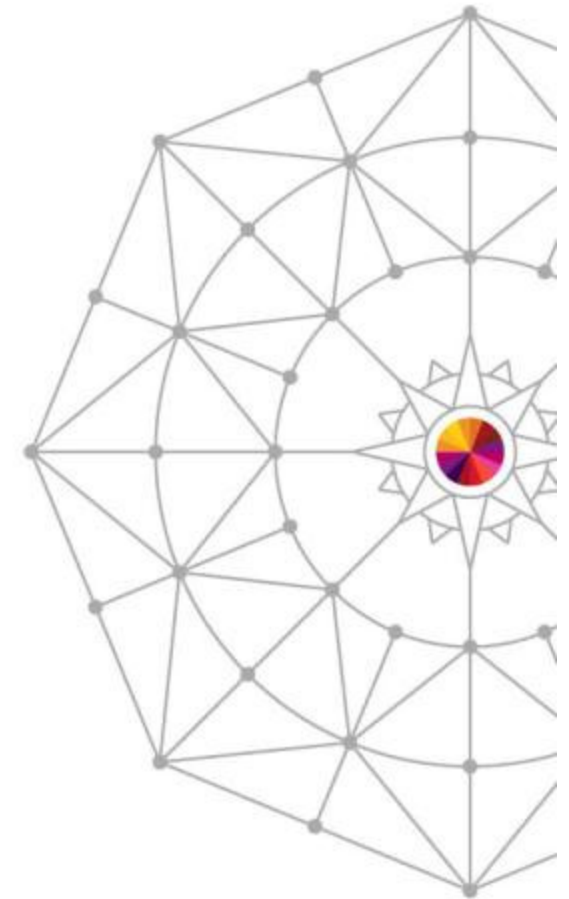




# Cloud on System z: Case Studies

Brett Webb  
IBM Corporation

March 11, 2014  
Session Number 15287



# Advisory: This is not a technical session

If your exec management said “Go build me a cloud on our mainframe,” and you’re here to figure out how to do it, this might not be the session for you



- Most barriers to cloud on z are not technical
  - Customers have been doing some form of technical “cloud” on z for several years
  - Barriers tend to be either
    - Political
    - Lack of awareness or invalid assumptions
    - The significant marketing campaigns by vendors who do not have a z offering
- Technical arguments don’t have a good history of winning against emotional or financial arguments
- Several other SHARE sessions address the technology (see next chart)

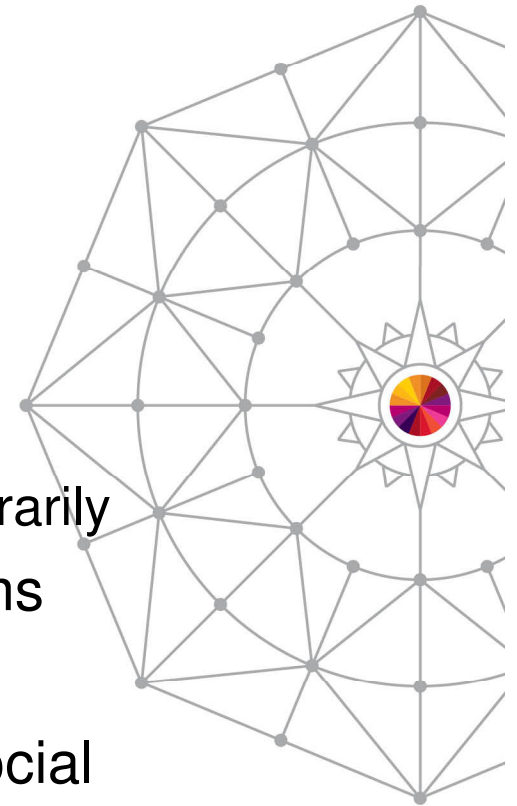


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# What does “Cloud Computing” mean?

*It depends upon who’s talking*

- To some business people:
  - “Pay by the drink” (lower cost)
  - No in-house IT (lower cost)
  - Faster time to market/value
- To some IT folks:
  - Any virtualized environment
  - Inexpensive hardware I can get quickly and temporarily
- To developers: quicker access to dev/test systems
- To some Vendors: Whatever I have to sell
- To millennials/teenagers: contacts, music, vids, social



# A Standards Body Defines Cloud Computing

## *The NIST Definition of Cloud Computing*

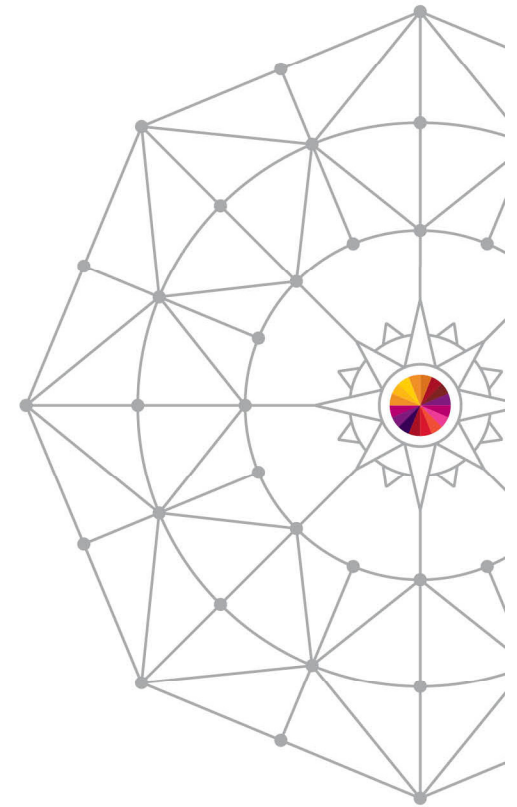


- Essential Characteristics:
  - On-demand *self-service*
  - Broad network access
  - Resource pooling
  - Rapid elasticity
  - Measured service
- Service Models:
  - Software as a Service (SaaS)
  - Platform as a Service (PaaS)
  - Infrastructure as a Service (IaaS)
- Deployment Models:
  - Private Cloud
  - Community Cloud
  - Public Cloud
  - Hybrid Cloud

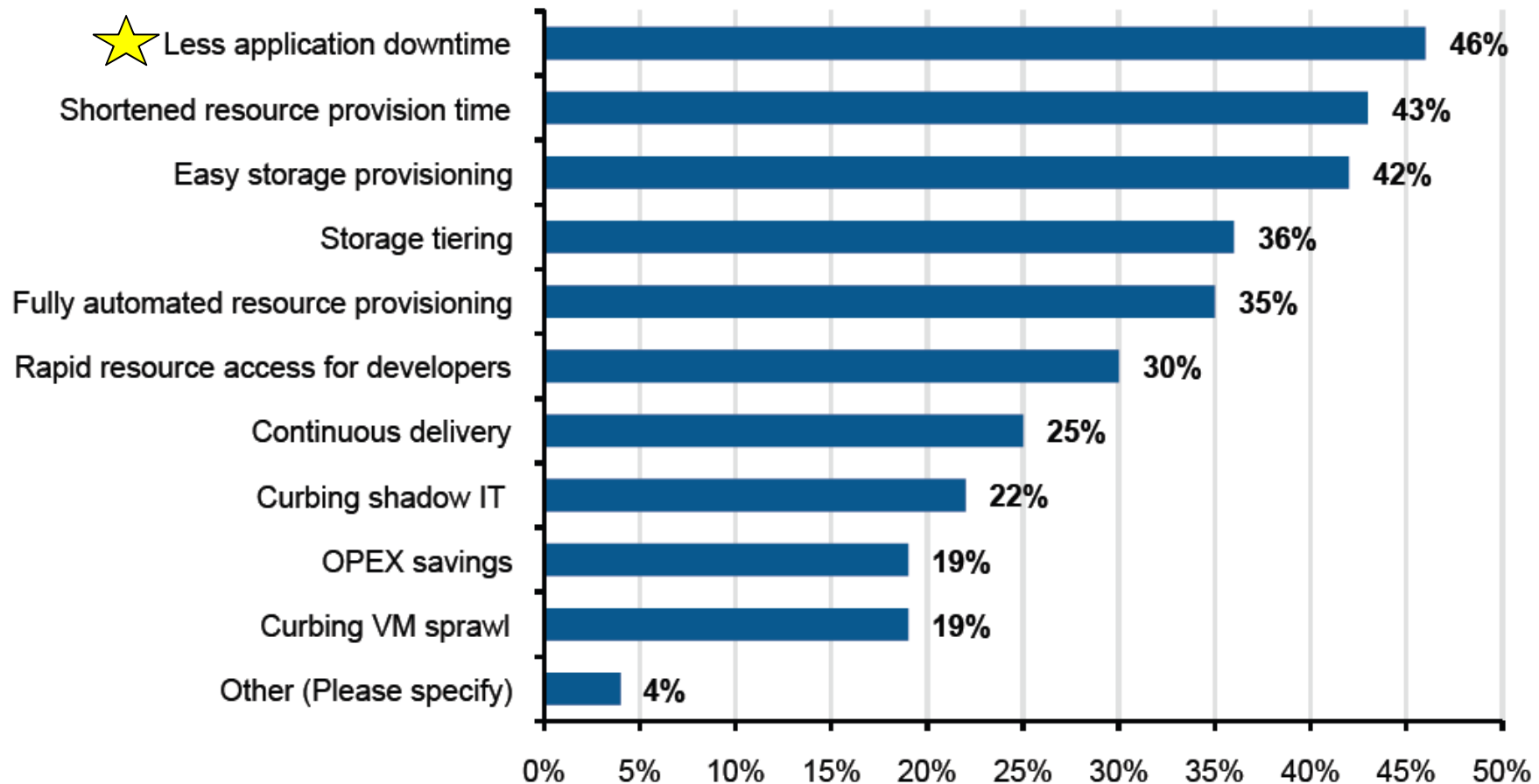


National Institute of Standards and Technology, U.S. Dept. of Commerce, Special Publication 800-145  
<http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf>

