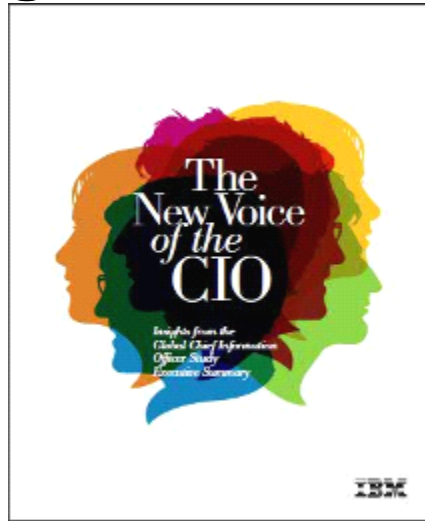# Transformation in the Decade of Smart

Robert LeBlanc

SVP, IBM Middleware Software

IBM Global C-Suite studies prove clients are looking for change


IBM Global CIO Study 2009

IBM Global CFO Study 2010

- Clients are struggling with rising costs, economic pressures and global change to make **innovation real**, raise the **ROI of IT** and expand **business impact**.

- They must be able to **manage enterprise risk**, measure and **monitor business performance**, and **drive insight from information** integrated across their organizations.

Major shifts are underway
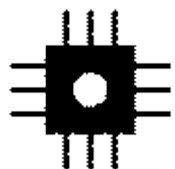
Our world is becoming
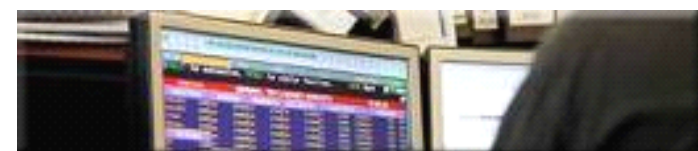**INSTRUMENTED**

30 billion RFID tags… 2010

Our world is becoming
INTERCONNECTED

*~2 billion people on the Web… 2011
…a trillion connected objects*

All things becoming
INTELLIGENT

*15 petabytes of new
Information generated daily…*

Infrastructure needs to get smarter

IT infrastructure is under tremendous pressure
It will reach a breaking point

25 billion

Global trading systems are under extreme stress, handling billions of market data messages each day

70¢ per $1

70% on average is spent on maintaining current IT infrastructures versus adding new capabilities

1.5x

Explosion of information driving 54% growth in storage shipments every year

78%

of CIO's want to improve the way they use and manage their data

Today's IT Infrastructure isn't built for what's coming
Information explosion & rapid change create new challenges

10x

Digital data is projected to grow tenfold from 2007 to 2011

80%

Of digital data growth will be "unstructured" and requiring significant effort to "understand" and analyze

1 trillion

Devices will be connected to the internet by 2011

500,000,000 GB

Global internet traffic volume expected by 2013.

Smarter Planet: Thinking and acting in new ways to make our systems more efficient, productive and responsive

Organizations need six critical capabilities to thrive on a smarter planet

- **INFORMATION & ANALYTICS**

- **PEOPLE & PROCESS TRANFORMATION**

- **SECURITY & RESILIENCY**

- **PRODUCT & SERVICES INNOVATION**

- **NEXT GENERATION DATA CENTER & CLOUD CAPABILITIES**

- **SUSTAINABILITY**

Information and Analytics

A smarter planet gives organizations the vision to see without being there

Matiq: Employs RFID tags to trace meat and poultry from the farm to store shelves to ensure safety and freshness and provide more transparency to consumers.

Union Pacific Railroad: First of a kind project using self-forming mesh networks across railcars for near real-time diagnostics of wheel "out of round" sensing and yard management.

