



# Technical Forum & Executive Briefing

17 al 21  
Octubre  
2011

Imagine **PODER** Imagine **CAPACIDAD**

## *Accelerate Your Journey to Smarter Computing with IBM*

*Zarina Stanford  
Vice President, Marketing  
IBM Power Systems*



Three years ago we started describing the Smarter Planet we saw emerging, **fueling innovation across industries.**



Neonatal Care



Law Enforcement



Telecom



Fraud Prevention



Resource Management



Traffic Control



Manufacturing



Trading

# To realize the promise of a Smarter Planet, businesses must address the IT conundrum.

## Address IT challenges that have emerged,



**31.9 million** servers worldwide<sup>1</sup>



Internet connected devices—**22B in 2020 (16% CAGR)**<sup>3</sup>



Last 10 years servers up **2x**<sup>1</sup> and virtual machines up **42% CAGR**<sup>2</sup>



**1.2 Zettabytes (1.2 trillion gigabytes)** exist in “digital universe” growing at **42% YTY**<sup>4</sup>



Since 2000 security vulnerabilities grew **eightfold**<sup>6</sup>



Data centers have **doubled** energy use in past 5 years<sup>5</sup>

## And respond to demands for new services...

**13-15%**

Real-time analytics workloads growth

**11%**

Business Process Management software growth

**10%**

Server spending growth driven by collaborative software from 2010-15

**40%**

of large enterprises will have a corporate “Facebook” by 2015

...while dealing with constraints like a flat IT budget.<sup>7</sup>



By thinking differently about computing, IT leaders can overcome the IT conundrum to meet exploding demands with flat budgets.



**Incomplete, Untrusted Data**

**Sprawling IT**

**Inflexible IT**



**Designed for Data**

**Tuned to the Task**

**Managed as a Cloud**

# Smarter Computing

## The IT infrastructure that enables a Smarter Planet

### Designed for data

Harness all available information - **89% of CEOs** want ***better insight*** via Business Intelligence and analytics



### Managed with cloud technologies

***Reinvent IT*** - **60% of CIOs** plan to use cloud technologies and **55% of business executives** believe cloud enables business transformation

### Tuned to the task

Drive ***greater performance*** and improve IT economics - **total cost per workload can be reduce up to 55%** with optimized systems

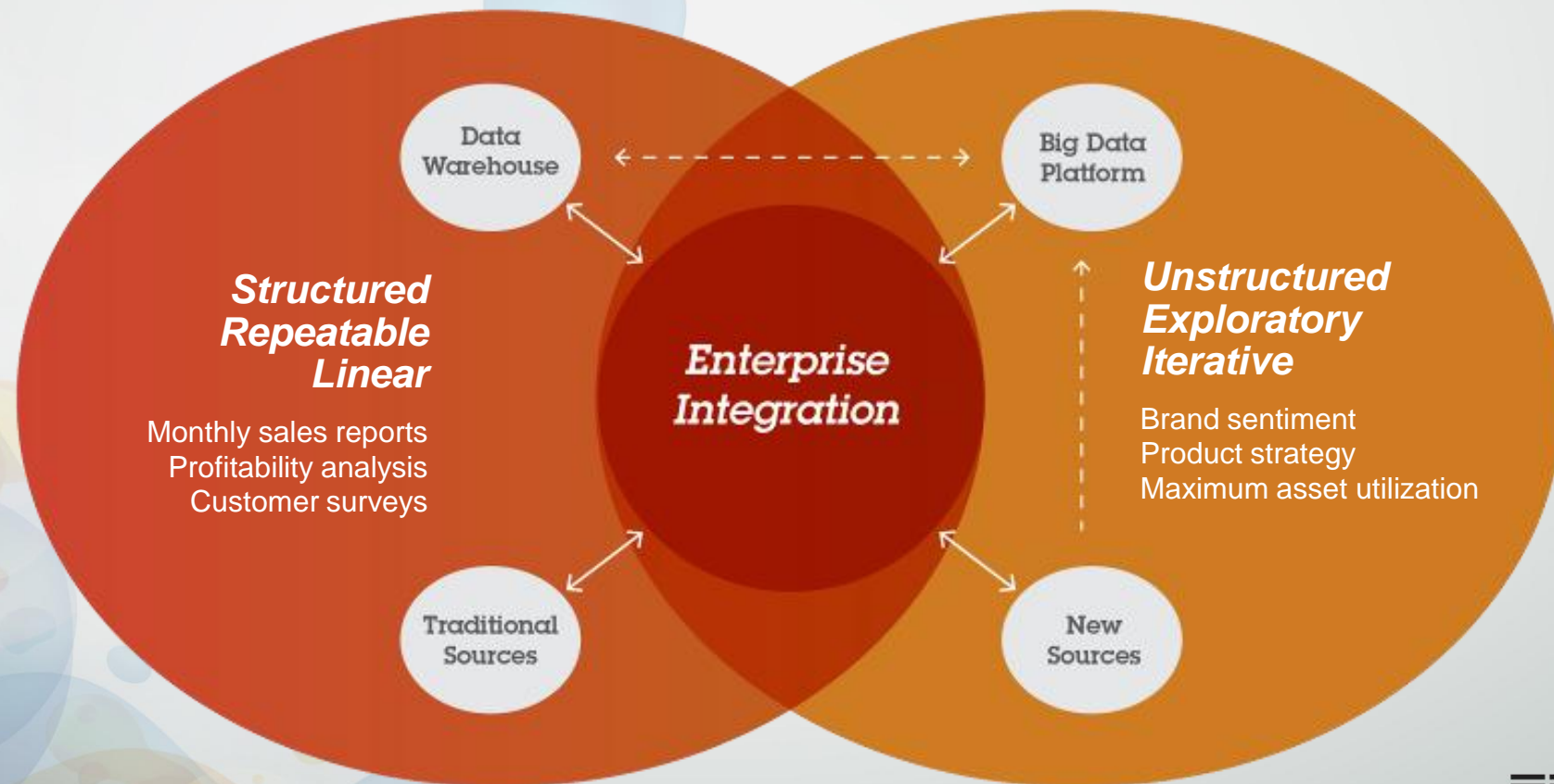
# Designed for Data: Extending beyond traditional sources of data to generate insight by leveraging new forms of information

