

The (Virtual) Cheryl and Frank uppercase-Z(z?)Roadshow

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Session 21603



Welcome

- Thank you for attending this session – we hope to give you lots of valuable tips and ideas to bring home.
- Who are we?
 - Watson & Walker Inc established 1986; Cheryl has been working on IBM mainframes since 1965; Frank joined Watson & Walker in 2014.
 - Publish Cheryl Watson’s Tuning Letter (since 1991).
 - Now available to subscribers online at www.watsonwalkerpublications.com
 - Teach [classes](#), consult, have [2 software products](#), and the [SCRTPro Service Offering](#)
 - z/OS evangelists, Subject Matter Experts in Software pricing, Parallel Sysplex, and Workload Manager. That’s Cheryl – I’m “the guy that works for Cheryl....”
- If you have questions, please ask as we go along.

Thank yous

- Thank you to everyone that has been asking for Cheryl. Expect to see the upgraded Bionic Cheryl in Sacramento next March!
- Thanks to Cheryl for all her work on these slides. SHE might not be here in person, but she has been following events on SHARE Live!
- Thanks to Meral for a loan of her clicker.
- Thanks to everyone that presented sessions here at SHARE. I had 126 sessions that I wanted to attend, not including a number of Closed Door sessions. The quality and value of the sessions just gets better with every conference.
- Thanks to *everyone* that answered my annoying questions while I prepared this material.

Agenda

- IBM's latest addition to the mainframe family
- Are you fully exploiting these 2.1 and 2.2 features yet?
- New software pricing option
- RMF Sysplex Master Gatherer
- New home for old IBM Technical Bulletins
- Exploit cost-saving technology
- Changes to z/OS documentation
- Survey time
- IBM z/OS as-is tools moving to Github
- A message from Cheryl
- **THE MOST IMPORTANT ANNOUNCEMENT**

z14 Announcement

- You might not have heard – IBM recently announced a new mainframe!
- (lowercase) z14 (3906) with between 256 and 146,462 MIPS (based on Average RNI workload). Up to 182,581 MIPS for Low RNI workload.
- 269 General Purpose models, plus 1 specialty-engine-only model.
- Sub-capacity models (4xx, 5xx, and 6xx) have up to 33 CPs (vs 30 on z13).
- Full speed models (7xx) have up to 170 CPs (vs 141 on z13).
- Max Memory up from 10 TB on z13 to 32 TB on z14.
 - However, that 32 TB includes up to 6 TB of ‘Virtual Flash Memory’ (but not 192 GB HAS, which is included in base price).
 - Minimum memory is 256 GB, up from 64 GB on z13.



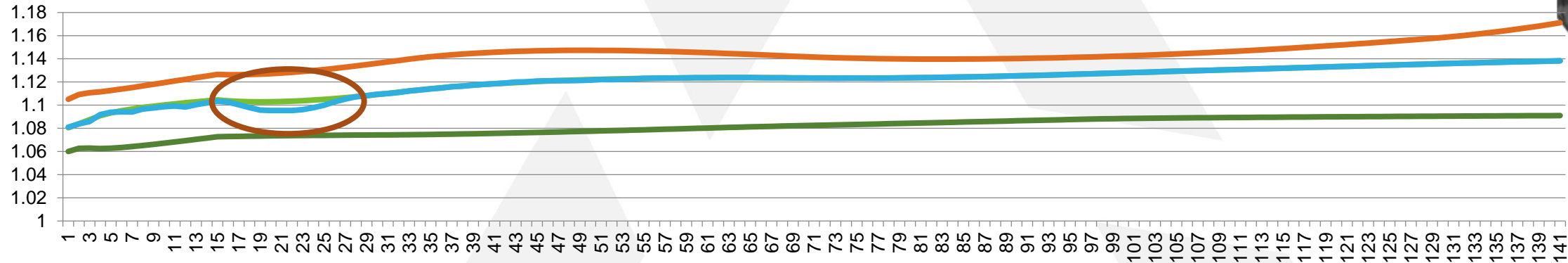
z14 7xx Performance

- How fast is z14 compared to z13?
 - It Depends! (of course)

z13 to z14 (7xx) Comparison



- z13 to z14 High
- z13 to z14 Avg
- z13 to z14 Low
- MSU Change



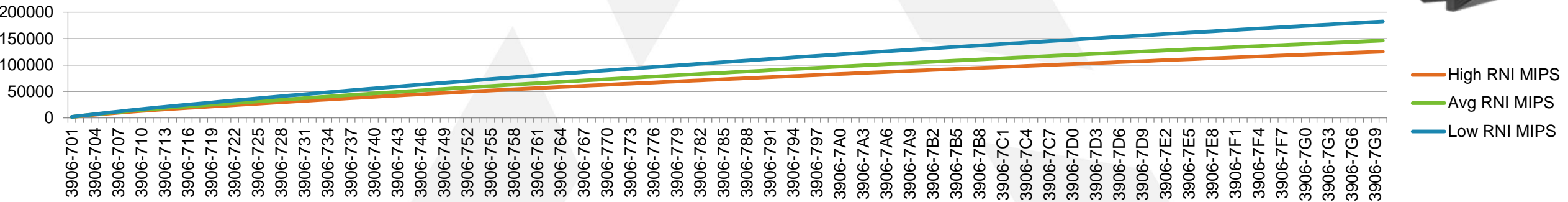
- High RNI workloads do especially well when moving from z13 7xx to equivalent z14 – between 10.5% and 17% more capacity, depending on the model.
- Avg RNI workloads get between 8% and 14% more capacity.
- Low RNI Workloads get between 6% and 9% more capacity.
 - This is a reversal of pattern on zEC12 to z13 upgrades, where Low RNI workloads gained a lot more capacity when moved to z13 than High RNI workloads did.
- Generally speaking, models with larger numbers of CPs did better.
- 18- to 24-way models seem to be a sweet spot for MSU optimization.

