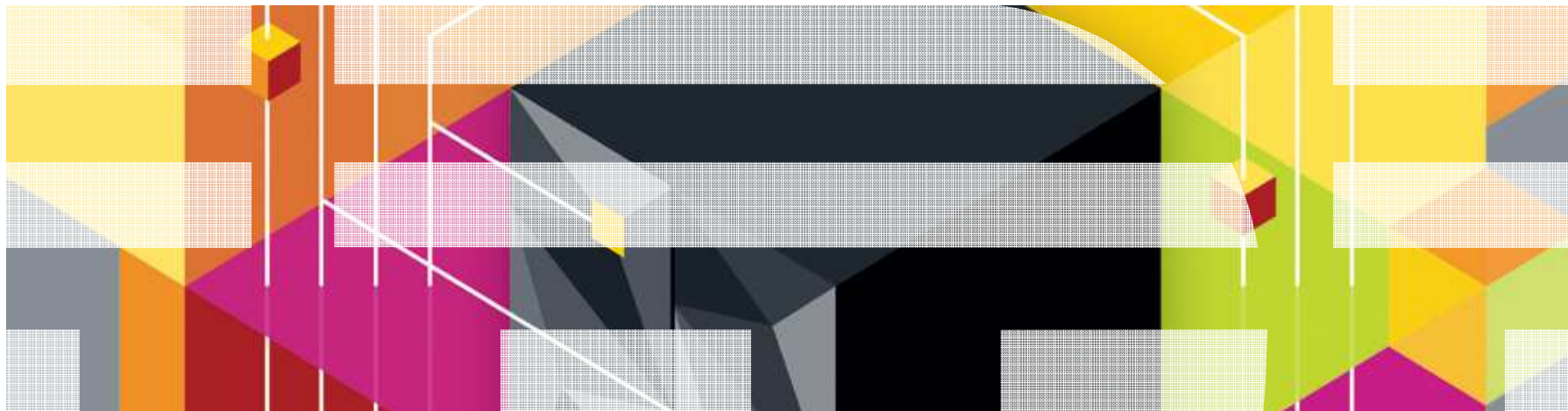


z/OS - Update

Rita Pleus - IBM Mainframe Platform Brand Manager Operating Systems,
Rita.Pleus@de.ibm.com

13. November 2012, @ IBM Architektentage in Böblingen



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Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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Agenda

- *IBM z/OS Version 2 Statement of Direction
April 11th, 2012*
- *z/OS Support for IBM zEnterprise® EC12
(zEC12)*
- *z/OSMF Update*
- *Summary*

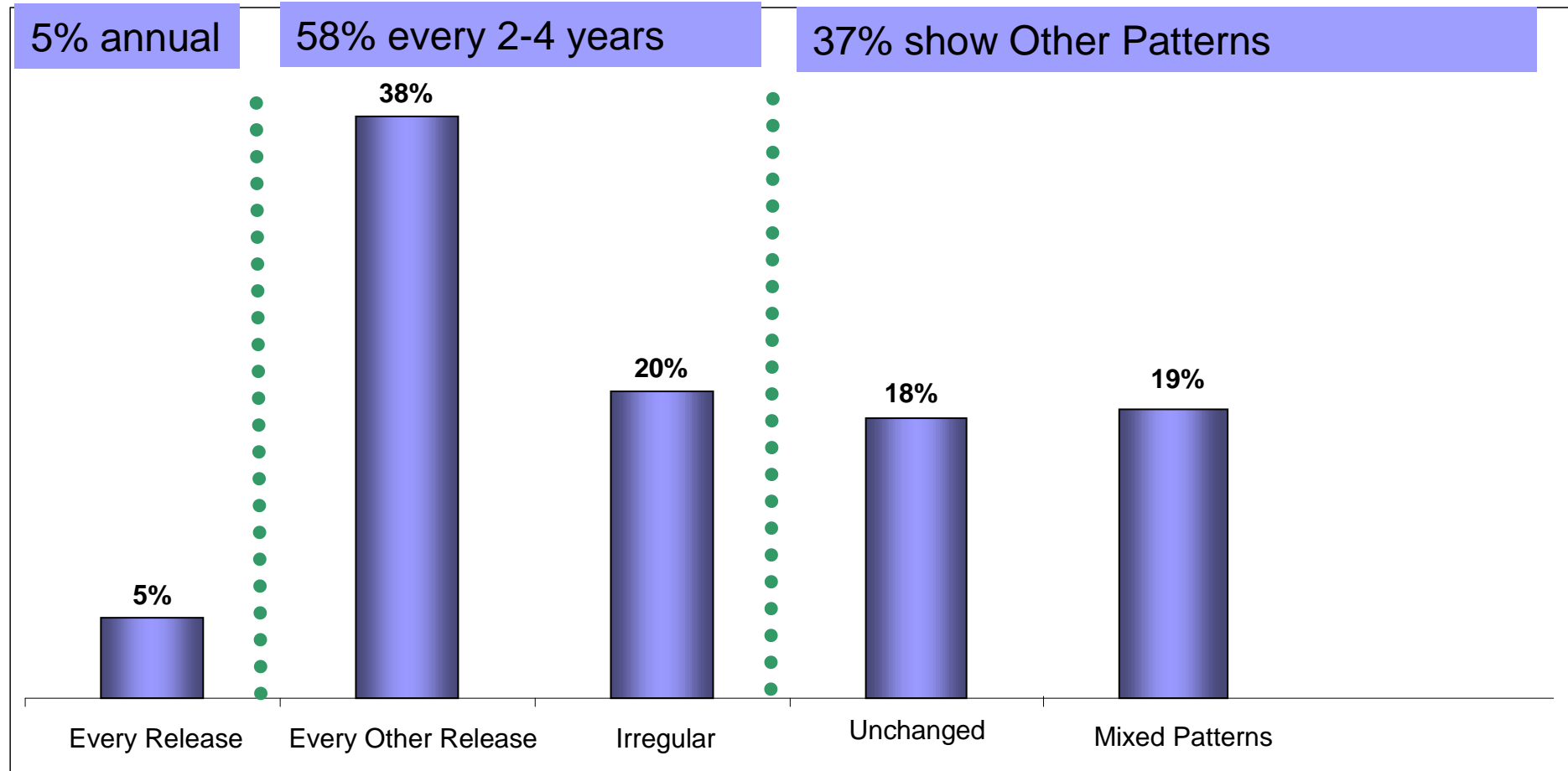


Agenda

- *IBM z/OS Version 2 Statement of Direction
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Current Customer Migration Patterns Align with a Longer Cycle

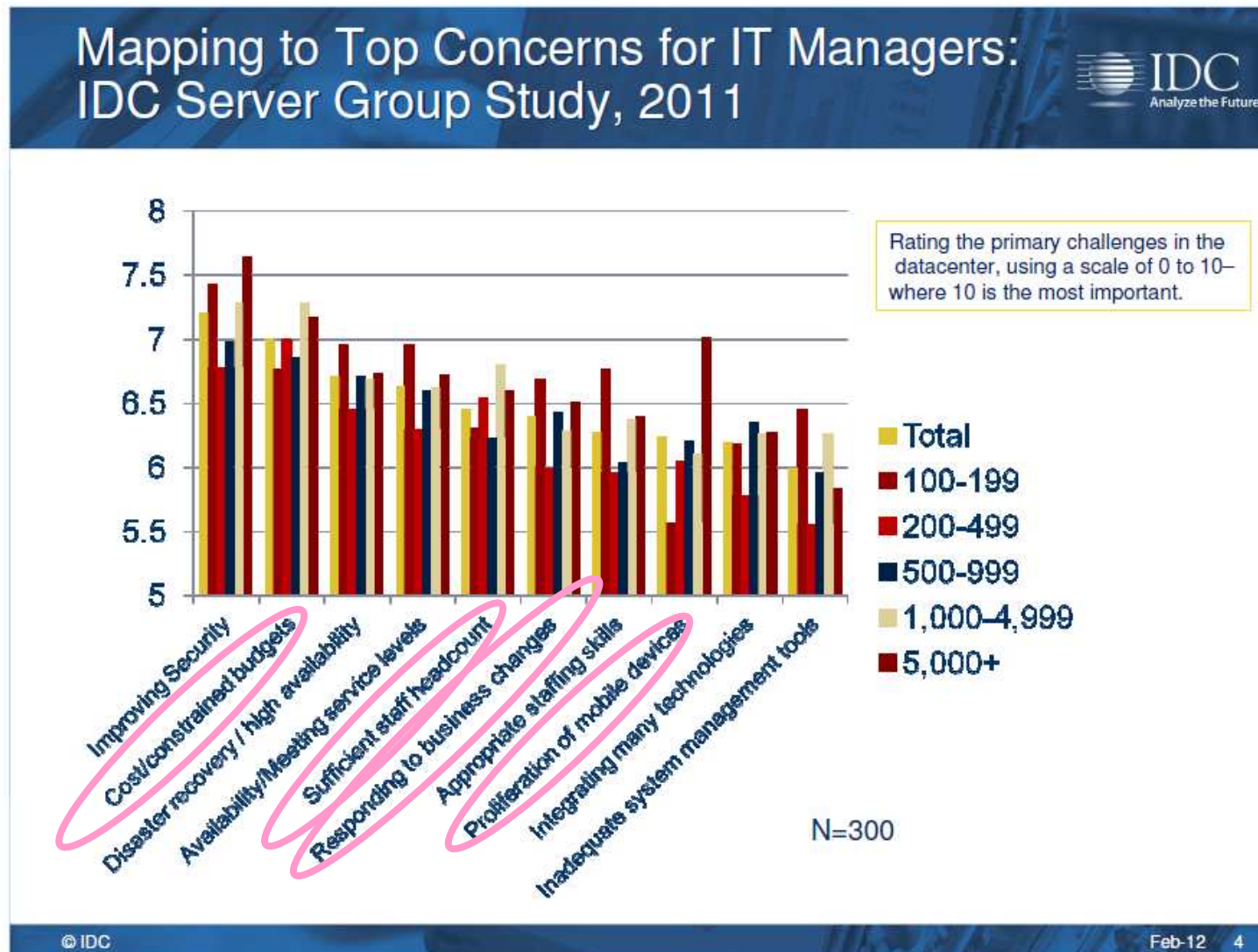
z/OS® Client Migration Patterns



*Estimated from several sources including: IBM Inventory, Order, Fulfillment, and Service Call (PMR) data over a 4 year period 2008 - 2011

Only 5% of our customers migrate annually, almost 60% migrate every 2- 4 years

Clients face cost pressures and new business requirements*



*Source: IDC, Market Opportunities for IBM System z, presentation by Jean S. Bozman at IDC's Tech Outlook Conference in Austin, Texas, Sept. 22, 2011

Annual cycles split functions over multiple releases

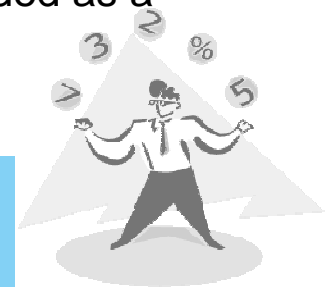
Functions	z/OS V1.7	z/OS V1.8	z/OS V1.9	z/OS V1.10	z/OS V1.11	z/OS V1.12	z/OS V1.13
Consoles restructuring	X	X		X			
Parallel VARY processing	X	X					
Password phrases		X	X	X			
SMF data to System Logger			X		X	X	X
NFS V4				X	X		
Message Flooding Automation			X	X			X
System REXX (SYSREXX)			X		X		
Large (1 MB) pages				X	X	X	
Extended Address Volumes (EAVs)				X	X	X	X
zHPF					X		X
Catalog constraints						X	X

Implementing functions over several releases makes it more difficult to see value in each step

What Were the Drivers Behind the New Release Schedule?

- Customers have told IBM that they find it difficult to keep pace with the annual release cycle
 - Currently, customers spend significant time preparing for their next release cycles
 - Operational costs related to planning are difficult to sustain
 - In today's economy, customers prefer to focus their skills, time and resources on applications to drive business growth
- In addition, IBM has delivered related functions over several successive releases, making it challenging for customers to derive value
- IBM intends to package its function in fewer increments designed to result in a more simplified approach for customers
- Such packaging can also have the effect of reducing field reliability exposure for APARs
 - Potential for improved quality
- The SOD intends to preview the release schedule for planning and is not intended as a content view

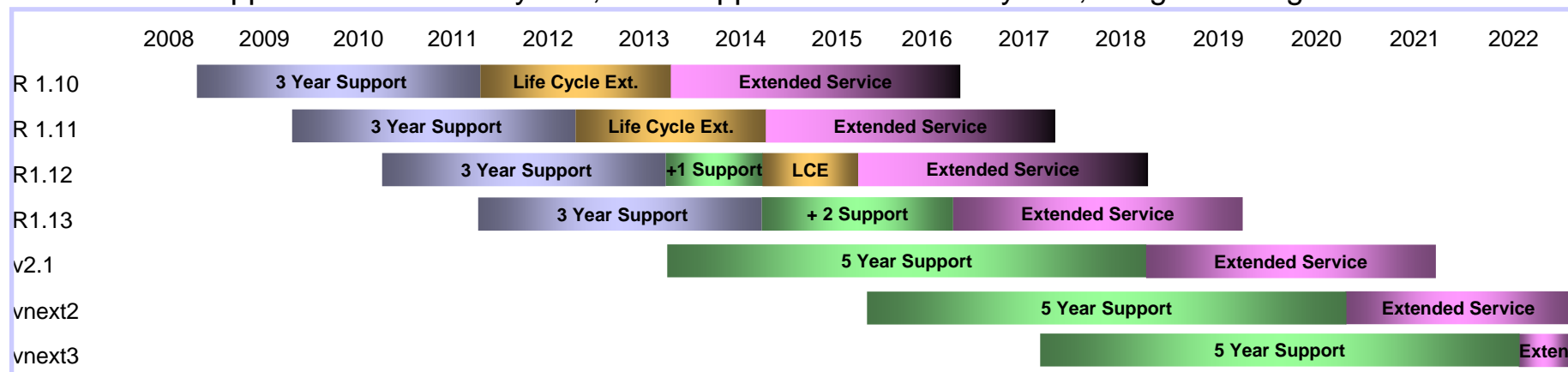
**Get more value out of z/OS and the mainframe
Spend less time on planning and deployment**





Support and Service Changes

- Shift z/OS to a 2 year release cycle
 - Better aligns with client needs and trends
 - Opportunity for us to put more complete function in a release
- Version 2.1 targeted to deliver in 2H2013
 - Release delivery cycle is planned to be every 2 years, in the second half of that year.
 - Will continue to deliver key hardware support & updates in between releases
 - Maintain N-2 release migration (accommodate a 2 or 4 year migration cycle)
 - 5 Year Support with optional fee based service extension to accommodate migration
 - z/OSMF planned to be on the same release and service cycle
 - Minimum supported HW levels (z9 server or later, and 3990-3 disk controller or later)
 - R12 Support extended to 4 years, R13 Support extended to 5 years; bridges v2 migrations



See Statement Of Direction from April 11, 2012

z/OS V2 Minimum Supported Hardware

- **z/OS V2 support of IBM System z9 servers and above**
 - System z9, IBM System z10®, IBM zEnterprise™ 196 (z196) and IBM zEnterprise 114 (z114)
 - **Not supported: IBM eServer™ zSeries® 990, 900, 890, 800 (z900, z800, z990, z890)**
- **z/OS V2 support of 3990-3 Storage Controller and above**

Beginning with z/OS Version 2, IBM plans to require these storage control units and later control units:

- 3990-3, 3990-6
- DS8000® family (2107,2121,2122,2123,2124)
- ESS Family (2105)
- DS6000® family (1750)
- Rack mounted DASD (9340,9341, 9342, 9343)

- Provides a z/OS V2 foundation for future optimization, performance, and reliability
- Helps enable incremental exploitation of servers in future releases.
- Recompiles using more current compilers to yield potential performance benefits
- Elimination of dual path offers simplification of development efforts
- Reduces potential for errors by reducing complexity associated with supporting and testing multiple code paths

Other benefits:

- Server / Control Unit benefits for z/OS, z/OS stack, and ISVs

Customers with z900, z800, z990, and z890 servers and older storage control units should plan upgrades now in preparation for z/OS V2.

Analyst Publications

THE CLIPPER GROUP *Captain's Log*TM



Published Since 2001

Report #TCG2012007

March 12, 2012

IBM Changes Its z/OS Release Plan and Extends Its Support

Analyst: Stephen D. Bartlett

IBM – Sometimes it likes to surprise, but sometimes not

IBM is well known for being very protective about its timing of the announcement and delivery of new

What is the New Bottom Line?

In the automobile industry, the warranties beyond the normal three- or four-year period are sometimes perceived as an attempt to cover inherent weaknesses in the quality of a product, or as just a marketing ploy to make the product appear more attractive by lowering the perceived risk by the customer. There are several examples of this in recent years as some non-domestic manufacturers have introduced their products into U.S. markets. **IBM's actions here are indicative of neither of these examples.** If anything, IBM's policies represent an assurance of improved quality and service and are another example of IBM's commitment to protect customers' investments in its leading mainframe system products and to facilitate the lowering of their costs. **The new five-year support for z/OS and the new release lifecycle will result in a lower mainframe TCO for z/OS installations and will provide customers greater opportunity to exploit and benefit from the latest functions and features of each new release and the hardware it supports.**



Cheryl's List #157 - 12 March 2012 Watson & Walker, Inc.

Dear Cheryl's List recipient:

Welcome to Cheryl's List! If you obtained this from someone else and would like your own FREE copies of [Cheryl's List](#) in the future, see the information at the end of this email.

1. Great z/OS News From IBM
2. Cheryl Watson's Tuning Letter 2012 No. 1
3. SHARE in Atlanta

1. Great z/OS News from IBM

Today at SHARE, **Jeff Magdall**, z/OS Program Leader from IBM, described an upcoming SOD (Statement of Direction) for z/OS. Starting with z/OS 1.13, z/OS releases will now be available every other year instead of every year. That means that the next release of z/OS will be the second half of 2013 (not September 2012, as expected). I think this is terrific news for our customers! IBM has found that only 5% of z/OS customers migrate every year, while the great majority of customers migrate every other year or so.

Why do I think this is great news? There are several reasons. Foremost is that customers no longer need to decide whether to be on an "odd" or "even" release. I highly recommend that you now plan on two things: 1) migrate to z/OS 1.13 whenever you can, and 2) migrate to every release from that point on (whether they call it z/OS 1.14 or z/OS 2.1 - this is not a pre-announce - I really have no idea). Most customers take six months to 18 months to roll a new release out to all production LPARs, and don't have time to exploit the enhancements in each release. Providing time to exploit the enhancements is the second reason that I think this is a great move.

