IBM BusinessConnect

Ključ do rešitev 2014

Misli prihodnost. Bodi sprememba.

GH Bernardin | 23. oktober 2014

IBM BusinessConnect

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Misli prihodnost. Bodi sprememba.

Mainframe "Behind the scenes"

Aleš Gros

Technology is essential for leadership

LEAD
your industry through differentiation

GROW
through new markets, services, business opportunities

INNOVATE
with disruptive technologies

Constant evolution driven through **co-creation** with our clients

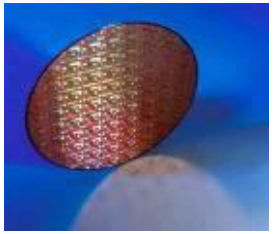
IBM System/360™

PR/SM Virtualization

CICS, DB2 & IMS

Parallel Sysplex

Bipolar to CMOS

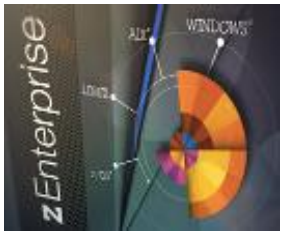


Capacity on Demand

Linux

Java

Hybrid with zBX



IBM DB2 Analytics Accelerator

IBM zEnterprise EC12 & zBC12

The Modern Mainframe

Continuous evolution for leadership in the new era of IT

The ultimate **Analytics** engine for instant insight

The foundation for a **Mobile** and **Social** enterprise

Superior service at lower cost through **Cloud**

A robust and **Trusted** infrastructure

Impact of the MainFrame on French Economy

A Platform for the Future – IDC Study

Partners say Mainframe is appropriate for next projects on

- Cloud **52%**
- Mobile **50%**
- Big Data **70%**

GDP

13 % of French GDP is operated by Mainframes

2,8 % Of French Total IT spent

65% of mission critical applications run on mainframe

30,000 associated Jobs

20% of Mainframe Customers develop Open Source solutions on Mainframe

15% of Mainframe Workloads are based on Open Source applications

40% of the ecosystem partners consider **Data & Application Security** as a key driver to invest on Mainframe

40% of companies plan new hiring in 2014

300 Partners in the ecosystem

Enable better, faster decision-making

with the ultimate analytics engine for insights in an instant

72% of respondents plan to analyze transactional data from enterprise applications

80% of world's corporate data resides or originates on mainframes

The greatest value occurs when you **execute analytics where the data originates**

Avoid the high cost of ETL

Centralized data security and governance

Enable in-transaction analytics

ANALYTICS

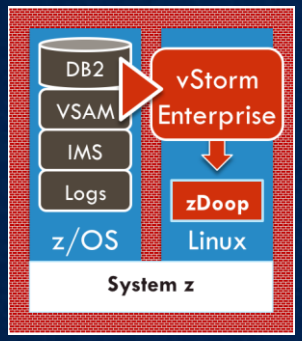
Speed time to value & insight

with new data and analytics offerings on the mainframe

Industry's first commercial Hadoop for Linux on System z

NEW

- Veristorm partnership
- Analyze System z data using Hadoop without ever leaving the box
- 2 billion records in 2 hours using 2 IFLs



High-performance Flash Enclosure for IBM DS8870

NEW

- Up to 4x increase in I/Os per second performance over SSD, 30x over disk
- Accelerate System z database performance by up to 3.2x; shrink batch times by up to 10%
- Faster FlashCopy replication with up to 70% better response time than disk

NEW

Enhanced file transfer with DS8870 and IBM Sterling Connect:Direct

- Cut data transfer CPU cost by up to **50%**
- Reduce transfer time by up to **30%**

IBM

MOBILE

The smart phone's ultimate accessory

enables growth through optimized engagement

Big opportunities
for business growth through small screens

10 billion+
devices accessing information

70 percent
increase in mobile data bandwidth usage per year

Bridging Systems of Record with Systems of Engagement

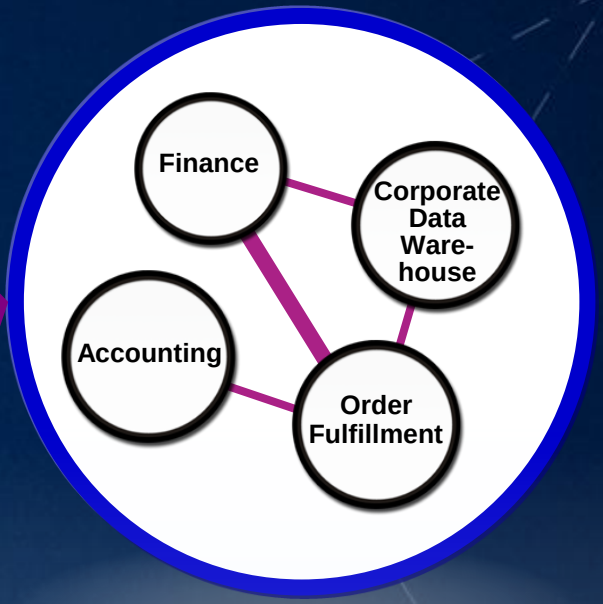
as a foundation for a mobile enterprise

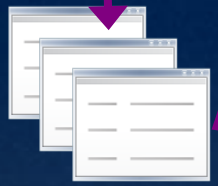
Mobile transactions can quickly outpace traditional transactions