z14 7xx Performance

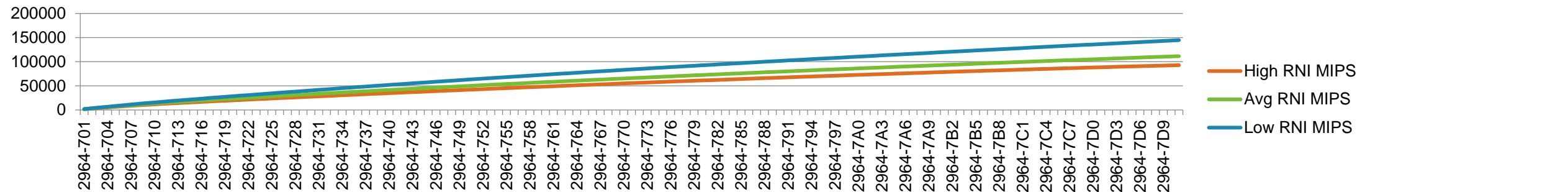
- Even though High RNI workloads benefit more from move to z14, Low RNI workloads still get more capacity than High RNI workloads, so most of the RNI-tuning recommendations for z13 apply equally to z14.



z14 7xx Capacities



z13 7xx Capacities





z14 4xx/5xx/6xx Performance

- On the sub-capacity models, there is the same pattern – High RNI workloads see a larger improvement when moving from z13 to z14 than Low RNI workloads:

	Low RNI	Avg RNI	High RNI
4xx	+0.4% to 1.9%	+2.6% to 4.2%	+4.9% to 8%
5xx	-1.5% to -.6%	+0.7% to 2.2%	+3.0% to 5.0%
6xx	-1.0% to +0.5%	+1.2% to 4.7%	+3.5% to 9.0%



- Note that in some cases, sub-capacity z14s are actually a little slower for Low RNI workloads than the corresponding z13, but MSU ratings are up by 0.5 to 4.5%.
- All of this reinforces the importance of using zPCR AND CPU MF (type 113) SMF records when considering an upgrade.
- And check out **Todd Havekost's** excellent Session [20145](#), *Achieving CPU (& MLC) Savings through Optimizing Processor Cache* for more info about optimizing RNIs.

z14 LSPR Workloads



- Do you use COBOL? Or PL/I? Maybe C? Or Java? (all have been enhanced to exploit z14)
- How about traditional compression or encryption?
- If you use encryption (for example), have you been wondering whether the LSPR values reflect the encryption enhancements in z14?
- Me too. So I asked IBM. This is what they said:
 - The LSPR workloads do *not* use encryption or compression. If you don't use them either, the LSPR numbers should be appropriate for you. If you DO use them, you could expect to get a little more capacity from z14 than LSPR indicates.
 - The LSPR applications were re-compiled at the start of the z14 LSPR measurements using the compilers that were available *at that time*. This means that (for example), the compiler improvements from exploiting the z14 SIMD enhancements are NOT reflected in the LSPR values, but z13 SIMD enhancements ARE.

z14 Announcement

- Other goodies:
 - TLB1 cache consolidated into L1 Cache (still separate TLB2 caches, as on z13). L1I cache increased by 33%. L2D cache increased by 100%. Level 3 (chip-level) cache increased by 100%.
 - Enhanced SIMD – Added Binary Coded Decimal support – exploited by C, COBOL 6.2, PL/I 5.2, Java 8 – NOT reflected in LSPR numbers.
 - SMT performance enhanced for IFLs and especially 2nd Level z/VM guests
 - SMT automatically enabled for SAPs (cannot turn it off).
 - Pervasive Encryption – up to 6x reduction in encrypt/decrypt times vs. z13.
 - TWO Compression enhancements – CMPSC CPU time, AND new HUFFMAN compression option (DB2 only - requires all sharing systems to be z14).
 -   -less Garbage Collection support (controllable via MACHMIG GSF in LOADxx).
 - Reduced MP effect on 4-way and larger CFs.
 - **IBM z/OS V2.3 with IBM z14 will require a minimum of 8 GB of memory.**



z14 Announcement

- Other goodies:
 - 1x (long range) PCIe CF links with 2 ports/card (see SoD regarding PSIFB links).
 - Max ICA-SR links doubled from 40 to 80.
 - CF SUBNOTIFYDELAY enhancements extended to MQ Shared Q
 - FEX16S+ card offers better performance, but new SPOF.
 - Also, both ports on a FEX16S+ card must be FICON or FCP – cannot mix (this is new).
 - **CLEAN THOSE CABLES!** Critically important on 16 Gb links.
 - zHyperLinks – sub-20 mics response times for DB2 Synchronous Database Read I/Os (SoDs for DB2 Primary Log Writes and VSAM support later).
 - New HMC (2.14) and SE only support tree-style interface. Classic style is gone.
 - **Big message that throughput improvements will increasingly depend on synergy between the compilers and the underlying hardware design.**

z14-Related Statements of Direction



- z14 be the last z Systems and IBM Z server to support HCA3-O and HCA3-O LR adapters.
 - z13s is the last mid-range IBM Z server to support these adapters.
- IBM z14 will be the last z Systems and IBM Z high-end server to support FICON Express8S channels. FEX16S+ can auto-negotiate to 4 Gb, 8 Gb, or 16Gb.
- IBM intends to deliver support for adding and configuring ECKD FICON disks to partitions created in Dynamic Partition Manager (DPM) mode for Linux running in LPAR, under KVM on z, and under z/VM 6.4.
- OSA-Express6S 1000BASE-T adapters (#0426) will be the last generation of OSA 1000BASE-T adapters to support connections operating at 100 Mb/second link speed. Future OSA-Express 1000BASE-T adapter generations will support operation only at 1000 Mb/second (1Gb/s) link speed.
- IBM intends to deliver VSAM exploitation of z14 and DS8880 zHyperLink Express.

