

Exploiting and managing the Cloud for System z

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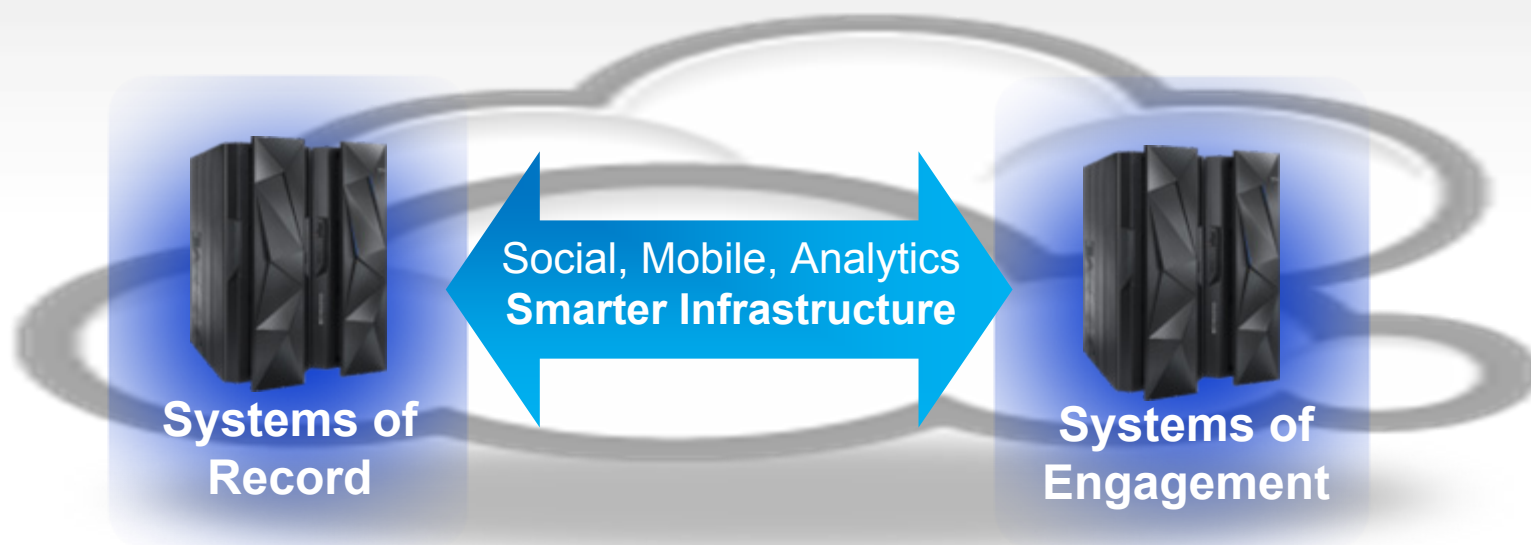
Service Management System z support continues to evolve with new capability for cloud, analytics and mobile



- zEnterprise supports both **Systems of Record and Systems of Engagement**, including Cloud on System z
- IBM System z cloud support based on **open standards with fit for purpose** capability
- Continuing to enhance System z **Visibility, Control and Automation** capabilities for cloud based on key customer requirements and enhanced zEnterprise

Rapid growth of next generation technologies supported seamlessly on zEnterprise

System z scaling model and security to manage and optimize both



- Business Transactions
- Quality of Service
- Command & Control
- Facts and data “source of truth”
- z/OS

- Mobile and Social
- Dynamic
- Interactions and Collaboration
- Insight, trends, analytics
- Linux on System z