Systems of Engagement

Systems of Record and CORE Applications

Mobile Apps





Existing Web Apps

Cloud APIs

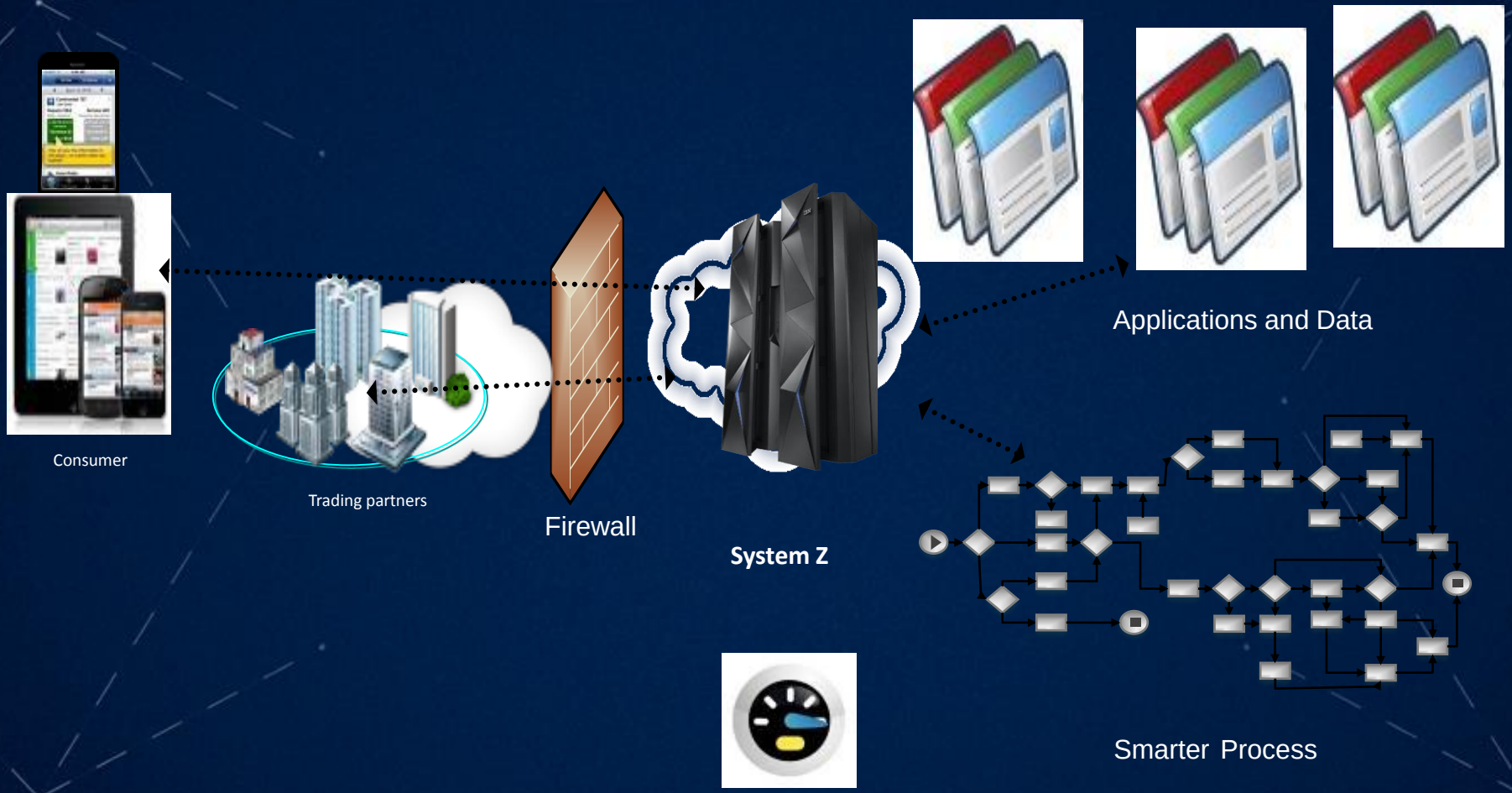
Systems of Engagement are cloud-based, decentralized, support rapid app development

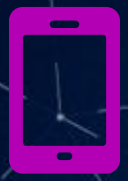
Linux on z

z/OS

Systems of Record are well integrated, trusted repositories

Mobile App integration with Z Applications and Processes





Build & integrate enterprise & mobile applications to optimize the customer experience

NEW

IBM WebSphere Liberty z/OS Connect

Rapid and secure enablement of web, cloud and mobile access to z/OS assets

Discover z/OS assets Simplified connection
Auditing and chargeback

Embedded in z/OS middleware:

CICS, IMS, WebSphere Application Server Batch, UNIX applications

IBM CICS Transaction Server v5.2

Enhanced mobile protocol support and flexible application lifecycle management in a cloud environment

NEW

IBM Mobile Quality Assurance

Capture tester and live-user experience for building great mobile apps

NEW

IBM Continuous Integration for System z

Compresses application delivery cycle from months to weeks or days

NEW

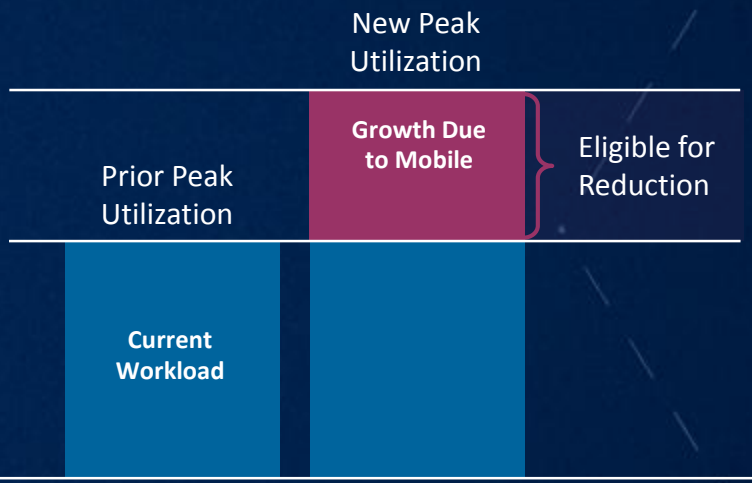
MOBILE

New System z Mobile Workload Pricing

enables IT investments to scale with growth & business returns of mobile

Improving the economics of mobile computing

NEW



No infrastructure changes required

Available on zEnterprise EC12 & zBC12

Up to 60% reduction in incremental growth from mobile transactions

SOCIAL

Drive innovation & productivity

through social business on the strength of the mainframe

71% of CEOs
rate their employees as their most important source of sustained economic value