## **Traditional Approach**

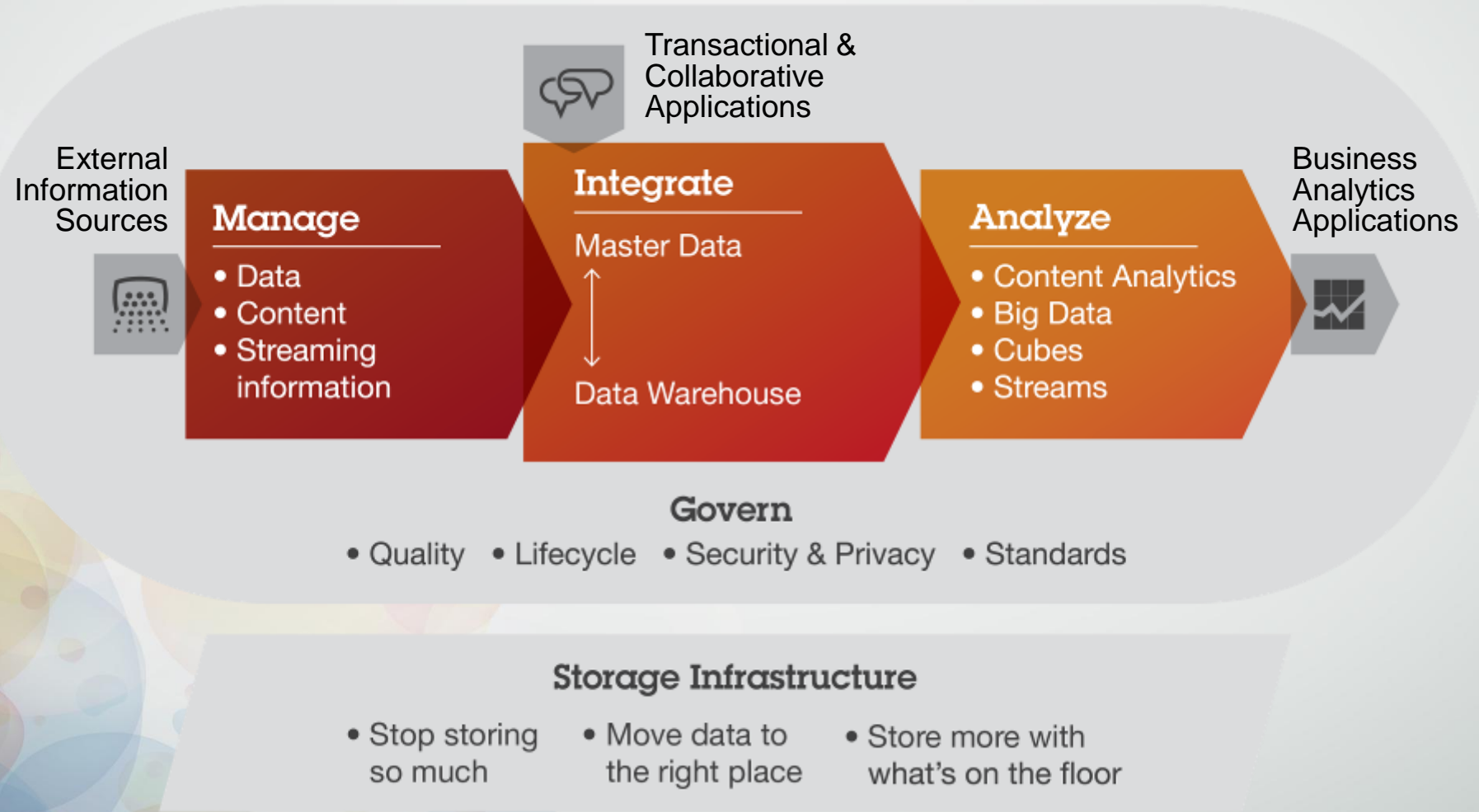
*Structured, analytical, logical*

## **New Approach**

*Creative, holistic thought, intuition*



# All forms of information can be incorporated into a business' information supply chain and storage infrastructure.





# Leveraging Big Data

## Manage

- How would I reduce database and storage costs?
- How can I improve performance to meet SLA's?
- How would I improve my storage utilization?
- How do I improve storage performance?