z14 Additional Info

- Session [21552](#) - *A Technical Overview of the new IBM z14*, by **Greg Hutchison**.
- Session [21546](#) - *Live: z/OS 2.3 Support for the New IBM z14*, by **John Eells**.
- Session [21573](#) - *Megawhosis and Gigawhatsis?! Microprocessors Demystified, Transistors and the Importance of Well-written Software* by **David Hutton**.
- Session [21572](#) - *The RNI-based LSPR and the Latest z Systems Processors*, by **David Hutton**. Friday, 11:15-12:15
- Session [21382](#) - *z/OS and DFSMS Deep Dive Into New Function*, by **Terri Menendez** and **Harry Yudenfriend** THIS IS ABOUT zHyperLinks
- For all this and lots more, see:
 - IBM Redbook [SG24-8451](#), *IBM z14 Technical Guide*
 - IBM Redbook [SG24-8450](#), *IBM z14 Technical Introduction*
 - [z14 Announcement Letter](#)

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- You've been hearing LOTS this week about z/OS 2.3 and z14
- But what if those things are a couple of years away for your site?
- These are things you can take back to your installation today (or Monday) to justify your absence
 - Many of these are based on New Function APARs
 - Some of them are good practices to prepare for the future
- Be a Super Star at home!

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- SMFLIMxx Parmlib (2.2)
 - Can eliminate much of IEFUSI exit to manage region sizes
 - Get APAR [OA47062](#) and [OA49546](#) plus others
 - **Caution:** OPEN APAR [OA52045](#) needs a PTF before you use this
 - Benefit – reduces dependency on Assembler skills; more consistent control
 - Cost – staff time to research and implement
- SuperPAV Support (2.1/2.2)
 - Available on DS8880 with appropriate LIC levels; provides cross-LCU HyperPAVs
 - See <https://www-01.ibm.com/support/docview.wss?uid=ssg1S1005392>
 - Activated with HYPERPAV=XPAV in IECIOSxx member of Parmlib.
 - APARs [OA49139](#), [OA49090](#), [OA49110](#), [OA49415](#)
 - IBM Redbook [SG24-8323](#) (*DS8880 Architecture and Implementation*) and **Peter Muench's RMF: The Latest and Greatest Session [21568](#)** for RMF support info.
 - Benefit – reduce number of alias addresses; can reduce IOS queue time.
 - Cost – 'free' (included in 'z-synergy Services license (zsS)' of DS8880).

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- High Frequency Throughput Statistics (HFTS)
- Most installations run with an RMF interval of 15, 20, or 30 minutes.
 - This minimizes the cost of monitoring and collecting, but can mask short-lived problems.
- To address short-duration problems that cannot be seen or investigated with RMF, IBM introduced the High Frequency Throughput Statistics function.
 - This can collect data in 5 second intervals for 1 minute, four times an hour.
 - Introduced by APARs [OA48570](#) and [OA48571](#).
 - Use HFTSINTVL(ss)|NOHFTSINTVL(ss) in SMFPRMxx with TYPE(98) to enable/disable.
 - Collected information is stored in new SMF Type 98 records. These records are not small, so only enable when needed.
 - No IBM-provided tools to format the records. Supported in MXG 34.216. See SMF Manual for description of record contents.
 - Session [22222](#) *WSC Experiences with High Frequency Throughput Statistics* by **Brad Snyder.**
 - Benefit – better insight with low overhead.
 - Cost – staff time to implement and learn.

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- Responses to SHARE Requirements
 - See excellent session [21586](#) by **Ed Jaffe** – *z/OS 2.3 User Experience*
- Add Metrics to RMF to facilitate management of Large (2GB) Pages
 - APAR [OA52452](#) adds new SMF type 71 fields
 - Benefit – better insight into management of large pages
 - Cost – staff time to look at data
 - **NOTE:** z/OS 2.3 provides a new IAXDMEM Rexx exec to provide more info than D VS,LFAREA – see **Steven Partlow's** Session [21611](#).
- HZSPRMxx POLICY syntax filter by SYSNAME or SYSPLEX
 - New syntax CHECK on the command: F HZSPROC,ADD,PARMLIB=(...,**C|CHECK**)
 - But get APAR [OA52695](#) to avoid CHECK activating the check.
 - APAR [OA49807](#) – HZSPRMxx Conditional Filter Statements
 - Benefit – simplify with single HZSPRMxx member; syntax check reduces errors
 - Cost – staff time to implement

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- Key take-aways from **Marna Walle's** [21547](#) - *Migrating to z/OS V2.3: Planning*
 - Slide 6 – If you didn't order 2.2 Security Level 3 already, you can't order it after Jan 29, 2018! Much harder migration to 2.3 if you don't have this level.
 - Slide 8 – z/OSMF 2.3 requires IBM SDK 64-bit Java V8; why not get it now?
 - Slide 12 – If still on z/OS 2.1 and running Domino HTTP Server, then you **MUST** migrate to Apache HTTP Server. The Domino Server health check is on the web only. If you don't have Ported Tools, contact Marna, but it will be a **BIG** migration if going from 2.1 to 2.2 or 2.3.
 - Slides 13/14 – Elements and Functions Withdrawn - Red check marks have health checks; Fire icon indicates most important items. Do you have a plan?
 - **Marna strongly recommended using the z/OSMF V2.3 Migration Workflow instead of the manual.**
 - Slide 22 – When is best time to convert root from HFS to zFS? She says during ServerPac install.
 - **Slide 30 – MUST prepare for starting z/OSMF at IPL! Do this on 2.1 or 2.2 first.**