Drive enterprise-wide collaboration

Design and implement social strategies

Empower every employee

400,000+
IBMers generating vast amounts of information

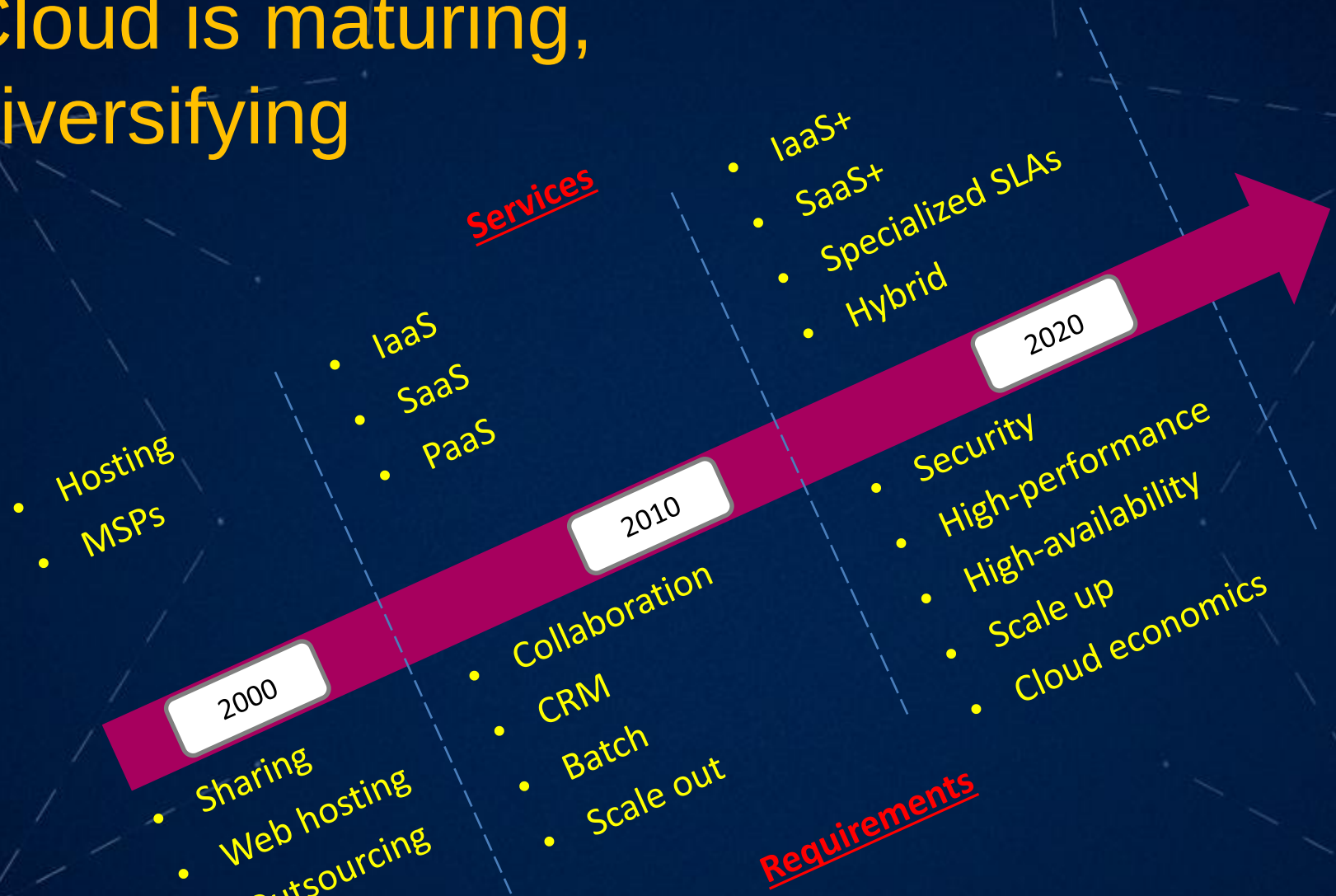
50 million+
instant messages per day

75%
lower cost

Scalable
to accommodate rapid growth and enable non-disruptive change

IBM

Cloud is maturing, diversifying



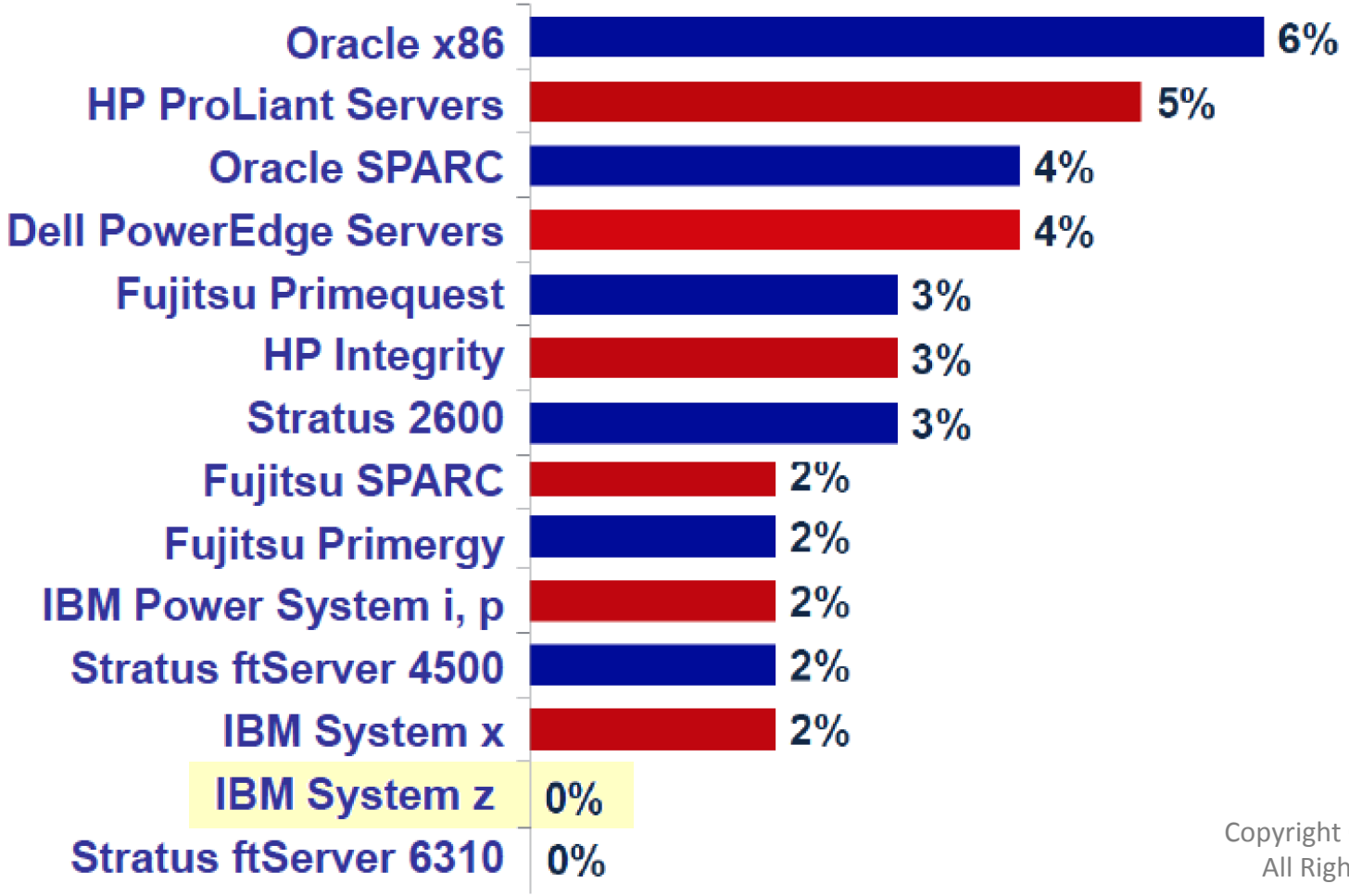
Top Ten Cloud Outages in 2013

1	**Microsoft's Windows Azure** October 30 >20hrs	global | $ $	A sub-component of the system failed worldwide
2	**Google** August 16 <5mins	global | $	Services went down, causing global Internet traffic volume to plunge by about 40%
3	**Amazon Web Services** September 13 <3hrs	national | $	Connectivity issues affected a single availability zone, disrupting a notable portion of Internet activity
4	**NASDAQ** August 22 3hrs	national | $ $ $ $	Software bug, and inadequate built-in redundancy capabilities, triggered a massive trading halt in the U.S.
5	**OTC Markets Group Inc** November 7 >5hrs	national | $ $ $	Network failure prompted a shutdown in over-the-counter stock trading in the U.S.
6	**HealthCare.gov** October 27-28 >16hrs	national | $	Downtime caused by a service outage at Verizon Terremark data center