The third reason is that IBM can provide more complete solutions in each release. For example, Extended Address Volumes (EAVs) first became available in z/OS 1.10, with minor enhancements in 1.11, 1.12, and 1.14. With a release every other year, you would have received much more function in the first release. And finally, I think that each of the functions will be more thoroughly tested before becoming generally available (GA).

A few customers and a few software vendors have some reservations about this change, but I'm positive that this will provide many benefits to everyone. There might be a few people who might see this as IBM moving away from z/OS as a strategic platform. I definitely disagree with this. I understand that IBM is spending more resources on z/OS today than in the recent past. I know personally how much future development is going into z/OS development, and how much development is going into CICS, DB2, and WebSphere on z/OS. I still believe that z/OS and zEnterprise provide THE platform of the future.

If you have any worry about your current end-of-service, don't worry. IBM will be changing those dates to ensure that you'll be okay. You should expect a formal statement of direction within the next two months with more information.



Feedback From Customers and Analysts

"Today's technology is constantly evolving, which makes running a data center extremely challenging. IBM's decision to make z/OS available every 2 years helps ease that challenge. This new cycle allows me to stay current on z/OS and fully implement the new functions delivered in each new release. I will have more time to focus on data center activities that are required for competing in today's business environment. The return on investment for z/OS has just gotten better!"

-Communication Industry Customer

"The two year release cycle fits better with many companies' time and manpower capacity. While it's possible to huff and puff a new release annually, that vigorous pace forces many customers to skip releases, a practice that does not benefit them or IBM. The two year release cycle will help customers get onboard a more regular upgrade program."

-Utility Industry Customer

"Svenska Handelsbanken has had a long history of early installation of z/OS releases and we like to be on the most current release. We recognize the potential value of a two year z/OS release cycle.

For us, a longer release cycle might free up more time for our own staff to perform duties other than installing and deploying z/OS releases.

For IBM a longer release cycle might afford development labs more time for development of new solutions and to structure rollbacks more efficiently. This can be a win for both us and for IBM."

**-Bertil Andersson, Senior Enterprise IT Architect
Svenska Handelsbanken**

"IBM's change of the z/OS release cycle to every two years and the extension of the support period should result in a lower TCO for mainframe data centers, because of the reduced resources required to maintain release currency. Furthermore, it should provide more time and flexibility to exploit and thus benefit from the improved functionality and features of each new release and the supported hardware. This is a very positive and significant move by IBM for its customers."

**-Steve Bartlett,
Senior Contributing Analyst,
The Clipper Group**



"This solution is consistent with the current adoption plans of IBM System z customers and is a very sensible way of approaching new functionality with z/OS."

**-Joe Clabby,
-Clabby Analytics**



"This is great news for IBM System z customers and software developers. It's a win for customers because there is impact to them when they upgrade releases frequently, and it's a win for developers because they will have more time between releases to test their software."

**-Cheryl Watson,
Watson & Walker Inc.**



IBM Lifecycle Extension for z/OS V1.11

IBM Lifecycle Extension for z/OS V1.11 offers an optional fee-based corrective service for users who have not completed migration from z/OS V1.11 to z/OS V1.12 or z/OS V1.13

- **What's new:**

- The IBM Lifecycle Extension for z/OS service offer is now available for z/OS V1.11.
- It provides fee-based corrective service (a fix, bypass, or restriction to a problem) for up to two years starting with October 1, 2012, the earliest offering start date, up through September 30, 2014.

- **Features / Business Value:**

- Offered through IBM System z, the Lifecycle Extension provides only *corrective service* for z/OS.
- Flexible terms and conditions:
 - Purchase services for any number of machines, aggregate pricing available
 - Add and delete machines as you migrate to newer releases
 - Option to add additional months
 - Keeps billing active for uninterrupted support; cancel when you are done with migration

- **Client Benefits:**

- For z/OS V1.11 customers needing additional time to complete their migration to the next release, the Lifecycle Extension for z/OS V1.11 provides defect support after the end of program services.



Learn More: <http://www.ibm.com/systems/z/os/zos/>

IBM z/OS Statement of Direction - April 11th, 2012



The screenshot shows the IBM website interface for the "Statement of direction: IBM z/OS" announcement. The page includes a navigation bar with links like "Products", "Services & industry solutions", "Support & downloads", and "My IBM". The main content area features the title "Statement of direction: IBM z/OS", the date "April 11, 2012", and a link to the PDF document "ENUS212-086.PDF". Below this is a "Table of contents" section with links for "Overview" and "Description". The "Overview" section is currently selected and displays the beginning of the announcement text.

Since its initial release in 2001, IBM® z/OS® Version 1 has delivered over 11 years of value, c IBM System z® and providing our customers with the foundation to run their most critical busin The z/OS journey continues with new efforts to drive value while reducing complexity. In supp efforts, IBM plans to introduce a new version of the z/OS operating system, z/OS Version 2, wit released in the second half of 2013 as part of a new two-year release cycle. As the System z p to deliver value for smarter computing, IBM intends that z/OS Version 2 serve as the foundatio capabilities. This is an exciting time for IBM and for you, our customers, as we prepare new ve and z/OS Management Facility (z/OSMF) to be delivered through a release schedule that is in well with your business requirements.

Going forward, IBM intends to make new z/OS and z/OSMF releases available approximately Such a schedule would be intended to provide you with sufficient time to plan for new release: them for the most business value. In addition, beginning with z/OS Version 2, IBM plans to pro z/OS support, with three years of optional, fee-based extended service (5+3) as part of the nev cadence. Beginning with z/OSMF Version 2, IBM also plans to provide five years of z/OSMF su similar to z/OSMF Version 1, optional extended service is not planned to be available for z/OS

In addition, in z/OS V2.1, IBM plans to further leverage enhancements in the current IBM main: and storage control units. z/OS V2.1 is planned to IPL only on System z9® and later servers. A 2 is planned to require 3990 Model 3 (3990-3), 3990 Model 6 (3990-6), and later storage cont

- With z/OS V2.1, our product documentation is planned to "go green" with electronic delivery of documentation over the Internet, replacing delivery of documentation using physical DVDs. This change is intended to result in higher quality documentation and better information currency. To meet customer requirements for easier search and access of information and to modernize our documentation delivery processes, **we will focus on Information Center delivery of the z/OS product documentation and discontinue the use of BookManager® format.**
- Among the many advantages of information centers are that their content can be found using search engines such as Google and often represent the most current content. For customers requiring offline access to documentation, IBM plans to provide a downloadable version of the documentation in the Information Center. For users who do not need the entire product library, IBM plans to continue to provide PDFs for individual documentation download. The local Information Center provides built-in functions to keep content up-to-date and is also planned to contain a predefined search scope for z/OS Elements and Features message information.

z/OS Information Delivery Strategy Beyond V1R13

1. IBM will stop delivering BookManager file format
2. Instead, IBM will provide Information Centers and ALS Indexed PDFs.
3. IBM will stop delivering physical DVD collections but will offer them as KITZIPS for download

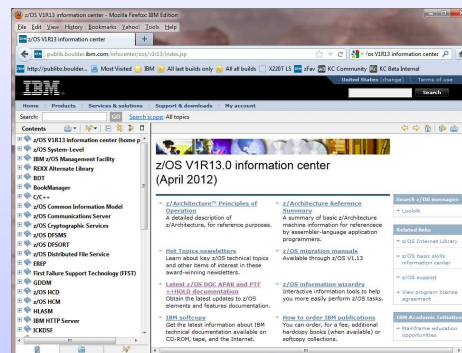
About ALS: The PDFs will be indexed using the Advanced Linguistic Search (ALS). Users will download a ALS plugin from the BookManager site. The ALS plug-in will install inside the Acrobat Reader. The result is a PDF with the quality of search of a BookManager book. There is a more detailed chart later in this presentation.

A KITZIP: Means it is one of our usual collection kits zipped instead of published on a DVD. 7-ZIP can be used to unzip it

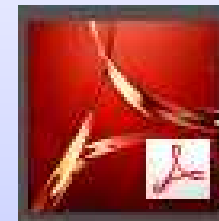
Deliverables beyond z/OS V1R13



BookManager
Books



+

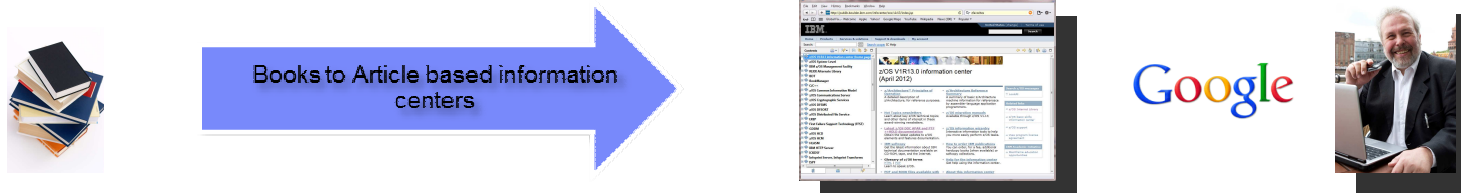


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Why Are We Discontinuing BookManager Format?

- When BookManager was prominent and everything was in BookManager format, have it was easy to platform wide repositories that you could easily search across.
- With the advent of the internet the **IBM corporate information strategy has been to move away from books and optimized documentation for article-based, internet friendly Information Centers.**
- **IBM devised** a new XML based markup language called **Darwin Information Typing Architecture (DITA)** to better facilitate article based writing. Although developed internally by IBM, **DITA has been adopted externally as a standard markup language** for technical documentation. That widespread adoption make it easy for ISVs and other vendors to develop documentation that integrates better with IBM content.
- In addition to it's article based structure, DITA reinforces writing better technical content through its use of specializations for various types of information. These specializations are similar to templates that reinforce consistency and completeness. Articles also make it easier to reuse and recombine information which is helpful in documenting new solutions.
- While authoring in DITA and delivering content as articles has become easier over time, **authoring and producing BookManager format has become more difficult.** Software products that run on z/OS have nearly all moved from BookManager to DITA and Information Centers. There is no longer an easy way to produce BookManager format on a workstation.



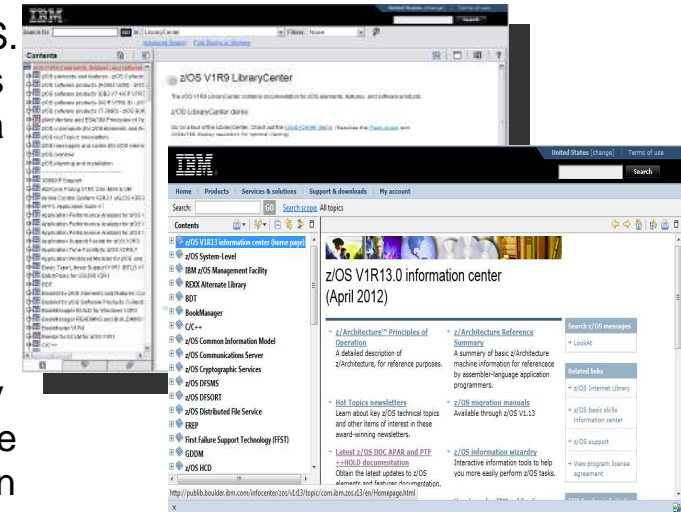
To learn more about DITA see http://en.wikipedia.org/wiki/Darwin_Information_Typing_Architecture.

Accessing z/OS Information Offline

- If you have an island or isolated system, where for security or other reasons, no internet connection is allowed, you have two choices for standalone information:

IBM Library Server, formerly known as IBM BookServer ships with z/OS. It indexes BookManager books, well structured PDFs and Eclipse helps system HTML.ZIP plug-ins. Customers can use Library Server to host a central repository of documentation native on z/OS. This is useful for disaster recovery and in situations where no outside connections the z/OS are allowed.

IBM Eclipse Help System (IEHS), is the current strategic framework for delivering online help, and Information Centers. The content is typically in HTML format, so you can think of IEHS as a mini website. Standalone versions are available for the windows platform and can be ordered or in many cases, downloaded from the IBM Publications Center, and installed on a laptop or workstation inside the secure environment. A single information center can be accessed by anyone inside who has access to the secure area network.



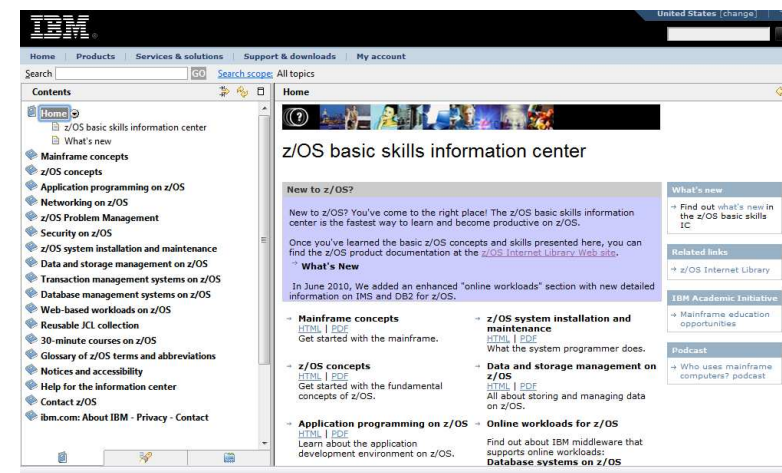
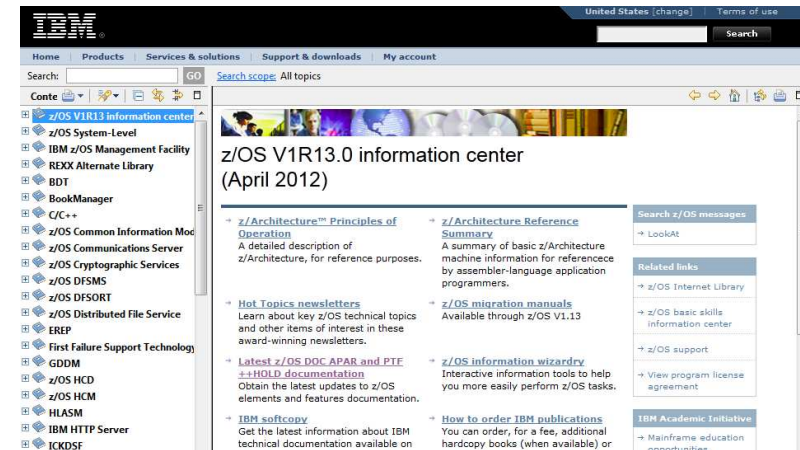
Downloadable
Information Center



Key Advantages of Information Center Delivery

Information centers are:

- Are **Internet friendly** (easily indexed by Google and other search engines)
- Are **non-proprietary** (HTML and XML) makes it easier for ISV integration
- Have extensible function due to plug-in architecture
- Can take advantage of ever evolving internet technologies such as:
 - The Semantic Web
 - Collaboration, RSS, Social media
- Can easily **incorporate interactive elements** such as, wizards, calculators, dynamic tables, and multimedia
- **Modular**, article-based information rather than books will make it easier to create solution-oriented information
- **Easier and faster updates** to improve content quality and correct errors
- Have a built in update function so when updates are available it make it easy to download and install them.



The Benefits of The Changes

The move to DITA will improve information quality over time:

- IBMIDDOC's book structure makes information reuse difficult and makes it hard to create solutions documentation
- IBMIDDOC had no inherit structures or information types to ensure completeness
- DITA uses information types or templates that help ensure that all the information needed to do a complete a task is present. For example, the message specialization requires that authors and development provide enough information to make diagnosis and error resolution easier.
- DITA is article based and that makes information easier to reuse and repurpose for new solutions.
- DITA is an industry standard that ISVs and business partners can use so we have information coded in a common format

Two output formats: ALS indexed PDF and HTML based Information Centers

- ALS Indexed PDFs are PDFs with linguistic search index built in
- Information Centers are based on an IBM variant of the open source Eclipse help system . All information is in HTML doc.zip files that are easily indexed by Google and similar search engines.
- IBM corporate information development is investing in DITA, information centers and other emerging technologies and z/OS documentation will benefit

Electronic delivery (only):

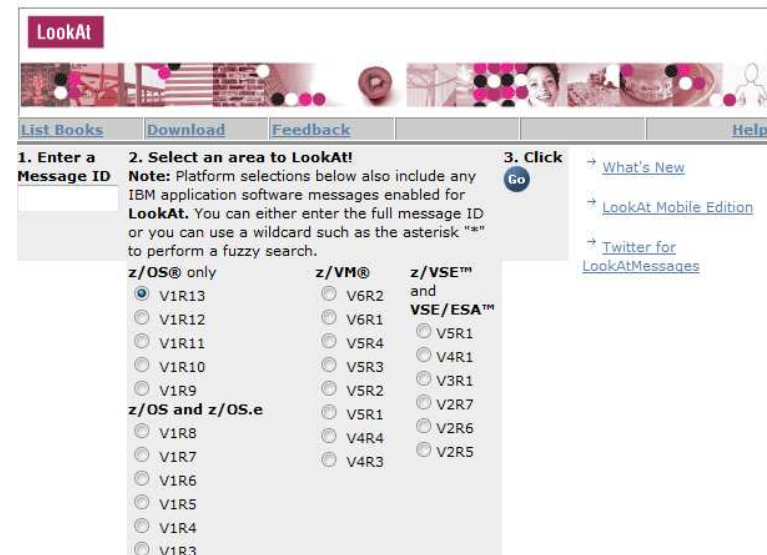
- Because we do not have a physical manufacturing process for DVDs, we have more time and can work on improvements to technical content (6 week weeks from GA instead of our current 6 months).
- Electronic only makes it easier to update our information and improve information currency.

What is an ALS Indexed PDF?

- Advanced Linguistic Search was developed by IBM as a result of SHARE feedback where customers wanted a PDF with it's superior print capabilities that searched like BookManager (Instead of a simple find).
- ALS was developed by the BookManager team and it essentially infers the structure of the document from the table of contents, and uses this information to weight the search results. A word that is in a chapter title and index will be ranked higher when you view the search results. So the index created is essentially a BookManager index that gets tucked inside the PDF so the index travels with the PDF where ever it goes (unlike other PDF indexing which store the index in a file system).
- Over time we have refined the indexing. The ALS indexing function is part of IBM Library Server. PDFs must have a Table of Contents to be indexed and it helps if the source was a well structured tag based document. (DITA)
- All PDFs in the z/OS base library have been indexed using the IBM Advanced Linguistic Search technology.
- To use it, you download and install the ALS plug-in to the appropriate Adobe Acrobat reader
- Using newer XKS shelves you will be able to search across collections of PDFs similar to BookManager shelves. In z/OS V2, IBM Library Server is being enhanced to provide cross PDF search using XKS shelves.