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- Key take-aways from **Kathy Walsh's** [21708](#) – *WSC Hot Topics*
 - Slide 12 – Kathy recommends that CPU MF Crypto Counters be collected
 - This is in z/OS 2.2 (or 2.1 with APAR [OA43366](#))
 - Slide 13 – New zPCR 9.1 (7/31/2017) – We recommend that you install and use this!
 - Default SMT benefit for IFL CPs on z14 is 25% (for z13 it's 20%)
 - Default SMT benefit for zIIPs is 25% for z13 and z14
 - New training videos available (3/6/17)
 - Slides 19-22 – New zBNA 1.8.1 (available late August 2017) will provide new recommendations for encryption, zHyperLink, XES, CF – We highly recommend using zBNA!
 - See her slides for z/OS 2.1/2.2/2.3 APARs you NEED to gather the required data for zBNA
 - Slide 23 – Real Time SMF interface – possible replacement for IEFU8x exits.
 - APAR [OA49263](#) (z/OS 2.2)
 - Slide 28 – z13 MCL Fix N98779 D22H Bundle S14 – Changes PR/SM mgmt. of VH/VM
 - Several other performance APARs in Kathy's presentation.

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- Smarter SVC Dumps
 - Specifying SDUMP,AUXMGMT=ON on CHNGDUMP indicated to unconditionally bypass SDUMPs if AUX utilization was > 35%. However, this resulted in some dumps not being captured.
 - APAR [OA51098/OA51506](#) (2.1-2.2) changes this to ask SRM if it is OK to proceed with a dump.
 - Benefit – Less system disruption when SDUMP occurs and storage is constrained, while still capturing dumps whenever reasonable.
- New WLM capping for Spark and infrastructure for Container Pricing:
 - APAR [OA50845](#) lets you control the ability of zIIP-eligible work to overflow to a GCP at the service class level (new Honor Priority attribute), rather than the system level (IIPHONORPRIORITY). Intended for Spark, but could potentially be used for any zIIP-eligible work.
 - Also lets you specify a limit on the amount of REAL memory that can be used by a WLM resource group.
 - See Techdoc [Configuring z/OS Workload Management for z/OS Platform for Apache Spark](#).

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- z/OS 2.2 Data Set Encryption became available on August 7!
 - Full function on z/OS 2.2; Coexistence on 2.1 (can access, but can't create)
 - See session [21403](#) – *Protect Your Data at Rest with z/OS Data Set Encryption* and session [21398](#) - *The Encryption Pyramid: Choosing the Level That Works for You.*
 - APAR [OA50569](#) (2.2, New Function; 2.1, Coexistence); APAR [OA50450](#) (ICSF)
 - Requires feature 3863, CP Assist for Crypto Functions (CPACF)
 - Requires feature CEX3, CEX4, or CEX5 if not on z14 (but z14 is faster)
 - No application changes; data set level granularity; implemented with RACF and SMS policy
 - Supports Extended Format ONLY! “You’ve had 11 years to move. Do it now!”
 - Benefit - “Average cost of a breach in 2017 was \$3.62M. Of the 9 billion records breached, only 4% were encrypted.” [GDPR](#) fine for a data breach can be as high as 4% of global revenue! Or \$0 if all the data was encrypted...
 - Cost – Significant amount of staff and management planning time; some products might need to be purchased; CPU time overhead (thus possibly leading to higher software costs). Use zBNA 1.8.1 to help estimate the CPU cost.
 - Great WSC FAQ - <http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/FQ131494>

Exploit z/OS 2.3 Enhancements on z/OS 2.1/2.2

- If this SHARE or news headlines have you thinking more about security or performance for your site, we recommend these sessions (all applicable to 2.1 and 2.2)
 - Session [21525](#) – *Subsystem Security for Dummies* by **Mark Wilson** – **If you look at only one handout when you get home, it should be this – excellent information for securing your subsystems!**
 - Session [21396](#) – *What's New in z Systems Crypto: Enterprise Key Management Edition* by **Eysha Shirrine Powers** – This is the clearest description I've ever seen about crypto keys – a necessity for everyone concerned about security!
 - Session [21565](#) – *WLM Update for z13, z/OS V2.2 and z/OS V2.3* by **Andreas Henicke**
 - Session [21568](#) – *RMF: The Latest and Greatest* by **Peter Muench**
 - Session [21561](#) – *z/OS V2R3 JES2 Product Update and Latest Status* by **Tom Wasik**
 - Session [21140](#) – *RACF Update: Multi-Factor Authentication is here* by **Ross Cooper**

Software Pricing Level set

- This may surprise you, but IBM is not a charity. Neither is Alphabet, Amazon, Apple, Aldi, Aston Martin, Bank of America, Aetna, or any other for-profit company.
- For-profit companies will not make a profit if they give their goods or services away for less than their costs.
- If the behavior of a company's customers change, the company either adjusts to make a profit from the new behavior, or it goes out of business.
- Despite what some people (or magazines) might lead you to believe, moving all your applications to The Cloud will *not* eliminate your IT costs:
 - You will still get a large monthly bill. It will just have a different vendor's name at the top.
 - Your users will still complain about the bill.
 - And, even if your mainframe is gone, somehow your large Cloud bill will still be z/OS' fault...
- As IBM mainframe customers, the best we can do is maximize our exploitation of the technologies and pricing options that IBM and other vendors provide to reduce today's bill.

New Software Pricing Option

- One of the inhibitors to rolling out new applications on z/OS is the impact that the new application might have on the software bill.
 - Should not be an issue for products that run on zIIPs.
 - *Is* an issue for products that run on General Purpose CPs.
 - For brand new applications, difficult or impossible to know in advance what the resource consumption and pattern will be.
 - There is also the concern that the new application will increase the cost of products it doesn't even use (because most products are billed based on the size of the LPAR they run in, not on the capacity used by the specific product).
- Another inhibitor is the perceived high cost per transaction of z/OS compared to distributed platforms.
- There is also the political battle against the mindset that the whole world is moving to 'The Cloud', and that Cloud pricing is both cheap and linear.