7	**Amazon.com** January 31 49mins	customer | $ $ $	1hr of interrupted service may have translated to $5M in lost revenue
8	**Microsoft /Hotmail/Outlook.com** March 13 <16hrs	customer | $ $	Firmware update caused servers to overheat. Hotmail and Outlook.com suffered a service loss
9	**Google Drive** March 18-20 17hrs	customer | $ $	Slow download times caused by a network control software glitch, resulted in latency and recovery problems
10	**Google's Gmail** September 23 12hrs	customer | $	Slow download times triggered by dual network failure affected 29% of users

With the Internet of Things creating increased dependence on the cloud for applications and access to data, there's more at stake today than ever before.

Reach	Effect
global	$ financial
national	reputation
customer	

Downtime of more than 4 hours on each server hardware platform (2012-2013)



CLOUD

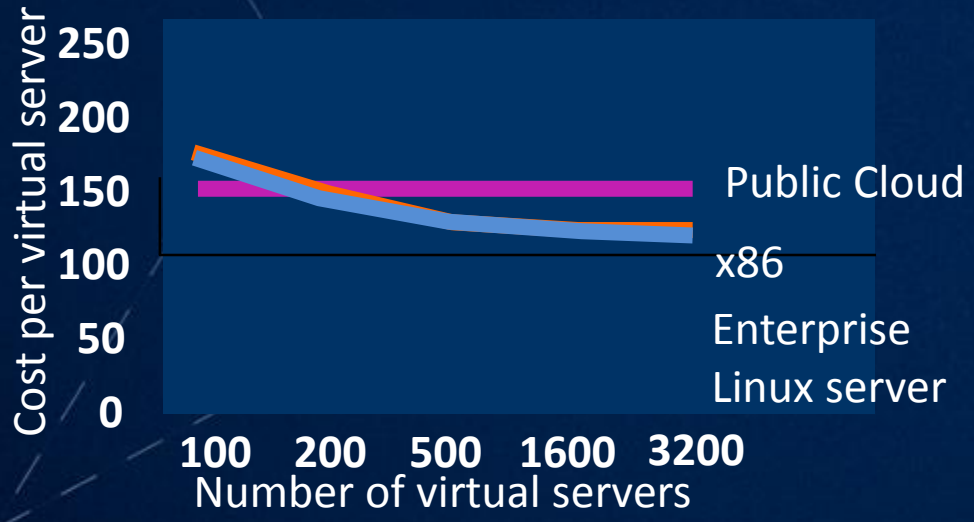
zEnterprise redefines efficiency & economics of IT

enabling new levels of business agility

Economics will continue to be #1 driver of cloud adoption through 2016

80% view **security** as #1 challenge to cloud; 48% concerned with **reliability**

Delivering superior service at lower cost than legacy x86 or Public Cloud vendors



Nationwide

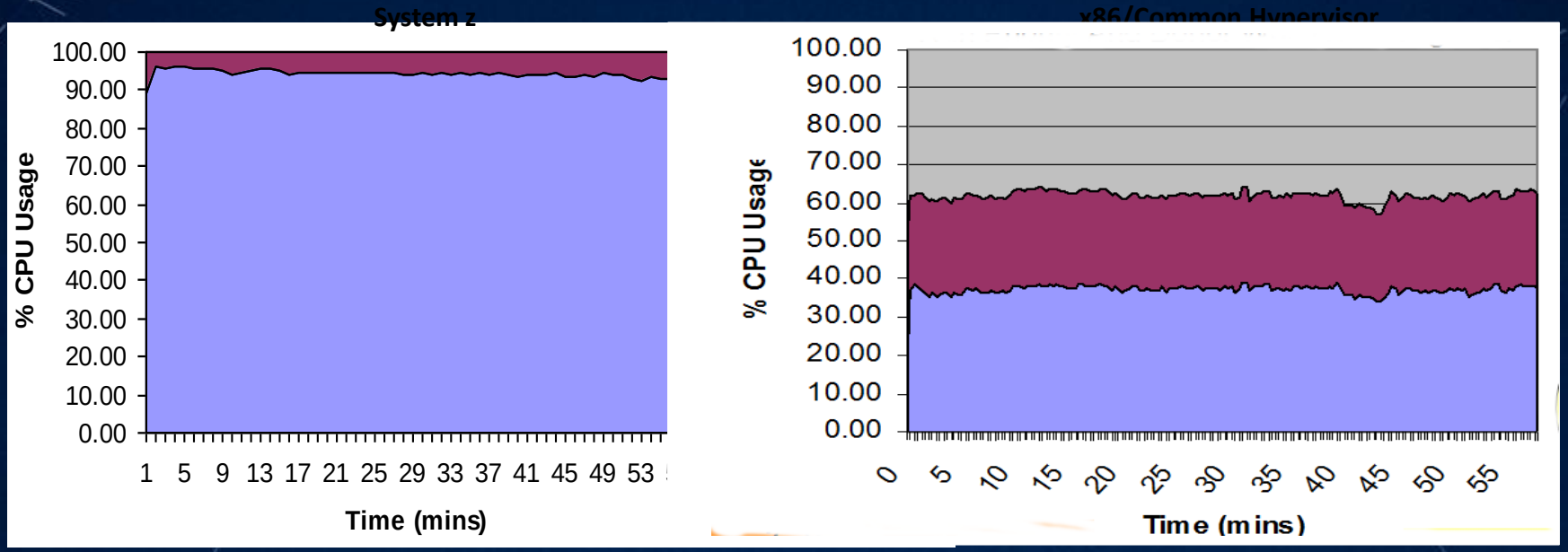
Saved **$46 million** through consolidation