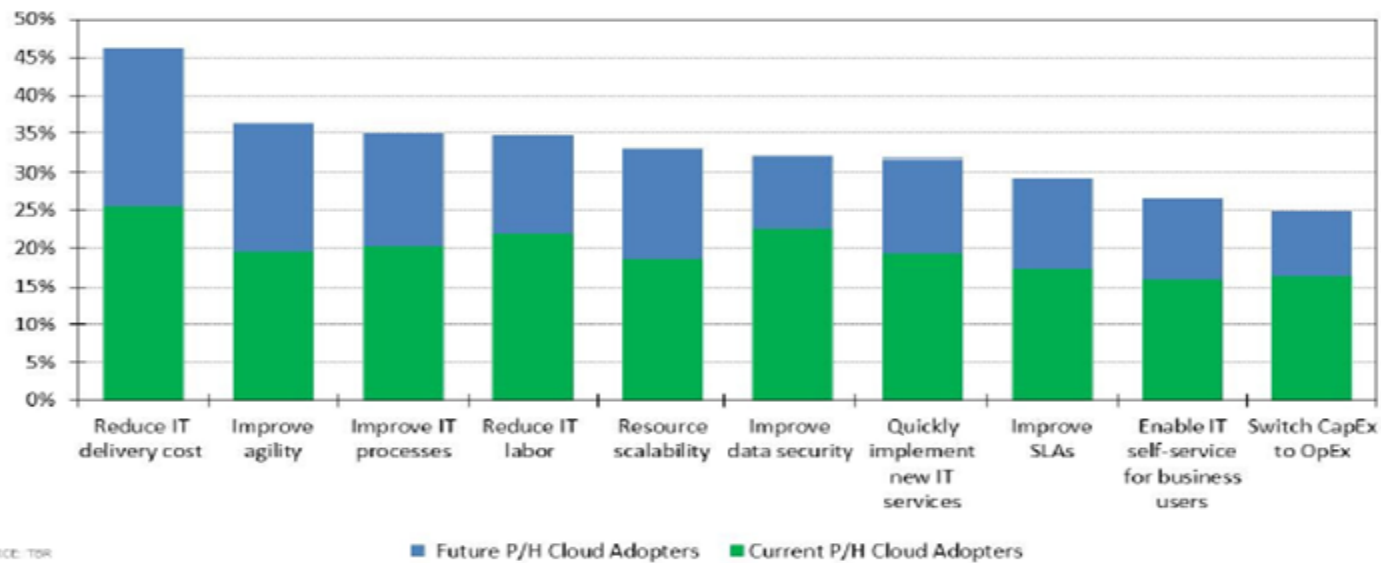


What are we hearing: top cloud adoption drivers

Path to Private/Hybrid Cloud Purchasing



Purchasing Drivers for Adopters and Future Adopters of Private/Hybrid Cloud



SOURCE: TBR
n = 278



- Reduce IT Delivery Cost
- Improve Agility
- Improve IT processes

Exploiting Cloud on System z provides significant business value day one and increased value over time

Customers can move across roadmap as business requirements grow

Tomorrow

C Suite/LOB

Today

Infrastructure Teams

1 Virtualization Optimization

Image Management

Dev & Operations Teams

2 Workload Optimized Cloud

Workload Optimized Patterns

DevOps

CIO / IT Executive

3 Cloud Enabled Data Center

Self Service Provisioning

Usage Metering and Chargeback

4 Enterprise Cloud

Fit for Purpose Workloads

Disaster Recovery

Enterprise Security

Common Cloud platform built on an open standards reference model



Customers seeing value of deploying Cloud on zEnterprise

Increased Productivity
90%+ utilization



- Advanced workload management provisions resources on the fly for 90%+ utilization
- License savings due to zEnterprise power/scale
- 79% less TCA vs. leading public cloud alternatives

Higher Utilization
100,000 virtual servers



- Maintain service levels with up to 100% CPU utilization
- “Shared everything” architecture
- Manage up to 100,000 diverse virtual servers
- Scalability with 24X more scale than x86

Are you exploiting the full promise of cloud computing?

#1

Economic benefits of cloud will continue to be the #1 driver of adoption through 2016 for most companies

<\$1 Per day per Linux virtual server

55% Lower TCO

90% Less floor space

80% Less energy

70% Labor savings

→ IBM.com/Mainframe50



Credit Union Systems for Brazil (SICOOB) avoids \$1.5M in annual costs with IBM mainframe cloud consolidation



Business Challenge:

- Goal of being primary provider of financial services to members
- Needed flexible, secure and scalable IT infrastructure to support reliable 24/7 service and mobile access.

Solution:

- Private System z cloud running 300 production environments
- Replacing distributed, Intel processor-based servers with Linux on z virtual servers





Business Results:

- Avoid \$1.5m per year in energy costs, while growing 600%

“We grew by nearly 600 percent; Internet banking grew by 200 percent; for mobile solutions, growth was 600 percent. It would not have been possible to support this growth without IBM System z.”

<http://www.youtube.com/watch?v=E8cdYINr32M>

IBM offers hybrid/private cloud across platforms with open “fit for purpose” approach

<p>z Enterprise secure cloud for data</p>	<p>Power Systems for compute intensive applications</p>	<p>System x reduced cost & data → insight</p>	<p>Pure Systems for workload optimized design</p>
			
<p><i>zEnterprise EC12</i></p>	<p><i>Power 770, Power 780, Power 795</i></p>	<p><i>System x eX5, x3640</i></p>	<p><i>Pure Systems</i></p>

Flexibility to choose platform that meets business requirements

- Management tools are **consistent** and **interoperable** across platforms
- Open standards approach avoids vendor lock-in
- ***Now supported for deploying into SoftLayer***



Benefits:

- Reduced administration costs and increased staff productivity
- Lower total cost of ownership including software licensing savings
- Decreased risk with improved automation and workload consolidation



Nationwide Insurance cuts costs with smart workload consolidation of Cloud on System z



Business Challenge:

- 3,000 distributed servers inefficient and costly. 80-90% capacity unused, software licenses on every server
- Need to standardize development in Fit-for-Purpose model
 - Take advantage of best platform that met characteristics
- Monitoring/capacity management spans x, z and p based on SLA

Solution description:

Consolidated distributed servers to Linux virtual servers running WAS, DB2, and z/VM on System z creating a multi-platform private cloud optimized for all its different workloads

Customer Value:

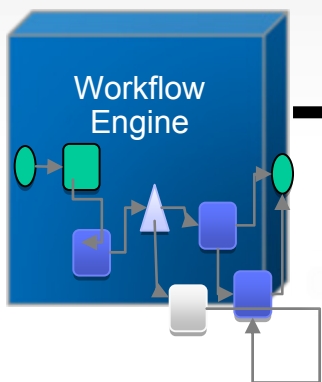
- Application Development
- 80 percent reduction in power, cooling and floor space requirements