What About LookAt?

- Since LookAt is BookManager based, we are looking at newer technologies to replace it.
- We will continue to host lookat for the releases that are already out there.
- For newer releases, we will have a replacement based on newer technology
- IBM software products have gradually stopped producing BookManager format, so the integrity of it's search was degraded.
- We are experimenting with pre-defined "message search scopes" in information centers.
- We are also investigating using a new corporate deliverable called Knowledge Center

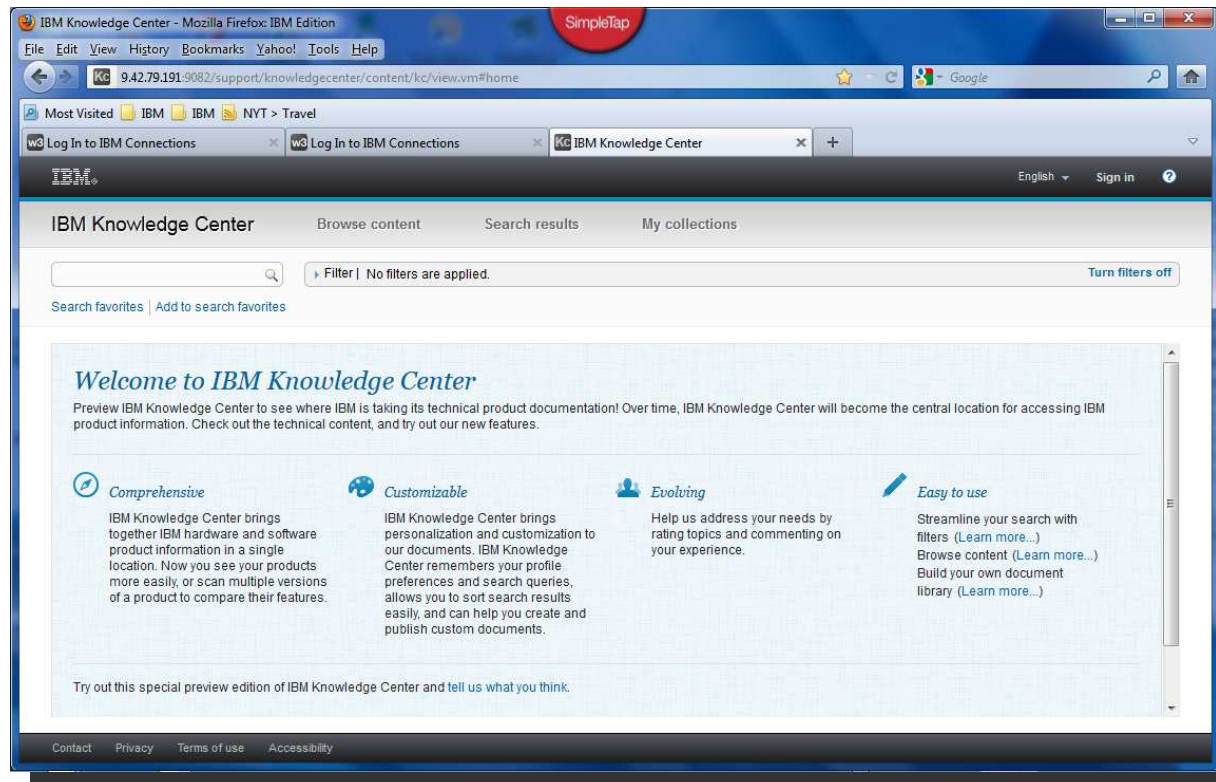


The screenshot shows the LookAt web application interface. At the top, there is a header with the "LookAt" logo and a navigation bar with links: "List Books", "Download", "Feedback", and "Help". Below the header, there is a main content area with three steps:

- 1. Enter a Message ID**: A text input field for entering a message ID.
- 2. Select an area to LookAt!**: A section with a note: "Note: Platform selections below also include any IBM application software messages enabled for LookAt. You can either enter the full message ID or you can use a wildcard such as the asterisk '*' to perform a fuzzy search." Below the note are three columns of radio button options:
 - z/OS® only**: V1R13 (selected), V1R12, V1R11, V1R10, V1R9.
 - z/OS and z/OS.e**: V1R8, V1R7, V1R6, V1R5, V1R4, V1R3.
 - z/VM®**: V6R2, V6R1, V5R4, V5R3, V5R2, V5R1, V4R4, V4R3.
 - z/VSE™ and VSE/ESA™**: V5R1, V4R1, V3R1, V2R7, V2R6, V2R5.
- 3. Click**: A "Go" button.

On the right side of the interface, there are links: "What's New", "LookAt Mobile Edition", and "Twitter for LookAtMessages".

On The Horizon: IBM Knowledge Center



- The IBM Knowledge Center is the next step beyond information centers.
- Instead of documenting each product in individual information centers, Knowledge Center will provide one stop shopping for all IBM product documentation.
- Filter and search by platform, product, release, information type

How to Get the Latest Collection Kits

- Starting with this latest refresh, we are providing electronic delivery in “KITZIP” format. To obtain the latest z/OS V1R13 collection. If you have an internet connected laptop and want the latest information, follow along.
 - 1.Open either Internet Explorer or Firefox so you can use IBM download director (fastest way to download).
 - 2.Google “IBM Publication Center”
 - 3.The first link is usually the right one
 - 4.Select your country
 - 5.In the search field enter: SK3T-4271
 - 6.Leave off the suffix and you’ll get a list of all versions available. Pick the highest dash level to get the latest information.
 - 7.Choose IBM download director if you are using a supported browser, and let it download in the back ground.
 - 8.It will download a ZIP file that contains all the contents we published on the physical DVD.

Related Links

- zFavorites – A collection of links all things “z” (Just google zFavorites to find it)
- <http://www-03.ibm.com/systems/z/os/zos/zfavorites/index.html>
- z/OS V1R13 information center
- <http://publib.boulder.ibm.com/infocenter/zos/v1r13/index.jsp>
- z/OS Basic Skills information center
- <http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp>
- IBM Library Server Support
- http://www.ibm.com/support/entry/portal/Overview/Software/Other_Software/Library_Server_for_z~OS
- IBM LookAt
- <http://www-03.ibm.com/systems/z/os/zos/bkserv/lookat/index.html>
- IBM Advanced Linguistic Search Plug-in for IBM ALS indexed PDFs
- <http://www-01.ibm.com/support/docview.wss?uid=swg27018852>

More Information

- **See IBM z/OS Version 2 SOD Announcement**

- <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&supplier=897&letternum=ENUS212-086>

- **See z/OS SOD FAQ**

- <http://public.dhe.ibm.com/common/ssi/ecm/en/zsq03055usen/ZSQ03055USEN.PDF>

- **See z/OS V1.11 LCE Announcement**

- <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&supplier=897&letternum=ENUS212-023>

- **See z/OS home page**

- <http://www-03.ibm.com/systems/z/os/zos/>



Geo	Letter
US	212-086 -BP
AP	AP12-0019
CAN	A12-0204, B12-
LA	LP12-0118
EMEA	ZP12-0025
JPN	JP12-0012



Agenda

- *IBM z/OS Version 2 Statement of Direction April 11th, 2012*
- *z/OS Support for IBM zEnterprise® EC12 (zEC12)*
- *z/OSMF Update*
- *Summary*

IBM zEC12 System Functions and Features

Five hardware models
Hexa-core 5.5 GHz processor chips
Improved total system capacity in a 120 core design
Up to 101 processors configurable as CPs, zAAPs, zIIPs, IFLs, ICFs, or optional SAPs (up to 64-way on z/OS V1.10, 100-way on z/OS V1.11 and higher)
Second generation out of order design
Increased scalability with 60 available subcapacity settings
Up to 3TB of Redundant Array of Independent Memory (RAIM) – same as z196
Twice the HSA versus z196 (32 GB vs 16 GB)
Larger cache sizes to optimize data serving environments
Flash Express (Storage Class Memory-SCM) ¹
1 MB Pageable Large Pages ¹
Dynamic reconfiguration support for Flash Express ²
2 GB Large Page Support ²
Optional PLPA, COMMON page data sets ²
Crypto Express4S cryptographic coprocessors and accelerators
Crypto Express4S support for digital signatures with new PKCS #11 and American Express EMV (Europay, Mastercard, Visa) cards
New and enhanced instructions



(z/OS support in blue)

IBM zAware for improved problem determination
OSA-Express4S (GbE LX and SX, 10 GbE LR and SR), 1000BASE-T
FICON Express8S
Parallel Sysplex® InfiniBand® (PSIFB) Coupling Links
High Performance FICON for System z
CPU Measurement Facility
CFCC Level 18 enhancements
Java™ exploitation of the Transactional Execution Facility
Exploitation of new hardware instructions – XL C/C++ ARCH(10) and TUNE(10)
Optional Non Raised Floor
Optional water cooling and DC Power
Optional overhead Power and I/O cabling
zEnterprise BladeCenter Extension (zBX) Model 003 support of: IBM WebSphere® DataPower® Integration Appliance XI50 for zEnterprise Select IBM BladeCenter PS701 Express blades or IBM BladeCenter HX5 blades
Unified Resource Manager support for ensembles with zEC12, z196, z114, and zBX Models 2 and 3

¹ Planned target availability for z/OS exploitation is December 14, 2012. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

² Planned target availability for z/OS exploitation is 1Q2013. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

Summary: z/OS Software Support for zEC12

Release	zEC12 PSP Bucket – 2827DEVICE 2827/ZOS																		
	Base Support									Exploitation Support									
	Base zEC12 Support	OSA-Express4S (Gbe LX and SR, 1000BASE-T, 10 Gbe LR and SR)	FICON Express8S (CHPID FC)	IFB Coupling Links	Crypto Express4S Tolerant ²	High Performance FICON (zHPF)	CPU Measurement Facility (HIS)	GRS FICON CTC Tolerant	New z/Architecture Instructions	CF Level 18	Crypto Express4S Exploitation ³	XL C/C++ ARCH(10)/TUNE(10)	IBM zAware	Java Exploitation of Transactional Memory	Flash Express (Storage Class Memory – SCM)	Pageable Large Pages	Dynamic reconfiguration support for Flash Express ⁴	2G Large Page ⁴	Optional PLPA/COMMON page data set support ⁴
z/OS V1.10 ¹	P	P	P	P	W P	P	P	P	P	N	N	N	N	N	N	N	N	N	N
z/OS V1.11 ¹	P	P	P	P	W P	P	P	P	P	N	N	N	N	N	N	N	N	N	N
z/OS V1.12	P	B	B	B	W P	P	P	P	P	P	W	N	N	N	N	N	N	N	N
z/OS V1.13	P	B	B	B	W P	P	P	P	P	P	W	P	P	P	W P	WP	W P	W P	W P
z/OS V2.1	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

¹ – The Lifecycle Extension for z/OS V1.10 or z/OS V1.11 is required for support

² – A Crypto Web Deliverable is AND a PTF is required for toleration. Support differs depending on the Crypto Web Deliverable installed

³ – Crypto Exploitation differs based on the Crypto Web Deliverable installed

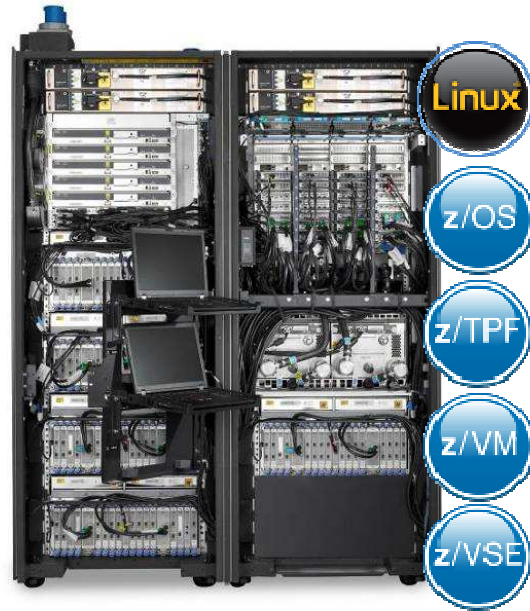
⁴ – Planned target 1Q2013. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

B – FMID shipped in Base product

P – PTF is required

W – FMID shipped in a Web Deliverable

Complex Systems



IBM Mainframes are a complex environment

- Hardware
- Software
- Compilers
- Database systems
- Transaction processing systems
- Middleware
- User applications

WebSphere

Information Management

Tivoli

Lotus

Cognos

Java

Rational

DB2 10 for z/OS

In any system there is the potential for failure

The job of the System Programmer is to deal with failure

Types of failure on System z and z/OS

Not all failure are alike
Broadly categorize failures into 3 types

Masked Failure

- Software/Hardware detects failure
- Software/Hardware corrects failure
- No impact to business
- Example: Hardware power supply failure: switch to alternate, IBM alerted, concurrent replacement

Hard Failure

- Software/Hardware detects failure
- Automations and operations restart the failing component
- Minimal impact to business
- Example: Application terminates but is restarted by ARM

Soft Failure

- User detects failure, impact to business.
- Difficult to determine recovery actions
- Example: component is failing, holds resources (locks, enqueues) required by other components, causes sysplex wide stall, leads to sysplex wide IPL.

What is a soft failure

Systems don't break, but seem to just stop working:
"sick but not dead" or soft failure

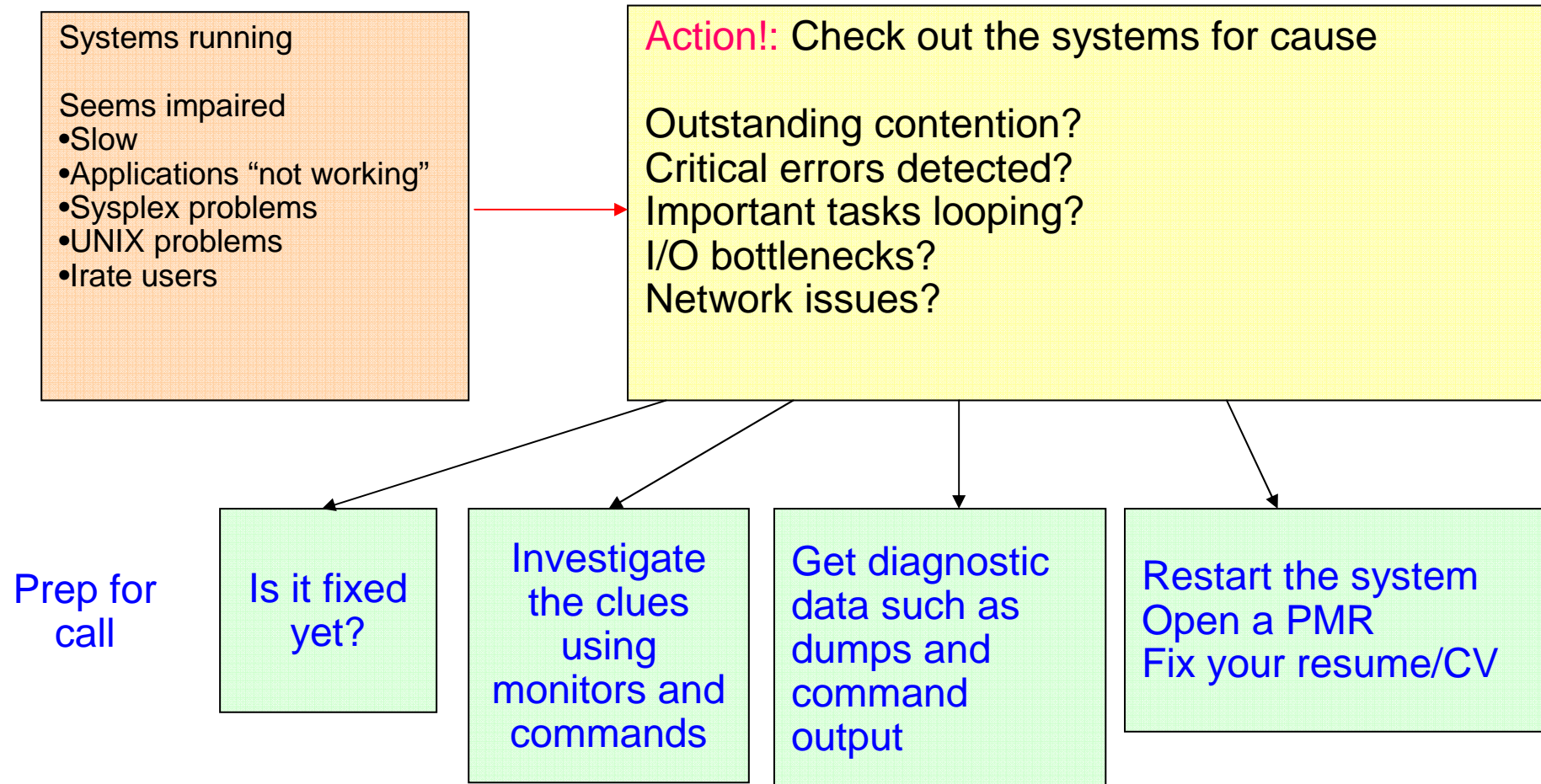
Symptoms of a Soft Failure

- 80% of business impact, but only about 20% of the problems
- Long duration
- Infrequent
- Unique
- Can be software or hardware
- Cause creeping failure and "sympathy sickness"
- Hard to determine how to isolate
- Hard to determine how to recover
- Hard for software to detect internally
- Probabilistic, not deterministic