Cut data center costs by **70%**

Algar Telecom

IBM

High Priority Workload on **System z** does not degrade when Low Priority Workload is added

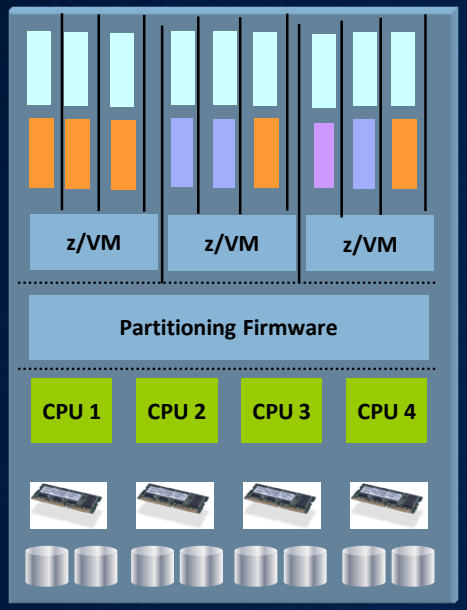


- High Priority Workload
  - 0.5% throughput reduction
  - 0.7% response time increase
- Low Priority Workload
  - Soaks up remaining CPU minutes
- Wasted CPU minutes 0%

- High Priority Workload
  - 43.5% throughput reduction
  - 76.9% response time increase
- Low Priority Workload
  - Soaks up more CPU minutes
- Wasted CPU minutes 38.2%

The Ultimate Virtualized System

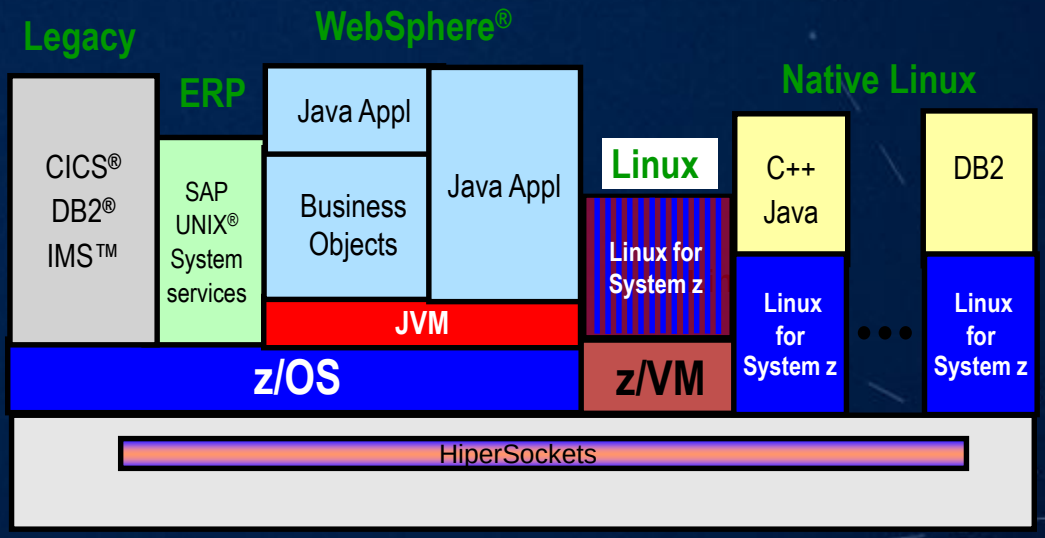
IBM Mainframe



Utilization often > 80%

Handles **peak workload utilization of up to 100%** without service degradation for high priority workloads

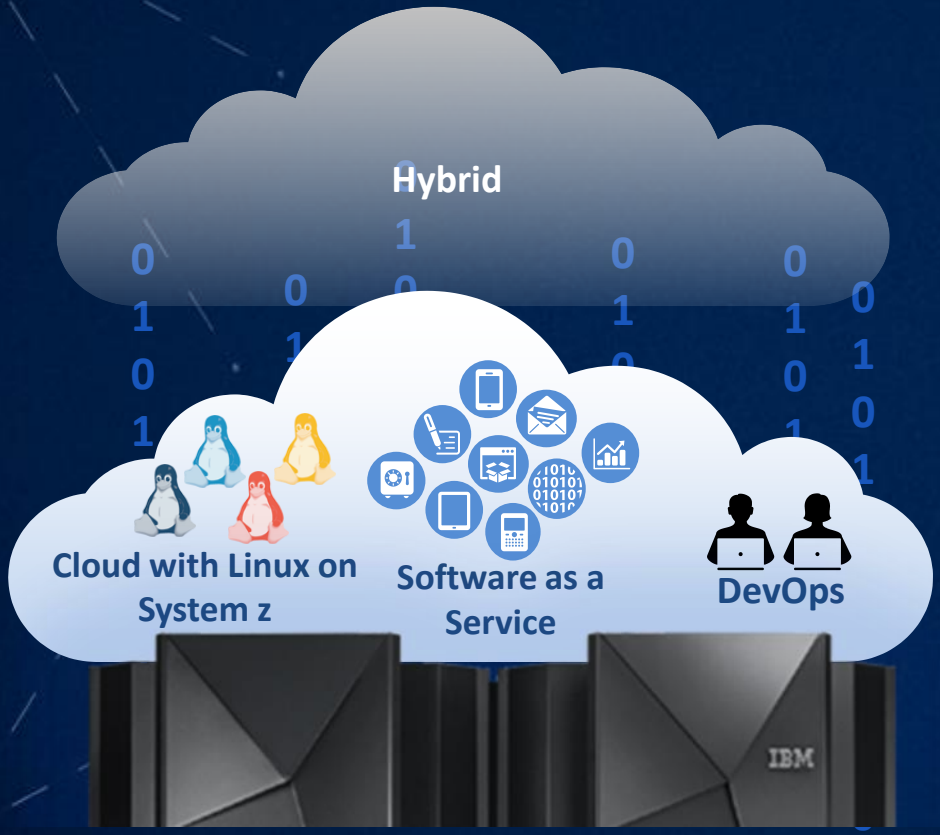
- Massive, robust consolidation platform
- 60 logical partitions, 100's to 1000's of virtual servers under z/VM
- Virtualization is built in, not added on (Processor and I/O)
- HiperSockets for memory-speed communication, as well as Virtual Hipersockets via Guest LANs in z/VM
- Most efficient hypervisor function available
- Sysplex (Single System Image Clustering)
- Intelligent and autonomic management of diverse workloads and system resources based on business policies and workload performance objectives:



