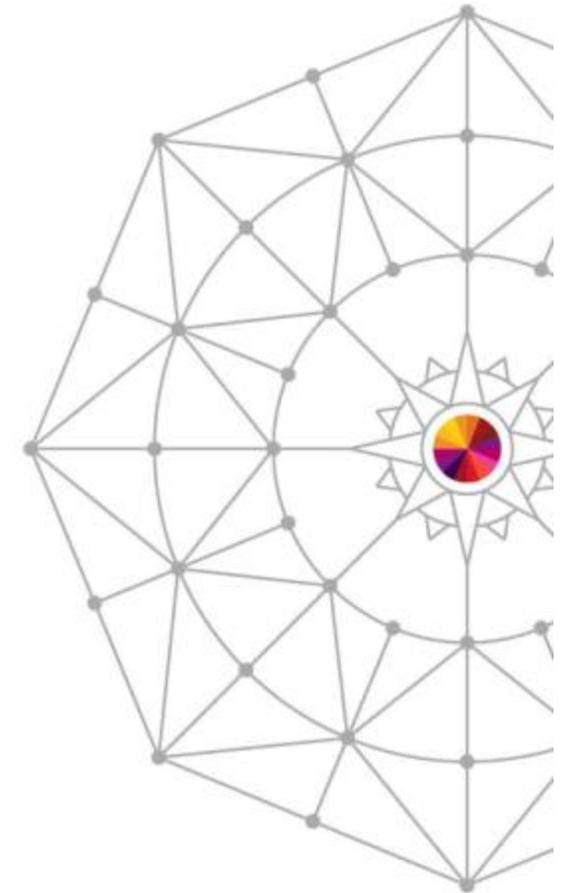




z/OS Planned Outages - Control Them, Instead of Them Controlling You

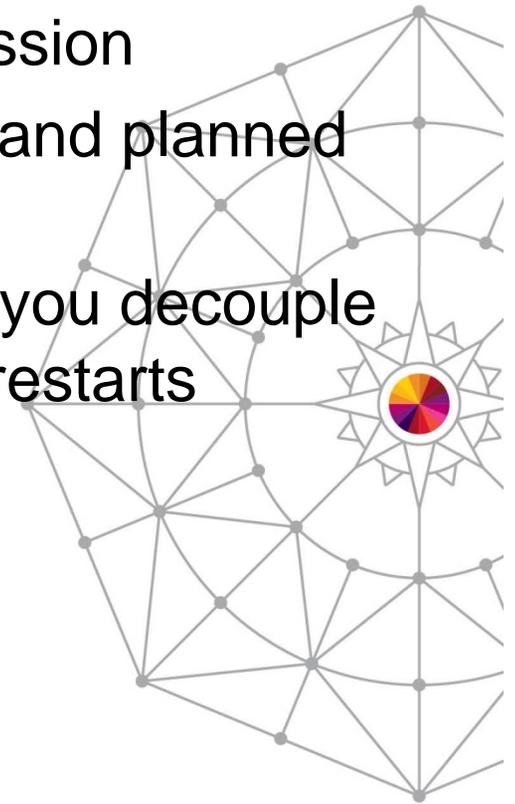
Frank Kyne
Watson and Walker

Thursday, March 13, 2014
Session Number 15106



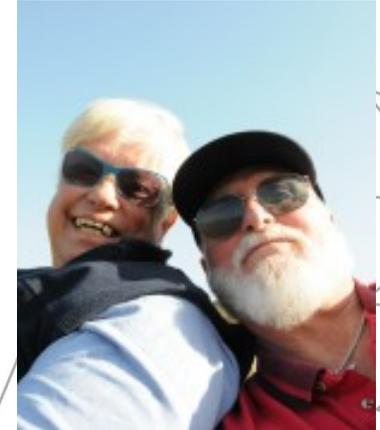
Intro

- A little background – why we created this session
- A few thoughts about application availability and planned outages
- Enhancements in z/OS from 1.8 to 2.1 to let you decouple system changes from system or subsystem restarts
- What else the upcoming Redbook covers