## Integrate

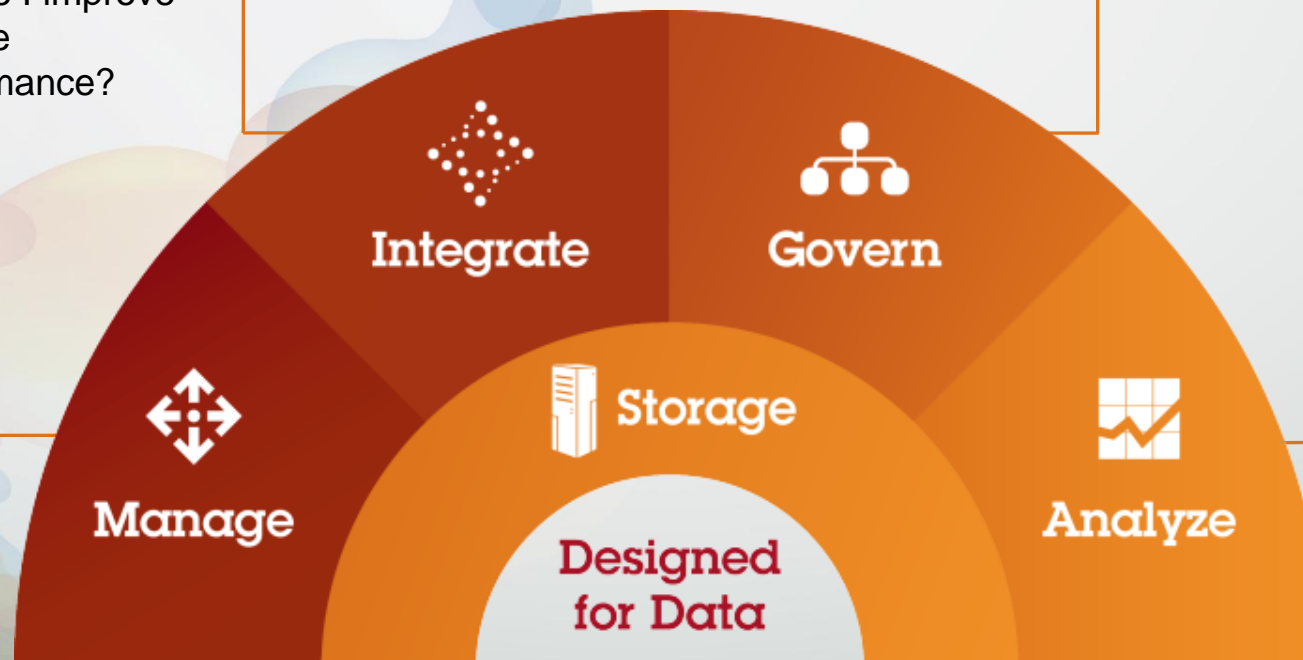
- How would I master a single version of the truth across applications?
- How do I clean and integrate my data so I can trust it for analysis?

## Govern

- How can I simplify data security auditing and reporting?
- How would I manage data life cycle?
- How do I maintain data quality?

## Analyze

- How can I get insights from huge volumes of unstructured data?
- How would I move to a data warehouse with analytics that is flexible and affordable?





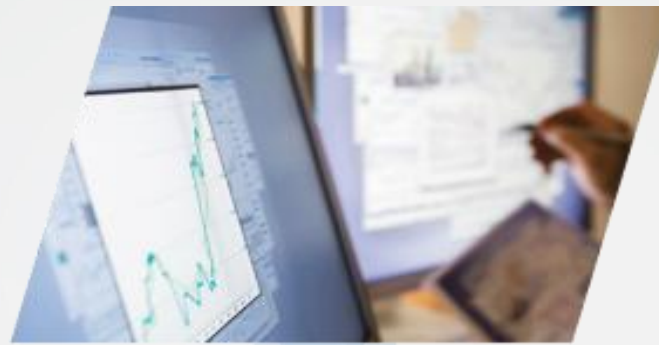
## *Tuned to the task*

# *Matching workloads to systems that are optimized for the workloads' characteristics*



### **Transaction Processing and Database**

- Thousands of online users
- Large transactional databases
- 24x7 operation



### **Business Intelligence and Analytics**

- Fewer users
- Complex queries
- Multiple data sources
- Large data warehouse



### **Business Process Management**

- Unite content, people and process flows
- Orchestrate multiple services
- Empower business users

# Matching workloads to the right system can deliver superior performance and economics

## System z

Freedom by Design



Lower total cost per workload by up to 55%

Accelerate Real-time Analytics

## Power Systems

Performance Redefined



Power Systems and DB2 at 1/3 the cost of Oracle

Optimize Complex Queries

## System x

Defining the Next Generation of x86 Servers



Lower Intel management cost by up to 50%

## IBM Storage

Storage Reinvented



Lower operating costs by up to 60%

Source: Based on IBM internal studies

\*Pricing comparison based on US list prices of IBM DB2 Advanced Enterprise Edition and the Oracle software with analogous capabilities: Oracle Database Enterprise Edition, Advanced Compression, Active Data Guard, Label Security, Partitioning, Oracle Enterprise Manager, Internet Developer Suite, Diagnostics Pack, Oracle-to-Oracle Federation, Golden Gate. All list prices based on US and valid as of 01/26/2011.

