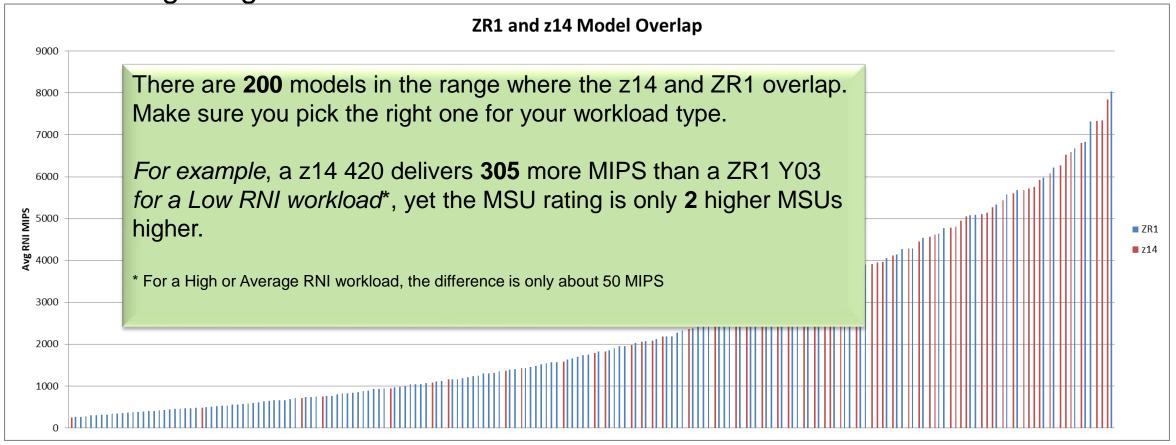
40 Years of Giving and SHAREing

Thanks Cheryl!

IBM ZR1

- You have all heard about IBM's new ZR1. We just wanted to point out a few interesting things:

ZR1 and z14 Model Overlap

There are **200** models in the range where the z14 and ZR1 overlap. Make sure you pick the right one for your workload type.

For example, a z14 420 delivers **305** more MIPS than a ZR1 Y03 *for a Low RNI workload**, yet the MSU rating is only **2** higher MSUs higher.

* For a High or Average RNI workload, the difference is only about 50 MIPS

Legend: ZR1 (blue), z14 (red)

Y-axis: Avg RNI MIPS (0 to 9000)

ZR1

- ZR1 sits in an industry-standard 19 inch rack, with spare space for you to install additional devices.
  - However, the ZR1 does not support 3-phase power supply, which is the default in some new data centers.
- ZR1 uses the same chip as the z14 Mxx models – it just runs at a lower clock speed. This means that all the function that is on a z14 Mxx is also on a ZR1.
  - A full-speed ZR1 model (Z01) is 1570 MIPS – faster than a z14 401, 501, or 601!
  - But you can only have 6 general purpose CPs on a ZR1 vs 33 on a z14 Mxx.
- Don't forget that you can't couple a ZR1 **or later** to any CPC that doesn't have the new ICA-SR or Coupling Express LR links. *If you have any CPC that only has old InfiniBand links, make sure you add the new links before end-of-marketing for that model*.
- In her WSC Hot Topics session, **Kathy Walsh** reiterated that customers that wish to get the full value from their z CPCs *must* recompile their application programs with the latest compilers:
  - IBM White Paper 102731, *COBOL Applications: Techniques to Make Them Efficient*
  - SHARE session 23430, *Elevating Application Performance with Latest IBM COBOL Offerings*, by **Tom Ross**.

WSC Tips

- Some other tips from Kathy's [Hot Topics session](#):
  - Enable the High Frequency Transaction Services SMF records (type 98) and leave them enabled. Should treat them the same way you treat the type 113 records. The recommended interval is 20 seconds – this will be added to manuals.
  - See Pg 18 of Kathy's presentation for tip about the CPU cost of very fragmented SMS Storage groups – SMF30ICU field.
    - Kathy had example of job that burned 4700 seconds (!) looking for free space slot.
  - WLM papers and presentations:
    - https://github.com/IBM/IBM-Z-zOS/blob/master/zOS-WLM/WLM%20Documents.md
  - WLM Tools:
    - https://github.com/IBM/IBM-Z-zOS/blob/master/zOS-WLM/WLM%20Tools.pdf
  - RMF papers and presentations:
    - https://github.com/IBM/IBM-Z-zOS/tree/master/zOS-RMF
  - RMF tools:
    - ftp://public.dhe.ibm.com/eserver/zseries/zos/rmf/

The Future Isn't What it Used To Be

- z/OS 2.3 is the **last release to support** allocating, obtaining, or changing common areas of virtual storage, such that the storage is in user key (8-15).
  - This was already announced as a Statement of Direction.
- APAR OA53355 enhances the options for identifying programs that will break when this change is enforced:
  - The Storage and Paging section contains flags that indicate if user key common storage has been used. See the SMF manual for more information on the SMF30_UserKeyCsaUsage, SMF30_UserKeyCadsUsage and SMF30_UserKeyChangKeyUsage flags.
  - Enable the new ZOSMIGV2R3_NEXT_VSM_USERKEYCOMM Healthcheck.
    - Severity of existing health check VSM_ALLOWUSERKEYCSA, has been raised to MED
  - There are various parms in the DIAGxx member that allow you to test the new behavior ON A TEST SYSTEM.
  - Note that your CICS level must be *at least* CICS TS 5.2 before you move to z/OS 2.4 or later.