**Okay, that's the "What"**  
**Let's talk about the "Why"**



# Surveys of the key strategic goals for implementing private cloud



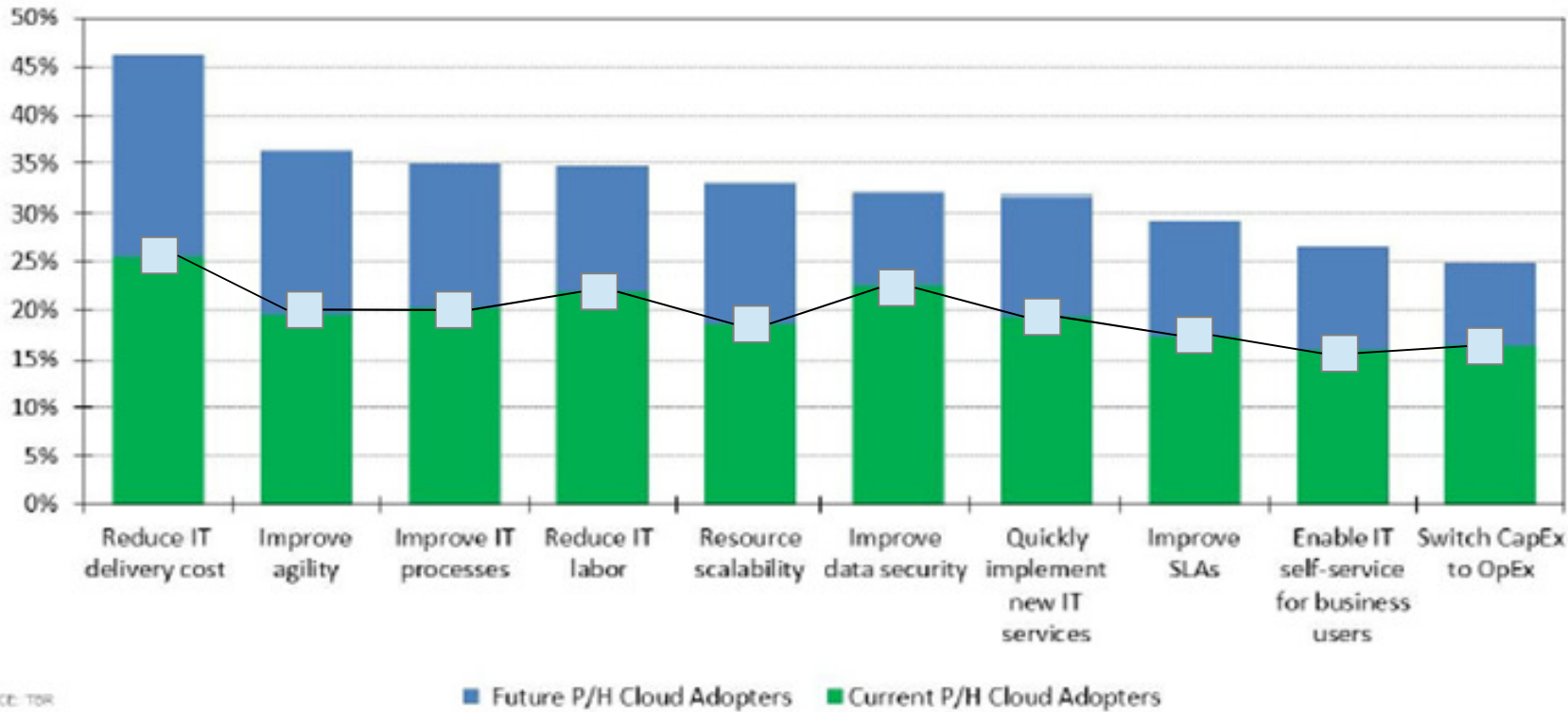
n = 2130 Respondents (EMA, IDC 2012 converged cloud study)



# The Top Drivers for Cloud Adoption



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



SOURCE: TBR  
n = 338

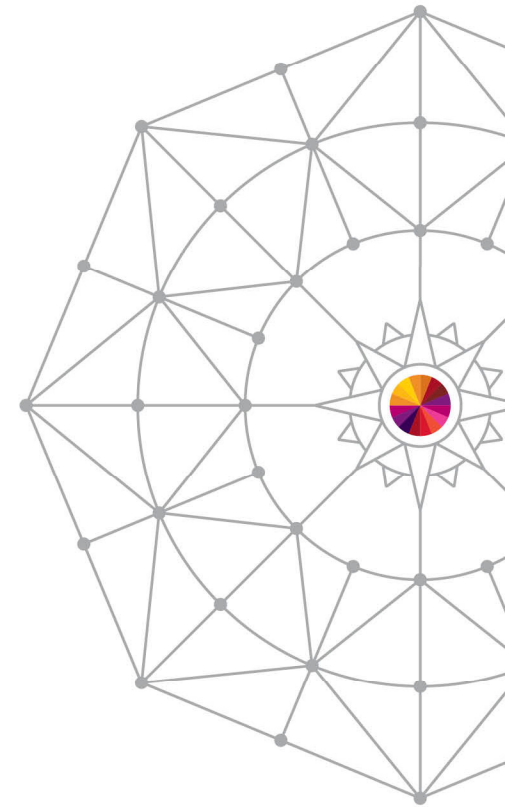
★ **Reduce IT Delivery Cost**

- Improve Agility
- Improve IT processes

Source: TBR Private/Hybrid Workload Adoption Report, 2012



# Yeah, but what part does the mainframe play?



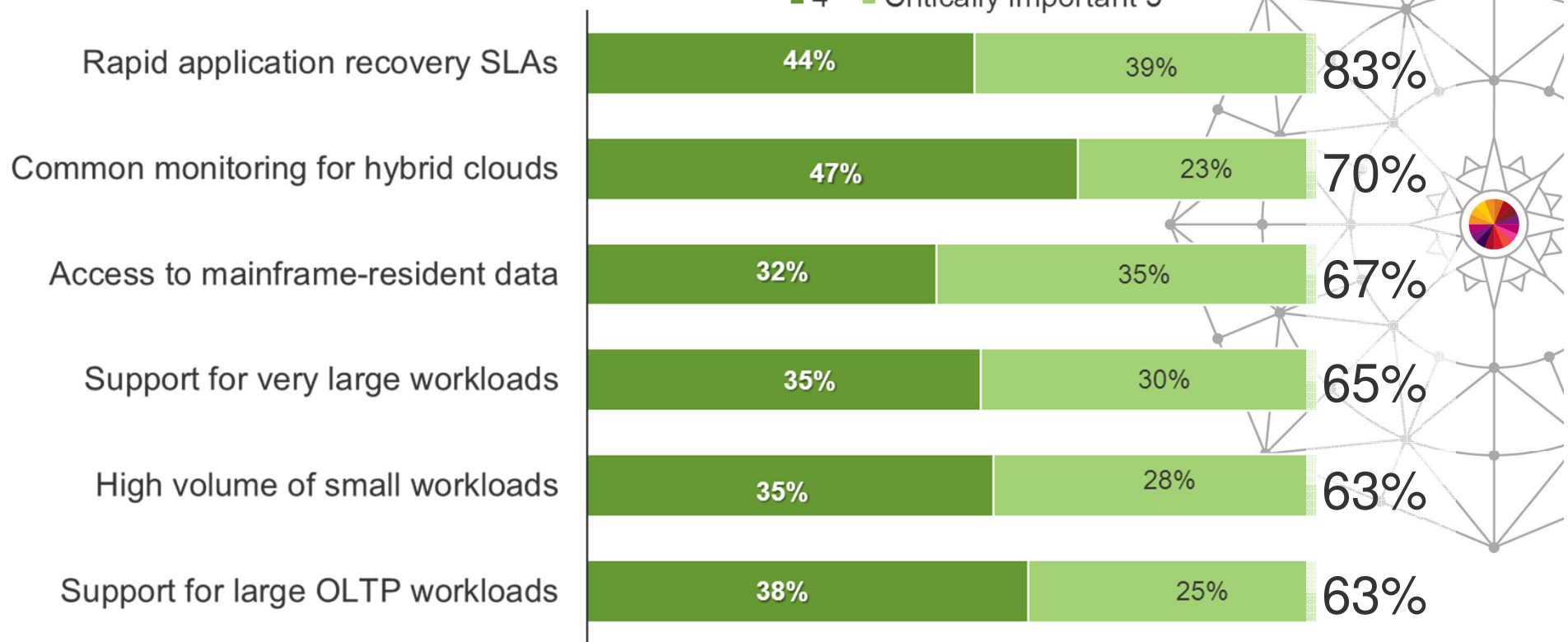


# Forrester's study shows the importance of mainframe infrastructure services



How important is it for your cloud platform to have the following *workload* characteristics? (Top 6 factors)

■ 4 ■ Critically important 5



Base: 200 North American and European hardware and infrastructure decision-makers  
 Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, October, 2012



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# What platform do you trust for high visibility apps or ones that put big demands on an OS?



Modern vending machine with not-so-modern OS



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# Case Study: Early SaaS on the Mainframe



## The Need:

- The Semi-Automated Business Research Environment (SABRE) airline reservation system was a big success for 16 years, but was limited to a single airline, and only the airline agents had access to the system.
- To really flourish, the system needed to be extended to travel agents, partner airlines, and travel industry partners.

## The Solution:

- In the 1980's, SABRE services were made available through CompuServe Information Service and GENie online service
- In the 1990's, SABRE reservations was extended to America Online, and in 1996, SABRE Holdings launched its Travelocity website, completing its multiple channels to consumers of the service.
- The SABRE applications are accessible from various client devices through either a thin client interface, such as web browser (e.g., web -based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings. This is the definition of SaaS.

## The Benefit:

- Today the SABRE system connects more than 57, 000 travel agents and millions of travelers with more than 400 airlines, 90,000 hotels, 30 car-rental companies, 200 tour operators, and dozens of railways, ferries and cruise lines.

# Modern Use Cases

(New or Updated less than a year ago)



**Blue Insight** uses a suite of IBM software running on the IBM System z platform, delivering the highest possible levels of performance, availability, security and scalability for serving several major business apps.



A university in Italy leveraged the IBM System z Solution Edition for Cloud Computing to enable development of innovative applications, including mobile, for local industries, as well as for the university itself.



IBM's **employee portal** achieved 96% ROI in 7 months by deploying on cloud on System z.. CIO Office's Project Blue puts 38% of our virtual workload on z.



A public-security agency in China greatly improves its information system's availability, reliability, scalability and performance; achieves comprehensive data analysis, visualization of data and cross-unit collaboration; operating efficiency



IBM **Product & Solution Support Centre (PSSC)** adopted cloud on z and developed their **Audelium** solution to reduce costs and provide better service to System z customers and prospects.



A consumer and wholesale bank in Korea recovers its banking operations within one hour of an outage and improves availability and recoverability



IBM Global Technology Services (GTS) now offers **z/OS PaaS** (platform as a service) and other System z infrastructure services in the IBM public cloud.



Marist College: "I can just spin out new servers in a virtualized environment, I don't have to buy new network fabric, I don't have to put new plugs in the wall, I don't have to put new racks in and I don't run up my air conditioner bill."



TUI UK & Ireland leverage elastic System z PaaS services to handle their peak overflow workloads.



A financial cooperative in Brazil saves USD1.5 million in annual electricity costs and enables growth of mobile transactions by 600 percent, internet transactions by 200 percent and in-branch transactions by 60 percent



Nationwide's Java cloud lets developers focus on function rather than platform, and deploys to z or x based on **Fit-for-Purpose** method.



An IT services provider for the healthcare industry in Germany reduces maintenance costs, streamlines business processes and optimizes customer-oriented processes



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# IBM Midmarket Integrated Management System (MMIMS)



## The Need:

Sales management systems for IBM's midmarket space had no business analytics that covered worldwide operations, so each unit was producing its own set of reports using different tools. The reporting tools could not be made to conform to the midmarket management structure, so reports couldn't be run for all areas. Management needed a solution that reported on key metrics so they could manage business globally and grow market share.

## The Solution:

IBM created **Blue Insight**, a worldwide, centralized business intelligence (BI) service. Applied to the midmarket space, the solution combines the reliability and elasticity of System z with the power of Cognos 8 BI to give 800 users visibility into operations worldwide. Users can now quickly determine which groups are generating leads, where opportunities lie, how brands are performing, and who is reaching sales quotas.