“The creation of a private cloud built around the z196 servers supports our business transformation goals by enabling the rapid, seamless deployment of new computing resources to meet emerging requirements,” Jim Tussing, CTO for Operations, Nationwide



Provision and manage components of Data Center Lifecycle with open standards fit-for-purpose Cloud

IBM Cloud Orchestration



Provision Patterns



Provision patterns for key System z workloads

Resource Management
Onboard, provision, manage CPU, Storage and Network

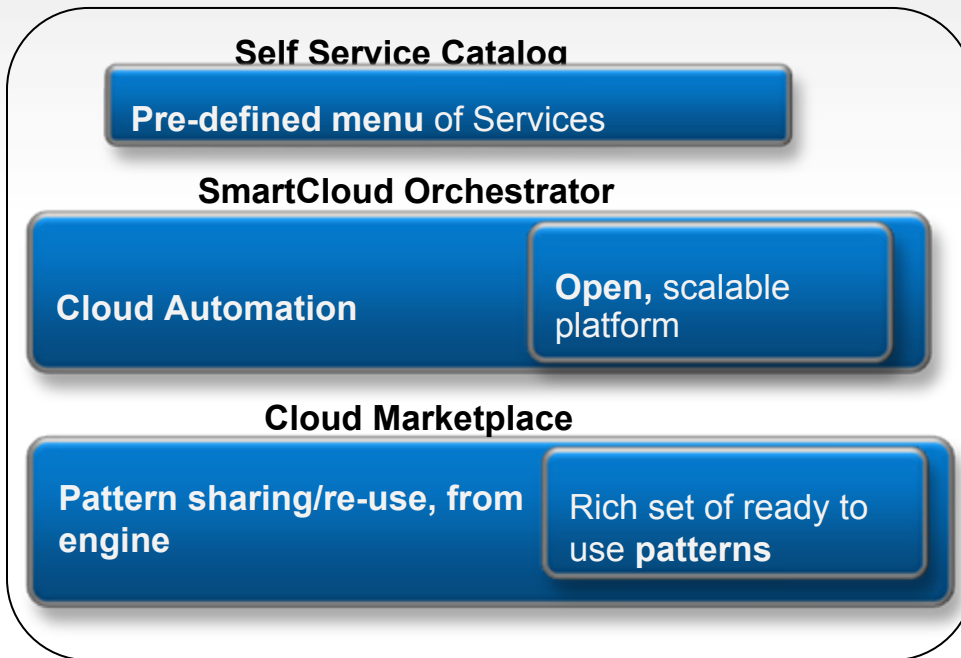
Workload Management
Workload aware placement, optimization and operation

Service Management
Manage the lifecycle of business applications



Complete solution for cloud workloads on System z includes number of key components to simplify usage and operations

Cloud Management (IBM Cloud Orchestrator)



Add on:

- Cost management
- High Availability
- Security
- Application Performance Management