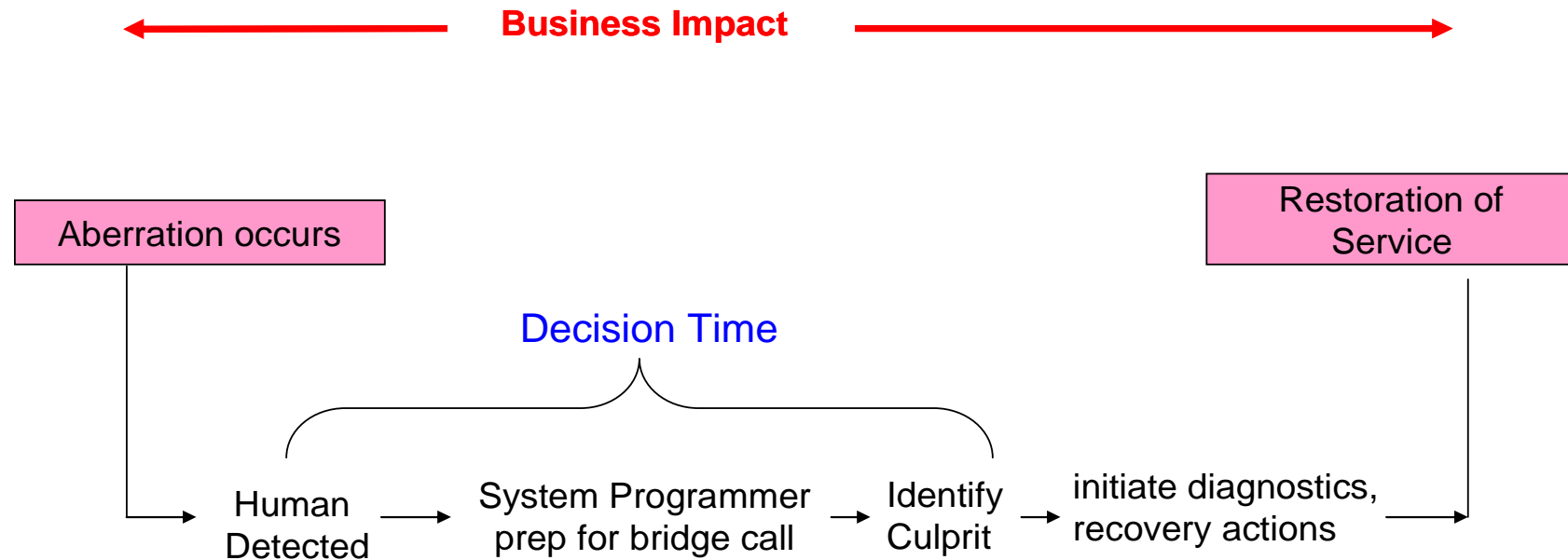
Manifested as

- Stalled / hung processes
 - Single system, Sysplex members
 - Sympathy sickness
- Resource contention
- Storage growth
- CF, CDS growth
- I/O issues (paths, response time)
- Repetitive errors
- Queue growth
- Configuration
 - Single point of failure, thresholds, cache structure size, not enabling new features

Dealing with soft failure problems



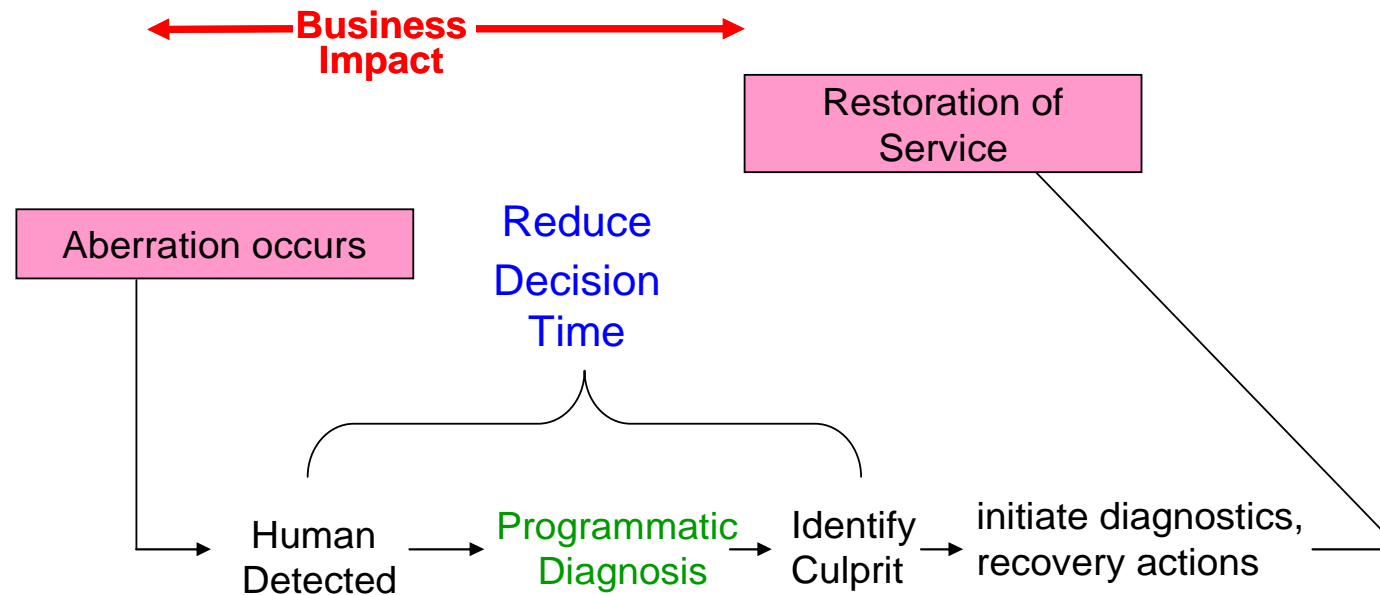
Anatomy of an Outage



Customer Pain Points:

- *Fault occurs long before anyone notices*
- *Difficult to identify where the problem is coming from*
→ *Leads to long decision time before recovery actions*

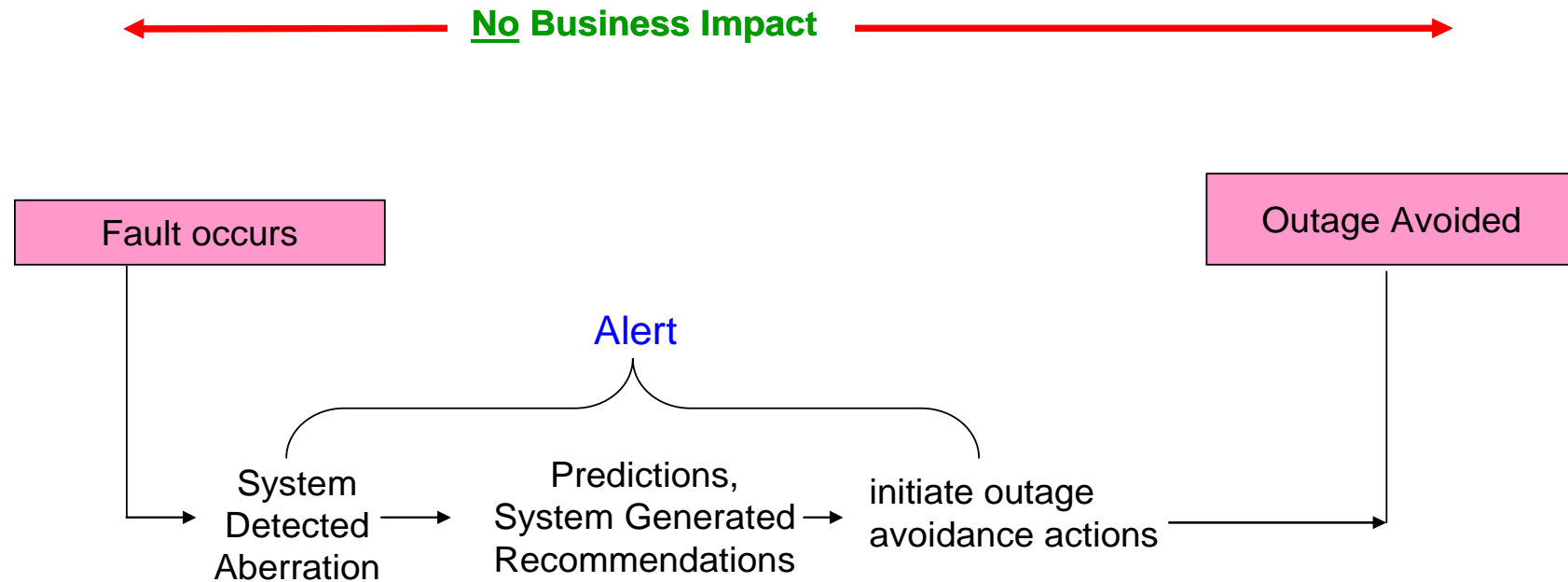
Anatomy of an Outage – One step further



RAS Innovation --- Run Time Diagnostics:

- *Machine-speed understanding*
- *Better tooling to identify the culprit*
- *Enables faster / correct recovery actions*

Anatomy of an Outage – Objective



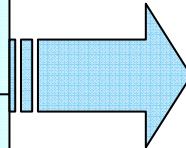
RAS Innovations: Predictive Technologies

- *Machine Learning - Convert diagnostic data to knowledge in real time*
- *Convert soft failures to correctable incidents*

Soft failure issues and solutions

Issues

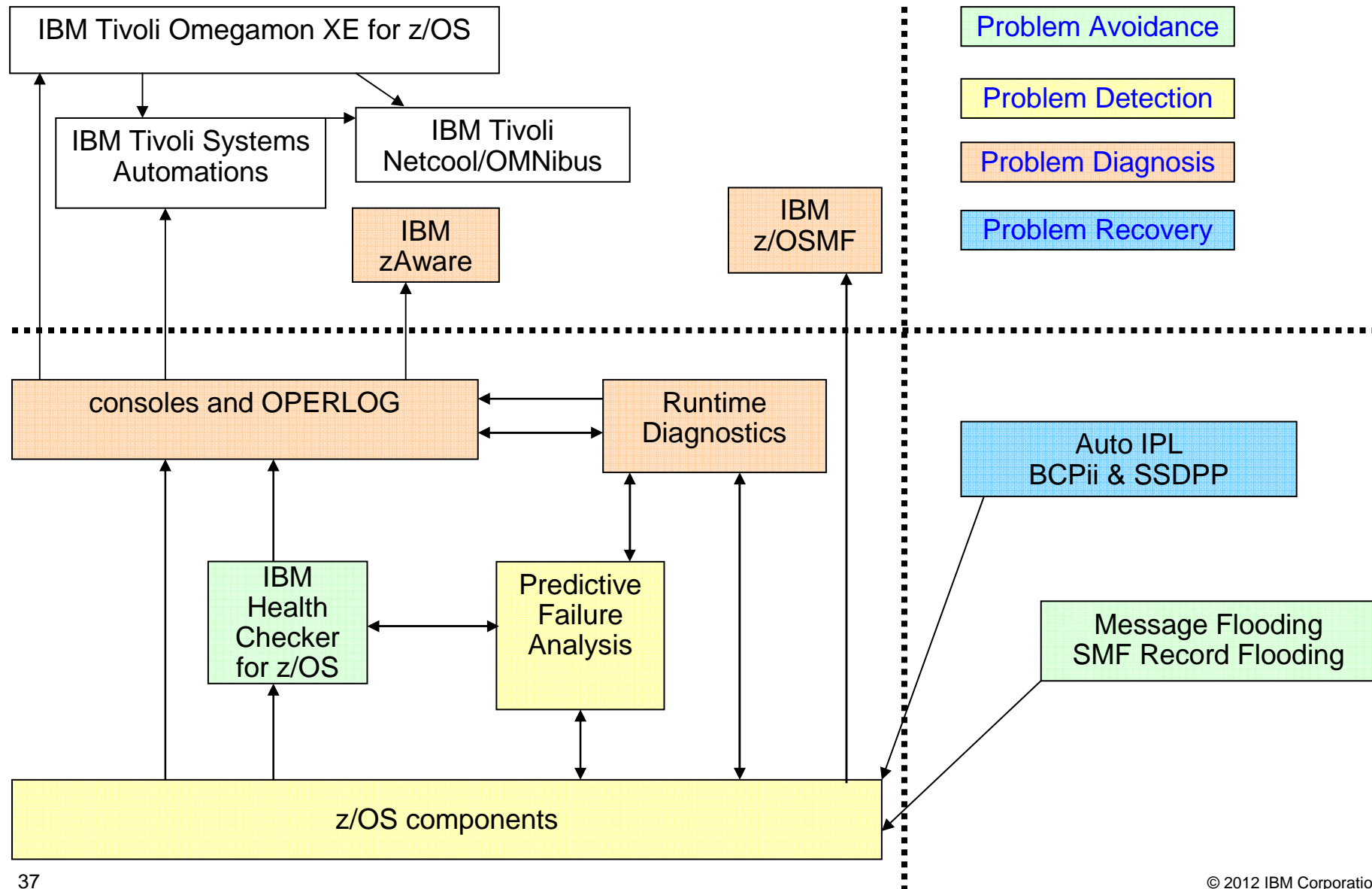
Risk to business <ul style="list-style-type: none">•The impact of the symptoms•Risk of recurrence•Impact in getting system stabilized
Complexity of performing the task
Troubleshooting a live system and recovering from an apparent failure
Data collection is very time consuming
Significant skill level required to diagnose and analyze problem



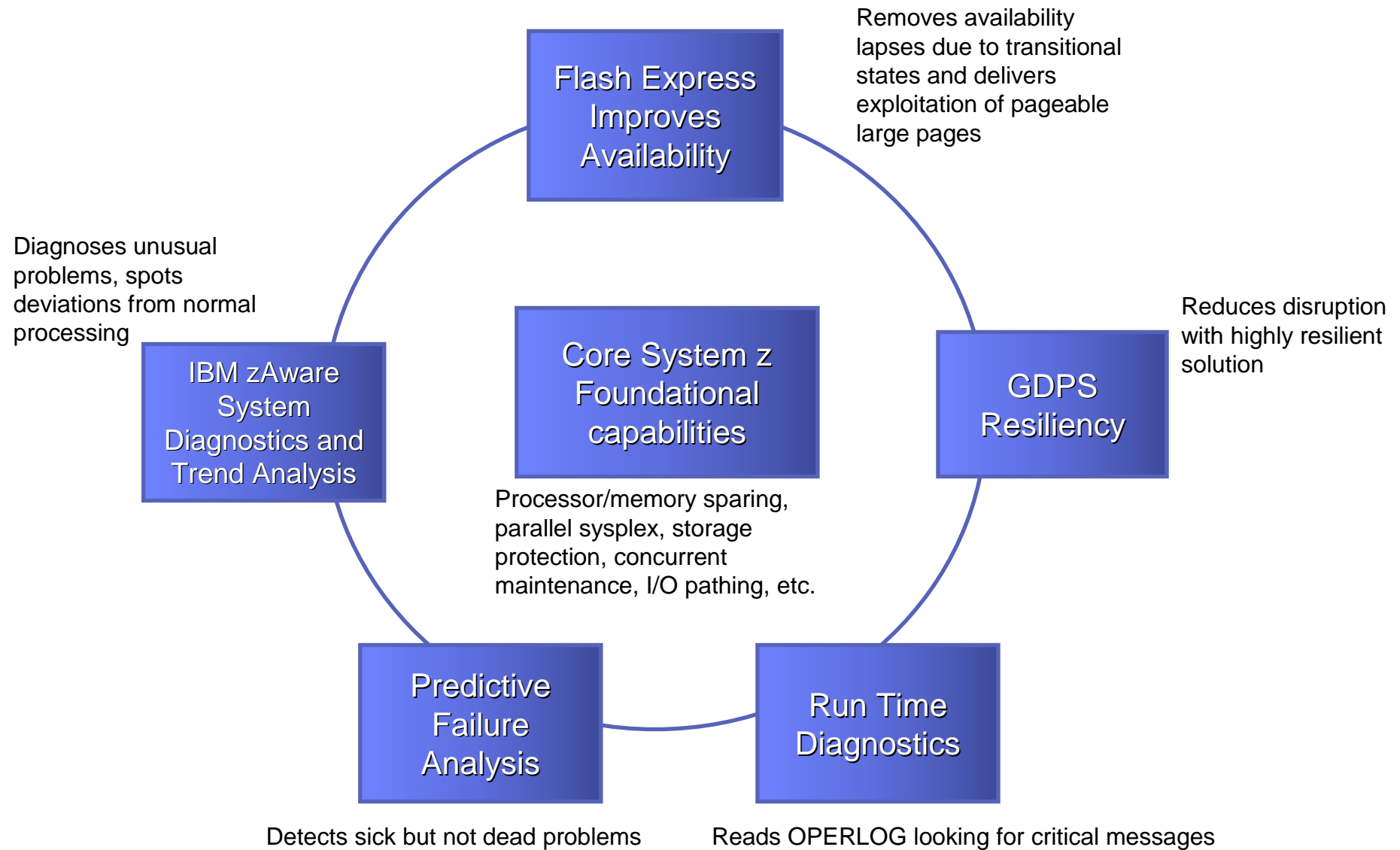
Solutions

Prevention <ul style="list-style-type: none">•provide policy based tools to prevent predictable failures
Detect/Alert <ul style="list-style-type: none">•identify “sick, but not dead” or possible conditions that could lead to larger issues
Diagnosis <ul style="list-style-type: none">•better real time diagnosis and diagnostic tools
Recovery <ul style="list-style-type: none">•improve mean time to recovery
Diagnostic data capture <ul style="list-style-type: none">•make data capture easier and less time consuming

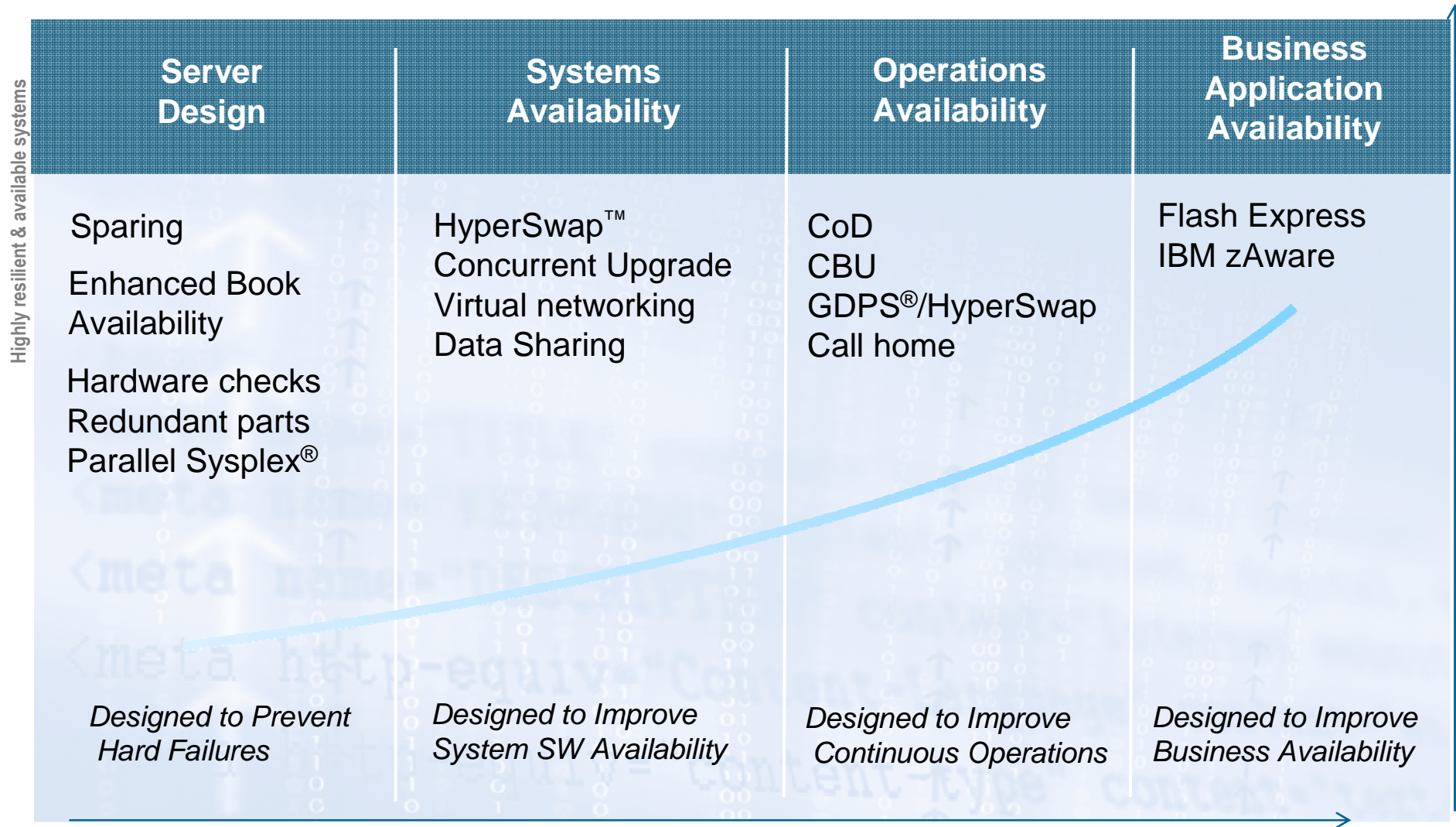
Problem Avoidance, Detection, Diagnosis and Recovery



System z Availability



Extending System z Availability with Flash Express and IBM zAware





IBM System z Advanced Workload Analysis Reporter (IBM zAware) - delivers smarter message monitoring capabilities

- The complexity and rate of change of today's IT infrastructures stress the limits of IT to resolve problems quickly and accurately—while preserving SLAs
- IT is challenged to diagnose system anomalies quickly
 - Systems often experience problems which are difficult or unusual to detect
 - Existing tools do little to quickly identify messages preceding system problems
 - Some incidents begin with symptoms that remain undetected
 - Manual log analysis is skills-intensive, and prone to errors
- IBM zAware with Expert System Diagnostics Gets it Right, Fast
 - IBM zAware helps improve problem determination in near real time to help speed time to recovery
 - Analyzes massive amounts of z/OS OPERLOG data to identify problems providing information to enable faster corrective action
 - Can identify system, middleware and application anomalies
 - Analytics on log data provides a near real time view of current system state
 - Pattern recognition examines system behavior to help pinpoint deviations
 - Uses Machine learning and historical data baseline (90 days recommended)



IBM zAware - Identify Unusual System Behavior

IBM zAware contains sophisticated analytics, applies IBM insight, and machine learning to understand your unique system.