CLOUD

System z: The multi-dimensional cloud

for extreme flexibility and business value



App Dev cloud

Maximize efficiency by tapping unutilized resources

z/OS cloud

Core business operations enabled as cloud services

Hybrid cloud

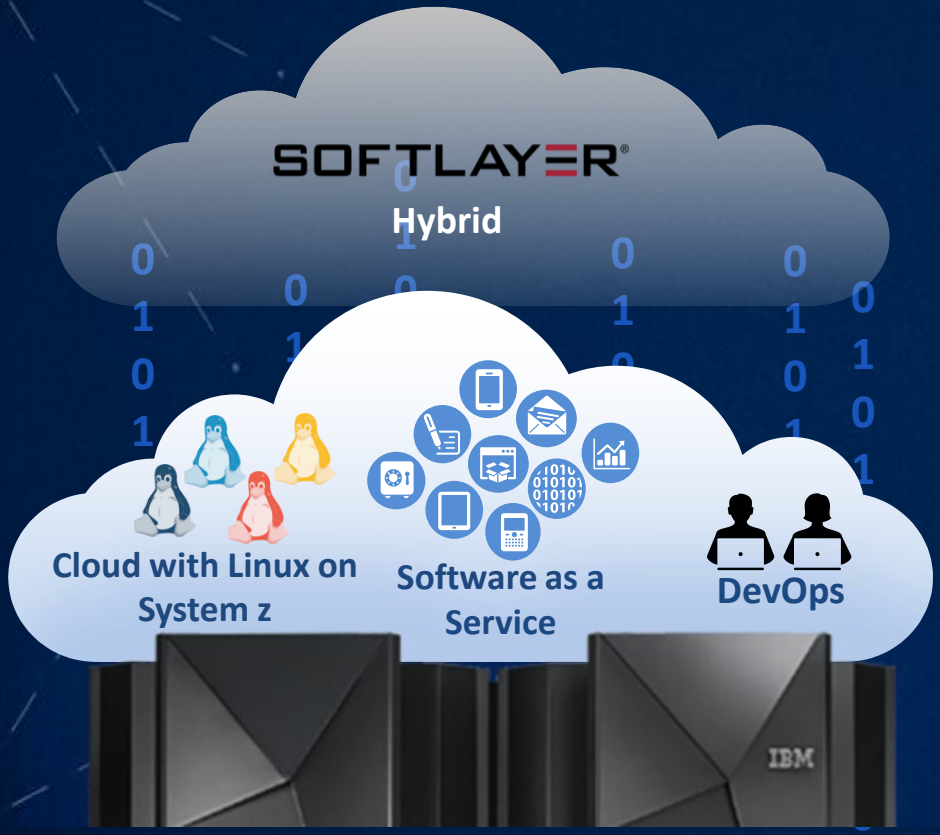
Maximum flexibility through use of on- and off-premise resources

Linux on z cloud

Highly efficient fully virtualized infrastructure

CLOUD

Optimizing the integration of System z and SoftLayer for hybrid cloud



NEW

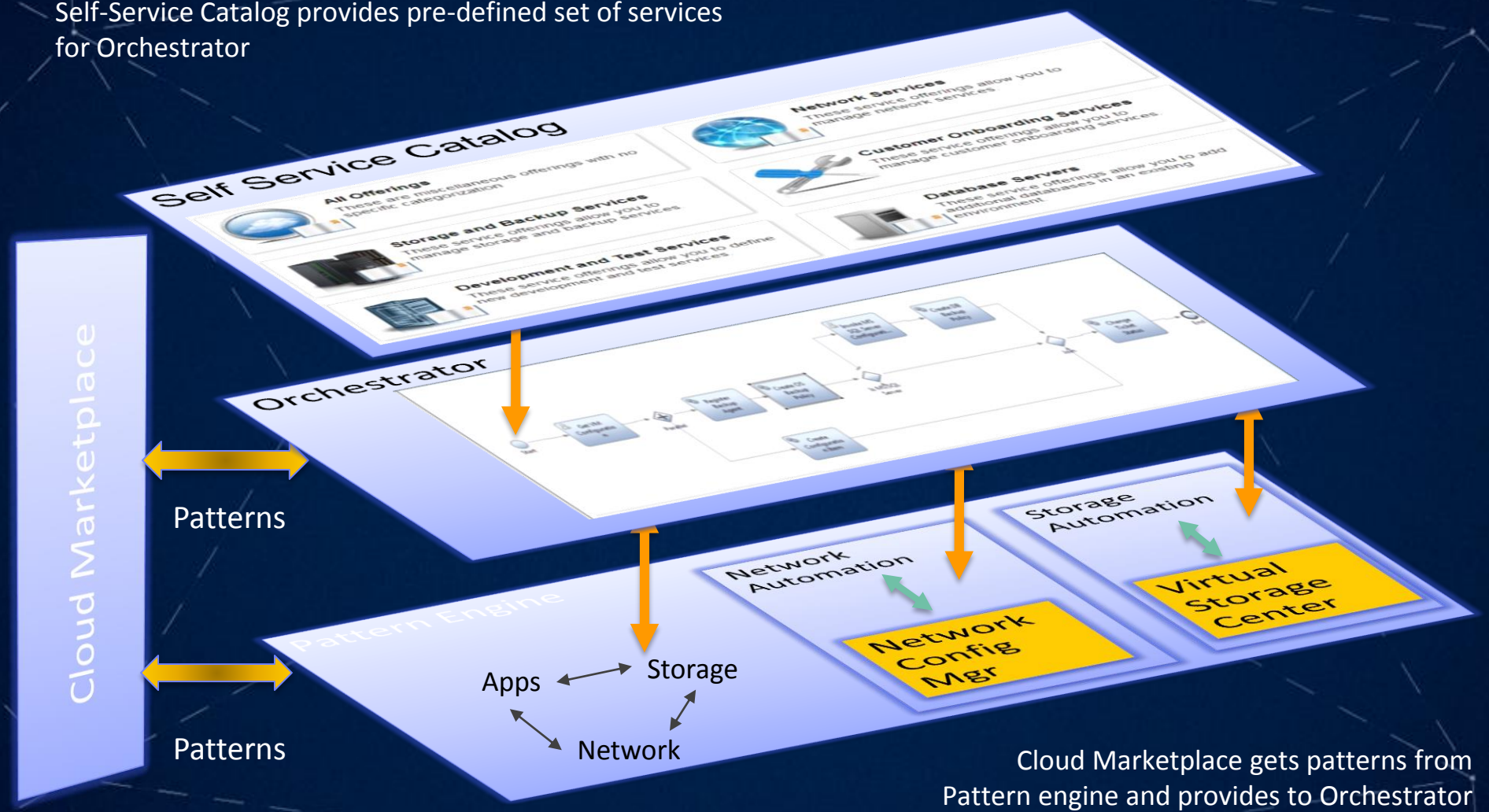
A robust hybrid infrastructure
for greater flexibility and resource optimization