New Software Pricing Option

- To enhance the competitiveness of z/OS in these environments, IBM announced Container Pricing on the same day as the z14 announcement.
- **NOTE: Container Pricing has nothing to do with Docker Containers!**
- Container pricing will initially support three specific cases:
 - Application Development and Test Solution – a fixed price for z/OS based development and test workloads, allowing you to grow those workloads to 3x today’s MSUs with no increase in cost.
 - New Application Solution – allows clients to add new approved z/OS workloads without directly impacting the R4HA of existing workloads. This is seen as strategic replacement for zCAP and IWP. The new application can be deployed in an existing LPAR, across multiple existing LPARs, or in a standalone LPAR – *whichever makes the most sense from a business and technical perspective.*
 - Payments Pricing Solution – a new “per payment” price metric that is tied directly to payment volumes, with collocated software and separate LPAR software-hardware versions, based on IBM Financial Transaction Manager (FTM) software.
- In all these cases, the capacity used by the qualifying workload will be subtracted from the Rolling 4-Hour Average.

New Software Pricing Option

- Similar to MWP or zCAP, use of Container Pricing for the new application must first be approved by IBM. When approved, you get a Solution ID.
- Then go to WLM and:
 - Create a new service class and classify the workload at the address space or independent enclave level to that service class.
 - Define a new ‘Tenant Resource Group’ (TRG) – a new type of WLM resource group.
 - Solution ID must be included in the definition.
 - You can optionally cap the TRG if you like (read up on WLM Resource Groups now).
 - Assign your new service class to that TRG.
- WLM then tracks the CPU consumption of the TRG and reports it in the SMF Type 70 records.
- SCRT subtracts the MSUs used by the TRG when calculating the R4HA of the LPARs.

New Software Pricing Option

- Containers will be supported on IBM z13 and z14.
- This new support will roll out between now and the end of 2017.
- Will build upon the support added to WLM for Mobile Workload Pricing ([OA47042](#)) and Spark support ([OA50845](#)).
- For more information, refer to IBM [White Paper WP102719](#), *Container Pricing on IBM Z*, by **Bob Abrams**.

Other Software Pricing News

- Files created by “Classic” SCRT will not be accepted by IBM after Nov 1, 2017.
 - If you have not yet migrated to Java SCRT, get moving!
- Java SCRT will be part of z/OS as of 2.3.
 - Will still be available as a download if you are on a back release.
- As part of the move to being a formal part of z/OS, SCRT is now supported by the PMR and APAR process.
 - Because SCRT is related to your bills, it is being rigorously tested by IBM. And every error that is found results in a new APAR.
- This past April, IBM provided the ability for ISVs to use SCRT to create files for them, just as it does for IBM.
 - This is a major step towards enabling more ISVs to support sub-capacity pricing.
 - If you would like this flexibility, pull **Andrew Sica’s** [Session 21703](#), *Utilizing the Sub-Capacity Reporting Tool for Independent Software Vendors* slides, and **Todd Havekost’s** Session [21045](#) then **TELL YOUR ISVs!!**

One Slide About The Cloud...

- What is 'The Cloud'? And where did the internet go? I used to use an internet-based backup service for my PC. Now it is 'cloud-based' and costs 50% more for the same thing.
- Believe it or not, software and services on other platforms are NOT FREE! Who knew??



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TOP STORIES

Top tips to avoid a costly Microsoft Office 365 subscription bill

The Office 365 cloud-based product is Microsoft's next strategic platform. explore the licensing implications.

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Google represents the closest option to pure cloud, says [Dave Bartoletti](#), principal analyst at Forrester. "With Google, you really just pay for what you use, and you get more discounts the more you use," he says, adding that Amazon and Microsoft have a "slightly different approach" that veers more towards reserved instances.

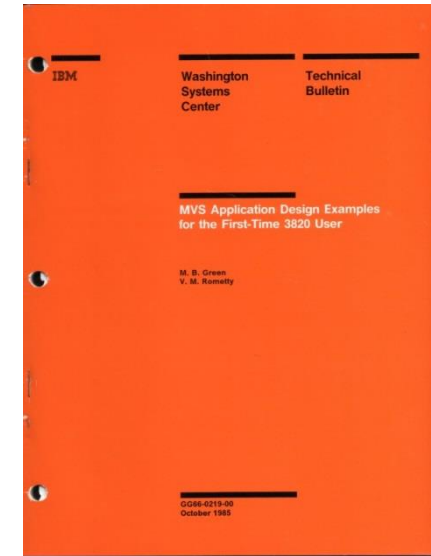
Sounds just like the original cloud, since renamed to z/OS...