Monitoring	Detection	Frequency	Reporting
<ul style="list-style-type: none"> • Supports IBM & non IBM middleware and applications • Monitors OPERLOG in a sysplex or monoplex • Assigns a message anomaly score to help you identify potential issues 	<ul style="list-style-type: none"> • Detects anomalies other solutions might miss • Can find the rare or infrequent message • Can detect an unusual number of normal messages • Can detect messages issued out of context 	<ul style="list-style-type: none"> • Samples every 2 minutes • 10 minute reporting interval • Uses 90 day rolling baseline; utility provided to populate baseline • Allows dates to be included, excluded 	<ul style="list-style-type: none"> • Near real time analysis • High level and drill down intuitive web based reporting • Color coder, time slice graphics • XML output can drive other ISVs or processes



Specific Applications of IBM zAware

- **Identify a possible z/OS incident**

- *Which image is having unusual behavior?*

- Examines unique message behaviors
- High score generated by unusual messages or message patterns

- *When did the behavior start?*

- For a selected 10 minute interval either the current 10 minute interval or past intervals
 - Which messages are unusual?
 - How often did the message occur?
 - When did the message start to occur?

- *Were similar messages issued previously?*

- Understands message characteristics and message patterns

- **Identify behavior after a change has been made**

- *Are unusual messages being issued after a change?*

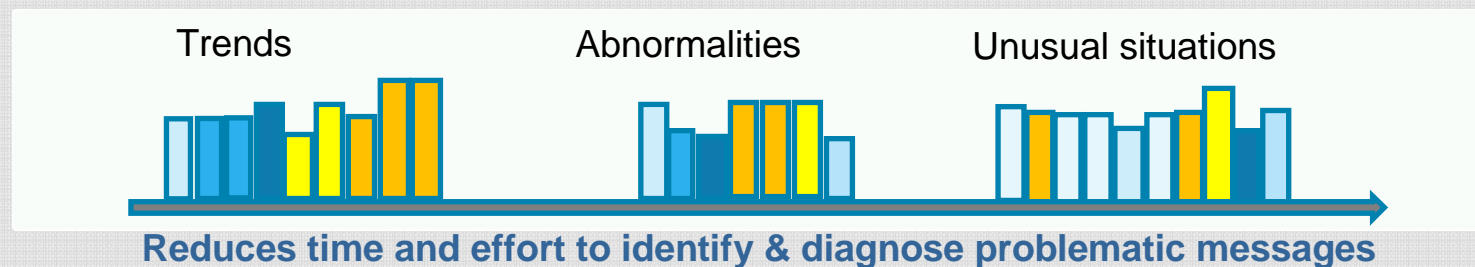
- New software levels (operating system, middleware, applications)
- Updated system settings or system configurations

- **Diagnose intermittent problems**

- *Are new unusual messages being issued when an intermittent problem occurs?*

- Are more messages issued then expected?
- Are messages issued out of a normal pattern?

Finds Anomalies that Would be Difficult to Detect

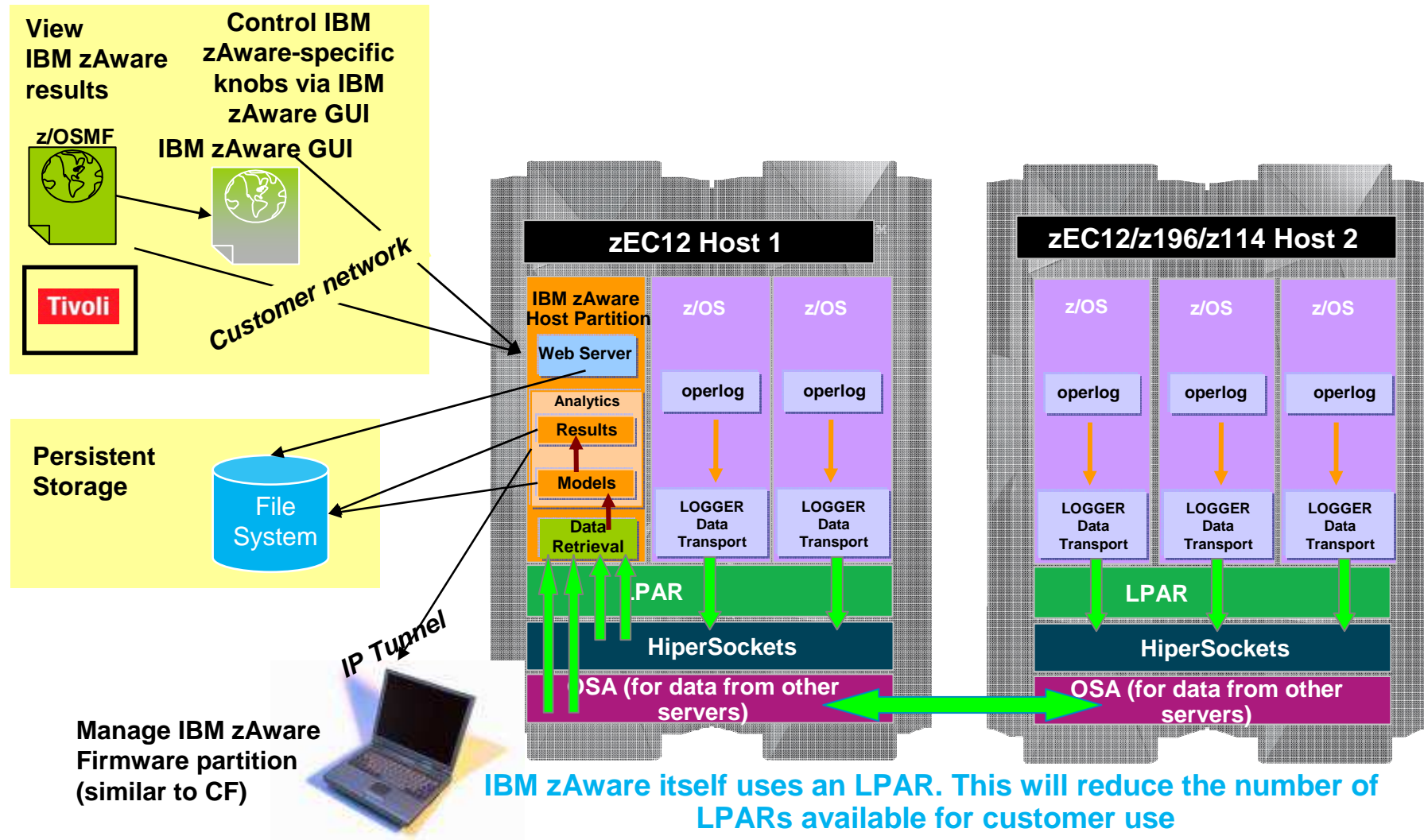


IBM zAware Configuration for Maximum Flexibility

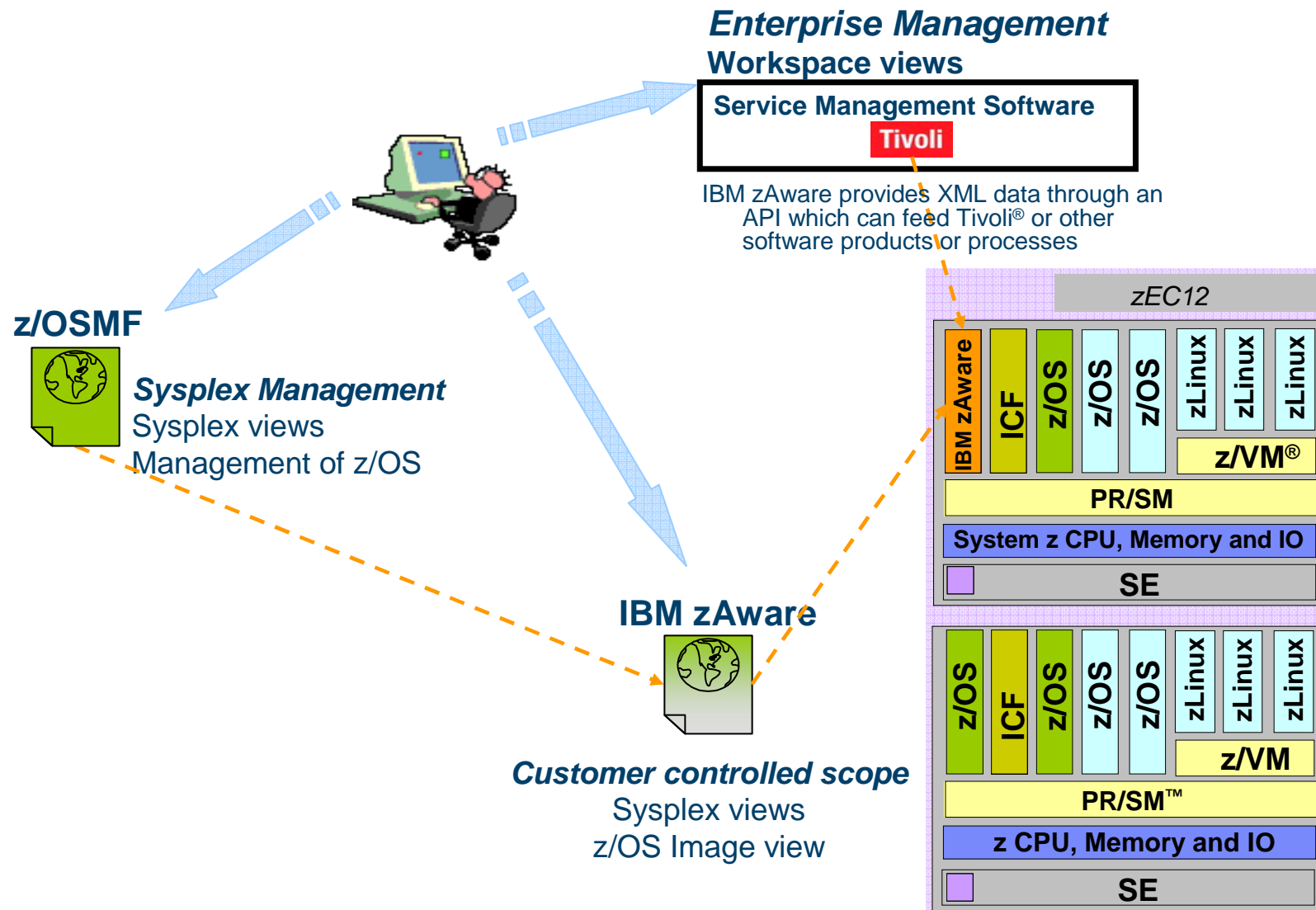


Monitors zEC12 or any other System z servers running z/OS v1.13 +PTF
Support z/OS on VM
Requires OPERLOG

Overview



IBM zAware Complements Your Existing Environment

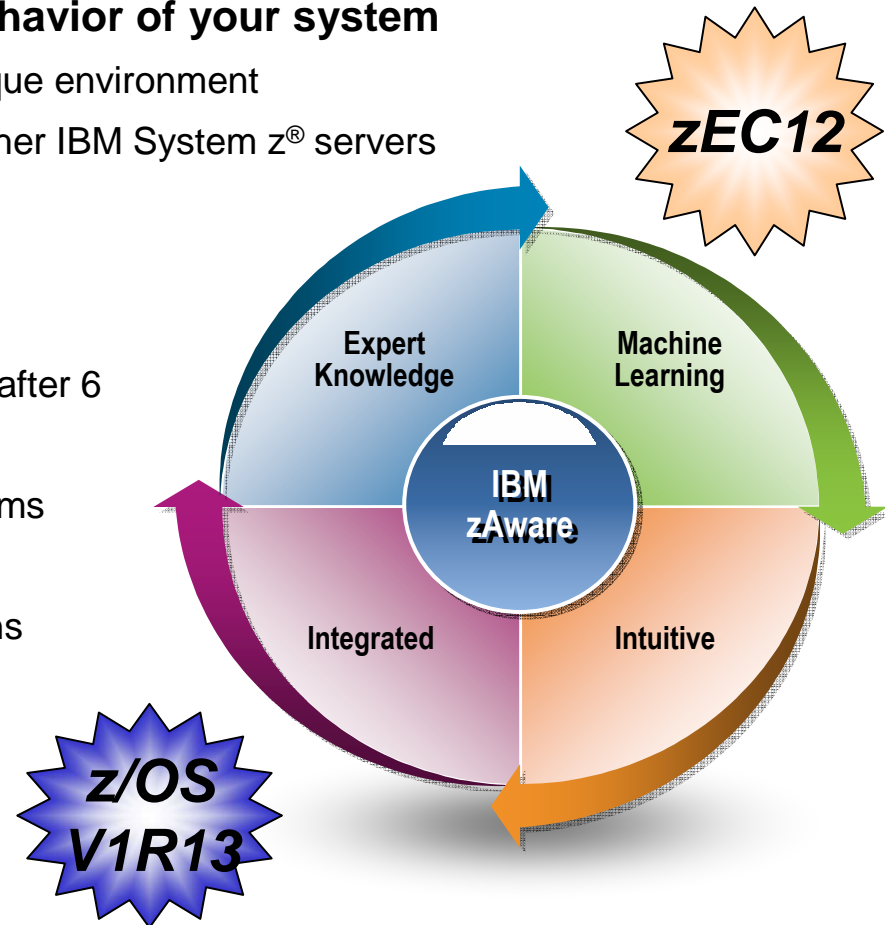


IBM zAware: An Expert integrated Analytics Solution

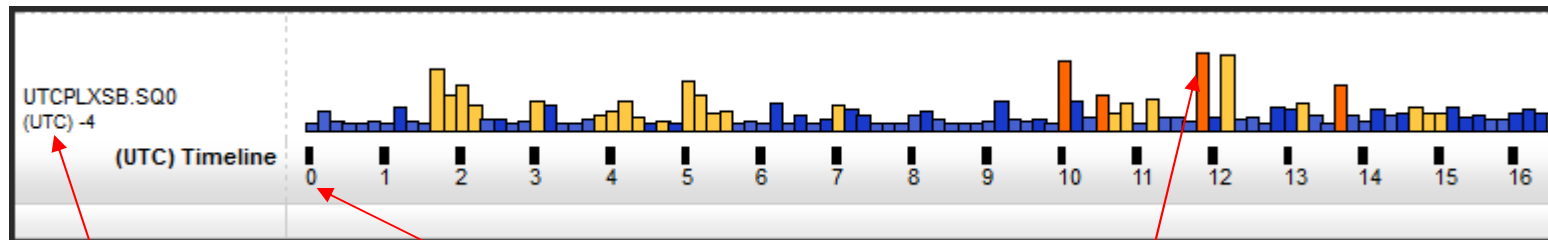
IBM System z Advanced Workload Analysis Reporter

- **IBM zAware is a self learning, integrated expert solution that analyzes messages in near real time to provide insight into the behavior of your system**

- Analytic solution that adapts and learns your unique environment
- Host on zEnterprise EC12 server; can monitor other IBM System z® servers
 - Runs on IFL or general purpose CP
 - 6 GB memory base
 - For up to 6 monitored z/OS systems
 - Additional .25 GB per connected system after 6
 - 500 GB storage (estimated)
 - Under 1% CPU overhead on monitored systems
 - Self managed data store
- Shareable OSA ports required for communications
- Dedicated IP address for partition
- Requires z/OS V1.13 + PTFs
- IE or Firefox browser



IBM zAware Analysis system timeline

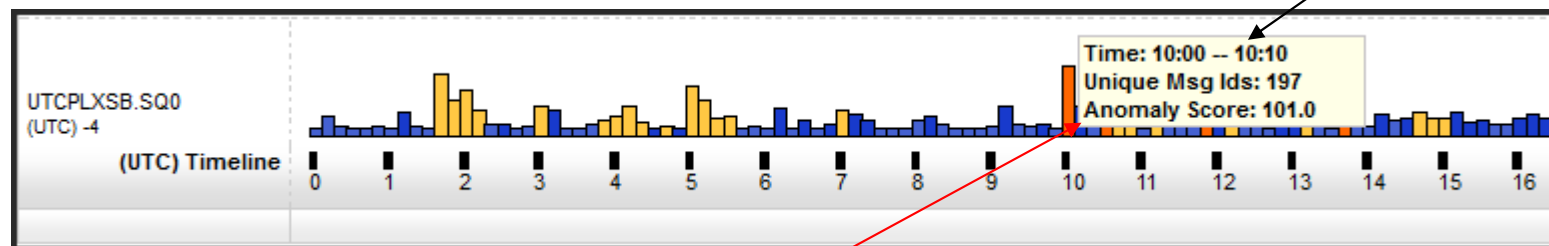


Sysplex & LPAR

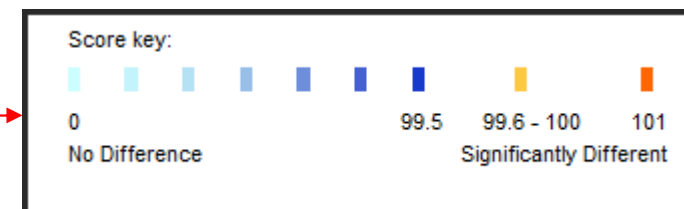
24 hour timeline

Visual Indicator are bars

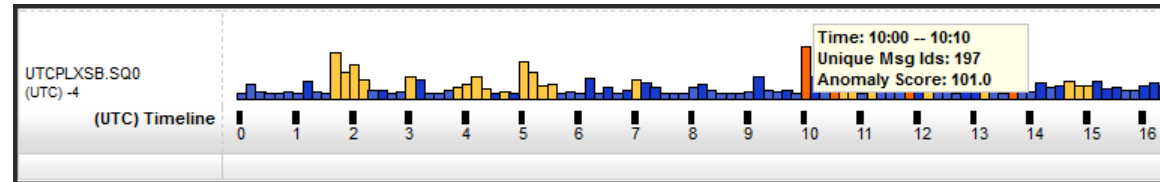
Each bar represents a 10 minute interval
Height represents number of unique messages seen during the interval



Color represents anomaly score
based on previous history - keyed



IBM zAware Interval View



Drill down to
Interval View
by clicking on bar

Interval View for System SQ0

The Messages table provides detailed analysis information for each message that occurred during the indicated time interval. To view message details for other intervals use the date and time interval selectors. Click the **Return to Analysis** button to go back to the Analysis view.

