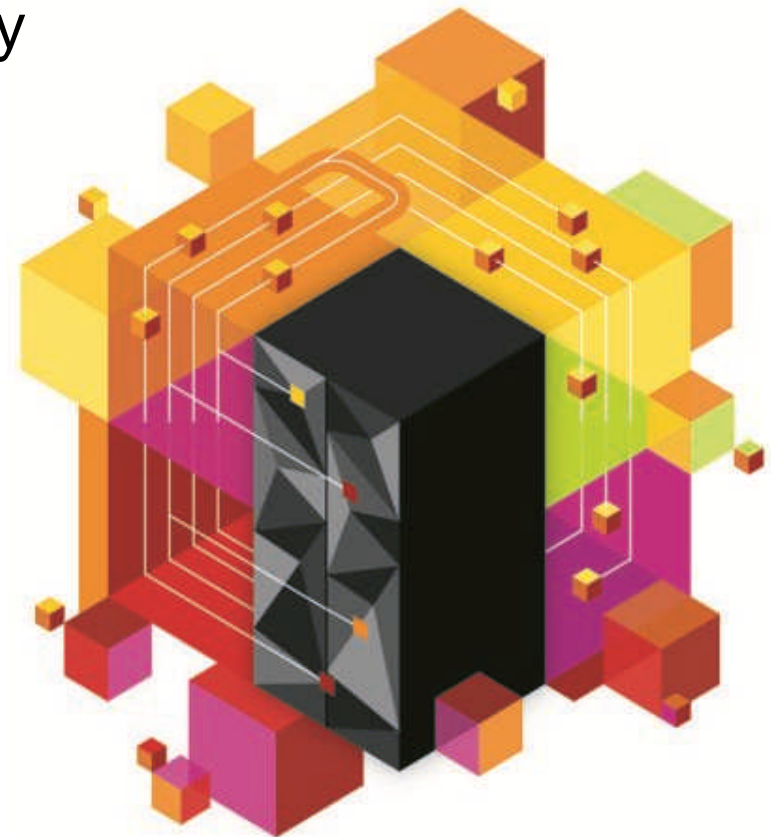Teleconference

Save hardware and software costs by implementing Cloud on System z

March 21, 2013

Mike Baskey, IBM Distinguished Engineer
Chief Architect for Cloud on System z

Cloud implementations that include System z maximize Enterprise flexibility and increase cost savings

Key Takeaways

- IBM SmartCloud open cross-platform architecture includes System z within a fit-for-purpose framework

- System z in Cloud optimizes critical business workloads requiring high availability and performance

- Implement Cloud on System z quickly with Cloud Ready, and easily migrate to SmartCloud over time
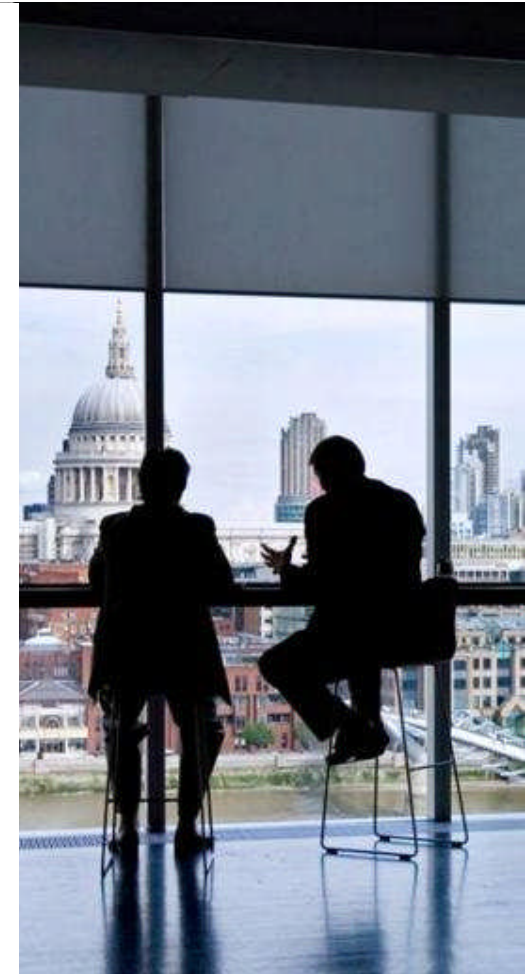
Improve confidence in System z ability to support new operating models and business requirements going forward