Infrastructure Management Suite

IBM Wave, OMEGAMON XE on z/VM and Linux

Simple, intuitive, graphical z/VM mgmt tools

TSM, Ops Mgmt/Backup & Restore

Key set of z/VM tooling

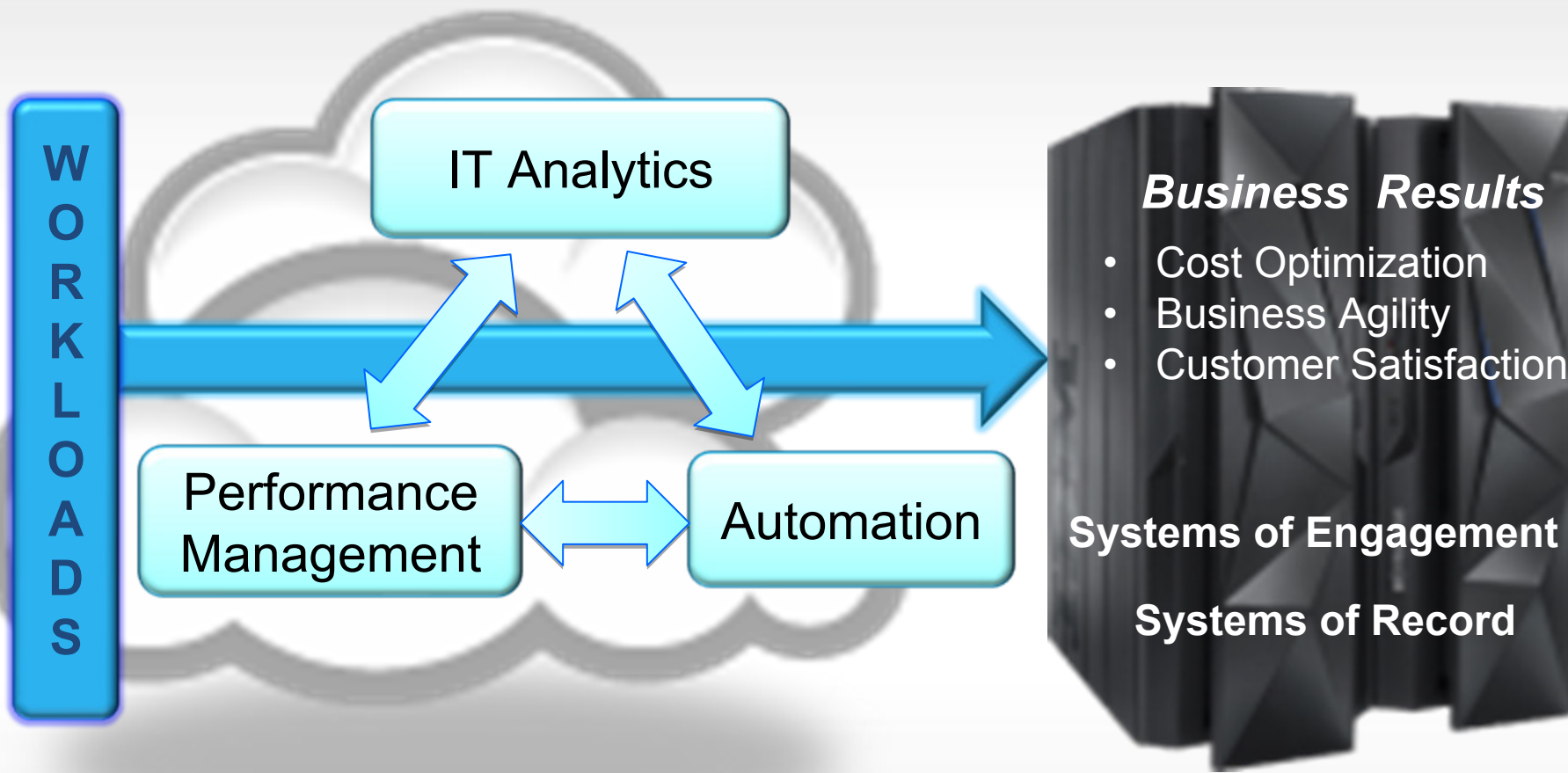


IBM Infrastructure Suite for z/VM and Linux provides critical management of the z/VM and Linux on System z environment

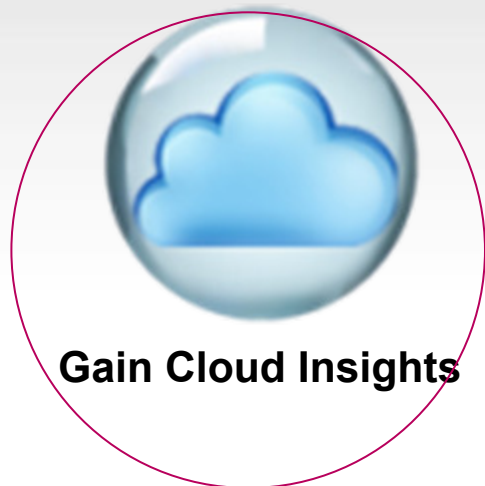
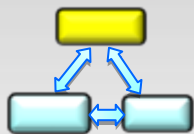


- Eases the adoption of z/VM and Linux on System z as a platform for Linux on z workloads, server consolidations and cloud adoption
- Provides a comprehensive suite of products to manage the z/VM and Linux on z environment
- Provides management, administration, automation of the z/VM and Linux on System z environment
- Provides high availability through backup / restore for z/VM and Linux on system z workloads.

With Cloud as Workload On-Ramp, Mainframe Service Management key to driving improved business outcomes



IBM System z log analytics supports cloud workload management for reduced costs



Optimize:

- Improve Performance across IT Infrastructure

Search:

- Quickly analysis large volume of log data
- Match Log-files with alerts and metrics

Predict:

- Pro-Active Outage Avoidance
- Predict Problems before occurrence

IBM Analytics solutions for System z

Optimize

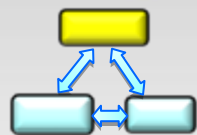
Capacity Management Analytics (CMA)

Search

IBM Cloud Analytics -
Log Analysis z/OS
Insight Packs

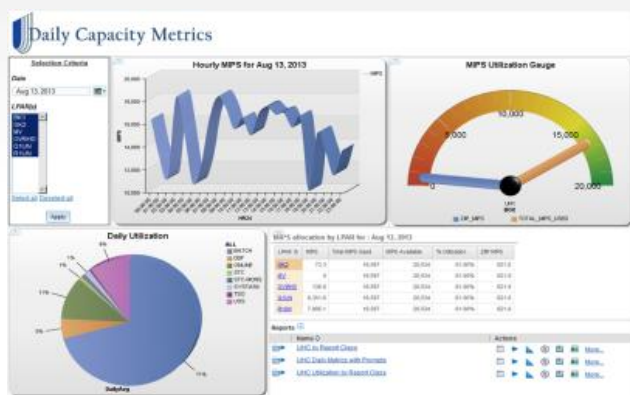
Predict

- zWare integration with OMEGAMON & NetView
- IBM Cloud Analytics - Predictive Insights



Optimize Big Data and Cloud workloads to create knowledge for better business and IT planning

Capacity Management Analytics (CMA) solution



A national health administration predictively manages IT capacity with advanced analytics