## What Makes it Smarter:

- Reduces support and infrastructure costs via private cloud deployment; provides reports with key metrics to managers so they can manage business globally to grow market share
- Collects, analyzes and reports data on midmarket opportunities from more than 20 multiproduct, departmental BI deployments
- Provides a line-of-sight to midmarket opportunities worldwide, enabling sales management to optimize resources and execute effectively; connected to Small Deals Management System

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*The MMIMS application reduces the amount of time spent preparing for and participating in midmarket cadence meetings by 3.5 hours/week for Global Sales Operations.*

## Solution components:

- IBM® WebSphere® Application Server for Linux
- Linux - Novell SUSE Linux  
- Red Hat Linux
- IBM System z®
- IBM Global Business Services®
- IBM Software Services: Cognos Consulting and Training



# IBM Small Deals Management System (SDMS)

Reduces sales cycle time and increasing market share for small deals



## The Need:

In 2008, the IBM Systems and Technology Group (STG) recorded a decline in sales of 13 percent in its Small Deal sector (deals under US\$100,000), representing a drop of US\$300,000 in revenue in a US\$49 billion market. Information was stored in multiple places, and was not consolidated or actionable by the global user community. IBM needed a system that could analyze and help remedy these issues and assist in closing small deals quickly.

## The Solution:

IBM created **Blue Insight**, a worldwide, centralized business intelligence (BI) service, and developed the SDMS application that leverages it. The application uses Cognos 8 BI to identify deals needing management attention, and enables managers to drill down to opportunity-level detail. Using rapid development, nine releases of the application have been deployed in a year; it is currently in production and has 2,800 end users.

## What Makes it Smarter:

- Shifts leads from face-to-face channel to business partners, which is more cost-effective; has reduced total cycle time by 7.7 days; has increased market share by four points in the small deals market
- Collects small deals data from multiple repositories as part of a management system that uses Cognos 8 BI to provide insight into a more effective sales strategy for individual deals
- Gives 2,800 end users rapid, consistent access to small deals data so they can close deals more quickly

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*“Within IBM Systems Group, the opportunity window of a lead is small and requires us to optimize our lead portfolio for the highest yielding channels. With SDMS, we manage our opportunities for the greatest yield and client satisfaction”*

— Bob Hoey  
General Manager, STG Major  
Markets General Manager

## Solution components:

- IBM® WebSphere® Application Server for Linux
- Linux - Novell SUSE Linux  
- Red Hat Linux
- IBM System z®
- IBM Global Business Services®
- IBM Software Services: Cognos Consulting and Training

# IBM Skills & Competency Analyzer (SCAN)

Automates and speeds up accurate skills analysis



## The Need:

Analyzing the gap between the skill set IBM employees have and the one they need was time-consuming, and the information it required was stored in disparate locations. Managers needed a cross-sectional view of skill gaps in order to make better decisions on where to invest funds for improved training. There was no ability to access the historical data necessary to do trend analysis or to analyze how to close the skill gap.

## The Solution:

IBM created **Blue Insight**, a worldwide, centralized business intelligence (BI) service, and developed the SCAN application that leverages it. To help improve skill gap analysis, SCAN uses an integrated data warehouse created from several HR systems. SCAN utilizes IBM Cognos BI to deliver views of skills that help IBM increase proficiency in skills essential to employees' primary job roles.

## What Makes it Smarter:

- Reduces time required for managers of training programs to produce reports for skill gap analysis by 80 percent, enables the company to measure increases in skills, and makes possible fact-based skills dialogues with employees
- Accesses an integrated data warehouse created from several HR systems to track progress, produce reports and help plan resource allocation for training
- Uses IBM Cognos to deliver views and analyses of skills and competencies within professions and across IBM business units in order to help upgrade essential employee skills

*Time required for skills gap analysis has been reduced by 80 percent thanks to the way the SCAN application draws on consolidated information.*

## Solution components:

- IBM® WebSphere® Application Server
- IBM WebSphere on Linux
- Linux - Novell SUSE Linux
  - Red Hat Linux
- IBM System z®
- IBM Global Business Services®
- IBM Software Services: Cognos Consulting and Training



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# IBM Treasury Transformation

Centralizes operations to improve analytics and increase control and efficiency



## The Need:

Global treasury operations resided on several platforms in several locations, which prevented the company from accessing a common set of data, performing ad hoc data inquiries or producing standardized reports. Tasks such as performing cash forecasting, understanding counterparty limits and exposures, and performing global treasury position analysis were complex and time-consuming.

## The Solution:

IBM created **Blue Insight**, a worldwide, centralized business intelligence (BI) service that integrates a suite of third-party financial applications. Global treasury operations are now centralized on a single platform, which serves as a unified gateway for all banking communication via SWIFT. The platform includes a treasury data warehouse and facilitates global visibility into and reporting on global treasury operations.

## What Makes it Smarter:

- Enables standardized reporting for global data analysis, gives managers time to focus on exceptions, and provides visibility to cash and cash forecasting, counterparty limits and exposures, and global treasury position analysis
- Establishes a single gateway for all banking communication via SWIFT treasury data warehouse
- Centralizes global treasury operations on a single platform

*Integrating a suite of financial applications and centralizing global treasury operations onto a single platform provides essential visibility into key processes.*

## Solution components:

- IBM® WebSphere® Application Server
- IBM WebSphere on Linux
- Linux - Novell SUSE Linux
  - Red Hat Linux
- IBM System z®
- IBM Global Business Services®
- IBM Software Services: Cognos Consulting and Training





# IBM Digital Experience

## Building innovative employee digital experience on the classic strengths of the mainframe



### The need:

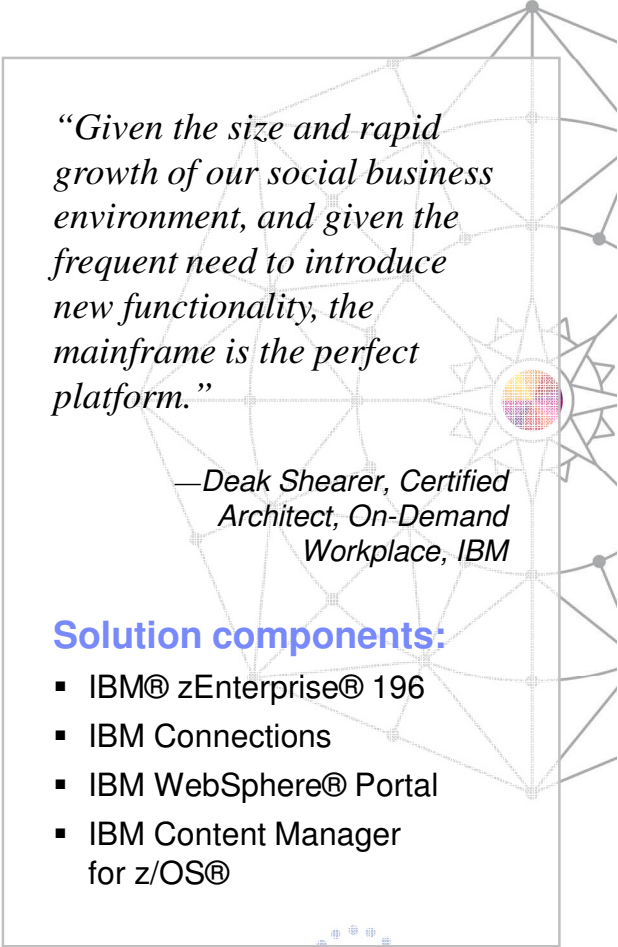
In today's knowledge economy, the exchange and enrichment of ideas through exceptional digital experiences and social business is a major generator of new value. With more than 400,000 employees generating vast amounts of information, IBM's competitive edge in the knowledge economy depends on its ability to capture, share and generate value from all of this information. For IBM and other enterprises, these abilities will be a necessity for long-term success.

### The solution:

IBM created an employee-facing digital experience using IBM Connections and IBM® WebSphere® Portal software, running on Linux for System z virtual machines across four partitions on two IBM zEnterprise® 196 servers. This integrated software environment enables employees to build communities around common interests and topics, share and find information, and locate the right internal resources to tackle any challenge.

### The benefit:

- Robust and flexible IBM mainframe enables rapid and non-disruptive deployment of new social tools and functionality.
- Personalizes information and facilitates sharing and searching, helping global employees focus on the most important items.
- **Using the mainframe for social business saves an estimated 60 to 75 percent on the cost of a distributed solution.**



*“Given the size and rapid growth of our social business environment, and given the frequent need to introduce new functionality, the mainframe is the perfect platform.”*

*—Deak Shearer, Certified Architect, On-Demand Workplace, IBM*

### Solution components:

- IBM® zEnterprise® 196
- IBM Connections
- IBM WebSphere® Portal
- IBM Content Manager for z/OS®

# IBM Product & Solutions Support Centre

Maximizing user satisfaction, improving utilization and minimizing costs



## The need:

The IBM Systems and Technology Group Product and Solutions Support Center (PSSC) in **Montpellier** offers a vast range of training courses, from basic networking through to sophisticated storage and server management. For each course, preparing the appropriate combination of operating systems, servers, storage and network resources could take a week or more. During this time, those resources could not be used elsewhere, and the administrative workload was limiting the capacity of the center.

## Solution:

IBM Montpellier switched to a cloud computing model, where course resource requirements are drawn from a shared pool of virtualized assets, booked and configured automatically. The required server, storage and network resources are made available for the duration of the course, and then immediately released back to the cloud ready for the next course.

## Benefits:

- Cloud computing doubles system utilization and ensures high cost-efficiency
- Automated provisioning greatly reduces system administration workload
- Provisioning of class resources reduced from several days to a few hours

*“Cloud computing has transformed the experience into a service that we provide for the Montpellier Center. In the process we use approximately half the hardware resources previously required, which cuts our building, environmental and administration cost into the bargain.”*