# Watson and Workload Optimized System Design

## *A System Designed For Answers:*

- Designed to answer the questions of today and tomorrow using deep QA Architecture
- Addresses natural language questions with accuracy and confidence in seconds not hours or days
- Processes massive array of information including unstructured “Big Data”
- Built on a cluster of commercially available Power 7 servers, optimized for complex analytic workloads and used by thousands today.



## **Domain knowledge**

- Dr. David Ferrucci and the IBM Research unstructured text analytics team

## **Software**

- IBM DeepQA,
- UIMA and UIMA AS
- Apache Hadoop

## **Hardware**

- 90 x IBM Power 750 servers
- 2880 POWER7 3.55 GHz cores
- 500 GBps on-chip bandwidth of POWER7
- 15 Terabytes of memory
- 500 GB of data (in memory)



# Leveraging Optimized Systems

## Consolidate Workloads

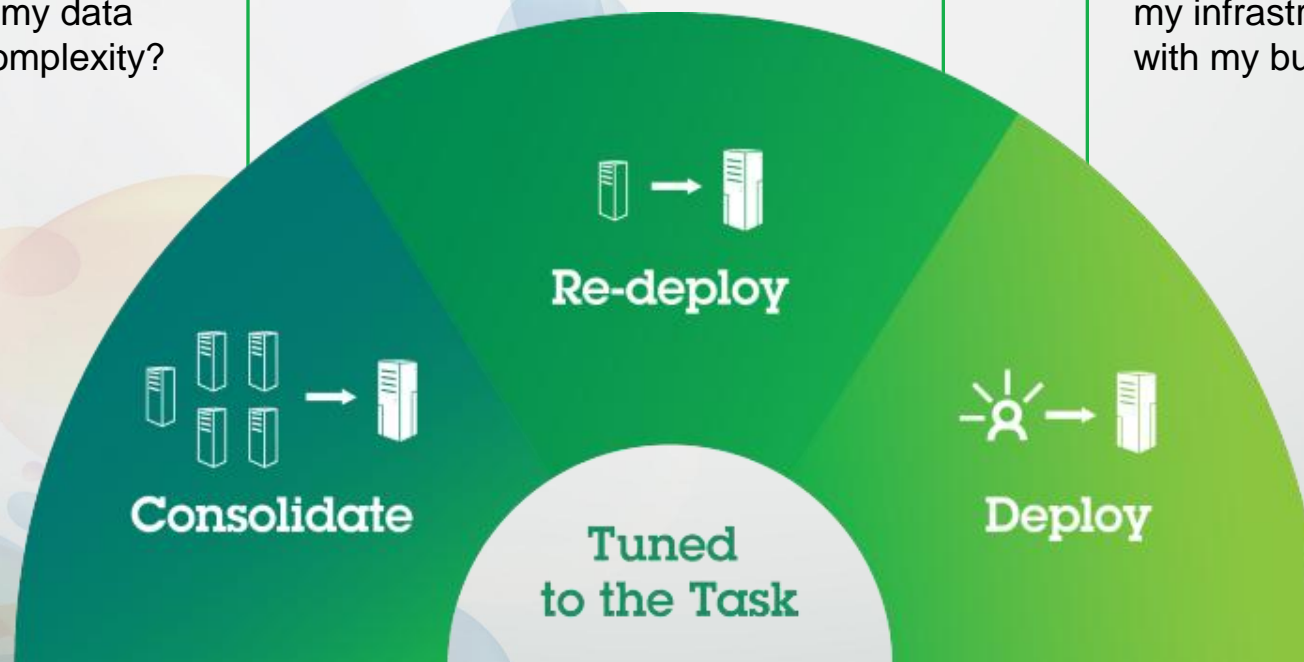
- How would I reduce the Total Cost of Ownership for my IT infrastructure?
- How would I better manage my data center complexity?

## Re-deploy Existing Workloads

- How would I improve the performance for my workloads?
- How can I improve my service levels?