Technology now #1 on CEO's list

- Huge challenges of social, mobile and cloud

- Innovations required to remain competitive

Value vs. Cost Pressures

- Managing risks vs. efficiencies

- IT pushed to be more rapid and dynamic

- System z needs modernizing

As companies continue to exploit System z as platform for business critical applications

- 90% of Fortune 500 companies rely on mainframes

- 70% of Enterprise Customers indicate z will play part in **cloud initiatives**

Why are customers continuing to use System z?

- Up to 50% savings on applicable IT costs

- Up to 99.999% availability and uptime

- Secure mixed-workload management

Achieving agility, cost savings and high availability requires:

Visibility   Control   Automation

IBM helping organizations embrace bold strategies to **Rethink IT** and **Reinvent Business**

Smarter Infrastructure

Analytics & Expert Knowledge

Optimize with Cloud	**Extend to Mobile Devices**	**Deploy Smarter Physical Infrastructures**	**Protect & Manage Data**
Speeding service delivery from 45 days to 20 minutes	*Increasing sales with new promotions from 15% to 75%*	*Recognizing & repairing over 50% of issues before operations impact*	*Reducing time it takes to backup critical data by 80%*

IBM provides necessary cross-platform building blocks to achieve savings in Cloud-enabled Data Center

IBMSmart**Cloud Foundation**

- **Comprehensive** set of offerings

- **Optimized patterns** of adoption

- **Heterogeneous** environment support

- Interoperate based on **open standards**

Platform as a Service

Lifecycle	Resources	Environments	Applications	Integration

Infrastructure as a Service

Infrastructure	Admin	Performance	Security	Usage

citi
- Speed infrastructure delivery from 45 days to 20 minutes
- Improve server to administrator ratio from 10:1 to 100:1

SmartCloud Foundation offer private cloud across platforms with open "fit for purpose" approach

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

Flexibility to choose platform that meets business requirements

- Management tools are **consistent** and **interoperable** across platforms

- Open standards approach avoids vendor lock-in

- Common tools translate to low learning curve

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

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

CIO / IT Executive

Dev & Operations Teams

Operations Teams

Infrastructure Teams

4 Cloud Enabled Data Center

"I need to orchestrate services across domains"

Self Service Automation

Usage Metering and Chargeback

SmartCloud Orchestrator

openstack

3 Workload Optimized Cloud

"I need to standardize and optimize applications to deliver faster"

Workload Optimized Patterns

SmartCloud Provisioning

openstack

2 Virtualization Optimization

"I am not gaining benefits of virtualization: image sprawl, compliance, lack of visibility"

Image Management

Cloud Ready for Linux on z

openstack

1 Self Service Delivery and Management

"I need to reduce my capital costs, lower utilization, and gain accountability for resource usage"

Virtualization Management

openstack

System z provides key values for workload optimization across cloud implementations

- Automated provisioning from simple VMs to clustered infrastructure applications

- Automated and integrated server lifecycle management for physical and virtual machines across platforms and hypervisors

- Pre-built automation that can be leveraged by customers existing tools

Benefits:

- Client turnaround time reduced per service request from **2 months down to 4 hours**

- Build simple to complex VMs consistently and fast in an automated fashion

- Ensures standardized rollout at large volumes according to enterprises' best practices

  - 7 by 24, highly available and meeting highest security standards

Typical scenario for increased numbers of VMs on x86 versus Cloud on z reveals significant savings

	Published WWW pricing 2012-05-28	zCloud		x86	Amazon	Google
z114	100 VMs	£136.51		£142.25		
z114	250 VMs	£72.94		£94.21		
z114	450 VMs	£48.98		£68.36		
z196	450 VMs	£53.93		£68.36	£97.09	£89.90
z196	1600 VMs	£38.28		£62.03		
z196	3200 VMs	£37.72		£60.15		

Note: All prices per VM per month and assuming 24x365 availability & usage

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Quick and easy implementation of Private Cloud on System z with provisioning of images and applications