RMF Sysplex Master Gatherer

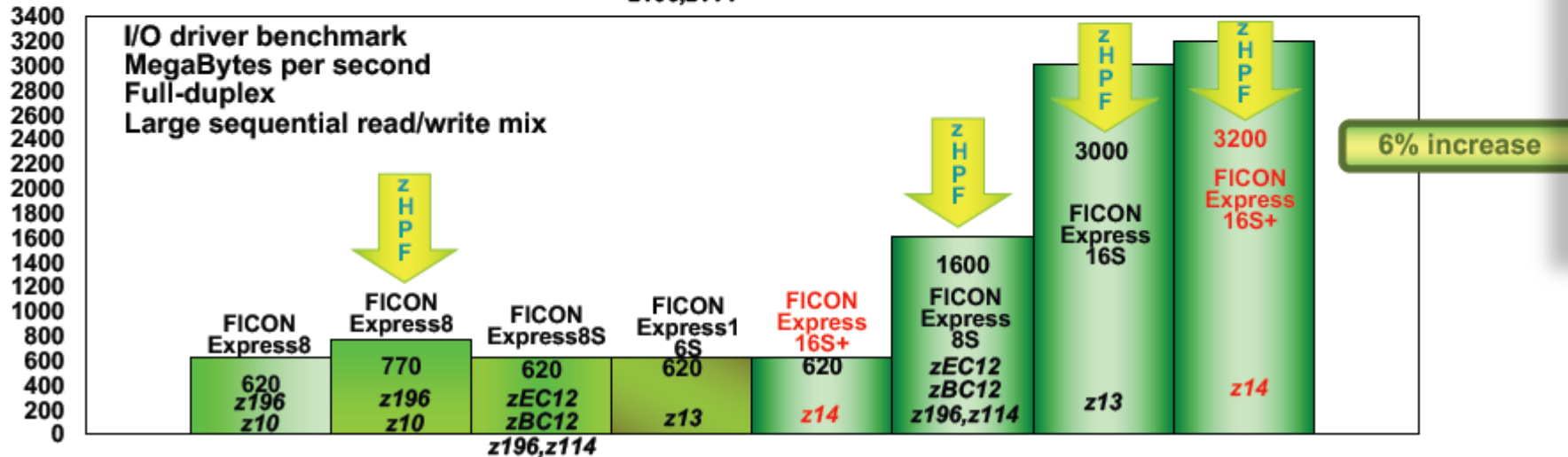
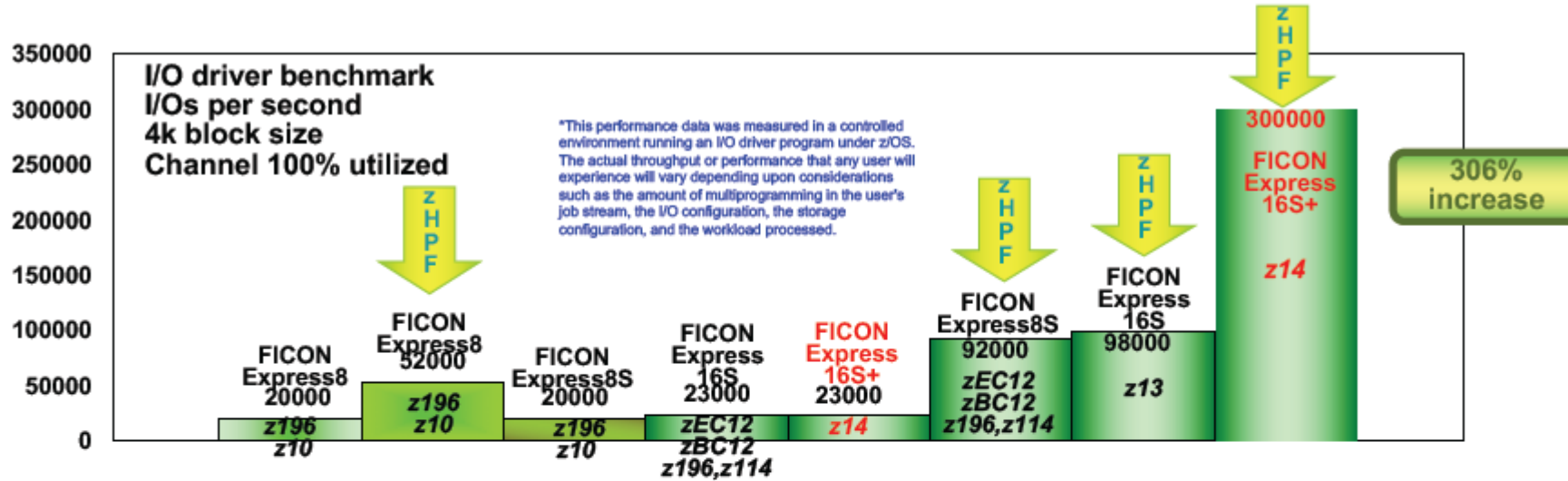
- In order to reduce overhead, RMF in a sysplex only collects certain information on one system in the sysplex. If you don't have the RMF SMF records from that system, then you don't get that data.
- Traditionally, the RMFs would have a chat and dynamically decide which system would do that collection. That could change over time as systems come and go.
- If you don't collect the RMF SMF records from all systems (GDPS K System, for example), you could be missing this valuable information.
- To give you more control over this, RMF in z/OS 2.1 added a new [ERBRMF04 keyword \(MASTER|NOMASTER\)](#) to let you influence which systems will fill the role of Sysplex Master Gatherer.
 - You can also use a command to change which system is currently the master gatherer.
- **We recommend setting this to MASTER on systems you collect all SMF data from, and NOMASTER on those you do not collect this data from.**

IBM System Center Technical Bulletins

- Anyone remember the old IBM Orange, Yellow, and Blue books?
- Many of them contain valuable information that is still valid.
- Unfortunately, these valuable sources of information are no longer available from IBM.
- However, Watson & Walker have agreed with IBM that we can host those books on our site, free to anyone that would like to read them. See <http://watsonwalker.com/publications/ibm-systems-center-books/>
- If you have any of these books (typically order numbers GG22-xxxx or GG66-xxxx) and would be willing to share them with your fellow mainframers (and posterity), please [contact us](#).
- Also – if anyone knows of a tool that will create presentable PDFs from Bookmanager books, please let us know so that we can convert the Orange books from the IBM Rainbows CD and add them to the collection on our site.



Leaving Money on the Table



Are you using zHPF?
If not, how many channel cards, switch ports, and disk ports are you paying for that you don't really need?

All the enhancements are in zHPF, don't get left behind

IBM Z Documentation Changes

- In line with IBM's agile strategy, changes are being made to how z/OS manuals are being managed and updated, effective October 1 (in line with GA of z/OS 2.3).
 - Rather than *quarterly* updates, the PDFs can potentially be updated EVERY DAY!
 - Changes will be rolled up and applied to KnowledgeCenter once a week.
 - Manuals will be updated with any changes introduced by PTFs on the day the PTF becomes available!
 - You can download a zip file from the IBM z/OS Internet Library that contains an Adobe index, allowing you to search all books in the library using a single search.
 - You can subscribe to be notified of changes to the z/OS Library.