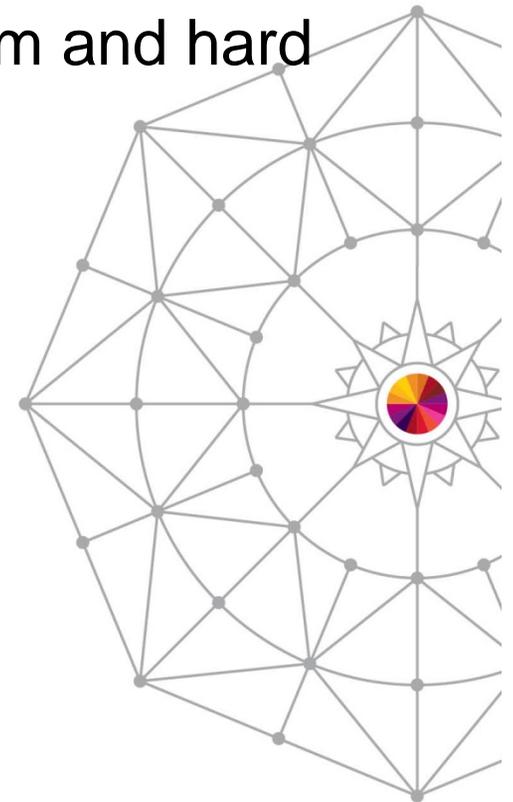
In memorium

- One of the writers of both the original Planned Outage Avoidance Checklist Redbook AND the upcoming Volume 2 of that book was Yvonne Zemotel.
- Yvonne was one of the key residents, and one of the most enthusiastic and jolly people that I had the honor of working with in my 16 years in the ITSO.
- Yvonne sadly passed away suddenly in October 2013. This presentation is dedicated to her memory...



Acknowledgements

- This presentation is a result of the enthusiasm and hard work of the following residents:
 - Yvonne Zemotel
 - Andy Clifton
 - Justin Deane
 - Fernando Ferreira
 - Richard Gunjal
 - Chuck Laurent
 - John Papp
 - Judy Ruby-Brown
 - Maida Snapper
 - Mike Stephens
 - David Viguers
 - Marna Walle



Background

- In 2005 ITSO published a Redbook called “z/OS Planned Outage Avoidance Checklist (SG24-7138)”
- Book was very popular – all 5-star ratings.
 - However it only went up as far as z/OS 1.7, and IBM’s efforts in this area have not stopped...
 - **PRIMARILY BECAUSE OF REQUESTS FROM SHARE FOR AN UPDATED VERSION**, IBM funded a project to create a logical follow-on Redbook to that original Redbook.

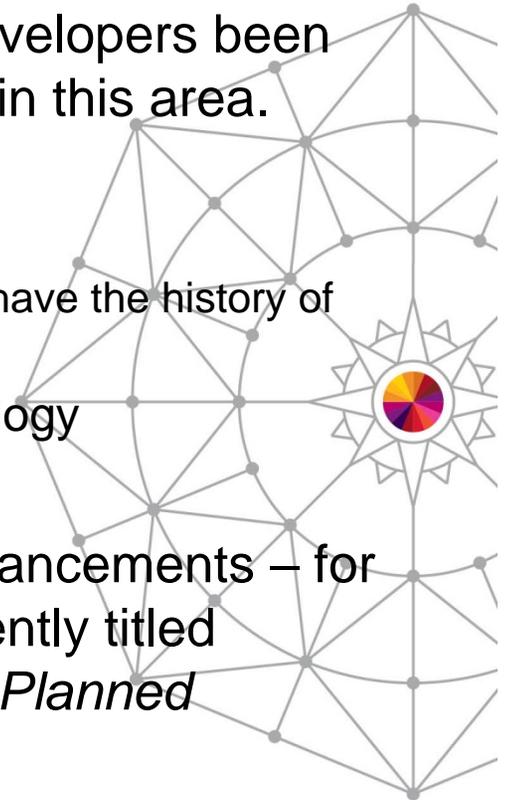


Son of Planned Outage Avoidance....