Cloud Ready for Linux on System z

Cloud Monitoring

Service Lifecycle Management

Cloud Backup/Recovery

Automated Provision/De-Provision

Cloud Automation

Installation/Configuration support

Benefits:

- Bring up Cloud on Linux on System z in less then a week
- Quickly begin to see value of Cloud on System z

Visibility

Enhanced visibility and management for z/VM and Linux applications and resources saving time and money

Cloud Monitoring

Increased Performance & Availability

- zVM Live Guest Relocation & Single System Image

Cloud Health Visibility and Optimization

- Performance and Availability metrics/analytics

Extensible Cloud Environment

- Business Expansion based on capacity planning
  - Grow without adding hardware

Client Success

- Cloud service provider **consolidates 59 development & test labs into 6**.
- Increased utilization by **increasing VM density by 58%**

Holistically govern IT assets and workload lifecycle resources across entire enterprise Cloud

SmartCloud Control Desk

Manage cloud services from single console utilizing Service Catalog

- Asset lifecycle management
  - SLA based services and policies .
- Simplified control with intelligent provisioning
- Automate service request handling

Benefits:

- Minimize outages related to changes within IT Operations by **up to 70%**
- Increase Process Speed and Efficiency by **up to 40%**
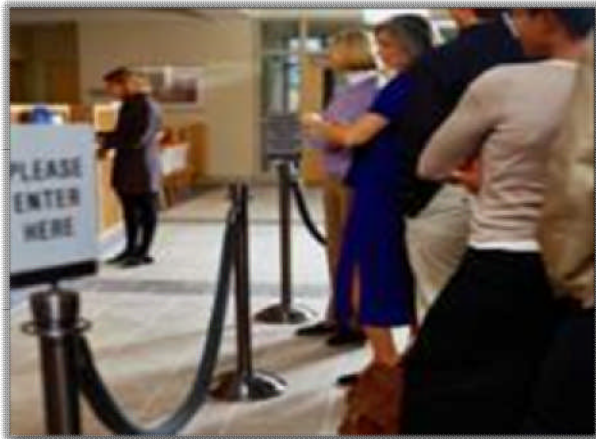- Increase Service quality and responsiveness by **up to 60%**

Automated Provisioning simplifies end-user access and usage for improved agility and productivity

Provisioning/De-Provisioning

Combines infrastructure and platform capabilities

- Deliver elastic workload aware management
- Virtual and physical server optimization
- Dynamically allocating resources
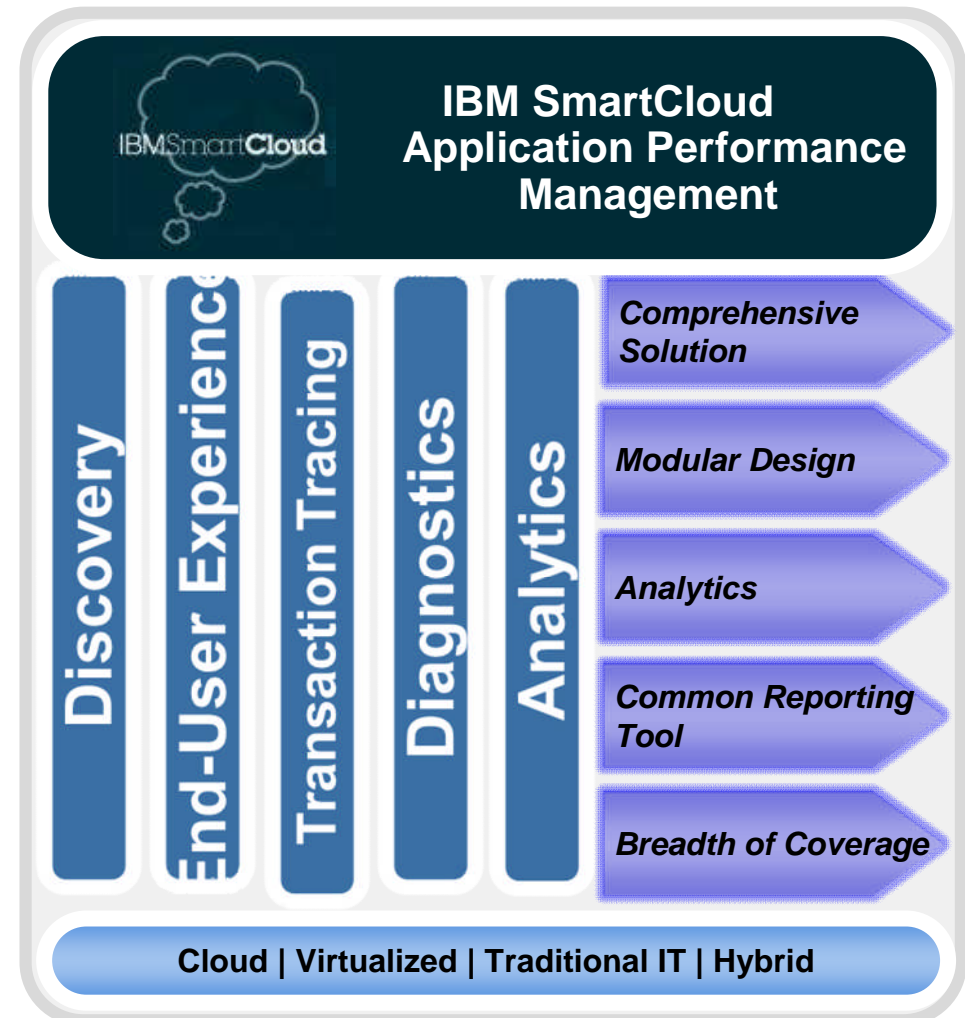- Enable new delivery and billing options