— Alan Gabellier, Montpellier  
Education Central Lab Platform Mgr

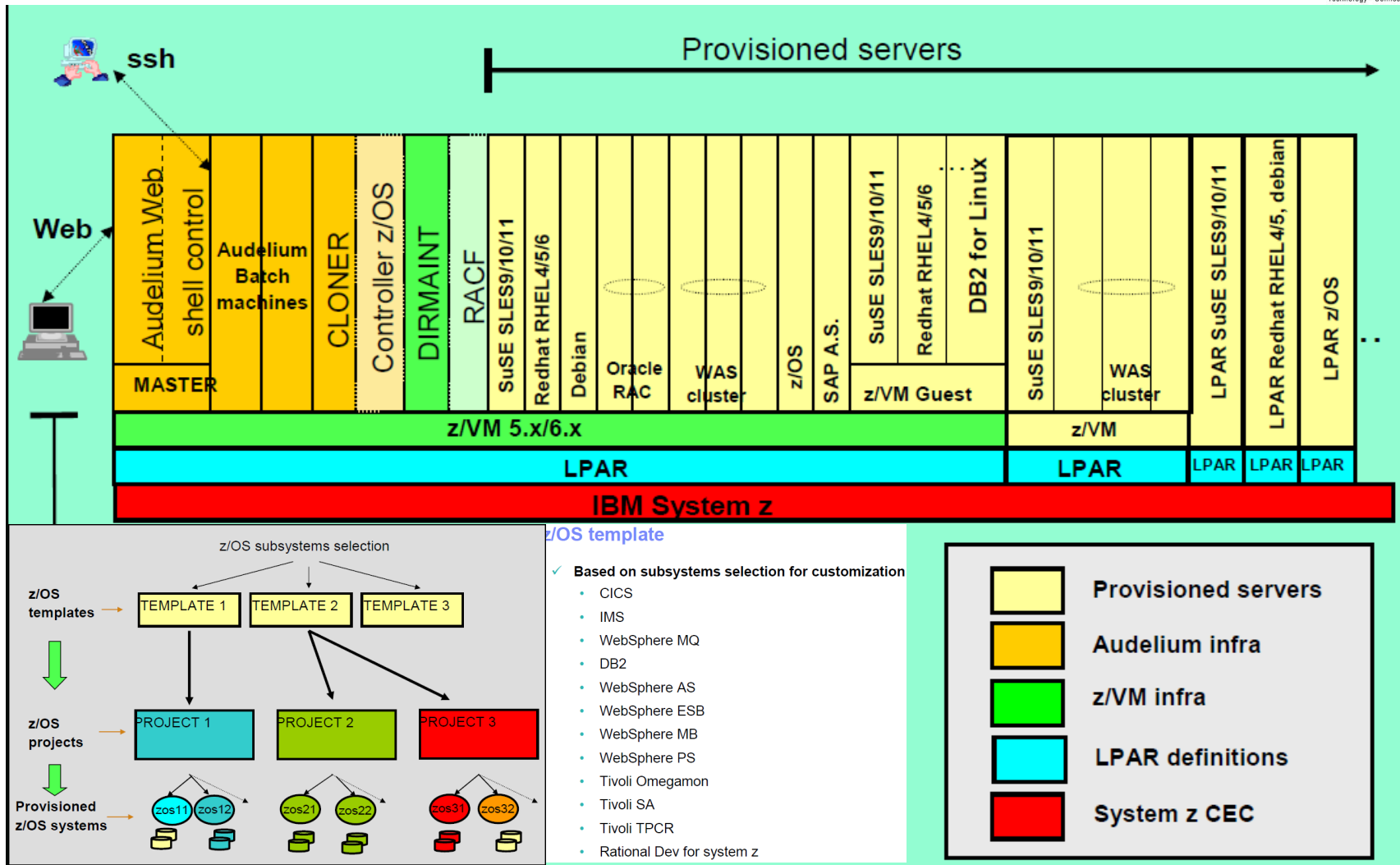


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# PSSC Audelium Provisioning Capabilities



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# Case Study: Fit-for-Purpose Private Cloud

Nationwide Insurance



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

## 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:

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

## Customer Value:

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

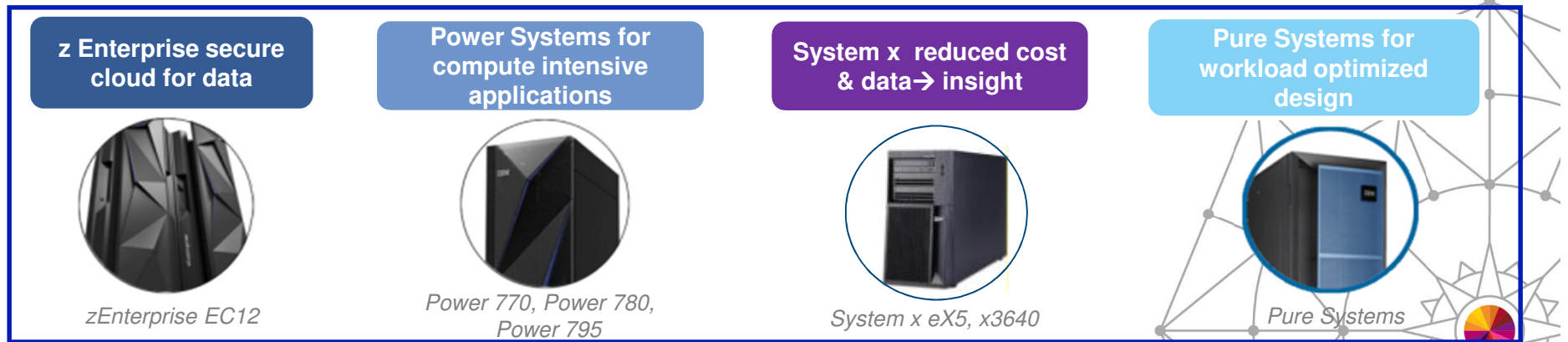
“The creation of a private cloud built around the z196 servers supports our business transformation goals by enabling the rapid, seamless deployment of new computing resources to meet emerging requirements,” Jim Tussing, CTO for Operations, Nationwide

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



## *Flexibility to choose platform that meets business requirements*

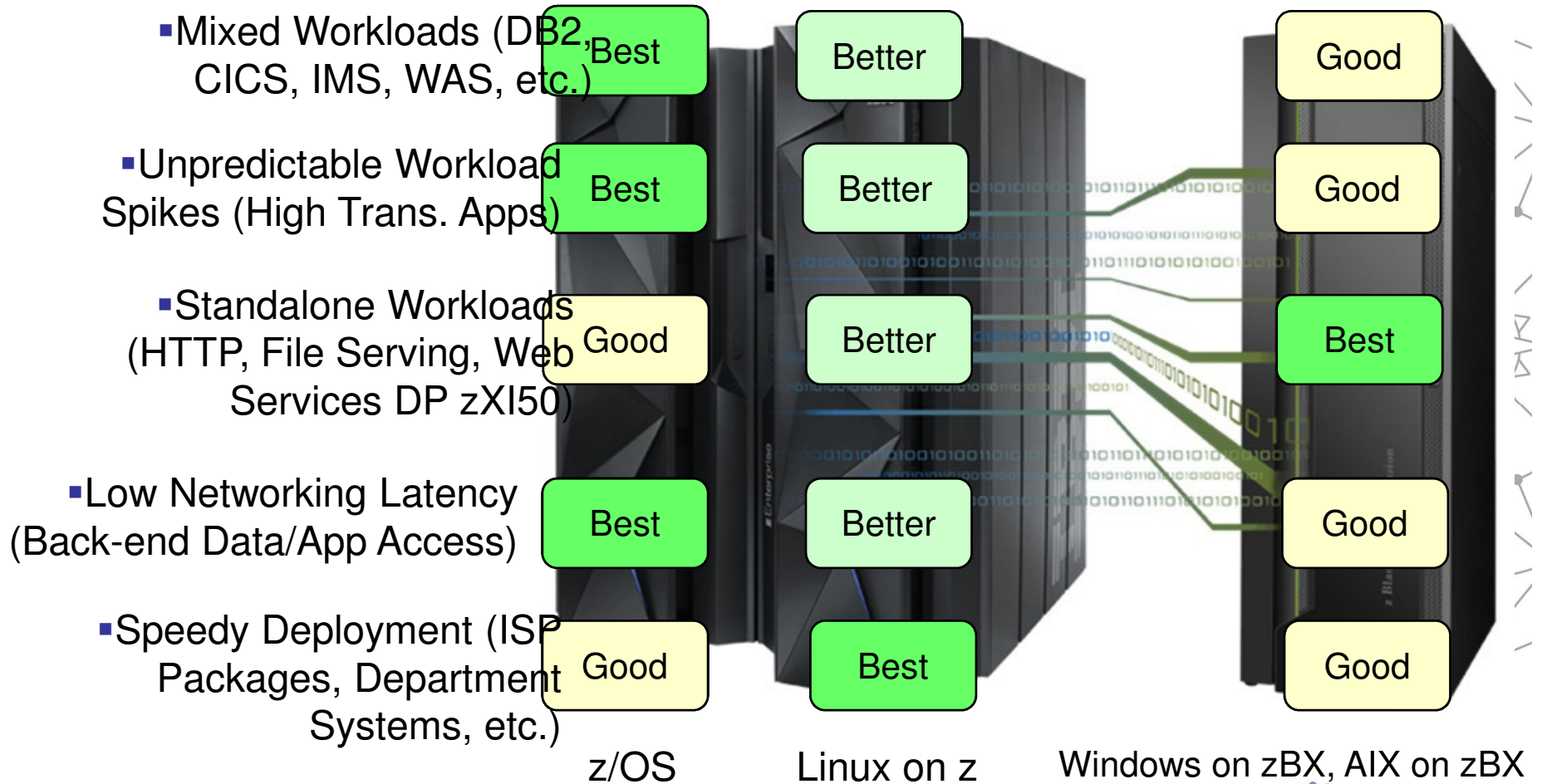
- Management tools are **consistent** and **interoperable** across platforms
- Open standards approach avoids vendor lock-in
- Common tools translate to low learning curve

### 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

# The best platform for a given workload

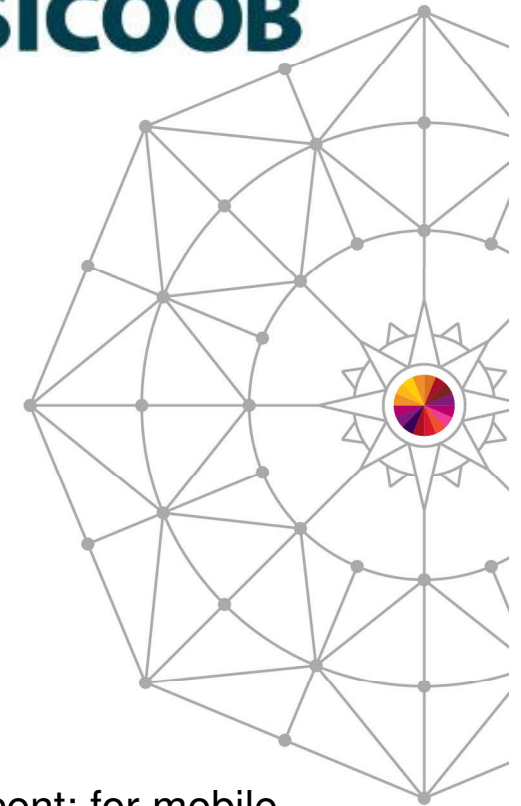
General guidelines – do your own validation



# Case Study: Linux on z Private Cloud

## Sistema de Cooperativas de Crédito do Brasil (SiCoo-B)

SiCooB is the 2<sup>nd</sup> largest user of IFL processors and Linux on z in the world (153 IFLs and 530 Vms)  
SiCooB is the 1<sup>st</sup> bank in Brasil to offer IaaS to external clients using its own data center



### The Need:

- 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.

### The Solution:

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

### The Benefit:

- Avoid \$1.7m 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.”

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# A healthcare company deploys software in just 90 minutes

IBM Business Partner Haddon Hill Group automates software implementation with IBM software

## The need:

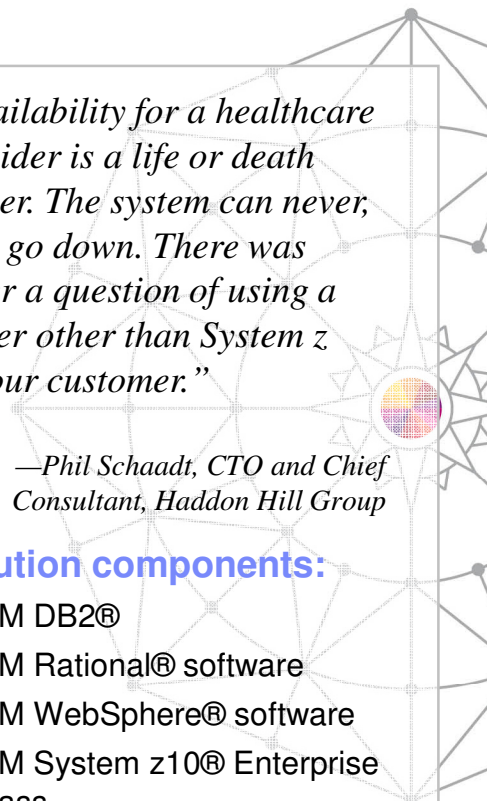
A major healthcare company wanted to upgrade its claims processing system and deploy IBM WebSphere Process Server software into a virtual server farm based on IBM System z10 servers.