It's All About the ~~money~~ Cache

- One of our customers, **NASCO**, recently upgraded from a z13 709 (12,371 Average RNI MIPS) to a z14 523 (12,584 Average RNI MIPS).

- Following the upgrade and configuration optimization, their peak R4HA MSUs dropped by 22%!
  - **NOTE: NOT EVERYONE WILL ACHIEVE THE SAME RESULTS**.

- It is well known that additional *capacity* reduces the MSUs to do a given amount of work. (See *USAA's experience* in *Tuning Letter 2015 No. 4* and **Todd Havekost**'s award-winning SHARE presentations on "*Achieving CPU (& MLC) Savings Through Optimizing Processor Cache*" for more info.) This example shows what might be achieved by having additional *CPs* and *more cache, more memory* (640GB to 2112GB), and a workload that likes that generation (NASCO had a High RNI Workload), but the 'same' capacity.

- We are hoping to document their experiences in an upcoming Tuning Letter issue.

SMF to the ceRseu

- We *love* SMF.
- If your security colleagues love Pervasive Encryption, here are some tools to help you estimate/determine the cost of encryption:
    - RMF APAR OA52003 writes info to the SMF 74.4 records so that zBNA can estimate the impact of encrypting CF requests.
    - APAR OA54404 adds new field to SMF type 70 record – SMF70LACCR – R4HA MSUs consumed by DFSMS data set encryption – requires SRM APAR OA53666. RMF Overview reports have been enhanced to let you report on this.
    - zBNA can also be used to project encryption costs for data sets. Requires SMF 113 records to be collected, and DFSMS APARs OA52132 (z/OS 2.1/2.2) and OA52734 (z/OS 2.3) to be applied.
    - z/OS Encryption Readiness Technology (zERT). Creates SMF 119.11 or 119.12 records to help you understand how encryption is being used for network activity today.
        - New z/OSMF plugin - **IBM z Encryption Readiness Tool (zERT) Network Analyzer.**

Pervasive Encryption

- Encryption for the performance analyst:
  - Performance/overhead.
    - IBM measurements show average overhead of 11.6% on z13 vs 2.6% on z14. **Naturally, YMMV**.
    - Data is decrypted/encrypted when it moves in or out of z/OS.

      So I/O-intensive workloads experience higher-than-average overhead. Seems like this would be an ideal application of the benefits of large memory.

      However, as far as we know, IBM have not performed any measurements yet to determine whether this is the case, or to what extent.
- Don't forget IBM Redbook, *Getting Started with z/OS Data Set Encryption,* SG24-8410.

To Infinity and … and … 150 Meters!

- IBM announced a new type of link technology as part of the z14 announcement in 2017.
  - Faster – target response time is <20 MICROseconds.
  - Currently only on latest DS8000 disk subsystems and z14/ZR1.
  - Enable Synchronous I/Os – eliminate the response time impact of having to way for interrupt to be detected and processed.
  - Currently only supported for Db2 V12 synchronous data base reads. Db2 V11 synchronous read support, Db2 log write support, VSAM read support all on the way.
- IF the Primary AND Secondary disk subsystems are within 150 meters of the CPC, AND you use zHyperWrite support, Db2 log writes to a PPRC mirrored device can use zHyperLinks.
- Even if you don't need 20 mics disk response times today, **you need to consider how zHyperLinks would impact your DR strategy**.
  - Based on what has been announced to date, it will not be possible to combine zHyperLink use for writes with cross-site HyperSwap capability.
- For more info, see Session 23251, *HyperSpeed for Enterprise Data - Low Latency Storage for IBM Z*, by **Nick Clayton** and **Terri Menendez.**

zIIP it Good

- Hopefully everyone has zIIP processors on your z CPCs – the list of advantages is too long to cover here.
- The set of products that exploit zIIPs continually grows, as does the list of functions within products that already exploit zIIPs.
  - One of our customers saw 20% of their Db2 CPU time move from general purpose CPs to zIIPs when they moved from Db2 V10 to V11.
- However, in many cases, the zIIP exploitation:
  - Is delivered via APARs rather than a new release. This means that many customers will be unaware of the capability, even if they have it installed.
  - Is turned OFF by default.
  - Requires assistance from the NSA to find where it is documented.
    - One product enables zIIP support by having you add a "//AUIZIIP DD DUMMY" stmt!
- We keep hearing oblique references to the cost of enabling zIIP support, but no detail on how to precisely quantify that cost – if anyone can help, please let me know and we will be happy to pass that information along.

A Job for Life+

What is a Perpetual License for TEM?

🖳 Be the first to ask a question

Technote (FAQ)

Question

Why does my perpetual license expire in the year 2037?

Answer

In TEM 7.0, the license expiration date is a 32-bit value of seconds from midnight Jan 1, 1970 and so the maximum limit of the license is in 2038. To avoid potential issues, TEM 7.0 perpetual licenses will expire in 2037.

Future versions of TEM will likely use a 64-bit integer for the expiration date, which will allow the license to be valid for approximately 290 billion years. If at this time, you need to continue using your TEM license, please contact us.

Note: Our sun is expected to die in about 4.6 billion years.

Here is some more information on 32-bit integers used in time functions: http://en.wikipedia.org/wiki/Year_2038_problem.

Historical Number

481

z End

- If you have any questions, suggestions, comments, or general abuse, please email us at technical@watsonwalker.com

- Thank you to everyone for making this week, and the last 40 years, so special for Cheryl.

- Have a safe trip home, thank you for coming, and we hope to see you in Phoenix.

- Please complete the online evaluation!

Thanks!!!