Enables remote workloads to benefit
from many System z strengths

Proven configurations
to deliver on SLAs, minimize network latency and optimize secure connectivity

Scenario to create cloud services to deploy workloads

Self-Service Catalog provides pre-defined set of services for Orchestrator

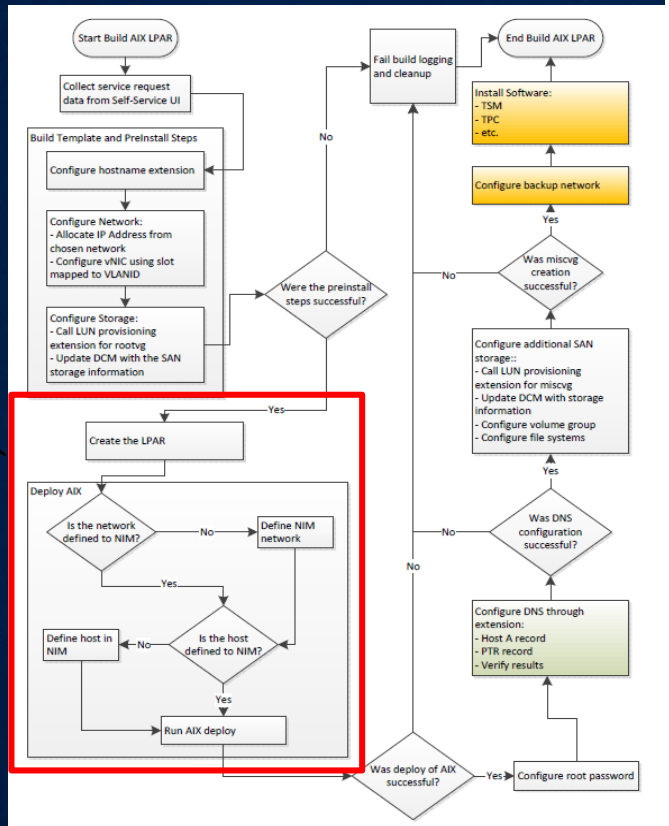


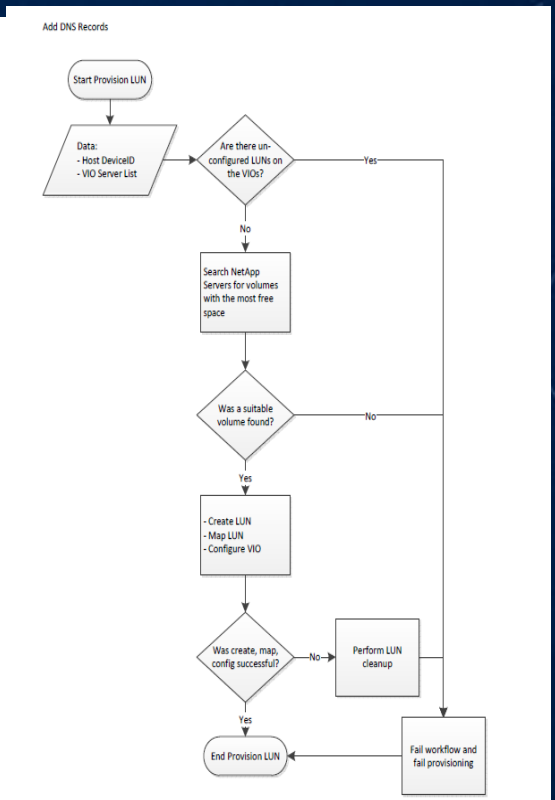
Cloud Marketplace gets patterns from Pattern engine and provides to Orchestrator

Why do we need an Orchestrator ?

1. Customers are looking for end to end automation of cloud service delivery to achieve greater returns
2. Provisioning play a key role, but is just one of many steps that must be automated
3. Each customer has unique requirements to integrate with existing data center processes and tools

VM Provisioning





Real customer example

CLOUD

Ongoing investments in Linux & cloud solutions on zEnterprise enables speed, flexibility & efficiency

IBM Enterprise Cloud System

NEW

Integrated solution for rapid deployment of secure & reliable public, private and hybrid cloud

PUBLIC PRIVATE HYBRID

IBM Utility Pricing for System z

NEW

Flexible pay-as-you-grow pricing for the enterprise cloud system and more

IBM Linux & Cloud Centers of Competency

NEW

Accelerating cloud & open source adoption on zEnterprise

IBM Wave for z/VM

NEW

Manage virtual machines with drag-and-drop simplicity

CLOUD

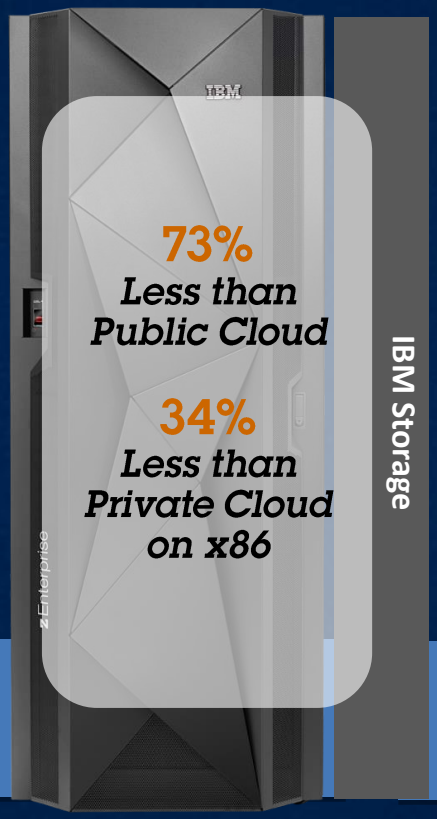
IBM Enterprise Cloud System

Trusted Cloud. Better Economics. Simply Delivered.