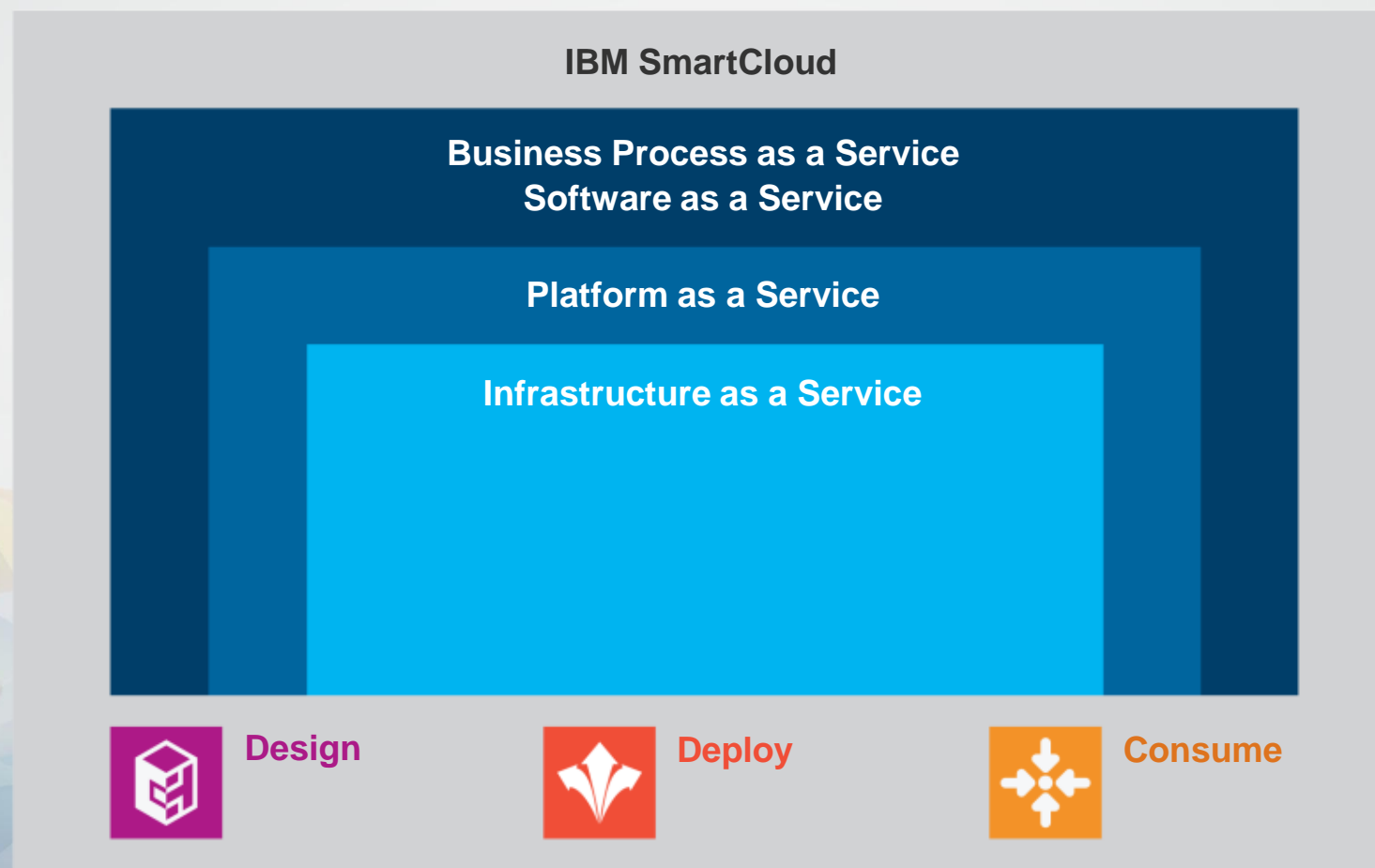
## Deploy New Workloads

- How can I rapidly deploy a workload leveraging existing skills?
- How would I scale my infrastructure with my business?