Integrated Solution

Helps manage mainframe capacity cost-effectively

Real-Time Analytics

Of current activity compared with expected usage and accurate forecasting of future requirements

Rapid time-to-value

With prepackaged, interactive and dynamic reports that jumpstart capacity management capabilities

Analytics, monitoring and management across Big Data on System z environment including CICS, DB2, IMS, WAS

Operations Insights with TDSz, SPSS and Cognos

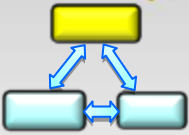
Focuses on data related to System and Workload Characteristics, Performance and Trending

Provides recommendation to optimize Systems and Workloads based on Predictions and Forecasting



What's NEW with Capacity Management Analytics v1.2

NEW: Sept 9th, 2014



- Software costs analysis: Ability for your customer to assist in managing z/OS software costs and enabling users to identify where and when workloads need to be adjusted and when additional capacity is required
- Real-time anomaly detection: Ability to improve systems management response time with a tool that can detect CICS transaction anomalies in real time
- Distributed Capacity Management: Ability to provide a set of reports to manage capacity for distributed systems. A workspace is also provided that integrates both zEnterprise machines and distributed systems.

Software Cost Analysis Summary
report ran by Anonymous on 2014-09-11 at 03:11:19

Machine Level Summary

CPU Serial No.	Machine Serial Number	Machine Type and Model	Machine Rated Capacity (MDS)	Data Start	Data End
4E15	02-04016	2811-789		4894	Apr 8, 2014 0:00 - Apr 12, 2014 23:59
BA06	02-F83AC	2827-704		4477	Apr 8, 2014 0:00 - Apr 12, 2014 23:59

Product Summary

Product Category	Product Name	Product ID	Product Version	All Machines		CPU Serial No.
				Total Billable MDS	4E15	
PFA	CICSVR	5655-001	*	2,131	0	2,131
	WAS FOR Z/OS	5655-P30	*	2,131	0	2,131
	WORKLOADPFLINE	5655-084	V0R0	0,000	0,164	2,000
	ZSECURE ADMIN	5655-T01	*	18,420	0,130	0,013
MLC	CICS	5655-007	V0 R0.0	10	0	10
	DB2	5655-062	V0 R1.0	0,282	1,648	2,055
	ENCRYPTION	5655-P97	*	13,032	0,144	2,738
	H LVL ASSEMBLER	5690-Z14	*	13,032	0,144	2,738





Capacity Management Analytics: Solution Kit – Software Cost Analysis

Answers the questions

- ✓ From a LPAR perspective, how much is the MSU of LPAR and each product on it, and where is the peak?
- ✓ From a product perspective, how much it should be billed on whole z machine and each LPAR, and where is the peak billable MSU? Then how much is the cost?
- ✓ Very similar to product MSU and price report, but it is focused on “NO89” products whose MSU utilization is not collected by SMF89 records.
- ✓ List the matrix of which NO89 products are running on which LPAR
- ✓ From an enterprise level, how much is the billable MSU for the enterprise and each z machine and how much is the cost?



Software Cost Analysis Summary
Report for by **Aspremoach** at 2014-09-16 at 09:11:36

IBM Capacity Management Analytics

Machine Level Summary				Machine Type and Model	Machine Model	Machine Model Description (MSU)	Start Date	End Date	Report Period %	Report Date	Report Period	Report Period %	Highpoint MSU	Highpoint Date/Time	Highpoint MSU Hour Count
				1242-E	2817-103	4554	Apr-12-2014 00:00	Apr-12-2014 03:09	3.30%	153	165	4.15%	Apr-12-2014 03:00		1
				1242-E	2827-194	6177	Apr-8-2014 03:00	Apr-12-2014 03:09	100.00%	NO	6278	Apr-11-2014 19:00			1

Product Summary						All Machines	MSU	MSU	MSU
Product Category	Product Name	Product ID	Product Version	Total Billable MSU	MSU	MSU	MSU	MSU	MSU
PLA	DCDR	899401	-	2,331	325	1,807			
	WAS FOR Z OS	899401	NOT USABLE	1	1				
	WAS FOR Z OS	899401	NOT USABLE	1,830	324	1,506			
	WAS FOR Z OS	899402	NOT USABLE	18	4	14			
	WAS FOR Z OS	899404	NOT USABLE	32	32				
	WORKLOADPULSE	899399	V09N	5,522	5,355	1,667			
	ZOS/REACTOR	899399	-	18,432	6,225	12,207			
	ZOS/REACTOR	899399	-	18,432	6,135	12,297			
	ZOS/REACTOR	899399	-	38	0	38			
	ZOS/REACTOR	899399	-	4,212	1,509	2,703			
	ZOS/REACTOR	899399	-	13,522	5,245	8,277			
	ZOS/REACTOR	899399	-	13,522	5,245	8,277			
	ZOS/REACTOR	899399	-	1,334	1,334				
	ZOS/REACTOR	899399	-	15,812	5,245	10,567			
	ZOS/REACTOR	899399	-	238	0	238			

Search for and rapidly analyze unstructured data to assist in and accelerate problem identification, isolation and repair