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z/OS V2R3 Library

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IBM Z Documentation Changes

- Check out the Search Scope Catalog function that lets you search a subset of the z/OS Library
- IBM Doc Buddy (available from the Appstore or Google Play) provides the ability to search for and view IBM Z error messages on a mobile device. You can search either online or offline content.
- Knowledge Center for z/OS has been updated in z/OS 2.3 to add a LookAt capability.
- Hot Topics will no longer be published as a yearly magazine. Rather, individual articles will be printed as they are ready, and will be made available on the IBM Systems web site: www.ibmssystemsmag.com/mainframe.

z/OS Internet Library

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What's New July 2017
z/OS V2R3 Documentation is now available

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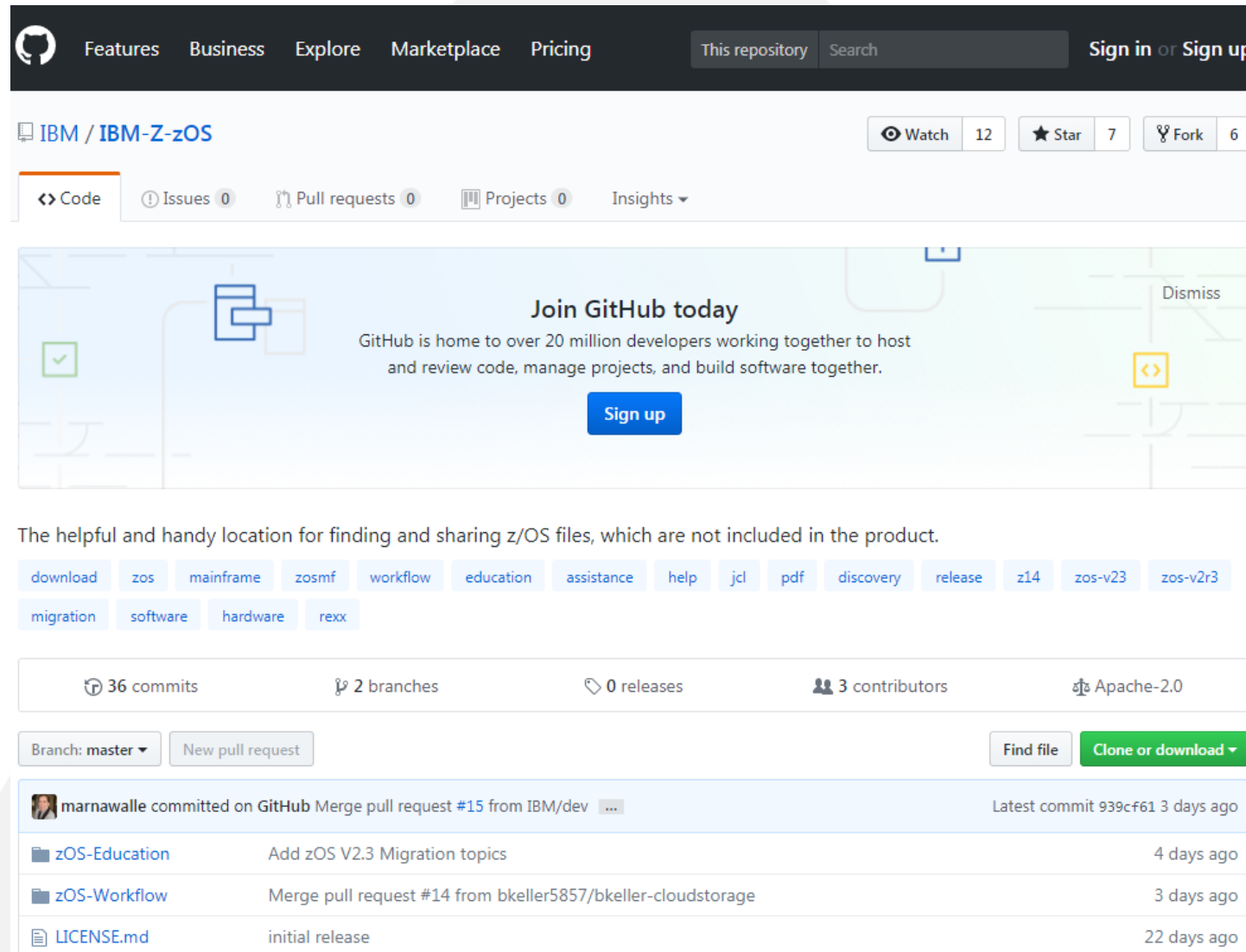
Survey time!

- How many customers are using SMT with zIIPs? Would you email us about your experiences please? (technical @watsonwalker.com)
- How many are using Spark on z/OS?
- How many are using z/OSMF in Production? Test?
- How many are using Extended Format whenever possible? – This is a requirement for new Data Set Encryption; migrate to Extended Format as soon as possible
- Is anyone using SMF Digital Signing?
- Is anyone NOT using SMF Logger? If not, why not? Logger mode is prereq for zEDC, record signing, and streaming SMF...
- Has anyone tried SuperPAV yet?