- Seamless collaboration

- Global competition

- Demanding consumers

- IT integration

Taking it to the next level

**Optimize the Infrastructure
Using Business Context**

**Different
Business Users**

Existing Systems

Business Analytics & Optimization Solutions

Financial Services | Public | Distribution | Industrial | Communications

Financial Performance Management | Cross Industry | Supply Chain Management
Customer Relationship Management

Business Analytics & Optimization Platform

Performance Management & Analysis | Predictive Analytics | Process Optimization

Trusted Information Platform

Information Integration & Master Data Management | Enterprise Content Management | Data Warehousing & Data Management

Workload Optimized Systems & Services

**Leverage Information Assets
in New Ways**

**External
Information Sources**

People and Process Transformation

A smarter planet puts organizations in position to be first and be right

FIAP: Uses a collaborative social network to teach students IT skills needed to succeed in today's marketplace.

Geisinger Health System: Integrates real-time clinical data with medical history information to create a massive storehouse of intelligence that will assist doctors in delivering care.

- Volume of digital data

- Variety of information

- Velocity of decision-making

- Shift in what we analyze

People and Process Transformation

2/3 of people can't find the help they know is out there

5.3 hours wasted per employee per week due to inefficient processes

42% make decisions with the wrong input at least once a week

2 hours per day spent looking for the right information and expertise

3x increase in gap between expected change and ability to handle change

800 billion business events daily

IBM Collaboration Portfolio
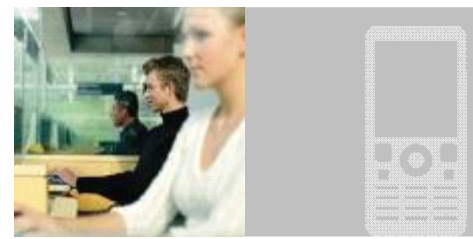
Knowledge Worker   **Informational Worker (Boundary)**   **External Partners**

Universal Access

Messaging   **Communicating**   **Connecting**   **Integrating**

Lotus

Open Standards Architecture

Business Applications   **Information Management**

Creating an agile business through dynamic business processes and infrastructure technology (Websphere)

Link **business strategy to process execution** and enhance business productivity with horizontal integration across commodity applications

Provide a **single view of business processes** enabling optimization and continuous improvement to increase efficiency and reduce cost

Enable connectivity both within and across processes, fostering **collaboration, insight, and cost effective re-use** of data and knowledge

Provision a **scalable and reliable infrastructure** for the most demanding business-critical applications including **extreme transaction processing**

Product & Services Innovation, Security & Resiliency

A smarter planet enables organizations to solve the problem before the problem

River and Estuary Observatory Network: Will create the first technology-based real-time environmental monitoring and forecasting network to guide better policy, management and education for the Hudson River and estuaries worldwide.

Yansha: Deployed first-of-its-kind supply chain management platform that leverages a SOA to integrate enterprise resource planning and SCM applications resulting in order lead time reduced from 2.5 days to 4.5 hours and order error rate reduced from 9% to 1%.

- Rising cost pressures

- New risks and threats

- Higher service expectations

- Emerging technologies

Product & Services Innovation

Best-of-class product and service companies build a strong competency in software:
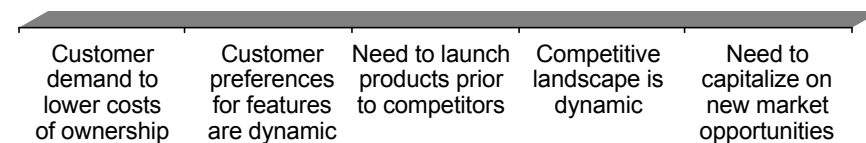
- **19%** more likely to meet revenue targets than the industry average

- **4.4x** more embedded software than competitors

- **50%** fewer defects in embedded software

- **25%** decrease in product development time

Source: "Embedded Systems Development", Aberdeen Group, March 2009

"Software has evolved to become the keystone of product differentiation and end-user experience."