Open Linux Environment

Fully Automated Cloud Management Suite

Hypervisor and Virtualization Management



73%
Less than Public Cloud

34%
Less than Private Cloud on x86

Utility Pricing and MSP Flexible Financing

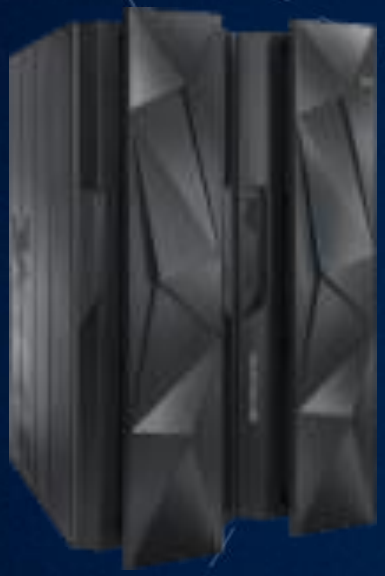
Trusted, 24/7 IBM Support

Award Winning Hardware Design

- Factory Integrated
- Delivered in 45 Days
- Production Ready in Hours

- Scale up to 6000 VMs
- Mainframe Availability
- Proven Security

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



Cloud Management

Self Service Catalog

Pre-defined menu of Services

SmartCloud Orchestrator

Cloud Automation

Open, scalable platform

Cloud Marketplace

Pattern sharing/re-use, from engine

Rich set of ready to use **patterns**

Add on

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

Infrastructure Management

IBM Wave

Simple, intuitive, graphical **z/VM management tool**

Ops Mgmt/Backup & Archive

Key set of **z/VM tooling**

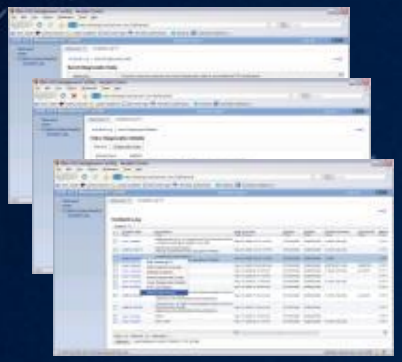
Cloud Computing on **z/OS**

With z/OS, we need to think about cloud just a bit differently…..

- Today in cloud environments on distributed servers, or even with Linux on System z, customers would provision a virtual machine with an instance of an operating system to run a single workload.
  - To deploy another workload would mean another virtual machine with another instance of the operating system.
- However, in the context of z/OS, this methodology goes against everything we have come to know and expect about z/OS.
  - On z/OS, you have the ability to run multiple disparate workloads with different service levels for those hosted workloads with isolation or multitenancy.
- Hence our **approach for cloud on z/OS** is not focusing on the provisioning of operating system instances, but rather **the ability to provision multiple workloads in a single z/OS instance.**

Cloud Computing on **z/OS**: Provisioning Scenario

Workload Pattern



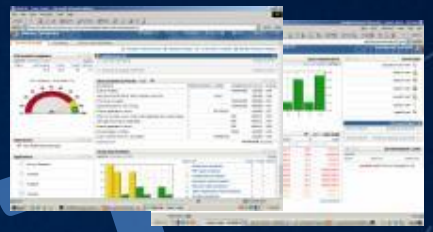
A Cloud workload has been defined that includes integration with WebSphere App Server on Linux for System z and CICS/DB2 system on z/OS

The Application developer creates a pattern to describe the application topology by pointing to a WAS virtual system pattern (virtual image)

SmartCloud Orchestration

The system programmer then launches into SCO to create workflow which will orchestrate the provisioning on the z/VM and Linux for System z system and interface to z/OSMF to cause the CICS and DB2 artifacts to be provisioned/deployed with appropriate configuration (e.g. network and security settings to satisfy the pattern)

z/OSMF - Workflow Broker



The administrator customizes the z/OSMF workflows for CICS, DB2, Communication Server and Security server to support the workflow request to drive each platform's REST APIs to accomplish the required configuration requests.

CICS and DB2 Administration

Verify / Review the CICS & DB2 parameters before deploying

A trusted infrastructure is essential for a cloud, analytics, mobile & social-enabled business

zEnterprise delivers trust and confidence with unmatched security and reliability

Highest
assurance level of security with Common Criteria certification (EAL 5+)

Enterprise Key Management
across mainframe and distributed

Encryption
of data at rest, in flight, and in use

IBM Security zSecure SSE ENHANCED

Prevent malicious attacks with enhanced security intelligence and compliance reporting, with up to **70% savings**

IT Analytics
to spot potential failures and capacity needs before they occur

99.999%
design point for application availability

Zero Second
recovery point objective across thousands of miles

Reinventing & transforming
for competitive advantage

SICOOB

Serving **2.6 million** people while supporting rapid business growth with robust, secure and efficient mainframe technology

Enabled growth of:

600% in mobile, **200%** in internet, **60%** in in-branch transactions,
24% increase in tariff revenue through analytics,
and avoids **USD 1.5 million** in electricity costs annually through the cloud

IBM

The future of next-generation mainframe systems

Cognitive systems

Neurosynaptic chip

Hybrid computing 2.0

Hybrid clouds

Advanced, open KVM virtualization

Atomic level storage

Optical circuits

Greater parallelism

Natural intuitive interfaces

Tamper-proof processing

Self check-pointing and invisible failover

Innovative technology

for the next generation of business leadership

"This is the beginning of a new generation—not only of computers—but of their application in business, science and government."

–Thomas Watson, Jr.

THANK YOU

IBM BusinessConnect

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GH Bernardin | 23. oktober 2014