- Apart from providing information about the many enhancements to z/OS since 1.7, we also wanted to change the focus a little...
 - Using “Avoidance” makes it sound like Planned Outages are a **BAD THING** – something to be avoided.
 - But Planned Outages can actually be a good thing (how else can you apply preventive service?) as long as they don’t impact application availability.
- As a result, the focus of the book changed subtly – now it focuses on how to decouple (even just psychologically) making changes to your system (to installed new Hardware or Software, for example) from taking Planned outages.

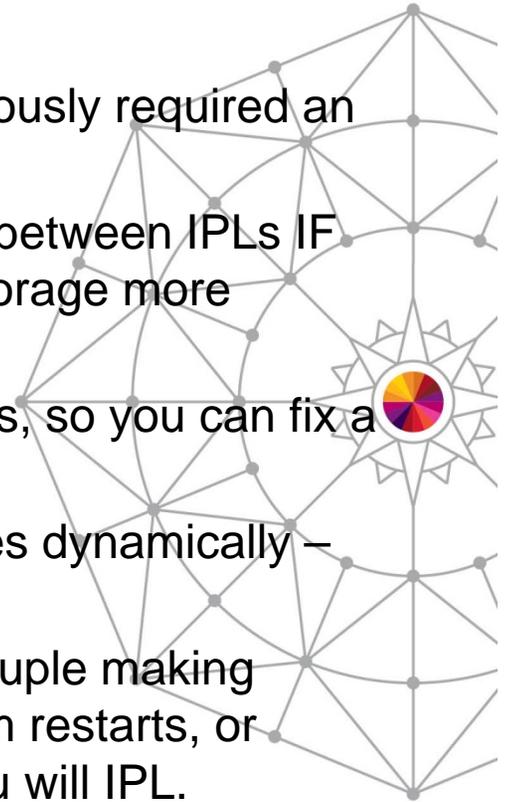
Son of Planned Outage Avoidance....

- Since the first Planned Outage book, the System z developers been working hard to provide more capability and flexibility in this area.
 - There are over 100 enhancements in z/OS alone
 - Enhancements in each release of CICS, DB2, and IMS
 - Because WebSphere and MQ Series are newer, they don't have the history of requiring outages that the other subsystems do
 - Also enhancements in CEC and Disk subsystem technology
- This presentation only provides a sampling of the enhancements – for the gory details, refer to the upcoming Redbook, currently titled “*Improving z/OS Application Availability by Managing Planned Outages, SG24-8178*”.



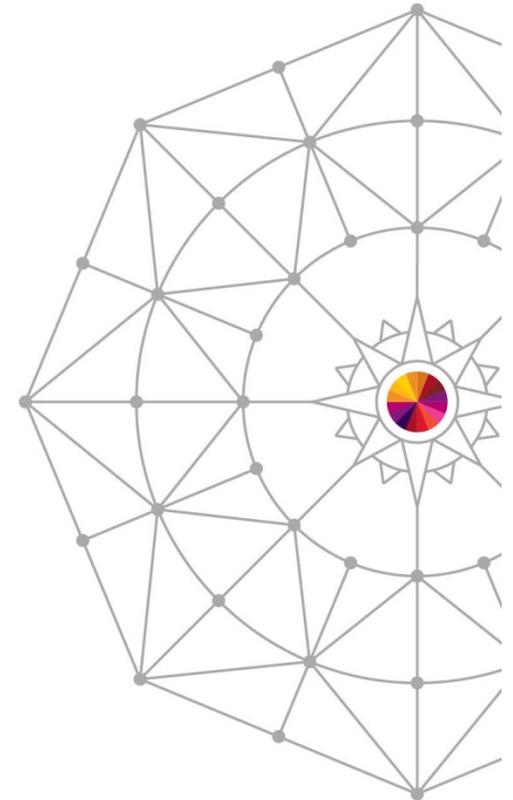
Son of Planned Outage Avoidance....