Benefits:

- Reduce IT labor cost **by 50%** in operations, management and monitoring
- Improve capital utilization **by 75%,** significantly reducing license costs
- Reduce provisioning cycle times from **weeks to minutes**
- Can reduce end user IT support costs by **up to 40%**

Intelligently manages Cloud infrastructures across heterogeneous platforms

- Comprehensive application/workload solution

- Modular design to get started quickly and add capabilities as needed.

- Analytics to improve capacity utilization and optimize performance

- Common reporting tool, based on Cognos, makes reporting simple and easy to customize

- Single trusted source of information for accurate and fast problem diagnostics

- Entry edition available for mid market clients

IBMSmartCloud

IBM SmartCloud Application Performance Management

Discovery

End-User Experience

Transaction Tracing

Diagnostics

Analytics

Comprehensive Solution

Modular Design

Analytics

Common Reporting Tool

Breadth of Coverage

Cloud | Virtualized | Traditional IT | Hybrid

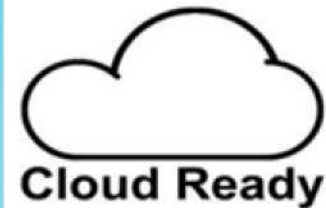# Customers exploiting different approaches to take advantage of Cloud on System z today

Workload consolidation to Linux on System z

- Reduce administration and capital cost

- Remove inefficiencies due to image sprawl

- Avoid server and workload underutilization across platforms
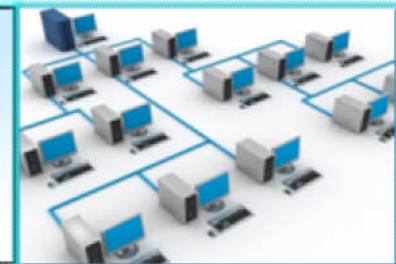
Enabling System z to be Cloud Ready

- Get up and running quickly with Installation/Configuration Services

- Provide platform to easily interface to Enterprise wide cloud services

Cloud Ready

Creating Peer to Peer Cloud across Distributed and System z

- Provide workload optimization based on business requirements

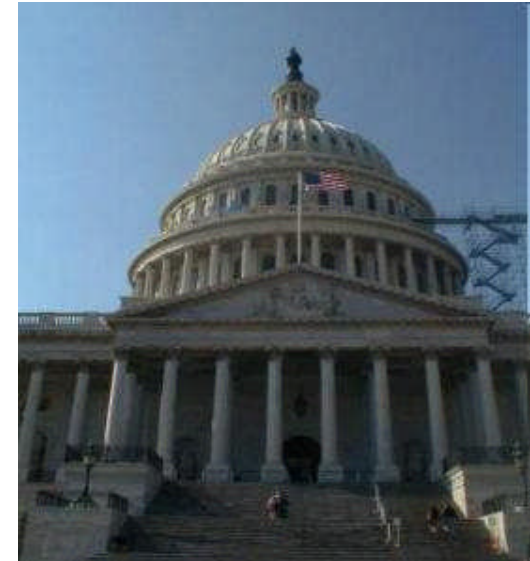- Manage from either distributed or z platform