VDC research

Top 5 pressures driving improvements in embedded product / IT software

Customer demand to lower costs of ownership	Customer preferences for features are dynamic	Need to launch products prior to competitors	Competitive landscape is dynamic	Need to capitalize on new market opportunities

The evolution of Product and Services Innovation

1977

Today in 2010

Oldsmobile
Toronado had a
single computer unit
for spark-plug timing

A modern car
is more like
30 computers
on wheels, 100 M LOC

More software and
more complex control
units than the NASA
Space Shuttle

Evolution of Product & Services Innovation

Smart Vehicle Charging Station

Fleet / Traffic Management

GPS Service Provider

Emergency Services

Vehicle Inspection Station

Vehicle Insurance Provider

45+ interconnected systems, 20+ different stakeholders, each with a different agenda

Next Generation Data Center & Cloud Capabilities

A smarter planet enables organizations to solve the problem before the problem

North Carolina Central University and NC State University: Enables the learning environment to be extended to nearly any place at any time without the restrictions many schools face such as limited support, hardware resources and lack of access.

United States Golf Association: Migrated their USOPEN.com operations to IBM's new data center and reduced energy consumption by 38% and floor space requirements by 54%.

- Improve security and efficiency

- Reduce energy and operating costs

- Resilient, scalable, virtualized

- Sheer speed and power

Integrated Service Management offers the capabilities to...

Deliver new, innovative services across complex business infrastructures

INTEGRATED SERVICE MANAGEMENT

VISIBILITY

CONTROL

AUTOMATION

	Integrated Service Management	Business Service Mgmt / IT Service Mgmt
Dashboards span all audiences & infrastructures	**Business & Technology Audiences & Infrastructures**	**Limited to IT Operations & Infrastructure**
Enterprise & IT Asset Management	**Smart, physical & technology assets**	**Limited to IT Assets**
Common Service Request	**Business & Technology**	**Limited to IT**
End-to-end Lifecycle Management∗	**Enterprise Architecture, Development, Testing, IT Ops**	**Limited to IT Ops**
High-automation Systems Platforms	**Integrated Service & Hardware management platform**	**Limited Management Scope**
Shared Common Services	**Visualization, Navigation, Security, Process engine, Data model**	**Limited**
Industry specific solutions	**Solutions tailored by Industry**	**Generic for IT**

*Software, Services, Best Practices & Integrations
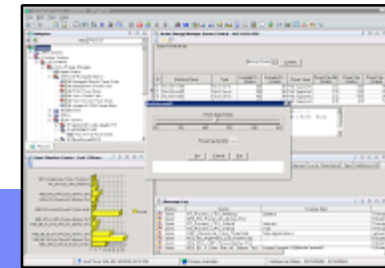
Energy management across the enterprise infrastructure

Centralized Energy Monitoring & Reporting
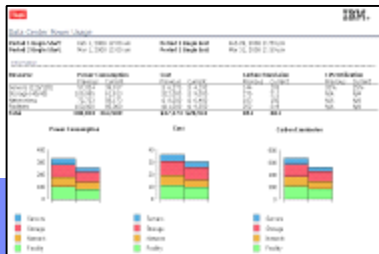
Energy aware Business of IT Dashboard