## The solution:

Haddon Hill Group provided an automated software implementation solution based on the IBM WebSphere CloudBurst Appliance device and IBM Rational Automation Framework for WebSphere software.

## The benefit:

- Enables the company to deploy software in 90 minutes, instead of up to two weeks
- Helps eliminate manual, error-prone tasks and reduce maintenance of proprietary, homegrown scripts
- Simplifies configuration management tasks



*“Availability for a healthcare provider is a life or death matter. The system can never, ever go down. There was never a question of using a server other than System z for our customer.”*

*—Phil Schaadt, CTO and Chief Consultant, Haddon Hill Group*

## Solution components:

- IBM DB2®
- IBM Rational® software
- IBM WebSphere® software
- IBM System z10® Enterprise Class



# Cloud on System z is key to supporting new mobile and analytics workloads and applications



## Cloud

- Performance, security, high availability and disaster recovery
- Data protection and regulatory compliance
- Ability to quickly and easily provision and orchestrate

## Mobile

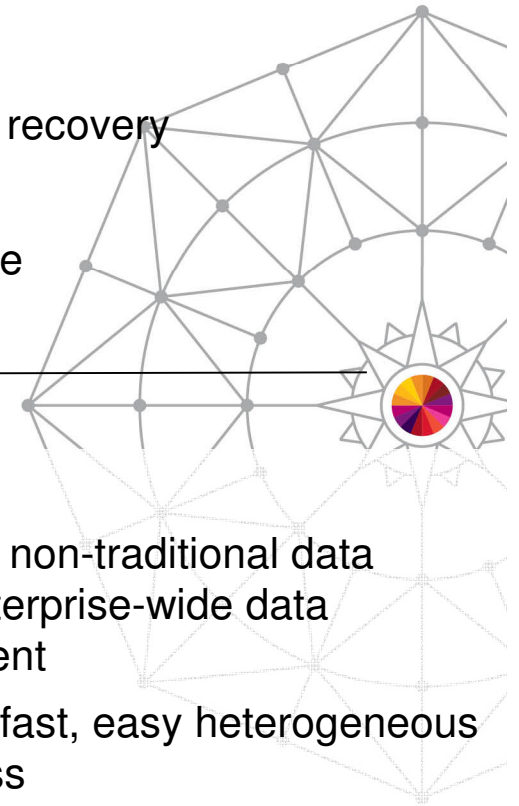


- Mobile workloads require security and high availability
- Increased mobile business data access and complexity
- Drives Scale-up and Scale-out Enterprise challenges

## Analytics



- Complex, non-traditional data require enterprise-wide data management
- Requires fast, easy heterogeneous data access

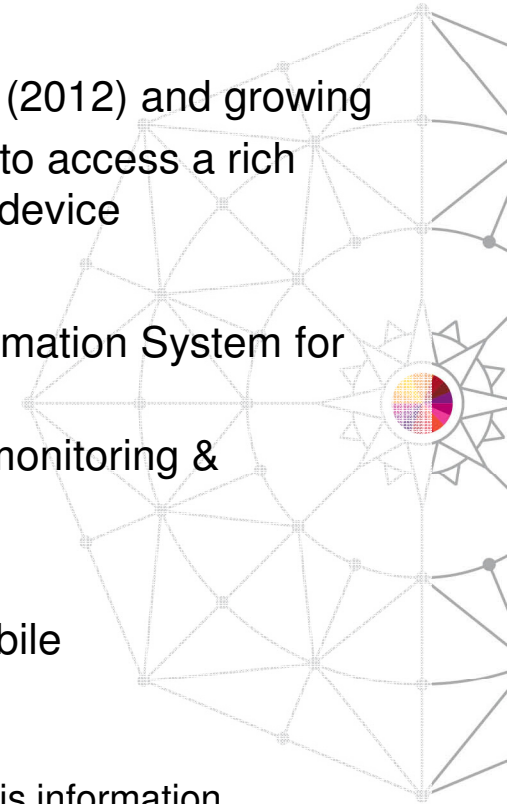


# Cloud on z for Mobile Users at UF

University of Florida keeps students on track with mobile applications built on zEnterprise



- Challenge:
  - Smartphone ownership at UF jumped from 27% (2009) to 69% (2012) and growing
  - Wanted to enable 50,000 students and 5,400 faculty members to access a rich selection of online features anytime and anywhere with mobile device
- Solution:
  - Created UF Mobile web with access to Integrated Student Information System for tracking
  - CICS Server running on z114 with OMEGAMON XE for CICS monitoring & management
- Benefits:
  - Non-disruptive expansion of current applications to support Mobile
  - > 1M transactions/day at peak registration times



“The UF Mobile Web helps students navigate through this information overload and meet their responsibilities.”  
Steve Ware, systems administrator/programmer, UF

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# University in Italy

## Research university provides a hub for innovation that serves as a catalyst for regional economic growth

The cloud-based platform this regional university implemented for delivering innovative local services is helping local fishermen thrive in a more competitive environment by giving them local, up-to-the-minute insight on which kinds of fish people are buying in different ports.

### The Opportunity

This University in Italy is strongly committed to developing cloud-based solutions for communities and businesses in southern Italy. The University needed a platform to facilitate cost-effective, flexible application development.

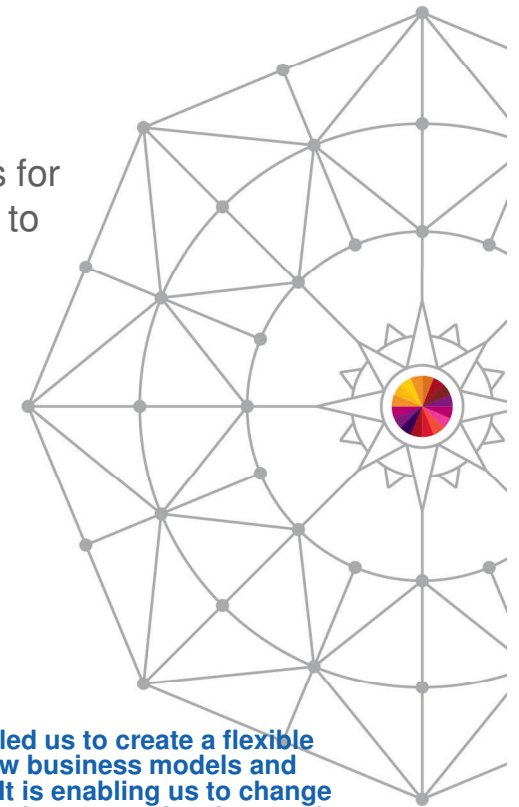
### Real Business Results

- 700% increase in the size of fishermen’s addressable market
- 25% increase in income for fishermen using the solution
- 70% faster time to market — from “port to plate” — by virtue of smarter processing of fish catch while boats are at sea

### Solution Components

- IBM WebSphere® Integration Developer, IBM WebSphere Process Server, IBM WebSphere Enterprise Service Bus, IBM WebSphere Business Modeler, IBM DB2® for z/OS, IBM Tivoli® Service Automation Manager
- IBM System z®
- IBM Global Technology Services - Integrated Technology Services
- Business Partner: Mauden S.P.A

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“Cloud computing has enabled us to create a flexible framework for promoting new business models and ways to compete and grow. It is enabling us to change the formula for success—for the companies that use it and for the region as a whole.”



# Marist College

## The need:

Marist College has established a leading reputation for technological innovation, and works continuously to provide students and researchers with access to the latest in computing technology. Following the construction of a state-of-the-art technology center, Marist wanted to equip the space with high-end systems that had both the performance and flexibility to support the needs of a diverse user base.

## The solution:

With funding from the National Science Foundation, and support from long-time partner IBM, Marist upgraded to the next generation of mainframe technology—the IBM® zEnterprise® 114. Configured with a zEnterprise BladeCenter® Extension, the system's unique hybrid design offers a leading combination of flexibility, high-performance and rock-solid reliability.

## The benefit:

- Integrates multiple server technologies into a single system, providing a versatile platform that supports diverse research.
- Enables students to gain valuable hands-on experience with mainframe technology, equipping them with the skills they need to achieve career success.
- Helps keep the college on the cutting-edge of computing technology and advance its reputation as a technology leader.

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## Solution components:

### Hardware

- System z: Integrated Facility for Linux (IFL);
- System z: zEnterprise 114 (z114);
- System z: System z running Linux - SUSE;
- System z: System z running z/OS;
- System z: System z running z/VM

### Software

- Information Management: DB2 for z/OS
- Business Analytics: Cognos 8 BI, SPSS
- Linux: Linux – SUSE
- Rational Developer for zEnterprise
- System z Software: Cognos 8 BI for Linux on System z; DB2 for z/OS; Rational Developer for zEnterprise; WebSphere on z/OS

**MARIST**



# A Leading Spanish bank reduces IT costs by 20%, increases productivity by ~30%



## The need:

A leading Spanish bank (“the Bank”) formed from the merger of three banks plus one acquisition, which presented a major challenge in the development of an integrated IT infrastructure. One of the banks relied heavily on a custom Java application, and the new bank was facing buying several thousand new PCs to support the combined desktop apps. In the process, it needed to ensure system resiliency and security and reuse the existing PC infrastructure as much as possible, while ensuring optimal performance for the company’s workloads.

## The Solution:

In addition to upgrading and consolidating older mainframes, implementing non-cloud capabilities like GDPS, Metro Global Mirroring and HyperSwap, the Bank implemented specialty engines, including IFLs, zIIPs, ICF. IBM proposed using innovative cloud computing techniques. This was achieved using a virtualization layer running across all servers supporting the desktop computers, enabling them to avoid the significant cost of purchasing new PCs and the administrative burden of managing this infrastructure.

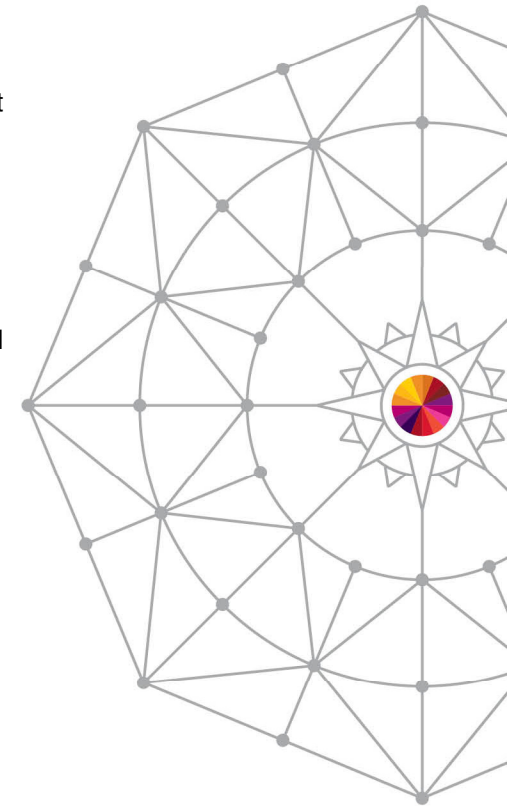
## The Benefit:

The bank was able to exploit existing hardware investments to the full, avoiding the cost of purchasing approximately 3,000 desktop computers for new staff, translating into a savings of more than EUR1 million. Furthermore, the IBM technology has contributed to a 20 percent reduction in IT costs, a savings which is expected to increase as further application development is undertaken. Despite the expansion in the IT infrastructure, the streamlined and easy-to-manage has meant the bank has not needed to boost IT staff numbers. The bank estimates that the new infrastructure has boosted staff productivity by approximately 30 percent, leading to better service for customers.