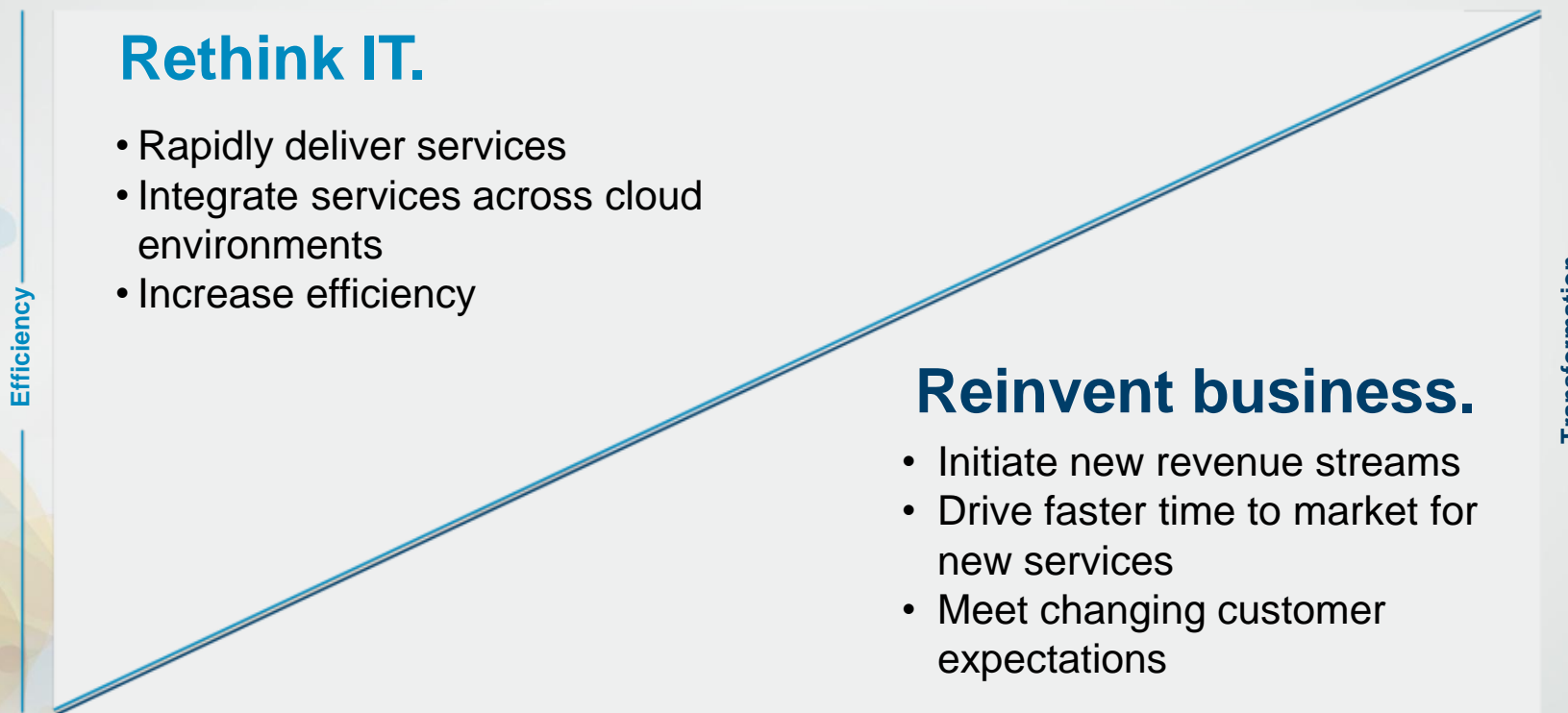




# Managed as a Cloud: Leveraging cloud technologies to reinvent IT and make the cloud promise a reality.



# IT and Business are attracted to cloud for different reasons.



\*\*Source: Gartner, Cloud Computing Services, Virtualization Top CIO 2011 Wish Lists Jan 24 2011

# Leveraging Cloud Services

## Cloud Enabled Data Center

- How can I reduce operational costs by getting the most out of the IT asset I have?
- How can I simplify my infrastructure for improved productivity and service transparency?

## Cloud Platform Services

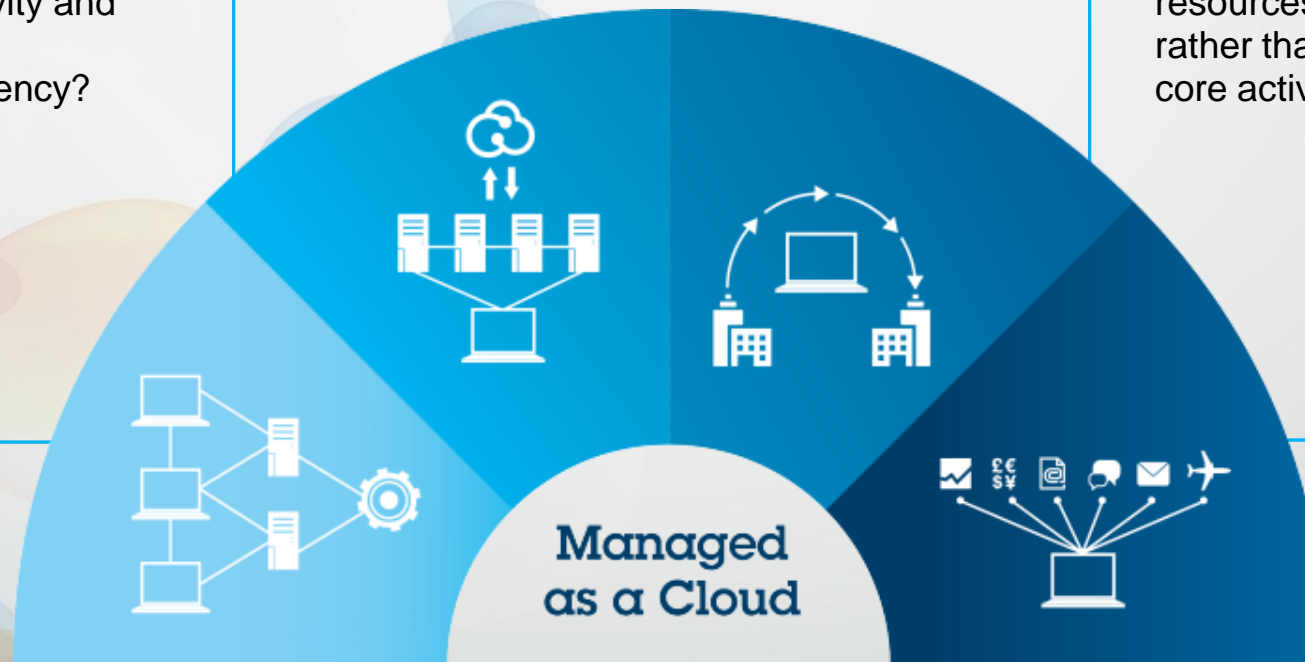
- How can I deploy resources and services faster while reducing cost?
- How do I optimize cloud workload placement?

## Cloud Services Provider

- How do I create the most advanced, reliable, secure and scalable infrastructure for creating, managing, and monetizing cloud services quickly and cost effectively?

## Business Solutions on Cloud

- How do I gain immediate access to enterprise class solutions without capital expense?
- How can I better focus my resources on core, rather than non-core activities?