- What types of thing does the book cover?
 - Enhancements that let you change something that previously required an IPL – updating a Parmlib member, for example.
 - Enhancements that give you the ability to run for longer between IPLs IF THAT IS APPROPRIATE – a change to use common storage more intelligently, for example
 - Enhancements that help you do better problem diagnosis, so you can fix a problem rather than doing an IPL to get over it.
 - Enhancements to let you add, change, or remove devices dynamically – Basic HyperAwap, for example.
 - Any other enhancement we could find that lets you decouple making changes to your system from doing system or subsystem restarts, or enhancements that give you more control over when you will IPL.



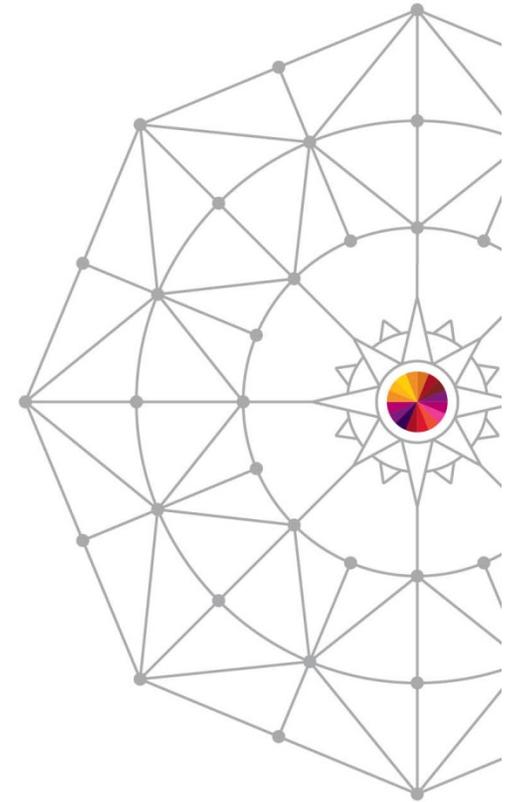
A little availability story

- Many IT Shops...



A little availability story

- “Bank A” – coming to YOUR industry soon...



z/OS Enhancements

Component	Description	Exploiting?
BCP	Health checks for linkage indexes and non-reusable ASIDs	
	Change all-but-one value in ALLOCxx without an IPL using the SETALLOC command	
	SET SMF and SETSMF command support for dynamic buffer size and NOBUFFS changes for SMF log streams	
	An IBM first - reusable non-reusable address spaces!	
	CMDS FORCE command to kill a long-running or hung command to avoid an IPL	
	Ability to add, remove, and alter amount of Storage Class Memory in a z/OS LPAR without any z/OS outage	
	New operand on the FORCE command to let you terminate a task (FORCE jobname,TCB=ttttt)	

z/OS Enhancements

Component	Description	Exploiting?
BCP	System Auto-Reply function for common WTORs	
	Provide ability for Auto Reply function to reply to synchronous WTORs	
	Dynamically modify VLF definitions using MODIFY VLF rather than restarting VLF	
	Add, remove, or modify consoles dynamically using SETCON or SET CON=xx commands	
	Message Flood Automation, previously only available to GDPS customers, is now part of z/OS	
	Added Defer Wait (CSVDYLPA and CSVDLPAW) Capability to let you include PDSEs in LPALST	
	More effective use of space in ECSA (VSM BESTFITCSA parm in DIAGxx)	