A non-disruptive IT merger with room to grow.

### Client Quote:

“This project aims to integrate and optimize Kutxabank management systems following the merge, in order to be more efficient and better serve our customers.” - CIO



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# A popular communications company

Leveraging IBM® software and solutions to consolidate data centers by 97.5%



## The Need:

The client needed to establish a much simpler, more efficient IT infrastructure, in order to cut costs. They wanted to integrate hundreds of servers. Hence, they sought a partner that could provide the technology, expertise and implementation services for a smooth transformation.

## The Solution:

IBM STG Lab Services and IBM Business Partners helped the client's transition to a consolidated, private cloud on IBM System z servers running a Linux operating system with IBM System Storage and IBM Tivoli software.

## The Benefits:

- Consolidated its data centers by approximately 97.5 percent - from 200 data centers into five sites - over the next three years
- Reduced its JPY50 million annual licensing fee for Oracle software by 70 percent
- Reduced TCO by 30 percent

## Solution Components:

- IBM® System z® zEnterprise® 196 (z196)
- IBM System z running Linux™ - SUSE
- IBM Linux - SUSE
- IBM System Storage SAN Volume Controller
- IBM Tivoli® Monitoring
- IBM Tivoli System Automation for Linux
- IBM Systems Lab Services STG Lab Services: System z



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# An Australian Insurance Company



## What if patients with type 2 diabetes could have better care and improved outcomes without more doctors' visits?

This Austrian insurance company creates a telemedicine solution that captures key patient data using cell phones, enabling ongoing compliance monitoring, and alerting physicians in real time if patients' in-home test results are not within parameters

### The Opportunity

Currently about 800,000 people, or about eight percent of the population, in Austria has been diagnosed with type 2 diabetes. A single diabetic patient can cost an insurance company EUR150,000, and complications of the disease can be painful and debilitating for patients. This insurer wanted to find a way to help physicians better treat, and prevent the complications of, this disease without adding further costs to the system, or risking non-compliance of patients by requiring too many doctors' visits.

### What Makes It Smarter

To successfully treat type 2 diabetes, patients' compliance with diet, exercise and medication regimens must be closely monitored so that adjustments and improvements can be made, and overdoses of medication such as insulin can be avoided. Rather than requiring patients to visit their doctors' offices more often, this major Austrian insurer developed an in-home diabetes monitoring program that uses telemedicine to allow physicians to closely follow their patients' home compliance at home. Medical devices, such as blood pressure and blood glucose monitors and scales, are linked to a cell phone, which automatically sends the patient's data to a diabetes diary database. There, an algorithm compares expected results with actual values, and sends an immediate notification to the physician if the value exceeds a critical limit. This allows the physician to react more quickly to modify the patient's treatment, helping improve patient treatment and avoid the many complications that accompany this disease.

### Real Business Results

- Expected to achieve 20,000-member participation in a "health dialog" program, with resulting healthcare cost savings of tens of millions of euros by 2015
- Enables identification of at-risk patients so that they can be enrolled into the program, improving care and helping to further reduce insurance costs
- Helps to transform the treatment paradigm for widespread diseases like diabetes from traditional care to prevention-based care without adding costs

### Solution Components

- IBM® DB2® for Linux UNIX and Windows Family
- IBM Rational®
- IBM WebSphere®
- IBM System x3250
- IBM System z®
- IBM Red Hat Enterprise Linux
- IBM Global Technology Services®
- IBM Global Business Services®
- IBM Remote Health Monitoring

**The solution fundamentally changes the treatment of type 2 diabetes by improving patient outcomes compared with traditional treatment. Telemonitoring allows ongoing monitoring and analysis of key parameters, allowing more reality-based and effective treatment.**



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# Chinese Provincial Public Security Bureau



## The Need:

During especially busy production periods, the Public Security Bureau experienced problems allocating sufficient memory within its database environment, which included 180 x86 servers and 12 IBM POWER6 and IBM POWER7 servers. The bureau also struggled to network its IT management platform and adequately manage its IT resources.

## The Solution:

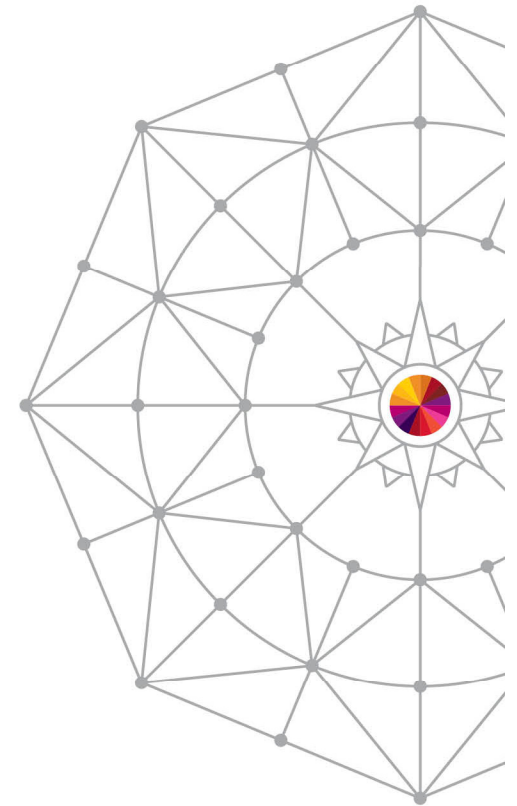
IBM System z, IBM BladeCenter and IBM Power Systems servers; an IBM System Storage device; IBM PowerVM technology; IBM Systems Director software; and IBM SmartCloud Entry software. The solution involved integrating this new environment with the client's existing devices for a comprehensive, cloud-supportive environment.

Systems Lab Services and Training installed an IBM zEnterprise 196 mainframe running the Linux Red Hat Enterprise V5.8 operating system (OS), the Linux SUSE OS and IBM z/VM. customized and extended the mainframe's architecture using IBM SmartCloud Entry for System z server software and the IBM SmartCloud Entry for System z software agent.

## The Benefit:

Successfully overhauled its IT infrastructure to support a cloud-computing environment. Optimized its database structure and improved system performance with stable processing and high input/output speeds.

By establishing the cloud infrastructure, they can dynamically manage, distribute or recycle resources and automatically deploy Linux instances and applications. The organization notes that using the SmartCloud Entry software to manage its cloud environment internally allows it to maintain control over the allocation of resources. The client can also easily integrate computing resources across platforms, and it can more readily allocate resources for different projects.



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# U.S. Payments Processing Company



## The Need:

Innovative financial services company headquartered in United States with international offices in Germany “noticed an imbalance between business processes and financial transactions and saw an opportunity to provide reliable and secure financial transaction services in real-time for the [business to business] B2B market, to enable companies to optimize cash flows at a new level and to drive new revenue streams.”

To make the payments solution possible, Traxpay wanted to build a system that could start relatively small and would not require very large capital investment, yet could scale rapidly to support a global customer base processing billions of transactions securely, reliably and – above all – fast.

## The Solution:

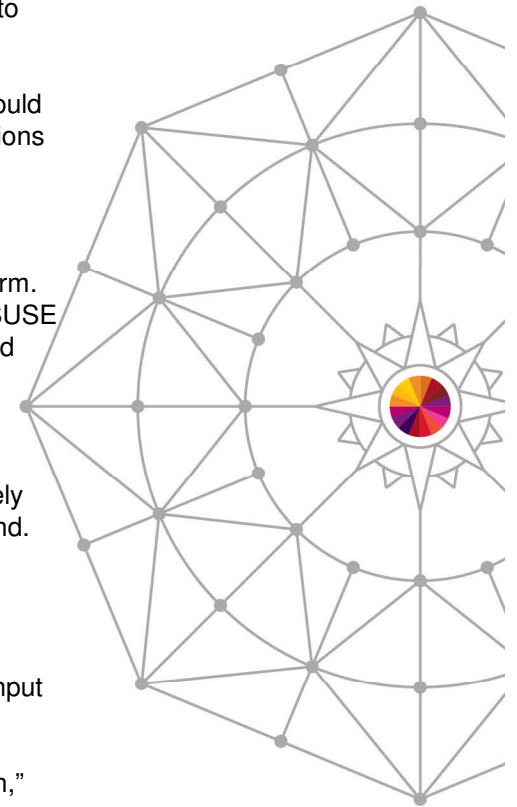
The cloud solution is built on solid IBM System zEnterprise technology - an IBM Integrated Facility for Linux platform. The core solution components run on the SUSE Linux Enterprise Server for System z operating system with the SUSE Linux Enterprise High Availability Extension feature. They runs their applications on infrastructure in a private cloud data center, managed by EFIS EDI Finance Service.

## The Benefit:

Because the solution is cloud-based and flexible, companies can integrate it into existing ERP systems using widely supported banking interfaces, or choose to manage their payments and cash flows through a modern web front-end. Their customers gain real-time, 24/7 insights into their exact cash position, at less than one tenth of the cost of traditional transactions. The speed of financial information delivery and analysis is now aligned with business information generated by EDI and related interchanges.

The private cloud is regularly checked against security threats and has been tested and optimized for high throughput and performance.

“We benefit from a flexible and highly scalable platform that offers the highest reliability and supports future growth,” says David Desharnais. “IBM WebSphere Application Server [software] provides interoperability and portability, reducing costs and downtime. Consolidating workloads to a single platform and providing enhanced failover features saves time in system administration and improves system operations substantially.”