SmartCloud Analytics – Log Analysis



Differentiating Capabilities

Locate **component error messages** from system, configuration, or software logs **via rapid indexed search**

VISIBILITY

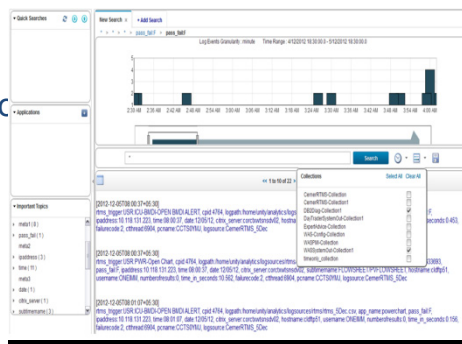
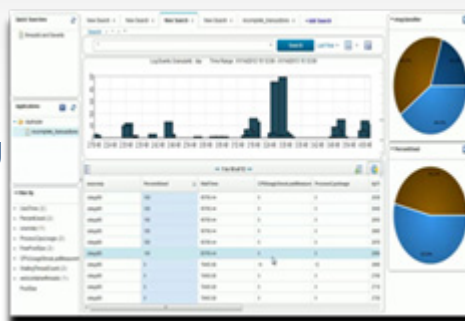
Isolate issues across various domains including customer session, performance and system faults

Link support documentation and operations notes dynamically to log/warning messages or events to resolve problems quickly

Visualize search results with analytic tools to rapidly perform root cause analysis

CONTROL

Transform and adopt while limiting risk



Delivering Business Results

Reduce mean time to repair by identifying and isolating service impacting issues quickly

Resolve problems more efficiently with faster access to all pertinent information

Improve service availability by leveraging expert knowledge of applications and infrastructure

Built on IBM's leading Big Data platform

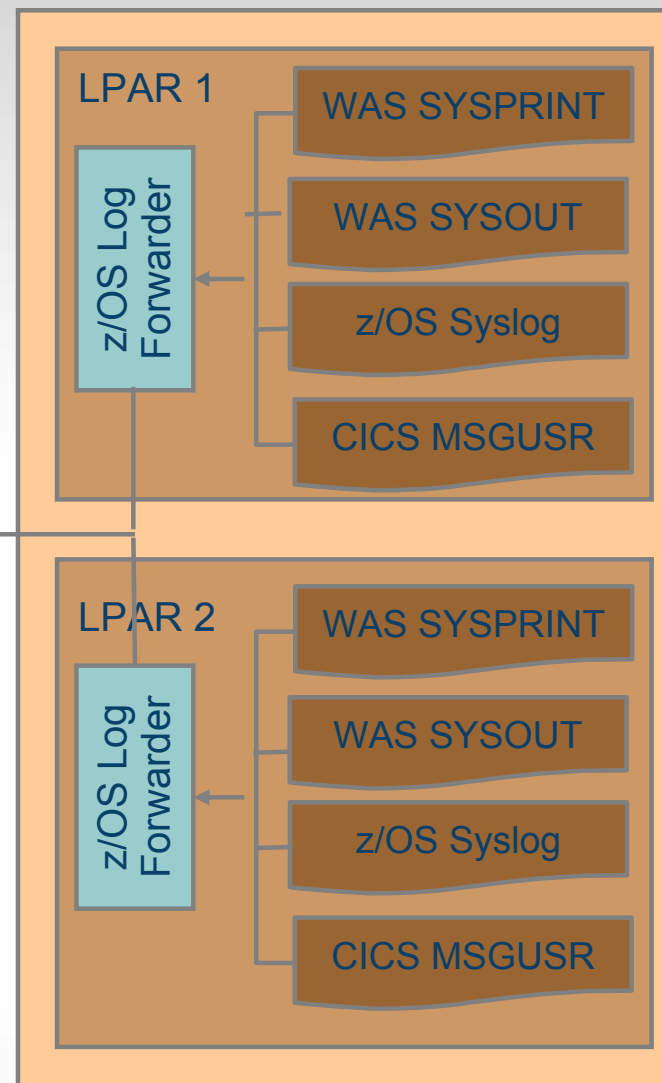
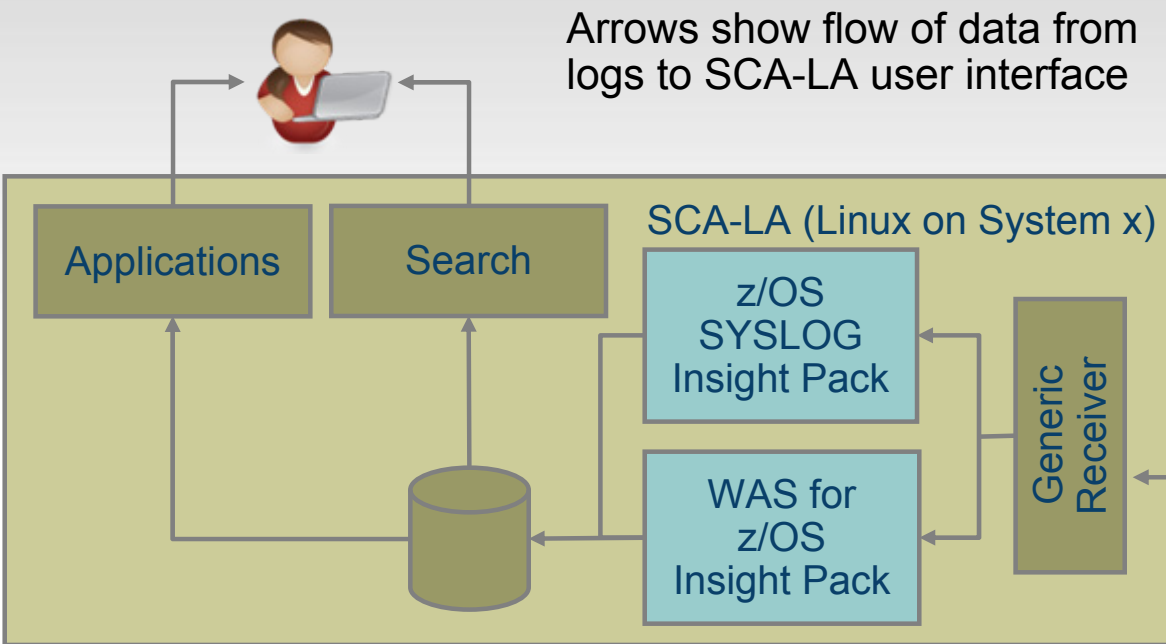
IBM expertise built-in