z/OS Enhancements

Component	Description	Exploiting?
BCP	SETPROG LNKLST enhancements to let you specify default values	
	Update SVCs dynamically using SETPROG LPA command	
	Support for concatenated libraries for System REXX (no longer have to place your System REXX execs in SYS1.SAXREXEC data set)	
	Ability to restart the System REXX address space	
	FINALLY!! A fully supported way to dynamically change system symbol values, complete with its own operator command (SETLOAD)!	
	Auto-IPL z/OS and/or Stand Alone Dump via definitions (dynamically modifiable) in DIAGxx	

z/OS Enhancements

Component	Description	Exploiting?
BCP	Ability to configure on more CPs than are defined in RESERVED field in LPAR HMC profile (DYNCPADD) without an IPL or deactivate/reactivate	
	Basic HyperSwap capability	

z/OS Enhancements

Component	Description	Exploiting?
Comms Srvr	Hot standby Sysplex Distributor	
	Increased resiliency in RESOLVER address space for parm errors	
	Command to validate TCP profile syntax – VARY TCPIP,,OBEYFILE,profile	
	RPCBIND/NFS use of ENF signals to enable automatic re-registration	

z/OS Enhancements

Component	Description	Exploiting?
DFS	Automatic zFS internal restart instead of stopping and requiring manual restart	
	zFS automatic re-enable of disabled file systems	



z/OS Enhancements

Component	Description	Exploiting?
Diagnostics	Predictive Failure Analysis function (recently enhanced to make it smarter)	
	Add RunTime Diagnostics (RTD) function	
	Enhance RTD function and add PFA integration	
	IEBPDSE utility to check for damaged PDSEs	
	Ability to dynamically add and remove VSAM record management trace using new IDAVDT started task and new IDAVDTxx Parmlib member.	
	IOSSPOF service (and IOSSPOFD batch job) to check for single points of failure	
	HIS support for changing CPU speed without requiring an IPL	

z/OS Enhancements

Component	Description	Exploiting?
Diagnostics	Enhancements to SLIP DUMP (MAXNDSP and DEFERTND) to reduce non-dispatchable time	
	Enhance CONFIGxx member and D M=CONFIG(xx) to support zIIP and zAAP PUs	
	New command (F CATALOG,CONTENTION) to help investigate CATALOG contention issues	
	D GRS,ANALYZE command enhanced to add support for latches	
	Enhancements to handling of broken PDSEs during IPL	
	Enhanced commands (D SMS,PDSE and V SMS,PDSE) to help you identify and address corrupted PDSE control blocks	

z/OS Enhancements

Component	Description	Exploiting?
GRS	Ability to move GRS Contention Notification System role without an IPL (SETGRS CNS=sysname)	
	Dynamically control and change the maximum number of ENQs	
	Documented the procedure for switching from GR SRNL=EXCLUDE without a full sysplex IPL	
	SMF Type 87 and 72.5 records enhanced with more GRS monitoring information	

z/OS Enhancements

Component	Description	Exploiting?
JES2	Infoprint support for dynamic configuration changes	
	Dynamic JES2 exit support	
	Support for SPIN data sets to let you process/delete output from a job step before that step completes – can avoid restarting started tasks simply to free output	
	Support for SPIN keyword for JES2 JOBLOG for long running jobs	
	SPIN=UNALLOC JCL keyword	
	Support for increased number of SPIN data sets	
	Dynamically modify TCP/IP NJE configuration	
JES3	Ability to dynamically add spool volumes	
	Dynamically remove spool volumes	

z/OS Enhancements

Component	Description	Exploiting?
System Logger	Force disconnection or deletion of a log stream without restarting System Logger	
	System Logger messages to warn you of log stream primary storage shortages	
	System Logger messages for offload delays	
	Control Logger defaults in IXGCNFxx member	
RACF	Sample ICHPWX01 exit enhanced to support System Rexx	
	Sample ICHPWX11 exit (on Tools and Toys site) enhanced to support System Rexx	

z/OS Enhancements

Component	Description	Exploiting?
RRS	RRS internal cold restart in case of errors	
	Provide ability to have orderly RRS shutdown (SETRRS SHUTDOWN)	
	SETRRS command to activate/deactivate ARCHIVE log stream	