Government agency modernizing for cost avoidance and investment protection based with Cloud approach

Business Challenge:

- US Government agency wanted asset management solution for physical assets (e.g. vehicles, equipment)

- Needed to deploy environment to support 5000 users

IBM Solution:

- System z10 Server with 28 IFLs

- Oracle DB for Linux on System z Servers

- IBM Maximo Asset Management for System z

Business Benefit:

•Leveraging unused processors on System z

•**Deploy in 1/3 time** of x86 servers and no additional energy costs

•Software license charges **saved $1 million** on System z

•**Included Disaster Recovery** on System z, where it would double x86 costs

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

Client Pain Points addressed by solution:
- Need to standardize development in Fit-for-Purpose model
- Reduce complexity of deploying workloads
- Take advantage of best platform that met characteristics
  - Initially across z Linux and x Linux.
- Monitoring and capacity management that spans x, z and p based on SLA

Solution description:
Application Deployment of standardized patterns on an integrated, optimized expert system for faster time to market
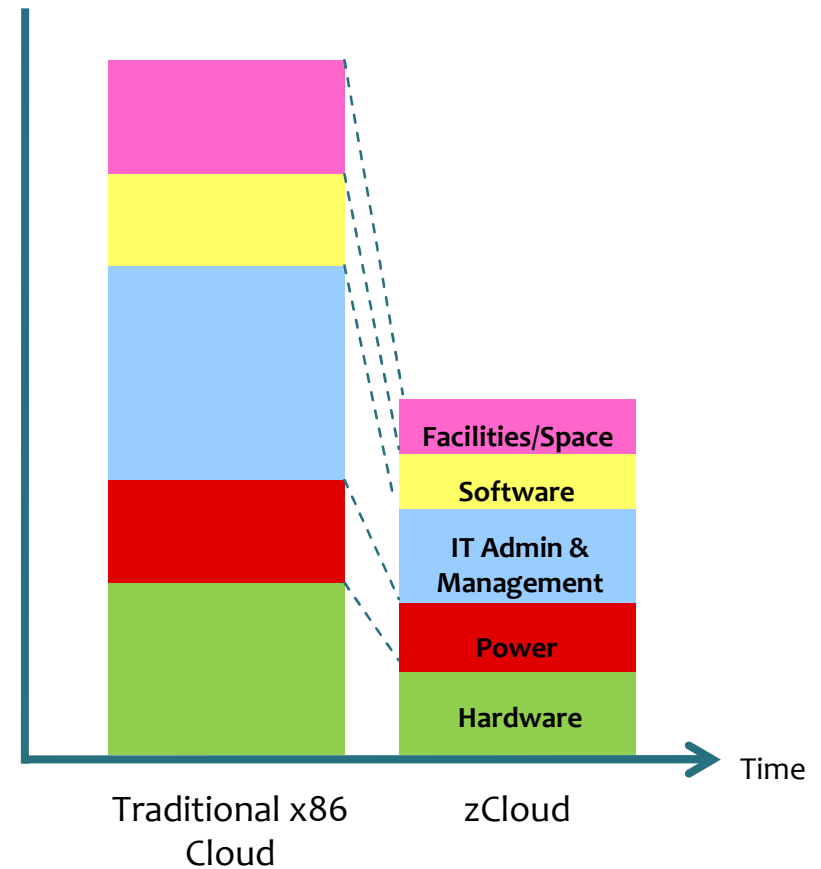
IBM Value Add:
- Patterns to reduce complexity of application development
- Consistent user and admin interfaces across x and z
- Abstraction in elements used to manage platform selection based on customer policies
- Initial platform for cloud delivery with ability to grow

Cloud on System z can deliver more Virtual Machine Images for significantly less cost then other platforms

HALF

THE PRICE

	Facilities/Space
	Software
	IT Admin & Management
	Power
	Hardware

Traditional x86 Cloud   zCloud   Time

Note: Assumes 4,350 VMs

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