Manage and Control Power and Cooling usage

Energy Management

INFORMATION TECHNOLOGY

FACILITIES & PROPERTY

DATA CENTER INFRASTRUCTURE

BUILDING INFRASTRUCTURE

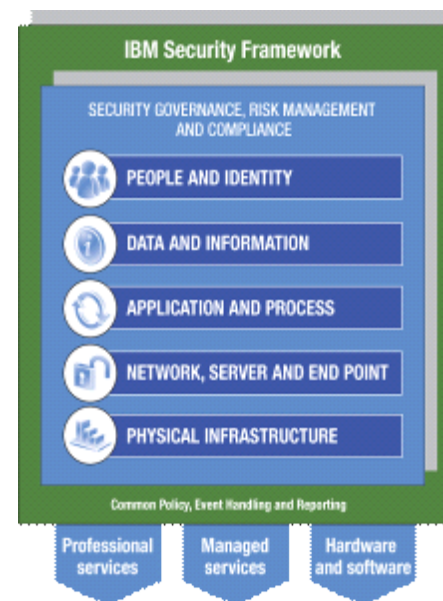# Security and Resiliency

New technology introduces new security challenges

Rapid and tremendous growth in data volume

Threats on the rise

Supply chain is only as strong as the weakest link

Clients expect privacy

IBM Security Solutions

IBM Security Framework

SECURITY GOVERNANCE, RISK MANAGEMENT AND COMPLIANCE

- PEOPLE AND IDENTITY
- DATA AND INFORMATION
- APPLICATION AND PROCESS
- NETWORK, SERVER AND END POINT
- PHYSICAL INFRASTRUCTURE

Common Policy, Event Handling and Reporting

Professional services | Managed services | Hardware and software

"Secure by Design"

Workload Optimized Systems

Fully integrated
hardware, software and services

Optimized
for a specific workload
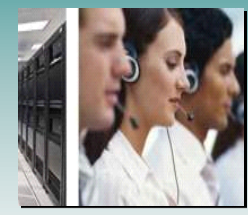
Deep client experience

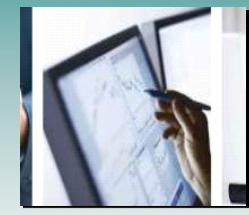Desktop & Devices   Analytics   Collaboration   Infrastructure   Business Services   Development & Test

Faster time to value   *Higher performance*   *Fewer IT experts*
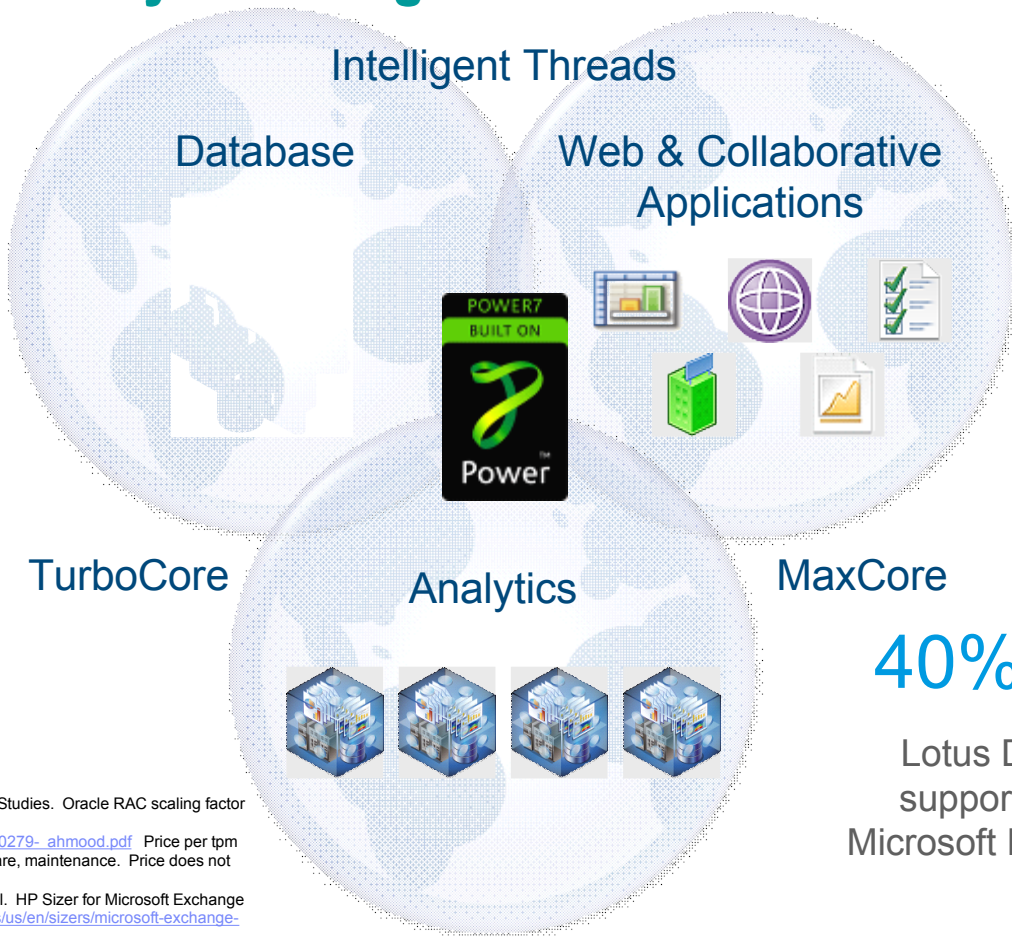
IBM delivers workload optimized systems