Date:

Analysis Source: All Monitored Systems

Time interval (UTC):

Interval anomaly score: 101.0

Messages

▼1 Anomaly Score	Interval Contribution Score	▼2 Message Context	Rules Status	Appearance Count	Time Line	Message ID	Message Example	Rarity Score	Component	Cluster ID
1	26.017	new	None	34		AOF313I	06:00:32 : START FOR SUBSYSTEM CICSAA01 (JOB CICSAAQ1) WAS NOT	101	AOF	-1
1	13.076	new	None	1		DFHIR379I	CI3WUIQ Unable to start interregion communication because ISC=NO has been	101	DFHIR	-1
1	13.076	new	None	1		DFHPA1910	CI3WUIQ SIT OVERRIDE AUTORESTTIME= IS NOT RECOGNIZED. OVERRIDE IS	101	DFHPA	-1
1	13.076	new	None	1		DFHPA1916	CI3WUIQ SIT OVERRIDE DATA 47185920 IS OUT OF RANGE FOR KEYWORD EDSALIM= .	101	DFHPA	-1
1	13.076	new	None	1		EYUVS0001I	CI3WUIQ CICS PLEX SM WEB USER INTERFACE INITIALIZATION STARTED.	101	EYUVS	-1

IBM zAware Interval View Message line

Messages									
Actions ▾									
▼1 Anomaly Score	Interval ▼2 Contribution Score	Message Context	Rules Status	Appearance Count	Time Line	Message ID	Message Example	Rarity Score	Component
1	26.017	new	None	34		AOF313I	06:00:32 : START FOR SUBSYSTEM CICSAA01 (JOB CICSAAQ1) WAS NOT	101	AOF
1	13.076	new	None	1		DFHIR379I	CI3WUIQ Unable to start interregion communication because ISC=NO has been	101	DFHIR

Analytics Information

Number of time msg
Appeared in interval

Visual indicator of when
Message appeared in interval

Msg ID &
Link to msg manual

Msg sample

Rarity score

Representative Use Cases - IBM zAware



One member in the sysplex has communications related problems causing symptoms (delays) showing up on another Sysplex member. Problem was due to an error in the coupling facility exit

Online banking applications were timing out. Team could have stopped subsystems to isolate problem. IBM zAware identified LDAP as running short on memory, and this unusual memory situation impacted other systems

Network slowdown problem evidenced itself as a probable TCP/IP definition error. Cause was really security related, due to an incorrectly coded RACF® access rule.

Typical problems identified are complex, cross sysplex and sometimes are due to an unexpected cause. For instance many slip trap messages might signal a problem but one or two might be expected in certain conditions.

IBM zAware for the CIO



- CIOs are competing increasingly based on services in the global marketplace. Facing new pressures to sustain high levels of availability and respond rapidly to IT service outages, you need to be able to resolve system problems without painful delays.
- In a 24 X 7 environment, a system incident can drive up operations costs and disrupt service for hours – even days. Resolution of complex system problems can incur high costs and impact reputation
- With 70–80%+ of IT expenditures spent on operations costs, and ever increasing IT complexity, CIOs are facing fiscal pressures to reduce spend, yet meet demanding service levels. IBM zAware is designed to support this growing sophistication of IT while reducing operations complexity.
- **IBM zAware** can help you quickly restore service levels by applying integrated expert analytics in near real time to quickly and accurately isolate system anomalies. Using IBM zAware you can take action to prevent problem recurrence and optimize service delivery.

***IBM zAware** is an integrated, self learning, analytics solution that helps identify unusual system behavior to help improve service levels. **IBM zAware** uses machine learning to help your organization gain visibility into system behavior helping you optimize service.*

*IDC 2009

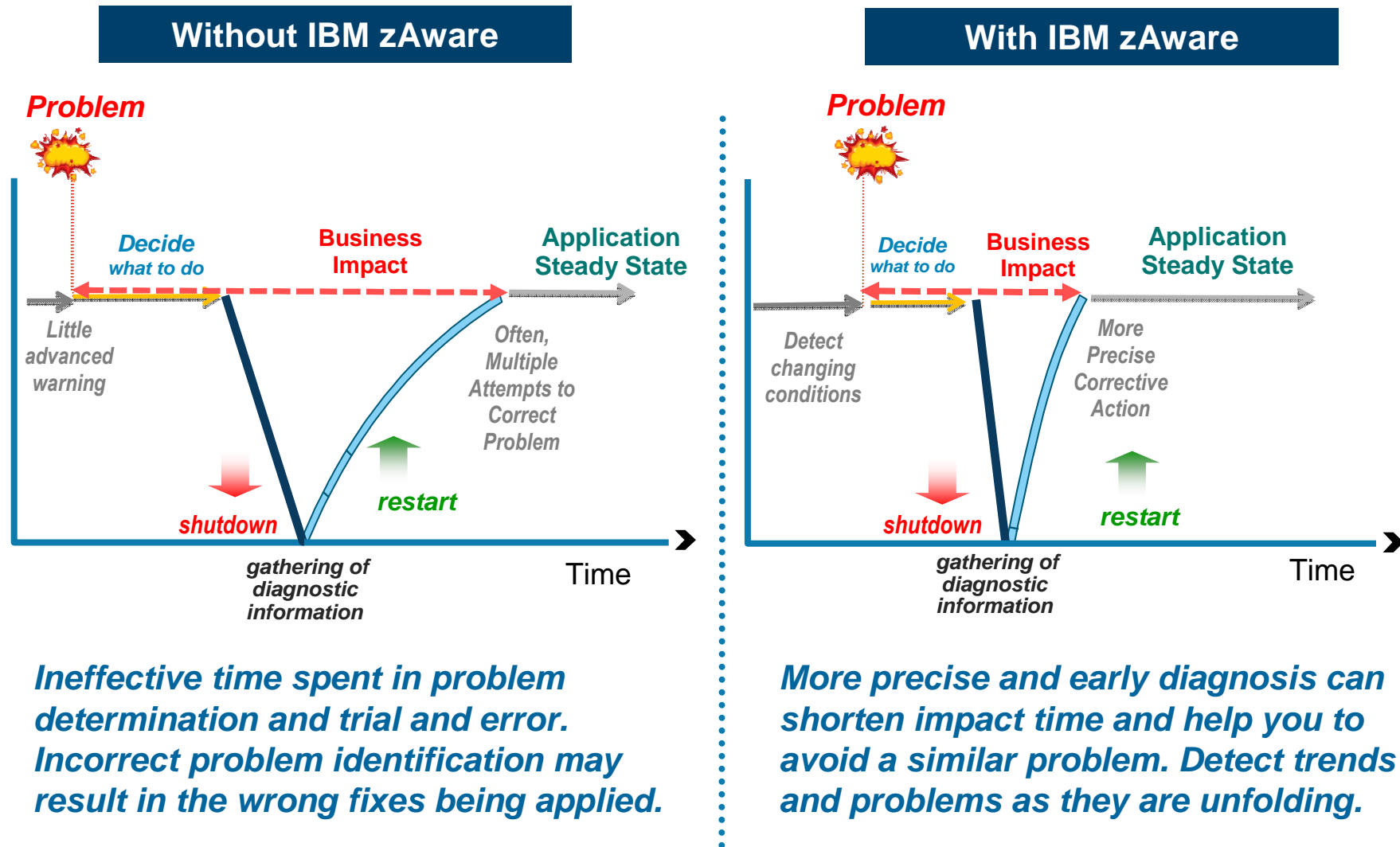
IBM zAware for IT VPs and staff



- You need to improve IT availability to compete as a service provider. You need to be able to rapidly identify any system problems and reduce the time to diagnose problems. You need to address problems quickly and accurately, to keep availability at its highest levels.
- You function as a service provider whether your customers are internal or external. You cannot afford service disruptions that take too long to diagnose and repair.
- Yet unsolved system outages and performance degradation can limit your ability to meet critical IT service level agreements and remain competitive.
- You need to monitor system health with vigilance to understand typical system behavior and identify possible deviations.
- You must identify problems and quickly restore service even when symptoms are sporadic or demand high skills.
- **IBM zAware** is an **integrated expert solution** that uses analytics to help you identify potential problems helping you to improve overall service levels

*For companies that require superior service levels and fast problem resolution, **IBM zAware** uses expert analytics to learn your system characteristics to help you identify problematic system behavior. **IBM zAware** can help you detect problematic trends and resolve issues quickly so you can restore service levels without delay.*

IBM zAware Can Reduce Time to Repair to Improve Availability



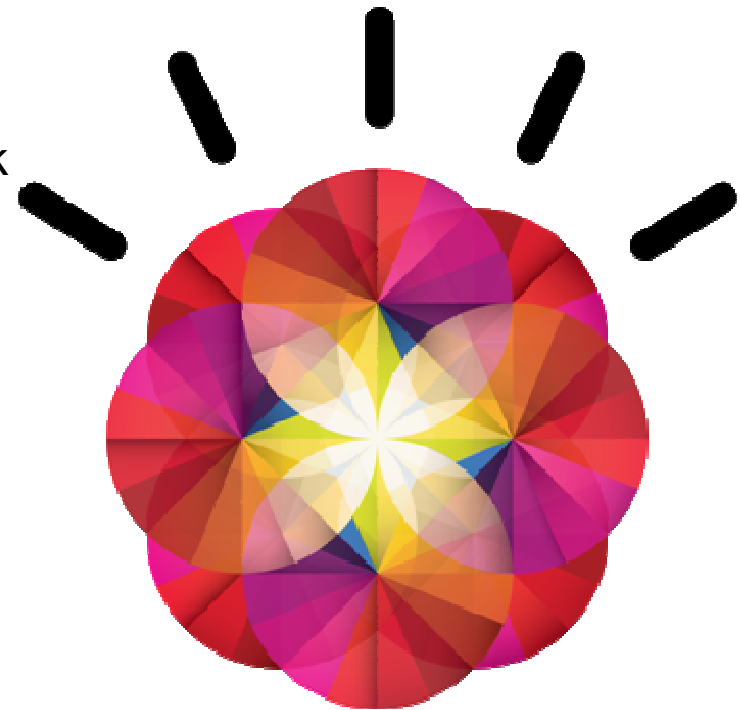
IBM z/OS Solutions Address Problem Determination

Solutions Available:		Rules based	Analytics / Statistical model	Examines message traffic	Self Learning	Method
z/OS Health Checker	<ul style="list-style-type: none"> •Checks configurations •Programmatic, applies to IBM and ISV tools •Can escalate notifications 	✓				Rules based to screen for conditions
z/OS PFA	<ul style="list-style-type: none"> •Trending analysis of z/OS system resources, and performance •Can invoke z/OS RTD 		✓		✓	Early detection
z/OS RTD	<ul style="list-style-type: none"> •Real time diagnostics of specific z/OS system issues 	✓		✓		After an incident
IBM zAware	<ul style="list-style-type: none"> •Pattern based message analysis •Self learning •Provides aid in diagnosing complex z/OS problems, including cross sysplex, problems that may or may not bring the system down 		✓	✓	✓	Diagnosis Useful before or after an incident

- IBM zAware Uniquely analyzes messages in context to determine unusual behaviors
- IBM zAware Uniquely understands and tunes its baseline to compare against your current activity
- IBM zAware does not depend on other solutions, manual coding of rules, and is always enabled to watch your system

IBM zAware – Smarter Computing Needs Smart Monitoring

- New technology based on patented machine learning developed by IBM Research
- Cutting edge pattern recognition techniques look at the health of a system to pinpoint deviations from the 'norm'
- High speed analytics applied to IT facilitates the ability to consume and reduce large quantities of messages
- Pinpoints potentially problematic messages to speed up the problem determination process and improve time to restore service.
- Can help identify unusual or problematic messages early before they cascade into larger problems
- Helps IT personnel take corrective actions swiftly



IBM zAware can watch your system to detect unusual behavior of z/OS images in near real time

IBM zAware planning and configuration

References

- IBM Product Documentation

IBM System z Advanced Workload Analysis Reporter (IBM zAware) Guide,
SC27-2623

- IBM ITSO Redbook

Extending z/OS System Management Functions with IBM zAware,
SG24-8070

New! z/OS R13 Support and Enhancements for zEC12



- **z/OS exploitation of zEC12** includes improved channel load balancing, a new I/O processing delay measurement, Coupling Facility write-around support, and 100-way SMP support in a single LPAR
- **Flash Express exploitation** and Pageable Large Pages (PLP)
 - Planned for z/OS V1.13 on December 14, 2012, with the z/OS V1R13 RSM Enablement Offering web deliverable.
 - Intended to improve system availability and responsiveness across transitional workload events such as market openings, and diagnostic data collection.
 - z/OS middleware is expected to see processor performance improvements with Pageable Large Pages
- **2 GB page support** is planned for 1Q2013 in z/OS V1.13 with PTFs and the z/OS V1R13 RSM Enablement Offering web deliverable. to help improve performance with middleware use of 2 GB pages.
- **Hardware transactional memory support** is planned for z/OS V1.13 with PTFs on zEC12 servers for expected improved throughput
- **XL C/C++ compiler support for new instructions** planned for z/OS V1.13 with a PTF. New ARCH(10) and TUNE(10) compiler options that can help optimize code
- **New cryptography functions** with the Cryptographic Support for z/OS V1R12-V1R13 web deliverable for zEC12 servers
- **FICON® CTC support for GRS Rings** is planned for z/OS V1.12 with a PTF, and z/OS V1.10 and z/OS V1.11 with the Lifecycle Extension for z/OS V1.10 (5656-A01) or Lifecycle Extension for z/OS V1.11 (5657-A01) with a PTF.
- **Support for running zAAP workloads on zIIP processors on servers that have a zAAP** is planned with the PTF for APAR OA38829, for z/OS V1.12 and z/OS V1.13 for test purposes

IBM Flash Express – Smarter Availability for Smarter Systems



- **Flash Express is an innovative solution designed to help you compete effectively in today's market**
 - Automatically improve availability for key workloads at critical processing times
 - Drive availability and performance for workloads that cannot tolerate paging spikes or inconsistent performance
 - Slash latency for critical application processing such as diagnostics collection
 - **Extends IBM's expertise in memory management introducing a new tier of memory - Flash Express**
 - **Provides a secured, resilient and immediately usable solution**
 - **Planned Flash Express and pageable large page exploiters:**
 - z/OS V1.13 **Language Environment®**
 - **Java SDK7** and by extension
 - **WAS Liberty Profile v8.5**
 - **DB2**
 - **IMS 12**
 - **And a future release of CICS® Transaction Server**
 - **IMS 12 Common Queue Server**
- Requires**
- **z/OS V1R13 RSM Enablement Offering web deliverable, planned for December 2012**
 - **zEC12 with Flash Express**



Flash Express Support

- **Planned for z/OS V1.13 with...**
 - A zEC12 server with Flash Express
 - z/OS V1R13 RSM Enablement Offering web deliverable, planned for December 2012*
 - Dynamic Reconfiguration and optional PLPA/Common page data sets in enabling PTFs planned for 1Q2013*
 - ...all planned to be part of z/OS V2.1 in 2H2013*
- **z/OS designed to use Flash for:**
 - Pageable large pages
 - Paging, when performance would be improved vs. disk-based paging
 - SVC and Standalone Dump
 - Speculative page-ins to help buffer workload spikes (e.g., market open)

Performance and Availability Enhancements: Pageable Large Page Support



- **Fixed Large pages were introduced in z/OS R10**
 - Required a IBM System z10® or later server for 1 MB pages
 - All large 1 MB pages until the zEC12 were **fixed** large pages
 - z/OS V1R13 RSM Enablement Offering web deliverable planned for December 2012 to support **pageable** large pages on zEC12
 - Note: Minimum real memory for pageable large pages is 4 GB
 - Flash will support 1 MB PLP but also supports paging of 4K pages
- **Future planned exploiters for pageable large pages include:**
 - z/OS Java Technology Edition, Version 7 (5655-W43 and 5655-W44, SOD), IBM 31-bit and 64-bit SDK7 in a future maintenance release
 - WebSphere, which uses Java
 - DB2
 - IMS Common Queue Server (YE2013)
 - Other middleware exploitation expected

IBM Flash Express – Smarter Availability for Smarter Systems

Outstanding Availability and Performance - Innovative Flash Express

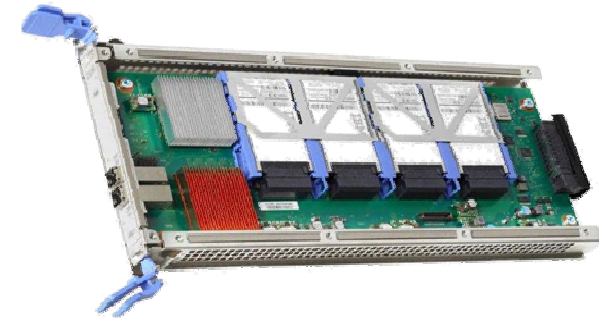
- Companies competing for the highest quality of service in today's market must deliver **outstanding** availability and performance
- Changes in workload processing can impact service levels at critical processing times
- **Flash Express is an innovative solution designed to help you improve availability and performance to compete effectively in today's market**
 - Automatically improves availability for key workloads at critical processing times
 - Drives availability and performance for workloads that cannot tolerate paging spikes or inconsistent performance
 - Slashes latency for critical application processing such as start of day processing and also collection of diagnostics (SVC dumps, standalone dumps)
 - Delivered as a new adapter card in the PCIe I/O drawer
- **Benefits**
 - Improves availability and performance helping companies achieve highest service levels
 - Delivers a secured, resilient and immediately usable solution
 - Automatic, requires minimal setup, no special training needed



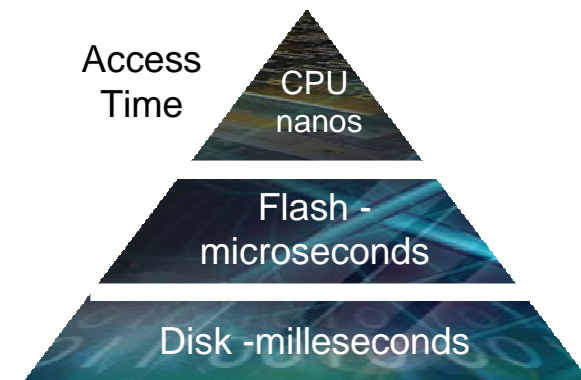
Flash Express – What is it?