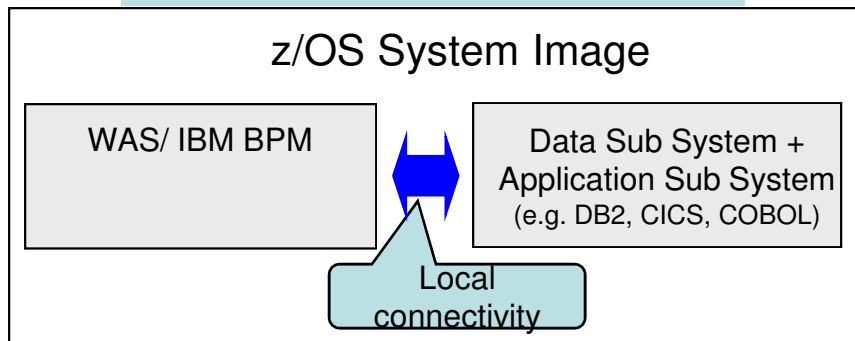
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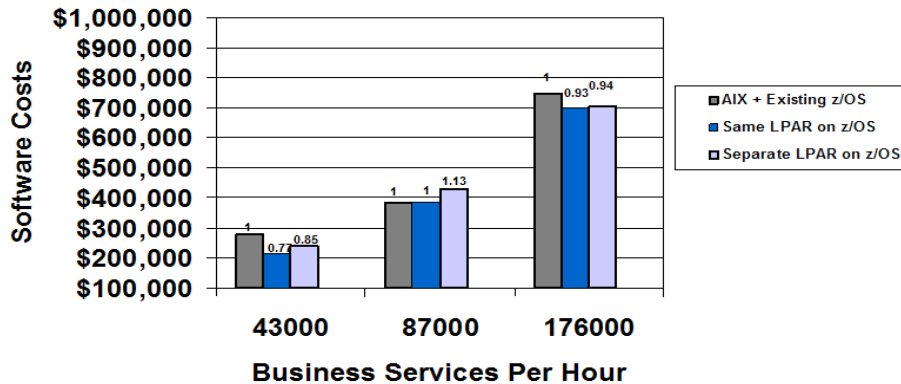
# Performance Optimization through Co-Location

## Value of Co-Location

### Co-located Deployment



### 3-Year Total Software Cost Comparison Summary



## Top 5 Reasons for Co-Location

- 52% more throughput when WAS/WPS for z/OS is co-located with DB2 in the same LPAR
- Up to 34% overall CPU savings with WAS/WPS and DB2 on the same LPAR
- 500% improvement on Web Services when WebSphere Application Server co-located with application sub systems
- 3-year TCO for and TCA shows WAS / WPS are price neutral compared to equivalent workload on distributed servers
- Networking costs plunges, while infrastructure is drastically simplified by leveraging existing assets and infrastructure

## Additional Benefits

Improved team collaboration

Aligned business goals with downstream design

Operational benefits (QoS), such as Disaster Recovery, scalability, and high availability

Incremental strategic modernization

# Advantages of deploying clouds on z



## Increased Productivity



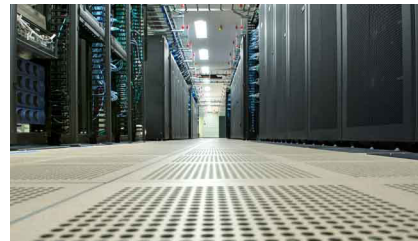
Advanced workload management that provisions resources on the fly for 90%+ utilization and maximizes ROI  
U.S. Bank reduced provisioning time from 45 days to 20 minutes  
79% less TCA vs. leading public cloud

## Higher Utilization



Up to 100% CPU utilization  
“Shared everything” architecture  
Manage up to 10,000+ virtual servers

## More Efficient Data Center



Up to 80% less energy than existing distributed servers  
Less floor space  
Fewer parts to manage

## Greater Reliability, Availability



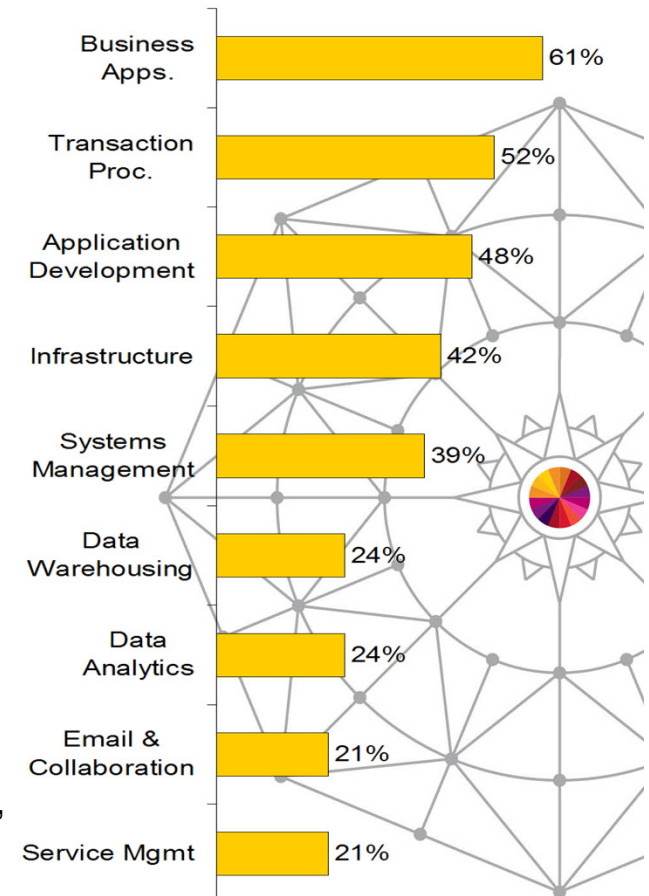
Built-in hardware redundancy  
Decades of RAS innovation  
Capacity and Backup on Demand  
Ultimate security



# IBM Software for Linux on System z Cloud



- **Data services:** Cognos®, SPSS®, DB2®, InfoSphere™, Informix®, + ISVs like Oracle Database, Builders WebFOCUS, ...
- **Business applications:** WebSphere Application Server, WebSphere Process Server, WebSphere Commerce, ...
- **Development & test:** Rational® Asset Manager, Build Forge®, ClearCase®, Quality Manager, Rational Development and Test Environment for System z, RDz...
- **Email & collaboration:** IBM Domino®, IBM Collaboration (Sametime, Connections, Quickr™, Forms), WebSphere Portal, ...
- **Enterprise Content Management:** FileNet® Content Manager, Content Manager, Content Manager On Demand...
- **Business Process Management:** Business Process Manager, WebSphere Business Monitor, FileNet Business Process Manager, WebSphere Operational Decision Management, ...
- **Infrastructure services:** WebSphere MQ, WebSphere Message Broker, WebSphere Enterprise Service Bus, DB2 Connect™, FTP, NFS, DNS, Firewall, proxy server, ...
- **Cloud management:** Infrastructure (IaaS), Platform (PaaS), Software (SaaS), Business Process as a Service – Tivoli® System Automation Manager, Tivoli Provisioning Manager, Integrated Service Management for System z, Maximo® Asset Management, ...



Source: IBM Market Intelligence Mar2012  
Percentage of survey respondents



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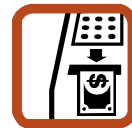
# The More You Use z, the More You Save

Based on an analysis of actual IT spend and business performance, comparing companies with greater than average mainframe mix vs. less than average mainframe mix...\*



44%

lower IT cost per credit card transaction



31%

lower IT cost per consumer loan



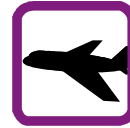
25%

lower IT cost per megawatt hour produced



24%

lower IT cost per hospital bed



20%

lower IT cost per airline passenger



26%

lower IT cost per new vehicle



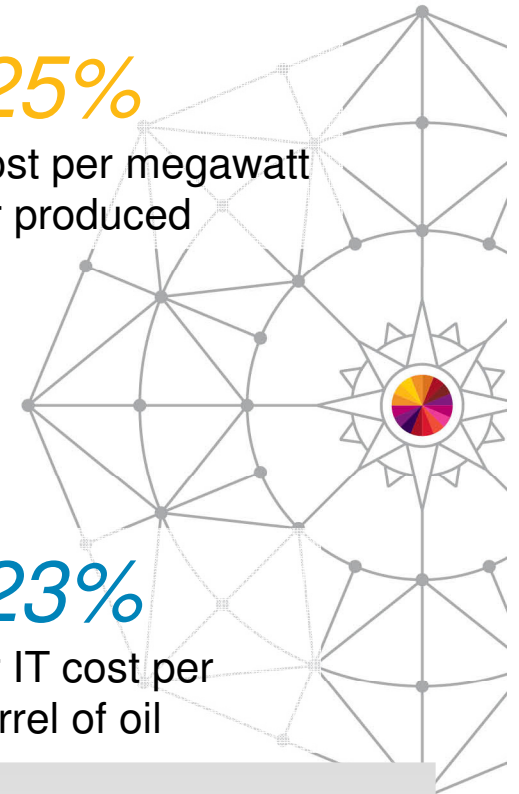
25%

lower IT cost per retail store



23%

lower IT cost per barrel of oil



*“...in the long run the marketplace rewards those that make the optimum use of the right computing resources in the right way as evidenced by business performance”*

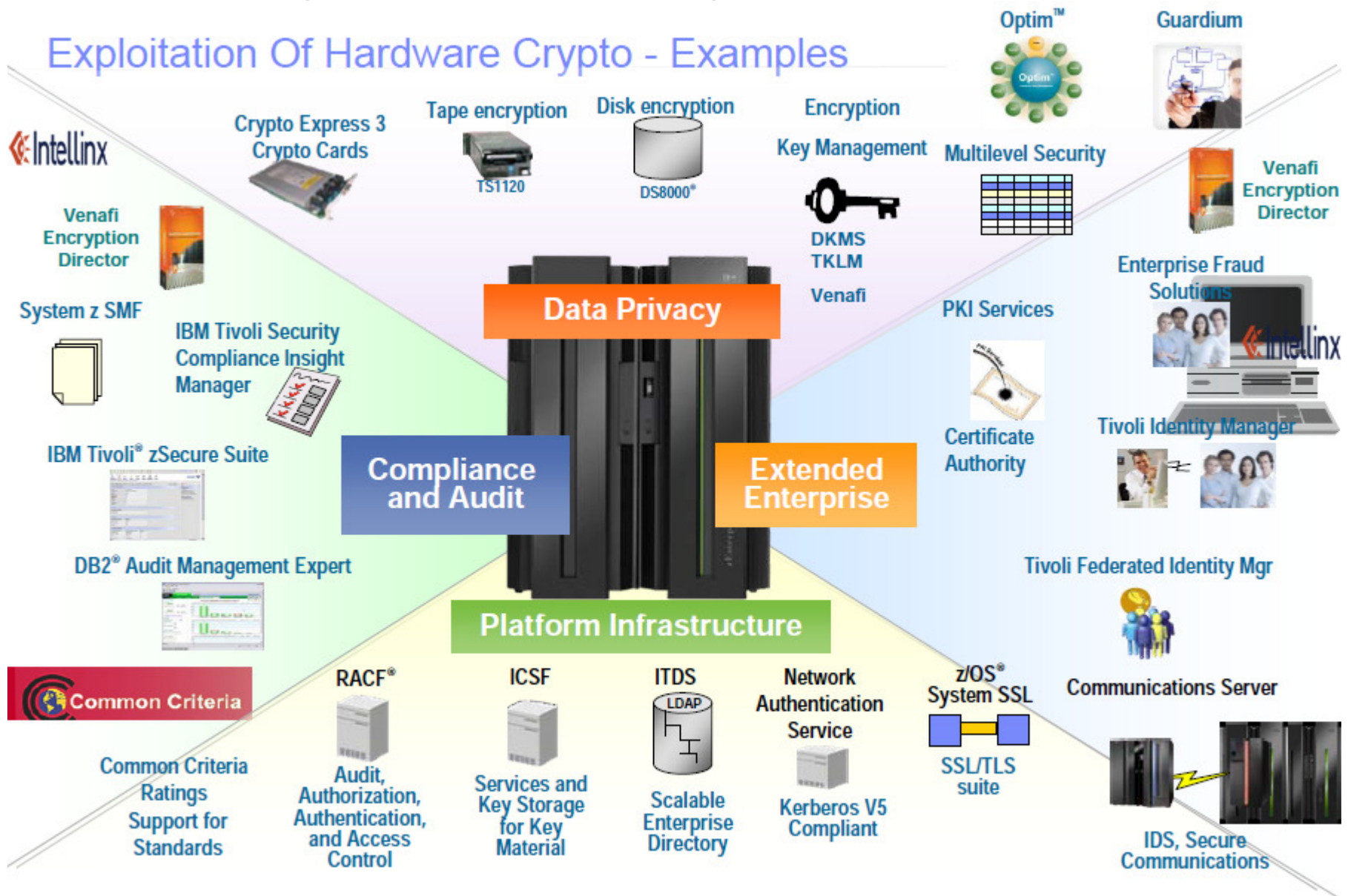
Dr. Howard Rubin, CEO and Founder, Rubin Worldwide