Unparalleled flexibility and change

38% lower cost

DB2 pureScale on Power 780 has lower cost per tpm than Oracle RAC on Nehalem [1]

Intelligent Threads

Database

Web & Collaborative Applications

POWER7 BUILT ON 7 Power™

TurboCore

Analytics

MaxCore

Active Memory Expansion

73% better

performance using a single JVM of WebSphere on POWER7 vs. competitive application server on Nehalem [2]

40% lower cost

Lotus Domino on POWER7 supporting 40,000 users vs. Microsoft Exchange on Nehalem [3]

[1] DB2 pureScale scaling factor projected from IBM Internal Studies. Oracle RAC scaling factor projected from Dell Study of Oracle RAC with Infiniband. http://www.dell.com/downloads/global/power/ps2q07-20070279-_ahmood.pdf Price per tpm includes 3-year total cost of acquisition of hardware, software, maintenance. Price does not include storage or networking
[2] Exchange on Nehalem configuration from HP's sizing tool. HP Sizer for Microsoft Exchange Server 2010 at http://h20338.www2.hp.com/ActiveAnswers/us/en/sizers/microsoft-exchange-server-2010.html
[3] As much as 40% improved throughput vs. Power6 in Tivoli portfolio for the identify duplicates process and event processing bus.

There are three ways to deliver IT capabilities

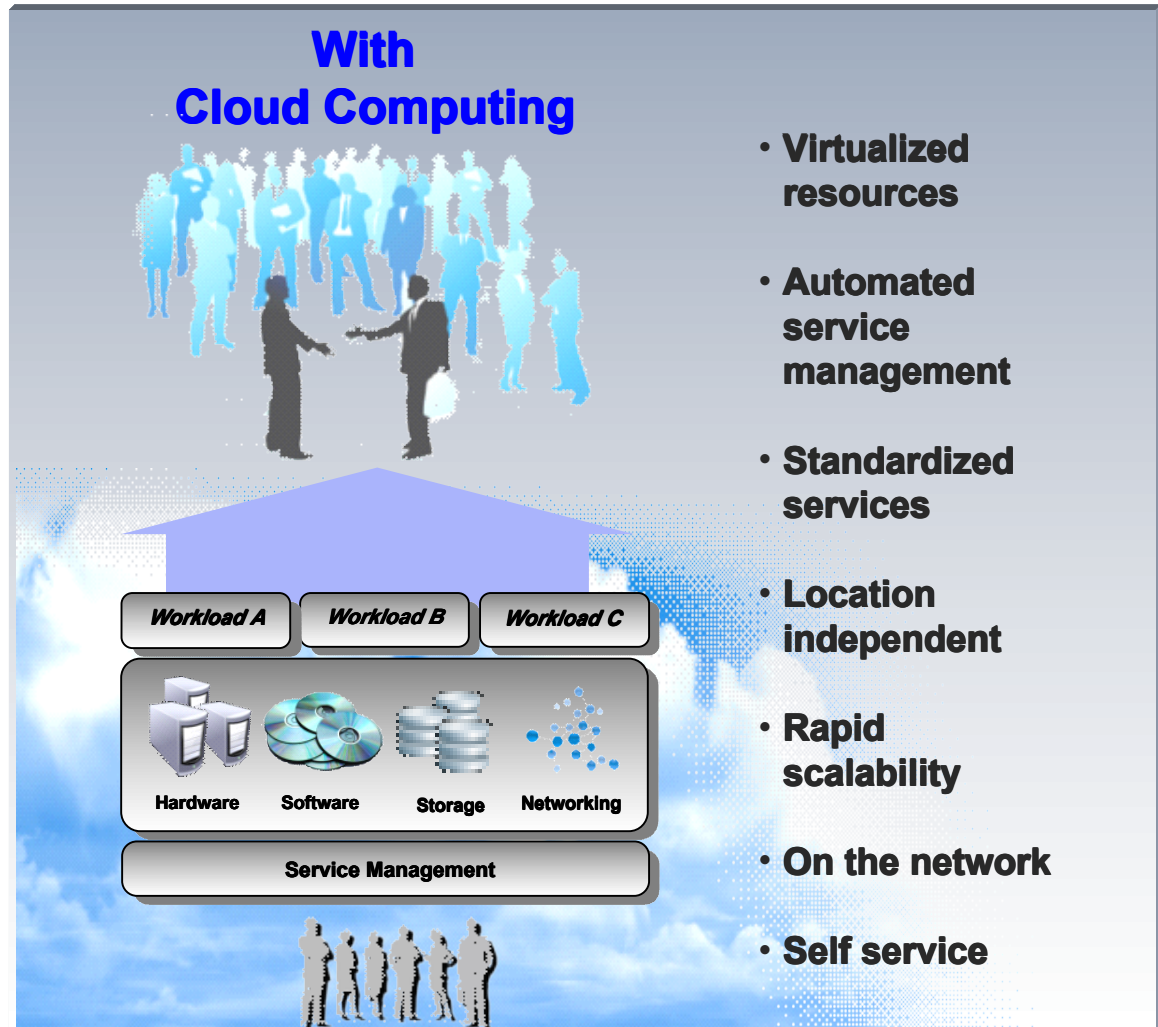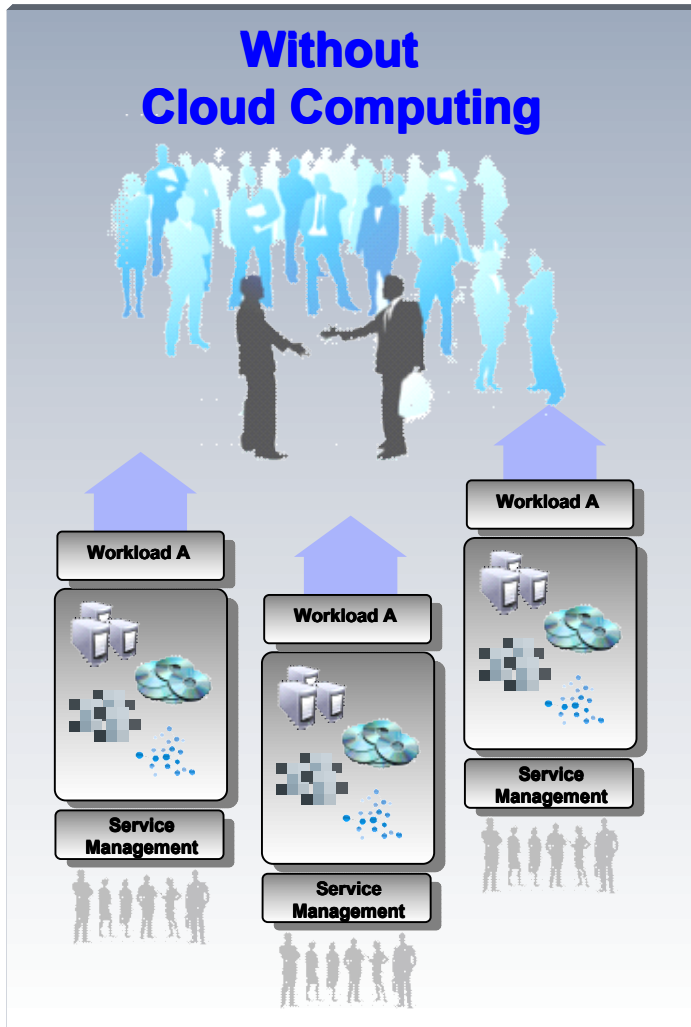| Software, hardware, & networking	Pre-integrated systems & appliances	Provided as a service