FLASH Express

- Physically comprised of internal storage on Flash SSDs
- Used to deliver a new tier of memory, storage class memory
- Uses standard PCIe I/O drawer
- Supported on z/OS® V1.13 plus web deliverable
- Flash Express cards delivered as a RAID 10 mirrored card pair
 - Each card pair provides **1.6 TB** usable storage (3.2 TB total)
 - Maximum 4 card pairs (4 X 1.6=6.4 TB)
- **Immediately usable**
 - No capacity planning needed
 - No intelligent data placement needed
 - Full virtualization of card across partitions
- **Robust design**
 - Designed for long life
 - Designed for concurrent replacement or upgrade
- **Security Characteristics**
 - Data encrypted on the flash express adapter with 128 bit AES encryption
 - Keys stored on smart cards plugged into the System z SE
 - Removal of smart cards renders data unusable



One Flash Express Card



Flash memory blurs the distinction between memory and storage characteristics

Flash Express Strengthens Availability



- **Innovation to drive availability to exceptional levels**
 - Extends IBM's expertise in memory management introducing a new tier of memory using Flash Express
 - Is an *industry unique* application of Flash to improve availability
 - Takes the next step in advanced memory management
- **Flash Express can improve availability and reduce latency**
 - Improves availability during transition periods and spikes
 - Helps accelerate start of day processing - batch to online
 - Enables faster snapshots of diagnostics (e.g. standalone dump)
 - With pageable large pages can improve performance of DB2® and Java™
 - Ideal for applications with random read access or high read/write ratios
- **Helps customers deliver vigorous service levels**
 - Designed to help provide *exceptional* availability
 - Delivered with pageable large pages for *superior* performance
- **Minimal configuration- no special skills needed**
 - Usable immediately
 - Easy to set up and dynamically configurable

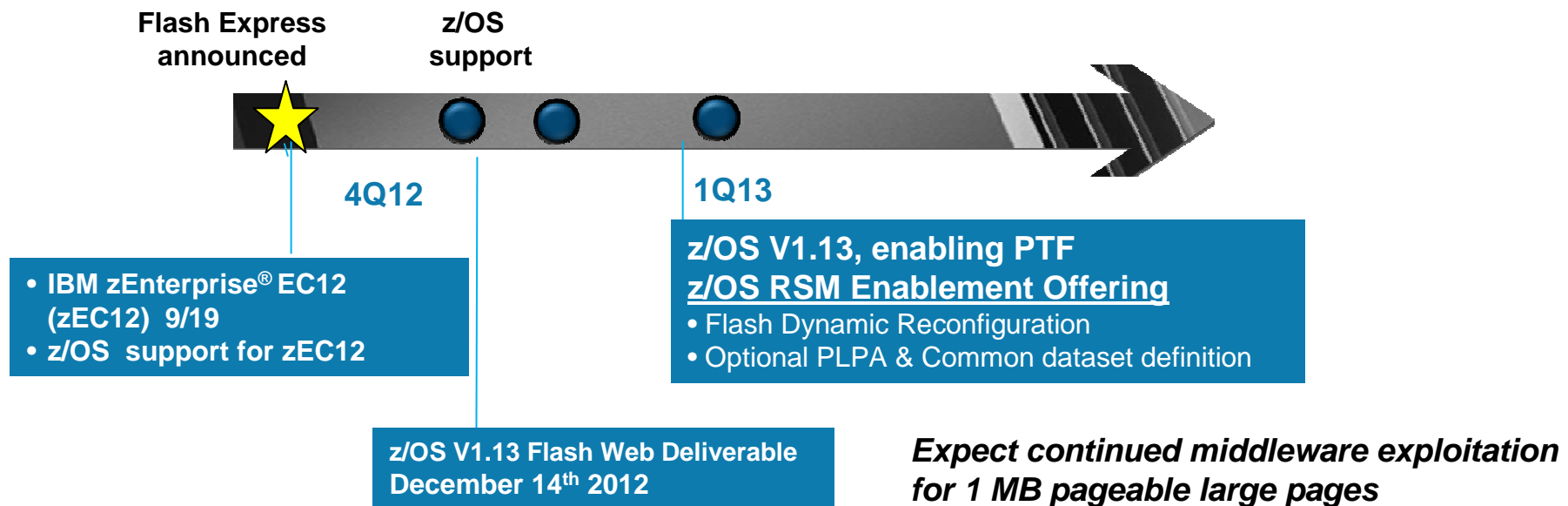
Performance Benefits from Application of Flash Express

- **Achieve outstanding availability**
 - Flash memory is designed to improve availability and paging performance
 - Enough capacity so that all paging data can easily reside on a pair of Flash Express cards
 - CPU performance benefits expected from the use of pageable large 1 MB pages
- **Expected Benefits**
 - **DB2 and Java:**
 - Estimated incremental several percent system CPU benefit
- **Longer roadmap**
 - Continued optimization of 1MB pageable large pages vs. 4K pages
 - Additional exploitation expected by middleware
 - Available for ISV exploitation
 - Designed for continued expanded use of new memory tier



Flash Express Exploitation

Flash support in z/OS sets the stage for further use



- **Planned Flash Express and pageable large page exploiters:**
 - DB2 for z/OS
 - Java SDK7
 - WAS Liberty Profile v8.5
 - IMS™ 12
 - z/OS V1.13 Language Environment®
 - Other (CICS®)

Smart Flash vs Disk Placement Criteria

Intelligent placement of pages to Flash Express and/or Disk

Data Type	Data Page Placement
PLPA	PLPA pages will be placed both on flash and disk.
VIO	VIO data will always be placed on disk
Pageable Large Pages	<p>If contiguous space is available, pageable large pages will be written to Flash Express.</p> <p>If Flash Express is not available in the system configuration, then pageable large pages are backed with 4k page frames.</p>
Other decision points are automated	If available space exists on both Flash Express and disk then the paging decision selection is made based on response time.

Representative Use Cases - Flash Express



Flash Express can *reduce latency delays* from paging to bring system availability to new heights and *improve overall service levels*

Application related errors will require *collection of diagnostics*. These diagnostics *can be collected faster with Flash Express*, reducing paging related delays that can impact your overall availability.

Having your working data resident in Flash can help *accelerate start of day processing*, and improve service for many industries at the busiest time of their work day - a time when they cannot afford disruptions.

DB2 and Java *in memory buffer pools* work to store and process application data. *DB2 and Java can benefit from 1MB pageable large pages with Flash Express*, improving overall CPU performance.

Flash Express for the CIO



- CIOs are continually challenged to grow profitably in the face of increased competition in the global marketplace. Facing a new economy and constrained resources they must innovate to find new sources of value for their firms.
- Many CIOs believe innovation in service will drive that sustainable competitive advantage. By consistently delivering service levels that exceed the expectations of customers, CIOs can leverage new and enhanced services as the differentiator for their businesses.
- To meet service goals, CIOs must find a solution that quickly, non-disruptively and cost effectively bolsters availability and performance.

Flash Express can automatically improve availability and performance enabling CIOs to meet and exceed their commitments to deliver superior quality of service. Flash Express is a compelling solution for improving availability that is secure, resilient, delivers rapid time to value, and is usable right out of the box.

Flash Express for IT VPs



- You need to run IT as a service provider. You need availability and performance at maximum levels regardless of application errors, shifts in processing, batch to first shift.
- You need the highest availability and performance capabilities so you can meet the critical IT service level agreements your customers demand.
- You need to be highly available at first shift without any transitional delays typical from overnight processing.
- You need to be able to balance work often even at the most critical times of the day while delivering superior performance.
- **Flash Express** is a low risk, low cost solution and easily deployed solution to improving application availability, performance and service levels.
- Resilient and secured, **Flash Express** is fully operational without requiring special skills for either planning or operations.

*For companies that require superior availability and performance, **Flash Express** is uniquely designed to automatically strengthen availability and performance even during periods that stress your system – such as system diagnostics, start of day processing or other transitional periods.*

Cost of Downtime

Table I: Cost Savings

Yearly Cost Metrics	Best-in-Class	Industry Average	Laggards
Business interruption events	.3	2.3	4.4
Time per business interruption event (hours)	.1	1	9
Total disruption (hours)	.03	2.3	39.6
Average cost per hour of disruption	\$101,600	\$181,770	\$99,150
Total cost of business interruption events	\$3,048	\$418,071	\$3,926,340

Reduce availability lapses by 45 minutes and pay for Flash Express

Source: Aberdeen Group, February 2012

Datacenter Downtime How
Much Does IT Really Cost?

Definition of Maturity Class	Mean Class Performance
Best-in-Class: Top 20% of aggregate performance scorers	<ul style="list-style-type: none"> Recorded fewer than 1 business interruption over the last 12 months Averaged only 6 minutes of downtime per each event Took less than 1 hour to restore 90% of business operational functionality after the last interruption
Industry Average: Middle 50% of aggregate performance scorers	<ul style="list-style-type: none"> Recorded 2.3 business interruptions over the last 12 months Averaged 1 hour of downtime per each event Took 2 hours to restore 90% of business operational functionality after the last interruption
Laggard: Bottom 30% of aggregate performance scorers	<ul style="list-style-type: none"> Recorded 4.4 business interruptions over the last 12 months Averaged 9 hours of downtime per each event Took 11 hours to restore 90% of business operational functionality after the last interruption

**Average one hour of
downtime per event at
\$181,770 per hour with two
more hours to restore.**

Total cost over \$.5M

New Cryptography and ICSF Support with zEC12 and z/OS



Provides a secure cryptographic environment

Crypto Express4S represents the newest tamper-responding, programmable cryptographic feature complementing the cryptographic capabilities of the CPACF.

Increased flexibility with one PCIe adapter per feature.

Flexible:

Crypto Express4S PCIe adapter can be a coprocessor or an accelerator
The PCIe adapter contains a tamper-resistant hardware security module.

Adaptable:

It can be configured in one of three ways via the HMC

- (1) IBM Common Cryptographic Architecture (CCA) coprocessor
- (2) An EP11 coprocessor

When Configured As a CCA or an EP11 coprocessor, it supports

- Secure key transactions
- FIPS 140-2 Level 4 certification
- User-defined extensions to implement custom cryptographic functions

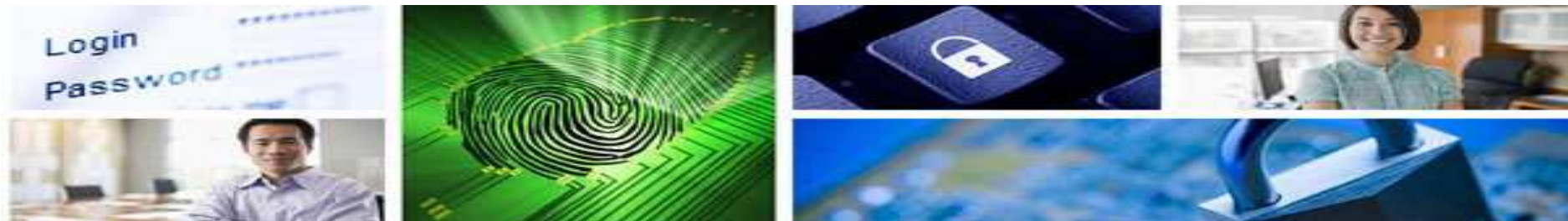
- (3) As an Accelerator

- Optimized for SSL acceleration and clear key RSA operations.

Improved ICSF Support with zEC12 and z/OS



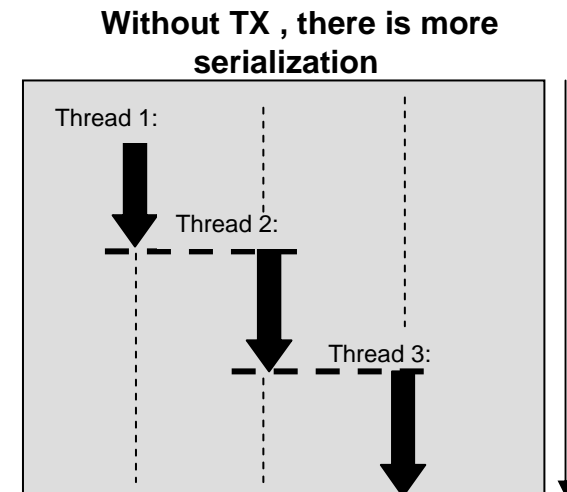
- ICSF functions are intended to especially help banking and finance sector clients meet standards and provide better cryptographic support
- ICSF enhancements are designed to provide new functions for public sector clients
 - New industry-standard APIs for System z offer better interoperability with other platforms to help improve application portability
 - Enterprise Security PKCS #11 Hardware Security Module (HSM) support for Crypto Express 4S
 - FIPS on Demand to verify FIPS 140-2 Level 1 compliance at the application level
- Improved I/O performance for the PKDS and PKCS #11 token key data set
- A random number cache to help improve performance for applications using this function



Transactional Execution for Improved Performance



- **Transactional Execution (TX) facility –a design for improved throughput and performance**
 - Provides the ability to execute a group of instructions atomically.
 - All their results are committed or none is, in true transactional way.
 - Avoids the overhead and serialization of traditional locking; enables more parallelism
 - Optimistic execution: instructions are executed but previous values are saved in a “transactional memory” in case of roll back
 - Expect performance benefits and scalability improvements for Java and other heavily threaded workloads





Agenda

- *IBM z/OS Version 2 Statement of Direction
April 11th, 2012*
- *z/OS Support for IBM zEnterprise® EC12
(zEC12)*
- *z/OSMF Update*
- *Summary*

z/OS 1.13 - A smarter operating system with designs for:

Improving Usability and Skills

New and updated z/OSMF applications & web-enabled ISPF, User-level mount command for z/OS UNIX® System Services, Automatic UCB updates, SDSF Sysplex functions to work without MQ, Catalog parmlib member, Better O/C/EOV Messages, Health Checks, ...

Integrating new Applications and Supporting Industry and Open Standards

Java™/COBOL interoperability, RESTful API for batch, Improved Support for unnamed sections, ISPF Edit Macros, Subsystem and Unauthorized XTIO support, dbx hookless debug, DFSORT™ improvements, Job level return codes, ...

Scalability & Performance

Fully-shared zFS in a sysplex, IEBCOPY performance, RMODE 64 extensions, 1 TB volumes*, IFASMF DL improvements, 500K+ aliases per user catalog, Larger VVDSs, FREEVOL=EOV, FTP support for large format data sets and EAS,...



Enhancing Security

RRSF over TCP/IP, LDAP improvements, enhanced SAF security for z/OSMF, NAS address checking and encryption negotiation, New restricted QNAMEs, PKI support for DB2® backstore, ICSF support for new HMACs, FTP & TN3270 password phrase support, ...

Improving Availability

Warn before TIOT exhaustion, CMDS enhancements, Parallel FTP for dump transfers, PFA ENQ tracking, RTD improvements, zFS Refresh, DADSM Dynamic Exits, JES2 spool migration, JES3 dynamic spool addition, Better channel recovery, More ASID reuse, ...

Self Managing Capabilities

WLM and RMF to provide response time distribution for all goals, DFSMSHsm™ Journal Backup and space management improvements, Hybrid-wide monitoring...

Extending the Network

IDS IPv6 support, NAT Traversal for IKEV2, NMI extensions, More VLANs per OSA port, more 64-bit TCP/IP, EE improvements, ...

z/OSMF “Started Small”

- **Imbedded web server and a small number of applications**
 - Introduced with z/OS R11 (also runs on z/OS R10)
 - Includes WASOEM
 - Included these initial applications:
 - An Incident Log capability to help you gather and send problem data to vendors
 - An updated Configuration Assistant for z/OS Communications Server to help you configure TCP/IP networking policies
 - IBM’s business systems make it hard to say “free” sometimes:
 - z/OSMF is a “priced product” with a price of zero dollars per value unit...
 - ...and with “priced service and support” also priced at zero
 - z/OS Management Facility V1 5655-S28
 - z/OS Management Facility V1 Subscription and Support 5655-S29



z/OSMF R12 Enhancements

- **Added and updated applications:**

- Workload Management policy editor to help simplify WLM policy management
- Sysplex Status and Monitoring Desktops tasks to provide combined real-time status monitoring for servers, sysplexes, and Linux® images, and let you drill down to detailed information about monitored systems
- Configuration Assistant for the z/OS Communications Server updated with support for IPSec, IKEV2, new crypto and authentication algorithms, and enhanced AT-TLS support
- Incident Log enhanced to add encrypted parallel FTP support and let you add information to incidents
- Support for adding application launch points to the z/OSMF navigation tree



z/OSMF R13 improvements

- **z/OSMF Capacity Provisioning Manager application**
 - Designed for easy monitoring of CPM status
- **z/OSMF Configuration Assistant for Communications Server**
 - Multiple release configuration support (both R12 and R13 systems)
 - Sysplex-wide policy definitions
 - IP address discovery from stacks
- **Expanded SAF-based security for user authorization and roles**
 - In addition to current z/OSMF security
 - Intended to supplant z/OSMF repository-based authorization support
- **Consolidated workload monitoring**
 - With RMF and z/OSMF you can monitor z/OS, AIX®, and Linux workloads
 - Monitor across zHybrid ensembles and other network-accessible AIX and Linux systems from within z/OSMF
- **New RESTful API for batch (more about this later)**
- **z/OSMF support for application linking**
 - Allow z/OSMF applications to link directly to others via URL
 - Both in-context linking and simple linking
 - Intended to make it simpler to navigate across apps...such as...