## A new kind of performance is needed



Breakthrough agility to capitalize on opportunities

***GHY International needed to support anticipated business growth to clients doing trade between Canada and the United States***



Provide foundation for growth and manage business risk

***NACG experienced up to 60 issues/day on x86 Dell servers running Microsoft Windows and a Microsoft SQL Server database.***



Do more with less

***UPMC needed to respond to unplanned business functions or applications while reducing administration and infrastructure costs.***



## *Power is Performance Redefined*



**Deliver new services faster**

*5 minutes to add new virtual machine to support business growth*



**Deliver higher qualities of service**

*ERP outages eliminated, response times up to 96% faster, YTY IT costs down 52%*

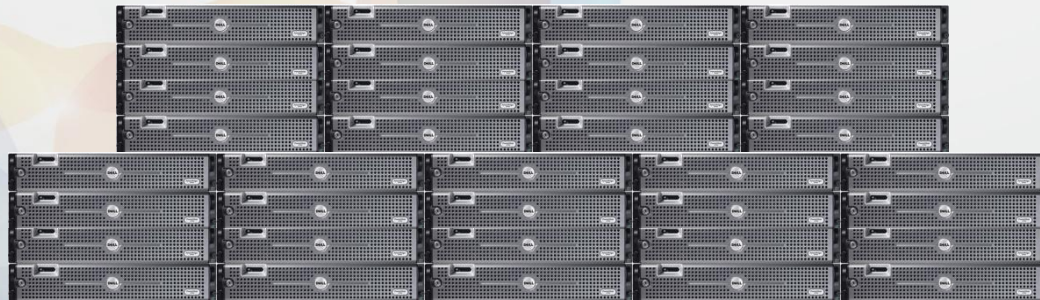


**Deliver services with superior economics**

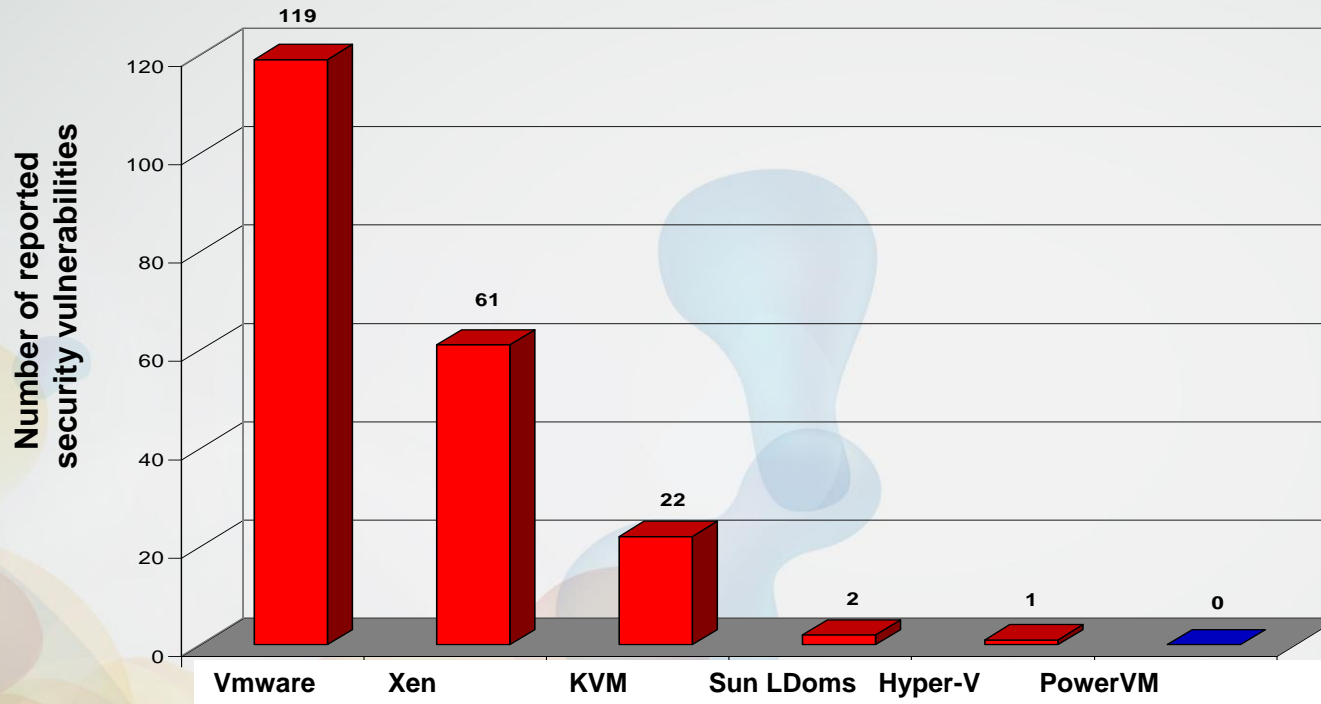
*Processor virtualization provides capacity quickly and efficiently with 90% utilization and at no additional cost*

## *Delivering services faster on the foundation of an integrated, optimized stack*

	Clustered x86 servers	Power Systems
Processor	Intel or AMD	IBM
Firmware	Phoenix or other	IBM
Virtualization	VMware	IBM
OS	Microsoft or Linux	IBM



## Delivering services with higher quality on a foundation of PowerVM virtualization



Source:  
National Vulnerability Database  
<http://nvd.nist.gov/>

- IBM PowerVM is the virtualized environment designed from 'bare metal' through the hypervisor
- There are **zero vulnerabilities** reported against PowerVM by [US CERT](#) or by [MITRE Corporation](#)
- PowerVM is certified at CC Evaluation Assurance Level 4+

## ***Performance for China Telecom meant implementing resilient and lower cost private cloud services***

Implemented IBM Power Servers with PowerVM and Systems Director to create a private cloud and manage virtual pools



- Reduced time to market for new applications from 3 months to 3 days
- 50% reduction in hardware costs with improved hardware utilization



“Our estimate is that the IBM solution has improved hardware utilization by over 50 percent, although this may in fact be higher. Sharing resources through the internal cloud has allowed us to consolidate hardware, translating into 50 percent cost savings in terms of servers and storage.”