Cloud computing is a new model for delivering and consuming IT capabilities

What's different about cloud computing?

Without Cloud Computing

With Cloud Computing

Workload A

Service Management

Workload A

Service Management

Workload A

Service Management

Workload A   Workload B   Workload C

Hardware   Software   Storage   Networking

Service Management

- **Virtualized resources**

- **Automated service management**

- **Standardized services**

- **Location independent**

- **Rapid scalability**
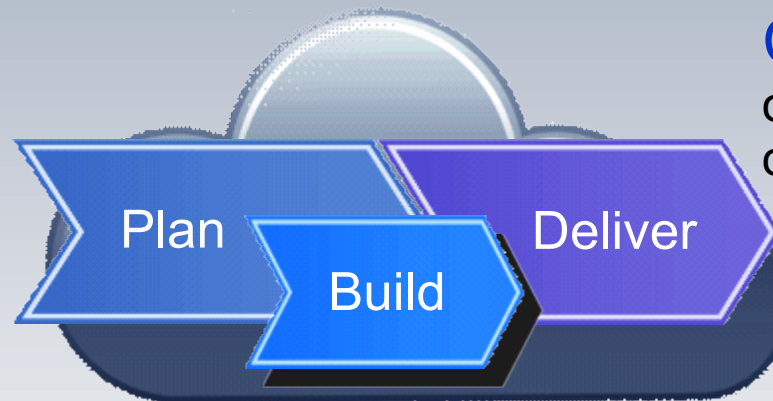
- **On the network**

- **Self service**

IBM provides a comprehensive set of capabilities to accelerate your cloud journey

Technologies
to build and deliver cloud services

Cloud Services
on the IBM cloud to optimize your business

Plan **Build** **Deliver**

Services
Experience and expertise to help customers plan, build, and deliver cloud services