Proposed enhancements to z/OSMF 1.13*

- Software management
 - Plan to extend the Software Deployment task to provide additional actions on instances of SMP/E installed software
- Application linking exploitation
 - Plan for link between Workload manager and Resource monitoring plugin
- Capacity Provisioning
 - Plan to enhance to allow you to create, edit, and activate domain configurations and capacity provisioning policies
- Usability Enhancements
 - Incident log
 - ISPF
- z/OS jobs REST interface
 - Plan to allow for job submission from dataset or Unix file, remove some restrictions
- Browser currency

* Statements regarding IBM future direction and intent are subject to change or withdrawal, and represents goals and objectives only.

Proposed enhancements to z/OSMF 1.13*

Browser currency

- z/OS Management Facility (z/OSMF) is planned to be enhanced to provide support for Internet Explorer 9 (IE 9..x) as well as Mozilla Firefox ESR 10 (ESR 10.0.x).

z/OS jobs REST interface

- The z/OSMF z/OS jobs REST interface is planned to be enhanced to allow you to submit from z/OS data sets and z/OS UNIX files. It is planned to allow access to job JCL. In addition, cancel job, change job class, and delete (cancel w/purge) job are planned to be supported for secondary JES2 - which was previously documented as not supported.

Usability Enhancements

- The z/OSMF Incident Log application is planned to allow you to modify its default JCL to meet the needs of your organization
- The z/OSMF table filtering support is planned to be enhanced to allow for AND/OR filtering as well as case sensitive filtering.
- The z/OSMF ISPF application is planned to be enhanced to get the completion status of long running commands, without any user intervention.

* Statements regarding IBM future direction and intent are subject to change or withdrawal, and represents goals and objectives only.

Proposed enhancements to z/OSMF 1.13*

Capacity Provisioning

- The z/OSMF Capacity Provisioning application is planned to be enhanced to allow you to create, edit, and activate domain configurations and capacity provisioning policies. With these new functions z/OSMF Capacity Provisioning is planned to support all the functions available in the Microsoft Windows-based Capacity Provisioning Control Center (CPCC).

Application linking exploitation

- The z/OSMF Resource Monitoring application is planned to link to the z/OSMF Workload Management application in context, and the z/OSMF Workload Management application is planned to link to the z/OSMF Resource Monitoring application.
- The System Status task is planned to link to the Workload Management task such that the active service definition, active service policy, or WLM status can be opened and viewed. The Workload Management task is planned to be linked to Resource Monitoring dashboards such that while viewing the active service definition or service policy, resource monitoring dashboards with performance metrics for service classes, workloads, and report classes can be opened and viewed.

* Statements regarding IBM future direction and intent are subject to change or withdrawal, and represents goals and objectives only.

Proposed enhancements to z/OSMF 1.13*

Software management

- The z/OSMF Software Management application is planned to **extend the Software Deployment task** to provide additional actions on instances of SMP/E installed software. In addition to deploying a software instance, the Software Management task is planned to will allow inspection of a software instance to view the product., feature, and FMID content, and view the physical data sets that compose a software instance. It will also provide actions to analyze and report on software instances and products within instances to:
 - Identify software products that are approaching, or have reached, end of service support, thus helping customers with upgrade and migration planning.
 - Identify missing HIPER and PE fixes, and fixes associated with one or more fix categories to help customers assess the risks and stability of installed software and ensure hardware and software requisites are installed.
 - Validate the SMP/E structure and content of a software instance is correct.
 - Determine if individual fixes are installed and in which software instances.
 - Compare the service and functional content of two software instances to aid in debugging or migration planning.

IBM z/OS Management Facility Welcome zmfdev6

- Welcome
- + Configuration
- + Links
- + Performance
- + Problem Determination
- **Software**
 - **Software Management**
- + z/OS Classic Interfaces
- + z/OSMF Administration
- + z/OSMF Settings

[Refresh](#)

Welcome to IBM z/OS Management Facility

IBM® z/OS® Management Facility (z/OSMF) provides a framework for managing various aspects of your z/OS systems. By streamlining some traditional tasks and automating others, z/OSMF can help to simplify your management.

To learn more about z/OSMF, visit the links in the Learn More section.

To start managing your z/OS systems, select a task from the navigation area.

Learn More:

- [What's New](#)
- [z/OSMF tasks at a glance](#)
- [Getting started with z/OSMF](#)

**You see a list of objects in your software inventory.
You can click on a link to view details those objects**

Welcome

[Help](#)

Software Management

Use this task to view details about your software inventory, including related products, features, FMIDs, data sets, deployments, and SYSMODs. [Learn more...](#)

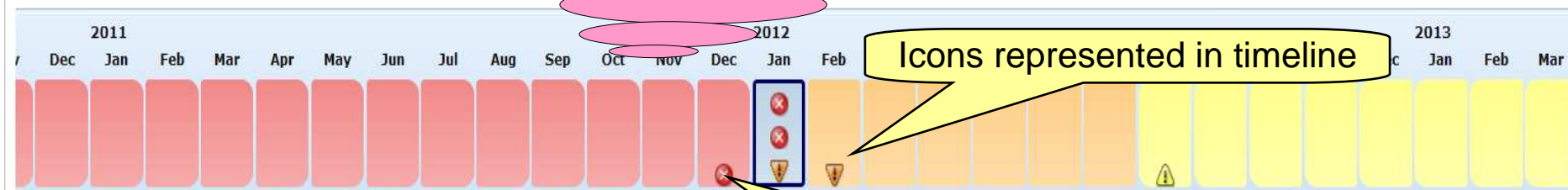
Software Instances	Define your software to z/OSMF; deploy software; generate reports about your software.
Products	View a consolidated list of the products included in each software instance.
Deployments	Deploy a software instance, and manage existing deployments.
Categories	Create new categories for your software instances and deployments, and manage existing categories.
Settings	Select the time zone in which to display date and time data. Indicate whether to display or suppress information messages.

The Software Management task, previously named the Deployment task, contains the software deployment functions along with additional software management functions. The Software Management task helps you streamline the software management process by providing a centralized location that you can use to manage your z/OS software.

Note: Test data was used for this display to show products that have already passed their end of service date

Mai

End of Service x



Retrieve End of Service Information

Flyover help available to view product information

Software Instances by Product

Software Instances by Product							
<input checked="" type="checkbox"/> <input type="checkbox"/> Actions ▼ Table view: Tree							
Product / Software Instance	Release	Product ID	Vendor	General Availability	End of Service	Additional Information	Prod File
Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
<input type="checkbox"/> + IBM product z/OS_10	12.11.10	569A-110	ORACLE	Aug 30, 2011	Jan 5, 2012		201
<input type="checkbox"/> + z/OS	11.11.01	5666-111	IBM	Jul 5, 2011	Jan 4, 2012	http://www.ibm.com/zSeries/zos/v1r12/index.html	201
<input type="checkbox"/> + Compiler for REXX2.1	11.11.02	5694-112	IBM	Feb 10, 2011	Feb 4, 2012	http://www.ibm.com/zSeries/REXX/v1r4m0/index.html	201
<input type="checkbox"/> + IBM Library for REXX/370 1.4	11.11.03	5694-113	IBM	Jul 1, 2011	Dec 4, 2011		201
<input type="checkbox"/> + AFP FONT COLLECTION FOR S/390	11.11.04	5694-114	IBM	Jan 4, 2012	Aug 4, 2012		201
<input type="checkbox"/> + Debug Tool for z/OS V10	11.11.05	5694-115	IBM	Jan 4, 2012	Jul 31, 2009	http://www.ibm.com/zSeries/DebugTool/v10r1m0/index.html	201
<input type="checkbox"/> + Compiler for REXX Base2.3	11.11.06	5694-116	IBM		Oct 31, 2090		201
<input type="checkbox"/> + IBM JES3 Tools for z/OS	11.11.09	5694-119	IBM	Aug 30, 2011	Jan 3, 2012	http://www.ibm.com/zSeries/JES/v3/index.html	201

Total: 16, Selected: 0

Refresh

Last refresh: Jan 4, 2012 1:54:22 PM local time (Jan 4, 2012 6:54:22 PM GMT)

Close

Hide

z/OSMF Software Management (R13)

Benefits

Task	Without z/OSMF Software Management	With z/OSMF Software Management
Display the product content of software instances.	Can use multiple different methods to report on product content locally (within sysplex). Unable to: <ul style="list-style-type: none"> •launch in context other views or reports •View product content for remote systems 	Easy (few clicks) to identify one or more software instances (locally or remote) that you want to view product information. Once viewed, the user can launch in context additional views, reports, or follow links to additional information. Seconds
Display the data sets that make up a software instances.	Can NOT be done today. At best, the user can write their own program to identify data sets in local software instances.	Easy (few clicks) to identify the data sets actually used in a software instance. Seconds (or up to a few minutes)
Display all the software instances where a product is installed.	Can NOT be done today.	Easy (few clicks) to identify all the software instances where a product is installed throughout the customer enterprise. Seconds
Identify software products that are approaching, or have reached, end of service support	Currently there are web sites that can be used to identify announced end of service dates, but they don't analyze installed software. Hours (or even days for entire enterprise)	Easy (few clicks) to show end of service information for all installed products (or products in specific software instances). Results shown in both graphic and tabular form. Seconds
Validate the SMP/E structure (zones and data set definitions) and content (members on libraries and files) of software instances.	Can NOT be done today.	Easy (few clicks) to identify any structure problems or missing content in a software instance and the data sets referenced. A few minutes

z/OSMF Software Management (R13)

Benefits

Task	Without z/OSMF Software Management	With z/OSMF Software Management
Identify if any critical service (HIPER, PE fixing, or fixes associated with one or more fix categories) is missing.	Can use multiple SMP/E REPORTs to identify missing critical fixes for local software instances. However, this can only be done for local software instances (within sysplex). Less than a minute (for the local system)	Easy (few clicks) to identify missing critical fixes. Once viewed, z/OSMF sorting and filtering can help with the analysis. Seconds (or up to a few minutes)
Identify whether a fix is installed or not; and if so in which software instances.	Can use either SMP/E query or LIST functions to see if a SYSMOD is installed. However, this can only be done for local software instances (within sysplex). Less than a minute (for the local system)	Easy (few clicks) to identify whether a fix is installed or not; and if so in which software instances throughout your enterprise. Less than a minute (for local and remote systems)
Compare the service and functional content of two software instances to aid in debugging, change control, or quality assurance.	Can use SMP/E REPORT SYSMODS to identify differences between two target zones for local software instances. However, this can only be done for local software instances (within sysplex). Less than a minute (for the local system)	Easy (few clicks) to identify differences between two target zones for software instances throughout your enterprise. Seconds (or up to a few minutes)



Agenda

- *IBM z/OS Version 2 Statement of Direction
April 11th, 2012*
- *z/OS Support for IBM zEnterprise® EC12
(zEC12)*
- *z/OSMF Update*
- *Summary*

Summary:

z/OS – A Smarter Operating System for a Smarter Planet™

z/OS V1.13 - More value from your workloads with performance, programming, and operations improvements:

- Foundation for modern batch applications
 - Simplified batch application programming and potentially shortened batch windows, with new JES2 JCL improvements
 - New z/OS base component, z/OS Batch Runtime environment, designed to enable COBOL and Java interoperability for DB2*.
 - Leverage the strength of z/OS batch, a new web-based (REST) interface enables you to submit batch jobs and access batch data from non-z/OS systems**
- Improved performance for z/OS UNIX workloads and traditional workloads***
- Autonomics for earlier warning of issues before they can potentially disrupt business
- More options to secure your data with newer, faster, and more scalable encryption and security capabilities

z/OSMF V1.13 - Streamlined processes and built-in guidance address a broad scope of z/OS activities and helps create a more integrated z/OS experience:

- Clone z/OS images and deploy software more easily and consistently.
- Define new storage volumes quickly and easily
- More easily maintain highly secure connections, even in large complex networks
- Launch and work with multiple 'classic' ISPF interfaces from within z/OSMF, and link and launch z/OSMF applications to other web-based applications
- Leverage System z Specialty engines

* Prerequisites: IBM 31-bit SDK for z/OS, Java Technology Edition Version 6.0.1 (5655-R31), DB2 V9.1 for z/OS (5635-DB2) or later with PTFs, IBM Enterprise COBOL for z/OS V4.1 (5655-S71) or later

** Prerequisite: RESTful API included in z/OSMF V1.13.

*** Based on IBM Lab results, your results will vary.

I/O performance improvements measured for fully shared zFS ranged from very small to 900%, with the majority of workload conditions tested falling between 50% and 150%.

The actual amount of improvement will depend on the environment (monplex or Parallel Sysplex) and the type of file processing being done.

IEBCOPY improvement will depend on conditions such as: the amount of data being copied, block size, and type of IEBCOPY operation

Synergy with zEC12 Operating Systems

z/OS

- Java exploitation of **Transactional Execution** for **increased parallelism and scalability**
- Enhanced security support for **digital signatures**
- Faster problem determination with **IBM zAware for improved availability**
- Improve availability and performance with **Flash Express**
- **2 GB page** support
- Simpler Specialty Engine (**zIIP**) exploitation
- z/OS v1.13 exploitation of new hardware
- z/OS health checks for SAN for new channel path selection
- Plus **over 4,100** applications enabled on z/OS

z/VM

- z/VM **Compatibility support**
- Guest exploitation **support for new OSA and encryption technology**
- **Simplified data exchange** of virtual Linux servers using z/VM software
- Improved I/O performance using **High Performance FICON (zHPF)** for guest exploitation

- **AND** with blades on the zBX there are even more options with applications on **AIX, Linux on System x or Microsoft Windows**

Linux on System z

- **Improved consolidation ratio** through new capacity performance
- Improved I/O performance using **High Performance FICON (zHPF)**
- **Application and Linux optimization** enabled by full exploitation of zArchitecture extensions
- Optimized system setup via **Linux health checker**
- **FCP end-to-end data integrity checking** for applications and storage subsystems
- Plus **over 3,000** applications on System z



z/TPF

- Support for **86 CPUs**
- **Hardware exploitation** for performance improvements

z/VSE

- **64-bit addressing** with z/VSE V5.1
- Strong **interoperability with Linux** on System z
- New CICS functionality (**CICS Explorer**)

z/OS Synergy with zEC12 operating systems

- Java exploitation of **Transactional Execution** designed to improve **increased parallelism and scalability**
- Enhanced security support for **digital signatures**
- Faster problem determination with **IBM zAware for improved availability**
- Improve availability and performance with **Flash Express**
- **Pageable large page** support
- Exploitation of new hardware instructions
- Plus **over 4,100** applications enabled on z/OS®
- Simpler **zAAP on zIIP** exploitation



z/OS Operating systems for zEC12:

- z/OS
 - z/OS V1.12, V1.13
 - z/OS V1.11, V1.10 Lifecycle Extension
 - Needs PTFs

IBM statements of direction – August 28, 2012

Support for zEC12

IBM Java exploitation of IBM zEnterprise EC12 (zEC12) functions:

- z/OS Java Technology Edition, Version 7 (5655-W43, 5655-W44) (IBM SDK7 for z/OS, Java 31-bit and 64-bit), to exploit new IBM zEC12 features, including: Flash Express and pageable large pages, Transactional Execution Facility, Miscellaneous-Instruction-Extension Facility, and 2 GB pages.
- IBM SDK7 for z/OS Java is available for use by IBM middleware products running Java
 - IBM IMS 12 (5635-A03),
 - IBM DB2 10 for z/OS (5605-DB2),
 - Liberty profile of IBM WebSphere Application Server for z/OS v8.5 (5655-W65);
 - planned future release of CICS Transaction Server for z/OS
- IBM zEnterprise EC12 is planned to be the last high-end System z server to offer support for zAAP specialty engine processors. IBM intends to continue support zAAP workloads on zIIP processors ("zAAP on zIIP"). This enables simplification and easier capacity planning.
- PTF for APAR OA38829 on z/OS V1.12 and V1.13 to allow zAAP workloads to run on zIIPs even when a zAAP is installed on the server. (for testing and migration purposes only)
- DB2 plans further enhancements for performance improvements using pageable large pages and Flash Express and also enabling support of 2 GB fixed pages.
- Updates to CICS Transaction Server for z/OS; new application, platform, and policy capabilities to help clients build private clouds from CICS applications.

z/OS Support Summary

Release	z900/ z800 WdfM	z990/ z890 WdfM	z9 EC z9 BC WdfM	z10 EC z10 BC WdfM	z196 CPC	z196 w/zBX	z114 CPC	z114 w/zBX	zEC12 CPC	zEC12 w/zBX	End of Service	Extended Defect Support ¹
z/OS V1.7 ²	X	X	X	X	X						9/08 ¹	9/10 ¹
z/OS V1.8 ²	X	X	X	X	X		X				9/09 ¹	9/11 ¹
z/OS V1.9 ²	X	X	X	X	X		X				9/10 ¹	9/12 ^{1*}
z/OS V1.10	X	X	X	X	X	X	X	X	X	X	9/11 ¹	9/13 ^{1*}
z/OS V1.11	X	X	X	X	X	X	X	X	X	X	9/12 ¹	9/14 ^{1*}
z/OS V1.12	X	X	X	X	X	X	X	X	X	X	9/14 [*]	9/16 ^{3*}
z/OS V1.13	X	X	X	X	X	X	X	X	X	X	9/16 [*]	9/19 ^{3*}
z/OS V2.1 ^{4*}			X	X	X	X	X	X	X	X	9/18 [*]	9/21 ^{3*}

Notes:

- 1 The IBM Lifecycle Extension for z/OS provides the ability for customers to purchase extended defect support for that release of z/OS for up to 24 months after the z/OS release's end of service date
 - 2 See IBM GTS services for additional fee-based extended service
 - 3 Optional extended service is planned to be offered
 - 4 z/OS V2.1 announced as an IBM Statement of Direction
- Planned. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

WdfM – Server has been withdrawn from Marketing

Legend

Out of Lifecycle Extension for z/OS support²

Defect support provided with Lifecycle Extension for z/OS

Generally supported

What to do now?

- Migrate to z/OS 1.13 whenever you can
- Replan your Release Schedule
- From now on: Migrate to **EVERY** Release (not longer only even or odd)

THANK YOU