Download and install in minutes for quick time-to-value

Send us your log and we'll find the needle..



IBM SmartCloud Analytics – Log Analysis z/OS Insight Packs & SCA-LA Server



- Client scenario: end user of client services calls in and indicates there is a performance problem with their new mobile app for banking.
- Since this app uses services across multiple data centers and on different LPARs, the problem diagnostic team gathers to try and locate the problem
- After many hours of highly skilled people, the problem is found in the SQL statement of the application.
- ₁₉ With Log Analytics, one person would have been able to isolate the problem and what LPAR and system was effected in minutes rather than days



System Automation for z/OS V3.5 simplifies zEnterprise operations



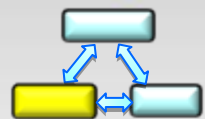
Today's IT Challenges:

- Considerable manual effort, resulting in confusion and errors
- Fast changing business requirements needing application changes
- Availability outage until problems solved manually by operations
- Challenging business requirement for 100% availability



Tivoli System Automation for z/OS 3.5 provides

- **Increased efficiency** - Intuitive Configuration Assistance dramatically improves Time To Value with a 80% decrease of base installation and configuration
- **Reduced risk of application downtime** - Proactively improved system availability and performance through policy-based management of looping address spaces
- **Increased visibility and improved application availability** - Improved performance management with coordinated application pacing allowing for optimal CPU balance.
- **Improved user productivity** - Modern application management through consistent policy customization support for multiple users to work in parallel. Enabling multiple users allows for much better flexibility and reduced time for change management.



OMEGAMON Performance Management Suite V5 provides complete solution for enterprise monitoring



OMEGAMON Performance Management Suite
Improved visibility and management for z/OS and subsystems

zOS

DB2

CICS

IMS

MQ

Storage

Networks

WAS

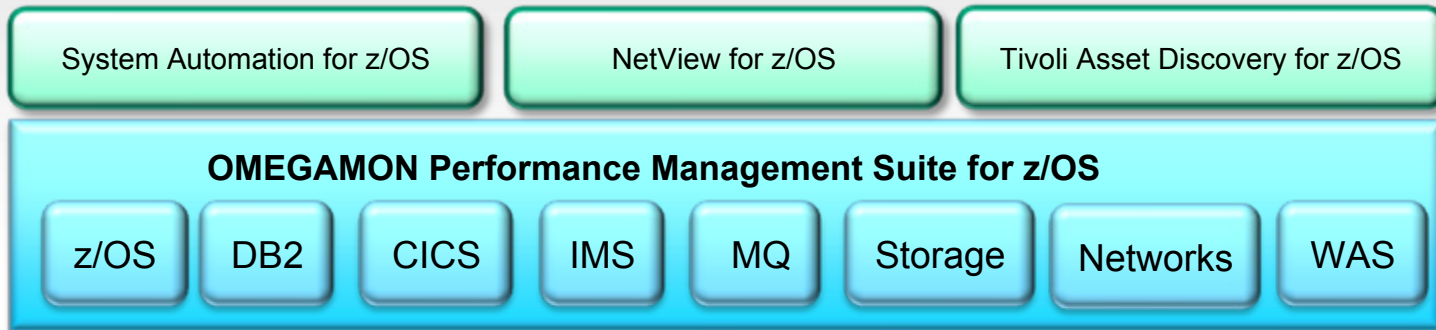
- Simple easy to install/configure support across family
- Integrated monitoring with both Enhanced 3270 User Interface and Tivoli Enterprise Portal
- Launch in Context across family makes it easier to find problems that can span multiple subsystems





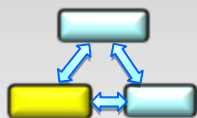
Service Management Suite for z/OS V1.2

- ✓ Provides comprehensive service management capabilities for IBM zEnterprise
- ✓ Simple Pricing metric (One Time Charge PID) to deploy infrastructure and middleware solutions as needed