z/OS Enhancements

Component	Description	Exploiting?
DFSMS	Ability to dynamically activate changes to the DEVSUPxx member using the SET DEVSUP member	
	DEVSUPxx REFUCB option to have VOLSER changes automatically propagated around the sysplex.	
	CA Reclaim for VSAM KSDSs	
	Sysplex-wide catalog suspend/resume	
	Ability to allocate catalogs in the EAS area of an EAV volume	
	DADSM and CVAF support for dynamic exits function	
	Enhancements to HSM CDS backup function to minimize impact of backup processing	

z/OS Enhancements

Component	Description	Exploiting?
DFSMS	Ability to issue XRC XSTART and XADDPAIR for primary volumes that are still offline	
	Can perform FlashCopy to PPRC Source volume to create offsite PIT copy for testing	

z/OS Enhancements

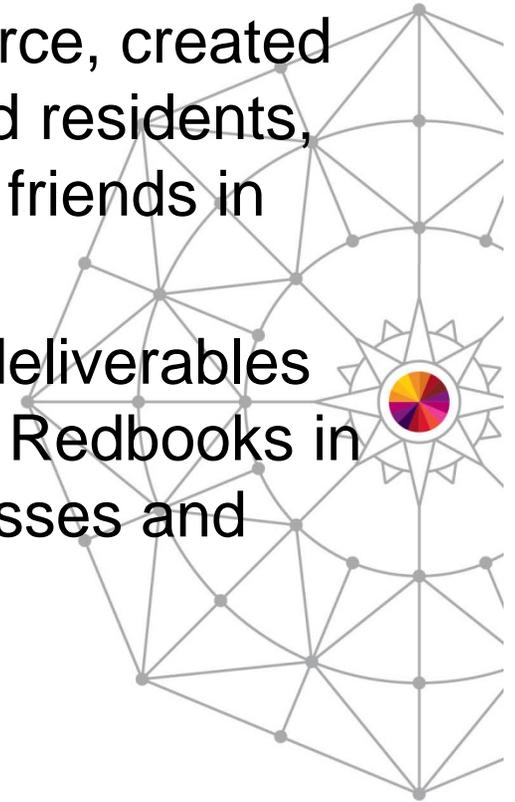
Component	Description	Exploiting?
USS	Restrict mounting on a non-empty mountpoint	
	Dynamically switch from one sysplex root (any combination of HFS and zFS) to another without ANY outage	
	Define an alternate sysplex root data set that the sysplex will fail over to if current sysplex root becomes unavailable	
	Ability to increase MAXSOCKETS and INADDRANYCOUNT values using SETOMVS command	
	Ability to remount a file system without first having to do an unmount	

z/OS Enhancements

Component	Description	Exploiting?
XCF	System Status Detection Partitioning Protocol can detect if a system that has not updated its sysplex heartbeat is still running (perhaps trying to recover).	
	CRITICALPAGING function ensures that all the pages required to complete a HyperSwap successfully are kept in storage	
	Non-disruptive CF dump capability helps IBM gather required diagnostic information without taking CF down	
	SETXCF MAINTMODE and SETXCF REALLOCATE commands help you empty and repopulate CFs	
	Serial Structure Rebuild minimizes recovery time following a CF-related failure AND re-duplexing time when a CF comes back online	