Smarter software creates smarter industries

Retail

Telecom

Financial Markets
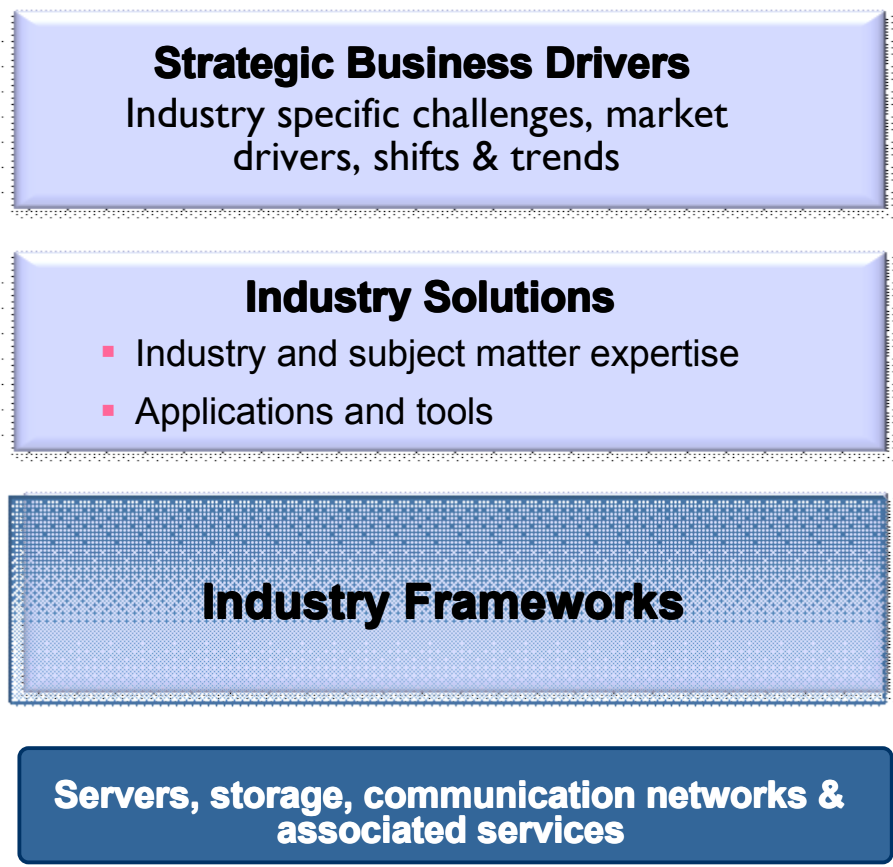
Insurance

Manufacturing

Healthcare

Government

Oil & Gas

Frameworks deliver technology in an industry context

Aligning IT to business needs

Strategic Business Drivers
Industry specific challenges, market drivers, shifts & trends

Industry Solutions
- Industry and subject matter expertise
- Applications and tools

Industry Frameworks

Servers, storage, communication networks & associated services

Value Add
- Process models & flows
- Information models
- Design templates
- Re-usable code assets
- Industry standards
- Common services

Integrated on an IBM middleware platform

WebSphere. Rational. Tivoli.
Information Management Lotus.

10 Priority Frameworks Covering Over 50 Solution

	Framework	Industry
	Product Development Integration Framework	Automotive, Aerospace, Defense, Electronics, Chem & Petro, Fabrication & Assembly
	Banking Industry Framework	Banking
	Integrated Information Framework	Chemicals & Petroleum
	Solution Architecture for Energy & Utilities	Energy & Utilities
	Service Provider Delivery Environment	Telco
	Network Centric Operations Framework	Government (Military/Defense)
	Government Industry Framework	Government (Civilian)
	Health Integration Framework	Healthcare
	Insurance Process Acceleration Framework	Insurance
	Retail Integration Framework	Retail

IBM delivers software that helps our clients to build the capabilities required to transform their industries.

|		
Messaging and Collaboration	**Application Infrastructure**	**IT Service Management**
Unified Communications	**Connectivity and Integration**	**Storage Management**
Social Software	**Electronic Commerce**	**Security**
Data Management		**Software Design and Development**
Analytic Applications	**Portals and Mashups**	
Analytics, Business Intelligence, and Performance Management	**Business Process Management**	**Business Planning and Alignment**
	Asset Management	**Product and Project Management**
Information Integration and Master Data Management	**Network and Service Assurance**	**Product and Software Lifecycle Management**
Enterprise Content Management		

Energy and Utilities	**Aerospace and Defense**	**Retail**
Transportation	**Consumer Products**	**Education**
Banking		**Life Sciences**
Financial Markets	**Healthcare**	**Media and Entertainment**
Electronics	**Telecommunications**	**Automotive**
Industrial Products	**Government**	**Chemical & Petroleum**
	Insurance	

Smarter software creates smarter industries

Smarter software

Knows & Acts
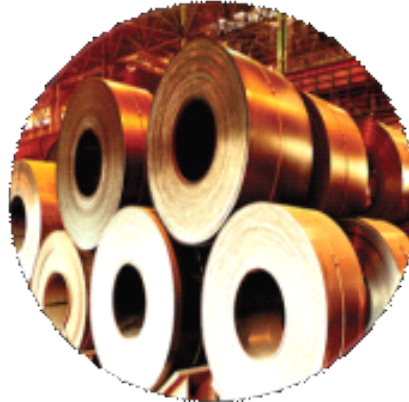
Adapts

Connects

Delivers

Optimizes

Protects

Smarter. software for a Smarter Planet