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# Value of System z Security

## Exploitation Of Hardware Crypto - Examples



# Three Things to Take Away from This Session



1. It's not "us *or* them," it's "us *and* them" – Cloud on System z:
  - Is based on open standards
  - Fits within overall IBM **fit-for-purpose** framework
  - Is supported by the same cloud management software as distributed systems
1. Cloud **workload optimization** requires System z's high availability and security
2. Implement Cloud on System z today and move to broader SmartCloud Orchestration



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## System z SMEs and Executives:

Deon Newman - [@deonnewm](#)  
Steven Dickens - [@StevenDickens3](#)  
Michael Desens - [@MikeDesens](#)  
Patrick Toole - [@Pat Toole II](#)  
Kelly Ryan - [@KellykmRyan](#)  
Richard Gamblin - [@RichGx](#)

## Blogs

[IBM Mainframe Insights](#) \*\*  
[Millennial Mainframer](#)  
[#MainframeDebate](#) blog  
[SHARE](#) blog  
[IBM Destination z](#)



[IBM System z](#) \*\*  
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Include the hash tag [#mainframe](#) in your social media activity and [#mainframe50](#) in 50<sup>th</sup> anniversary activity

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## More Sources

IBM Cloud

[www.ibm.com/cloud](http://www.ibm.com/cloud)

Cloud University:

[http://university.atlanta.ibm.com/cloud/?page\\_id=33](http://university.atlanta.ibm.com/cloud/?page_id=33)

Cloud Reference Architecture Whitepaper

<http://public.dhe.ibm.com/common/ssi/ecm/en/ciw03078usen/CIW03078USEN.PDF>

Cloud Reference Architecture Contribution to The Open Group

<http://www.opengroup.org/cloudcomputing/doc.tpl?CALLER=index.tpl&dcat=15&gdid=23840>

Cloud Adoption Advisor

<https://www14.software.ibm.com/iwm/web/cc/flash2/cra/en/us/Tool.htm?x=59&y=15>

Cloud Adoption Framework

<ftp://public.dhe.ibm.com/common/ssi/sa/wh/n/ciw03067usen/CIW03067USEN.PDF>

Cloud Standards Customer Council

<http://www.cloud-council.org/>

Strategies for Assessing Cloud Security

<http://public.dhe.ibm.com/common/ssi/ecm/en/sew03022usen/SEW03022USEN.PDF>

Security for Cloud Redbook

<http://www.redbooks.ibm.com/abstracts/redp4614.html>

Dispelling the Vapor around Cloud Computing (Whitepaper)

<ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/ciw03062usen/CIW03062USEN.PDF>

You Tube - IBM Cloud Channel

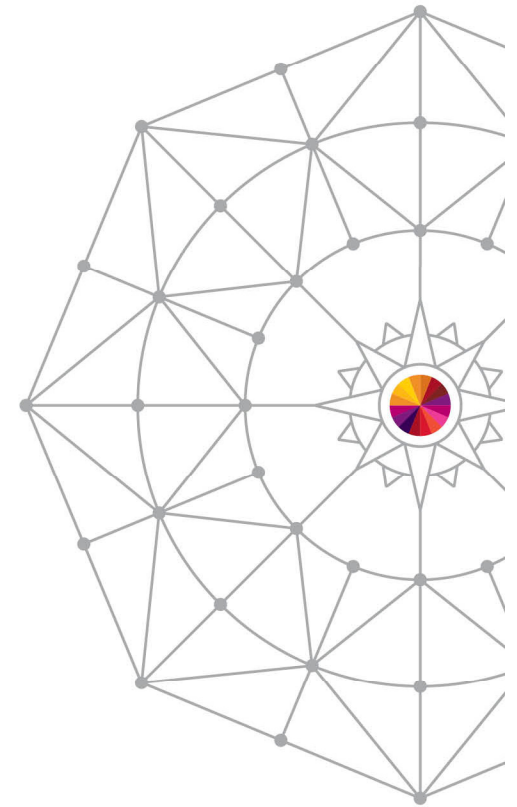
<http://www.youtube.com/user/IBMCloud>

Partners

[IBM PartnerWorld Cloud Computing Homepage](#)

[developerWorks](#)

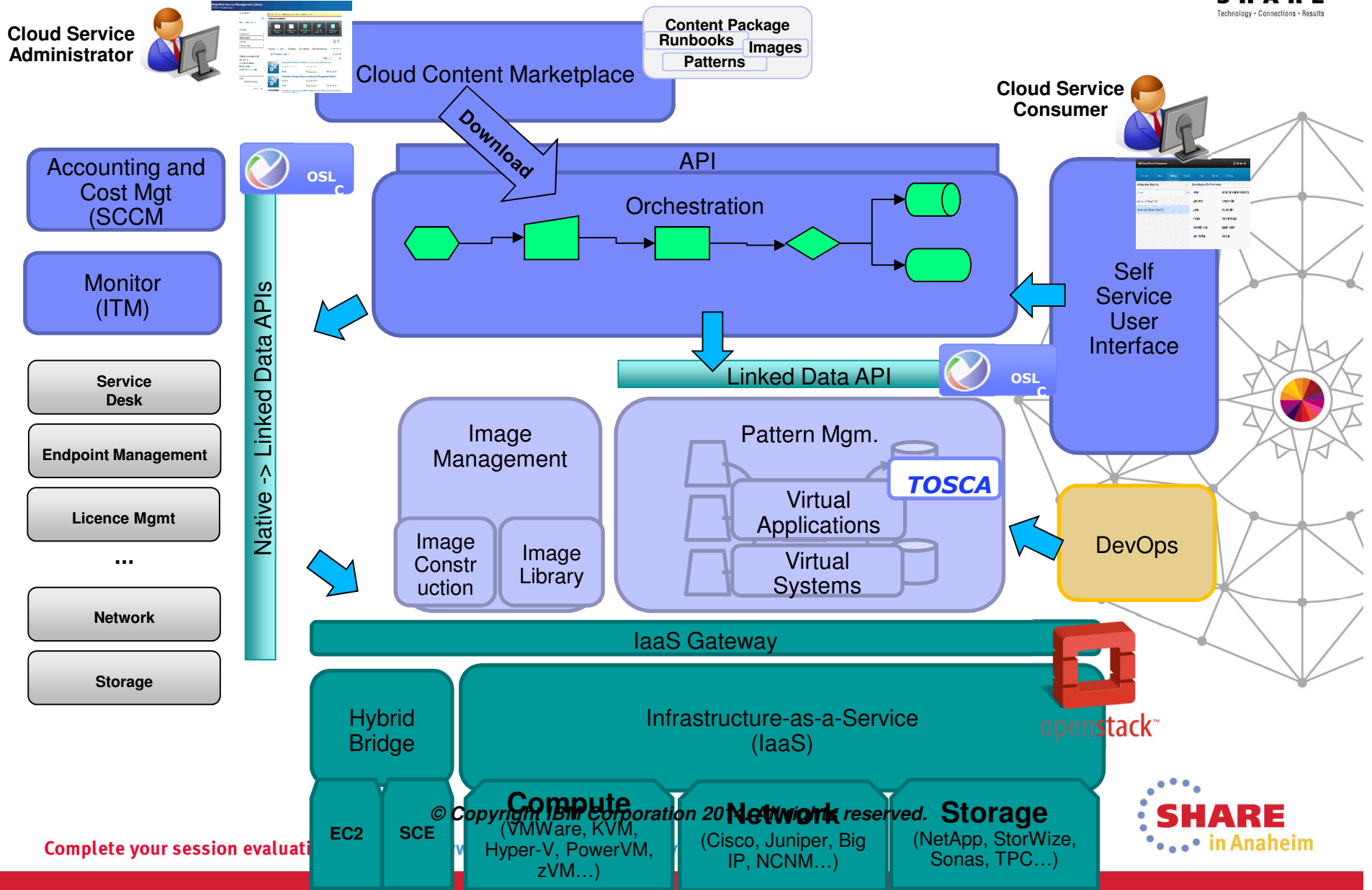
# Extras



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# SmartCloud Orchestrator Architecture



Complete your session evaluation



# SmartCloud Orchestrator Architecture



Cloud Content MarketPlace

Content Package  
Runbooks  
Images  
Patterns

Download

API

Orchestration

Accounting and Cost Mggm (SCCM)

Monitor (ITM)

Service Desk

Endpoint Management

Licence Mgmt

...

Network

Storage

Native -> Linked Data APIs

Linked Data API

Image Management

Image Constructin  
Image Library

Pattern Mgm.

Virtual Applications  
Virtual Systems

IaaS Gateway

Hybrid Bridge

Infrastructure-as-a-Service (IaaS)

EC2

SCE

Compute (VMWare, KVM, Hyper-V, PowerVM, zVM...)

Network (Cisco, Juniper, Big IP, NCNM...)

(Net Sc...)

## Service Orchestration (Cross Resources)

Activation time

- Orchestrate across domains
  - Inject manual processing
- Post Deploy time
- Run automation at post deploy time
  - Run automation based on events
  - Customized self service

## Workload Orchestration (Declarative between known resources)

Activation time

- Pattern modeling and deployment
  - Script execution
- Post Deploy time
- Virtual application HA and dynamic scaling

## Resource Orchestration (Resource Specific)

Initialization time

- Embedded agents run scripts, chef recipes
  - OVF activation engine for formal parameter passing
- Post deploy time
- TEM fixlets

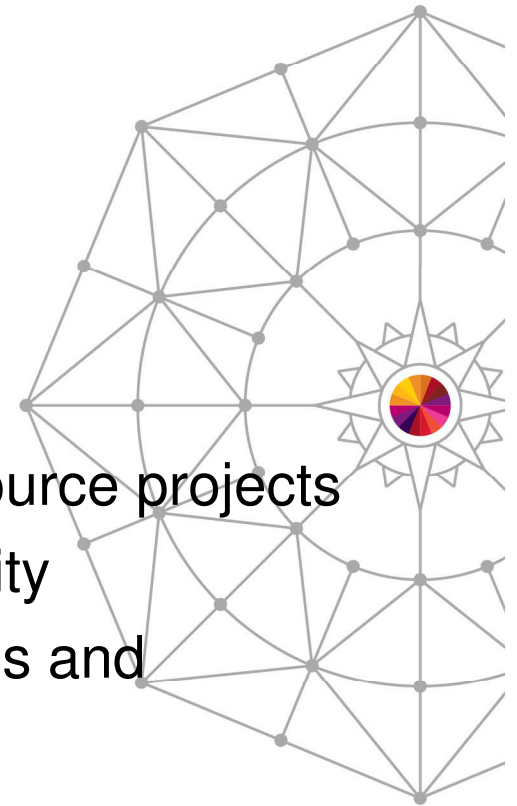
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# IBM Support of Openness & Cloud



- IBM invests in the success of Linux
  - 100% of our systems
  - 400+ software products
  - \$1 Billion investment
- IBM Open Community Contribution
  - 500+ developers contributing to 150+ open source projects
  - 500 patents donated to open source community
  - Founding and Board member of open alliances and foundations



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