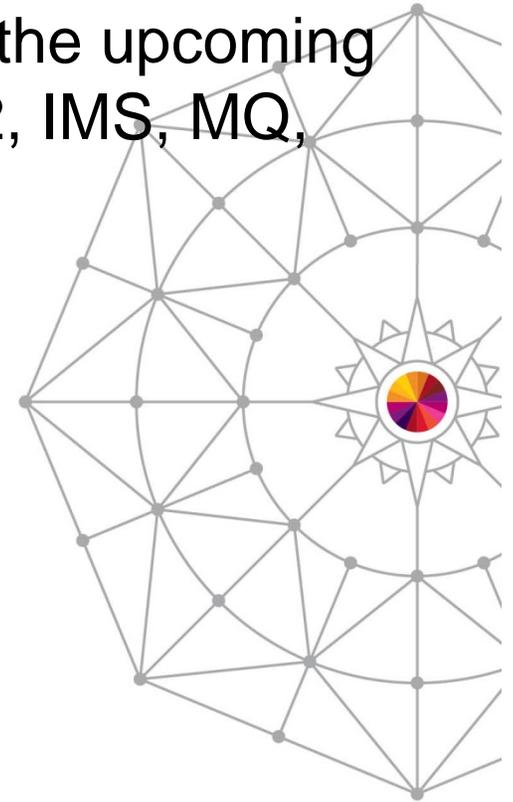
A plug for my old friends

- Redbooks are an invaluable (FREE!!!) resource, created from the blood, sweat, and tears of dedicated residents, and the endless patience and support of our friends in Development.
- But they are not just Redbooks any more – deliverables now include videos, Redguides, Redpapers, Redbooks in ePub format, blogs.... PLUS, they teach classes and provide consultancy services.



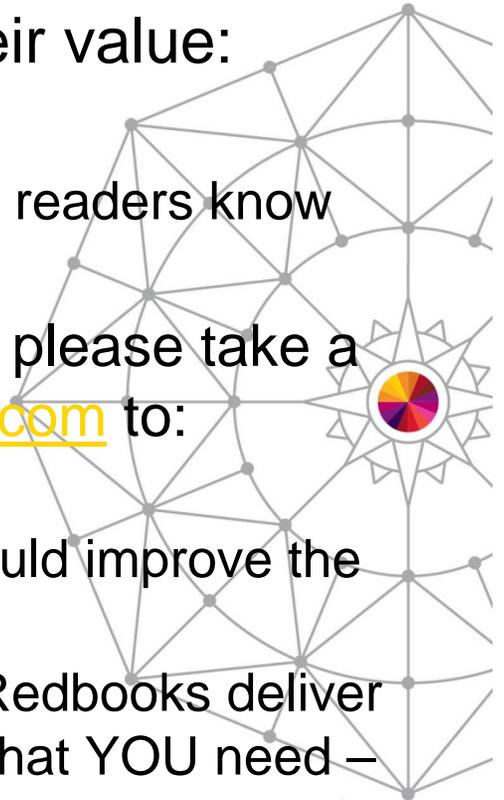
Other topics in upcoming Redbook

- In addition to all the enhancements in z/OS, the upcoming Redbook will include chapters on CICS, DB2, IMS, MQ, and WebSphere



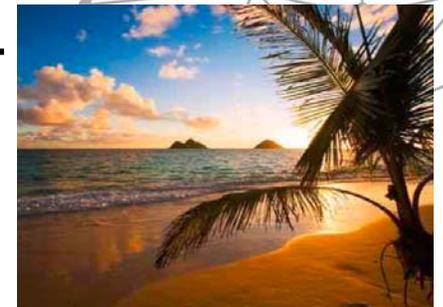
A plug for my old friends

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 - Tell them what type of deliverables you need – Redbooks deliver to a diverse audience, but they want to deliver what YOU need – maybe different audiences have different requirements, or maybe not, but they won't know unless you tell them.



A plug for my old friends

- The mainframe community is a relatively small one, and we all benefit when we help each other.
- One way to do that is to present on your experiences at SHARE.
- Another way is to take part in an ITSO residency to create a Redbook:
 - It is THE best education opportunity you could wish for
 - You get to work with the nicest people and build your network
 - Get to visit one of IBM's many exotic locations...
 - AND, it is not a bad career move to have your name on the front of a Redbook...



Thank you!!!

- Please remember to complete the evaluations
- And please let me know if you have any suggestions to make this material more valuable