- Dr. Lifeng Liu, General Manager Assistant in the Network Development Department, China Telecom



## University of Wisconsin-Milwaukee

### Business challenge:

- 40,000 students per quarter
- Sun hardware platform in its SAP University Competence Center (UCC).
- In 2009, the school needed to update the system to automate and consolidate data center operations enabling a cloud-based service for delivering SAP-based courses to students.

### Benefits:

- The IBM Power/Storage/DB2 solution gives the University of Wisconsin-Milwaukee's Center for Technology Innovation a virtualized cloud-based system utilizing local partitions (LPARs) to deliver SAP-based courses to its student body.
- In addition, the system enables faster services, greater energy efficiency and reduced administrative costs.

Tivoli



DB2 Data Management Software

*As an SAP University Competence Center, the University of Wisconsin-Milwaukee's Center for Technology Innovation acts as an education service provider, hosting a wide range of SAP systems for educational purposes on its campus and virtually to more than 105 universities across North America.*

### Solution components:

#### Hardware:

BladeCenter: BladeCenter H Chassis;  
BladeCenter HS22; BladeCenter running AIX  
Power Systems: Power 750 Express;  
Power Systems running AIX 6  
Storage - Disk: Storage: XIV  
Storage - Tape and Optical: Storage: TS3310 Tape Library

#### Software:

Information Management: DB2 Enterprise  
STG Systems Software: PowerVM Enterprise Edition , Flashcopy, Tivoli Storage Manager, Automated Script

#### Delivery:

IBM Systems & Technology Lab Services



## *Accelerate the journey to Smarter Computing with Power Systems*

### Reduce the cost of cloud security and compliance in virtualized datacenters

- New **PowerSC** software provides automated tools to implement Security and Compliance standards for clients with PowerVM virtual machines.

### Accelerate private cloud deployment for faster delivery of infrastructure as a service

- New **IBM SmartCloud Foundation on Power** provides affordable, faster-to-deploy cloud solutions that help businesses respond quickly to changing conditions.



## Accelerate the journey to Smarter Computing with Power Systems

### Deliver line-of-business analytics and reporting services faster with an affordable, integrated solution

- New entry-level **IBM Smart Analytics 7710 for Power Systems** is designed for rapid deployment and fast time to value for analytics project development and testing.



### Achieve superior economics with flexible workload optimized systems options for projects that demand high performance and energy efficiency

- Flexible and affordable **Power Express servers and Power 770** enhanced with latest industry I/O standards, delivering up to 2X I/O throughput within same physical & energy footprint.
- Ideal for high performance, big data analytics projects, the **Power 780** now offers up to 96 POWER7 processor cores, plus doubled memory and enhanced I/O.





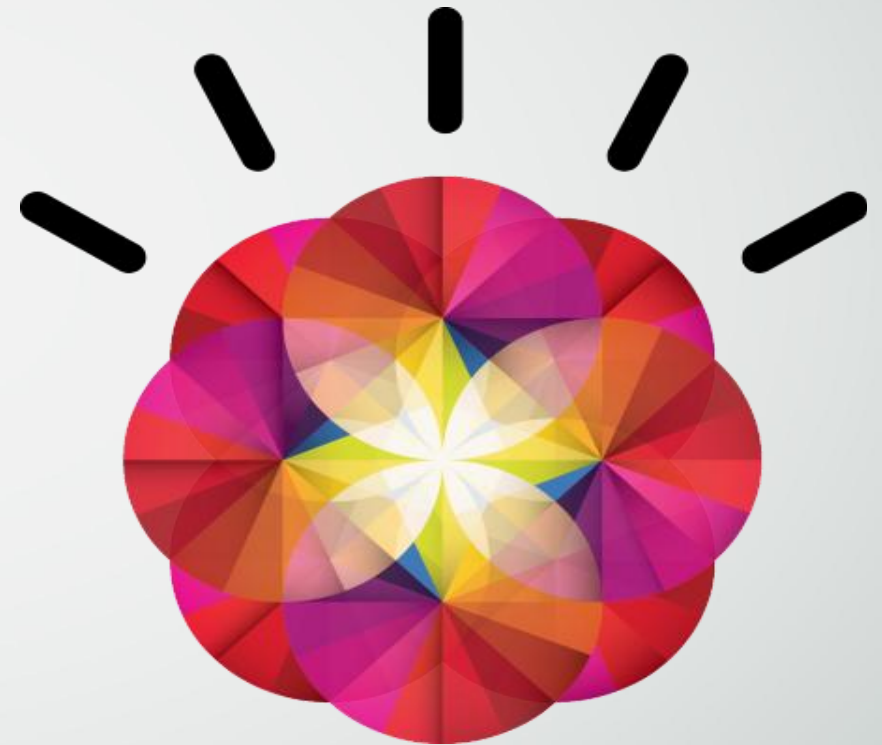
***Smarter Computing is a journey.  
IBM is eager to help accelerate your journey.***

Our approach is inclusive —  
**no “rip and replace”**

IBM and our partners can deliver the  
**experts and expertise** required

IBM is extending our portfolio to  
**address the biggest challenges**  
in computer science

Proven **innovator** for 100 years



**SMARTER COMPUTING ... DO MORE FOR LESS**



**GRACIAS**