IBM z/OS As-Is Tools

- There are a number of IBM sites that contain downloads of interest to z/OS customers:
 - IBM Education Assistant
 - z/OSMF Workflows
 - Unix Tools and Toys
 - WLM Tools
 - RMF Tools
 - DFSMS Tools web site
 - Others?
- Today these are distributed across a number of IBM sites, but the IBM web police are removing them.
- The new home for these documents will be <https://github.com/ibm/ibm-z-zos>

IBM z/OS As-Is Tools



The screenshot shows the GitHub repository page for IBM-Z-zOS. At the top, there are navigation links for Features, Business, Explore, Marketplace, and Pricing. A search bar is present with the text "This repository" and "Search". On the right, there are links for "Sign in" and "Sign up". Below the navigation, the repository name "IBM / IBM-Z-zOS" is displayed, along with statistics: 12 Watch, 7 Star, and 6 Fork. A secondary navigation bar includes "Code", "Issues 0", "Pull requests 0", "Projects 0", and "Insights". A large banner for "Join GitHub today" is visible, stating "GitHub is home to over 20 million developers working together to host and review code, manage projects, and build software together." Below the banner, there are tags for various topics: download, zos, mainframe, zosmf, workflow, education, assistance, help, jcl, pdf, discovery, release, z14, zos-v23, zos-v2r3, migration, software, hardware, and rexx. A summary bar shows 36 commits, 2 branches, 0 releases, 3 contributors, and Apache-2.0 license. Below this, there are buttons for "Branch: master", "New pull request", "Find file", and "Clone or download". The commit history is listed below, showing a merge pull request by marnawalle and two previous commits related to zOS-Education, zOS-Workflow, and LICENSE.md.

The helpful and handy location for finding and sharing z/OS files, which are not included in the product.

IBM z/OS As-Is Tools

Very important – for information about downloading the material, click on the readme file, or just scroll down

If there are IBM sites that you download tools from, other than those mentioned above, please contact me or Marna Walle.

Downloads for the z/OS platform

This repository contains sample programs and other resources that might be useful to the z/OS® community. Here you will find tools for exploring the various capabilities of z/OS. Perhaps, you might even share in the development of a community resource.

The materials in this repository are organized by type and release level.

The following major categories are used:

- [IBM Education Assistant modules for learning about z/OS](#)
- [z/OSMF workflows](#)

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Though the materials provided herein are not supported by the IBM Service organization, your comments are welcome by the developers, who reserve the right to revise or remove the materials at any time. To report a problem, or provide suggestions or comments, contact zosmig@us.ibm.com.

Important information for users new to Github

Downloading a repository

To download an entire repository, go to the repository's page, then click on the green "Clone or download" button on the right side, then click "Download ZIP". This action creates a zip file with the contents of the repository in your "Downloads" folder. You can use a ZIP utility to access some or all of its contents.

Downloading individual files

To download an individual file, click the link for that file. You should see a button named "Raw" or "Download". Click the "Raw" or "Download" button. If the file is not saved to your "Downloads" folder automatically, right-click and select "Save Page as..." and choose a location for saving the file. If you are using Google Chrome, modify the file extension to the one that corresponds to the file and set the "Save as type" to "All files".

Cheryl's Message

- How many in the audience are NOT using z/OSMF in your sites?
- For those that did NOT raise your hands –
- For those that DID raise your hands...
 - Please leave your buggy whips at the door



Cheryl's Message

- We have all seen many cases of IBM's flavor of the day arrive with a huge splash, then quietly fade away.
- But z/OSMF is not going away:
 - It was announced in z/OS 1.11, EIGHT years ago, and IBM continues to pour investment into it.
 - In z/OS 2.3, it will be started automatically, meaning that both IBM components and ISV vendors can assume that all customers will have it, so they can build more new functions on it.
- Initially, it performed like a dog and installation was.... A test of your patience and perseverance. AND it did very little that couldn't be done using traditional products.
- z/OSMF V2 significantly improved its performance, reduced its footprint, made installation a lot easier, and **delivered more functions that are *only* available in z/OSMF.**
- Even if *you* don't like z/OSMF, set it up to make your Millennials feel more at home and to let you use those functions that are only available through z/OSMF.

Cheryl's Message

- The following are some tips from IBM's Gary Puchkoff about ways to improve the startup time of z/OSMF:
 1. -Xquickstart saves ~40% elapsed time and ~40% CPU time;
This option should be enabled by default in `jvm.options` which is by default located in `/var/zosmf/configuration/servers/zosmfServer` directory
 2. Enabling SSC/AOT with a 'proper size' would save another ~30% elapsed time and ~15% cpu time;
These options are also specified in `jvm.options`
Delete the line `-Xsharedclasses:none` and add the following 3 lines
`-Xshareclasses:cacheDir=/var/zosmf/data/logs/.classCache,name=sharedcc`
`-Xscmx100M`
`-Xscmaxaot50m`
Then you need to comment out these 2 steps 'ZPARM' and 'CONFZMF' in IZUSVR1 (the default PROC name to start Liberty). Because these 2 steps will overwrite all configuration files including `jvm.options` you just changed to default values.
 3. Most of the cpu time during startup is caused by the `izughelp` plugin. Disabling the help plugin (simply renaming `izughelp.ear` to `izughelp.ear.bak` would work) will save another ~20% elapsed time and ~50% cpu time.
If you do not use the help plugin, you could issue command `'mv izughelp.ear izughelp.ear.bak'` in directory `/usr/lpp/zosmf/installableApps`. This should reduce lots of I/O and CPU time.

IBM zEvent

- If you haven't checked out the free IBM zEvent tool, do so now and impress all your distributed platform 'colleagues' with your ability to chat with your z/OS system using your smartphone or tablet.
- Uses functions provided by z/OSMF to easily send alerts to your mobile device and interact with your system.
- So easy to use, even I was able to set it up.
- See https://www-03.ibm.com/systems/z/os/zos/features/zevent/zevent_resources.html



THE MOST IMPORTANT ANNOUNCEMENT

- This is BIG.
- This is REALLY BIG.
- But some of you still might not have heard....
- IBM's Premier database management system for z/OS, DB2, is now.....

Db2 !

- Yes, that's right, an [ALL NEW DB2](#) (oops, Db2), AND, it is NOT EVEN A NEW VERSION!!!
- Who needs user requirements and hundreds of software developers when you can have a whole new ~~DB2~~ Db2 by simply doing "C DB2 Db2 ALL"??!!

Z End

- Thank you for coming!
- If you have any questions, please email us at technical@watsonwalker.com
- And we will see you in Sacramento in March! Have a safe trip home....
- Please remember to complete an evaluation – Session number 21603.