- Single offering that contains capabilities to manage z/OS and all key subsystems
- High Availability & Automated Operations to improve Service Levels and reduce system downtime
- Ability to visualize and automate your mainframe environment as a single system
- Eliminates boundaries between system and application components
- Network & Performance Management to increase efficiency of resources and personnel
- Tools tightly integrated providing proactive automation, which helps on problem resolution even before an alarm goes off



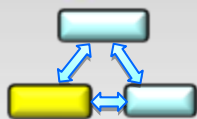


Improve IT ROI by managing and controlling software, including reducing License Charges

Gartner reports that implementing Asset Management solutions like **TADz**, companies derived cost benefit of 30% in year one and 5% to 10% year on year benefit

- **Drop products that are no longer being used**
- **Decrease number of installed products:**
- **Consolidate number of machines covered by product licenses**
 - Consolidate product usage to LPARs optimal based on billing
 - Consolidate products brought together from outsourcing or company acquisitions
- **Enhance Vendor contract negotiations** – with significant cost savings
- **Verify deployed z/OS products comply with license terms & conditions:**
 - Avoid audit from detecting illegal product deployments





IBM z/OS Software Checker

Free cut-down version of the TADz Offering

Provides an inventory of IBM Software installed on a mainframe system when running the z/OS operating system.

- Web page with click-through licence agreement.

<https://www.ibm.com/services/forms/preLogin.do?source=swg-ibmzosscheck>

- Install a small package called “IBM z/OS Software Checker” to scan your z/OS environment (approximate Install and Configure time = 30 mins).
- Scan your z/OS environment (less than 30 mins per LPAR).
- Output data is then compressed and FTPed to IBM for report processing.
- Receives two reports (Product Inventory and Product Libraries).



Service Management Connect

Connect, learn and share with the System z experts

- Access to the System z experts
 - Forums
 - Blogs
 - Wikis
- Videos
- Best practices and white papers
- Submit requirements

- > 250+ System z blog entries from the IBM experts
- > 4.5 million hits in 2012
- > 100 featured IBM expert profiles



The screenshot shows the IBM Service Management Connect website. At the top, there is a navigation bar with the text "developerWorks > Technical topics > Service Management Connect". Below this is a large banner with the text "System z" and "Connect. Learn. Try. Share." accompanied by a hand icon pointing at a gear. The main content area includes a welcome message: "Welcome to the System z community, where you can connect, learn, and share with the System z experts." Below this is a section titled "What's hot? What's new?" with a list of updates:

- IBM OMEGAMON Performance Management Suite for z/OS V5.3.0 is available!
- IBM Service Management Suite for z/OS V1.2.0 is available!
- IBM SmartCloud Analytics - Log Analysis z/OS Insight Packs 1.1.0.1 is available!
- IBM Tivoli Workload Scheduler for z/OS V9.2 is available!

 There is also a "Visit the solutions:" section with links to various IBM products. On the right side, there is a sidebar for "IBM Service Engage" with icons for "Simple", "Fast", and "Cost Effective", and a "Communities" list including:

- Application Performance Management
- Asset Management
- Business Service Management
- Cloud/Virtualization Management
- Data Center Automation
- Endpoint Management
- Jazz for Service Management
- Network and Service Assurance
- Process Automation
- Real Estate and Facilities Management
- Software Defined Environments
- Storage Management



Thank You

**Executive presentation are available
for downloading at**

<http://www-01.ibm.com/software/os/systemz/itsm/>

A decorative graphic in the top left corner consists of several overlapping, semi-circular shapes. Each shape is divided into multiple segments of different colors, including shades of orange, yellow, purple, and blue, creating a vibrant, abstract pattern.

Backup



HIGHLIGHTS




- Increased efficiency - Enhanced OMEGAMON functions with OM Performance Management Suite V5.3 updates (e.g. 3270ui Near Term Historical capability).
- Improved Time to Value - Improvement customer experience with a 80% decrease in time of System Automation base installation and configuration.
- Reduced risk of application downtime with proactive automation enhancements (out of the box policy-based management of looping address spaces to help SMEs execute various recovery actions without the need for programming.)
- Increased Visibility and improved application availability – Support of ITM pure events helps System Administrators to get situations reported immediately for selected automation resources to allow for corresponsive actions.
- Proactive outage prevention through analytics - New Monitoring and Automation integration capabilities enable customers to pro-actively avoid outages through predictive insights analytics and zAware hardware automation support
- Improved SME productivity – Multiple users are able to customize and browse an automation policy while a configuration built process runs in parallel.




Predictive Analysis for cloud on z with IBM zAware including Anomaly Detection and reporting

- Save money ensuring z/OS availability (decrease time to perform problem determination and lower Mean time to Repair)
- Problem isolation and management (NetView/OMEGAMON) and event visibility (OMNIbus)

Predict

		
<p>Event Management OMNIbus</p>	<p>Problem Determination NetView CANZLOG</p>	<p>Performance Monitoring OMEGAMON</p>

IBM zAware




Surface Anomalies