Accelerating Solutions for Smarter Communications

IBM software strategy for Communications Service Providers

Presenter:
Date:

Today's Market Challenges….

Lower operating costs
to drive profitability

Improve time to market
AND quality of value
added services

Deliver converged voice,
video **AND** data services

Increase retention **AND**
drive new revenue

Monitor **AND** manage services
end user experience quality

Leverage existing
network infrastructure

Integrate services **AND**
connect with backend support systems

Today's Market Challenges….
Require new actions and solutions

Accelerate new services and business models

Adapt to current and future changes by capitalizing on the opportunities for innovative new business models.

Improve time to market **AND** quality of value added services
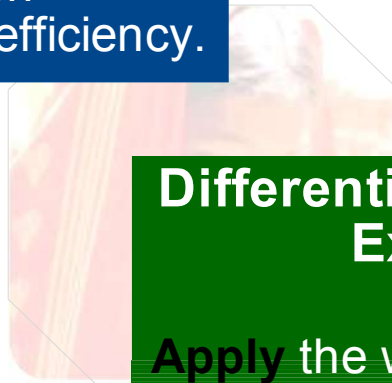
Lower opera... to drive pr...

Operational and Network Efficiencies

Improve what service providers do today by focusing on improving operational efficiency.

...d voice, ...services

Increase retention **AND** drive new revenue
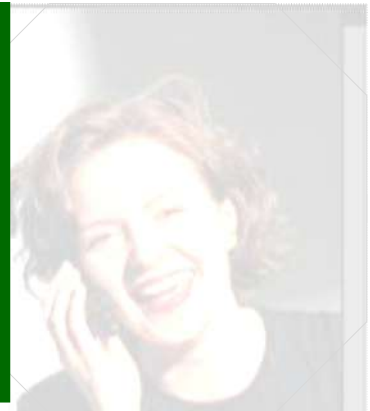
Monitor **AND** manage services and user experience quality

Leverage existing

Differentiate the Customer Experience

Apply the wealth of data and intelligence available today to focus on meeting customer needs.

Integrate se... connect with backe...

Meeting the Challenges: Imperatives for CSPs

Drive costs out of operations, innovate new revenue services and deliver an enhanced user experience

Management Priorities . . .

- Achieve differentiation through customer satisfaction and innovative offerings

- Speed time to market of value added services

- Lower operating costs to drive profitability

- Increase retention and drive new revenue

Technology Imperatives . . .

- Deliver converged voice, video and data services

- Integrate service applications and connect with backend support systems

- Leverage existing network infrastructure

- Simplify service administration

Inflexible and complex operations and data silos inhibit CSP transformation

Customer Care

Order Management

Service Assurance

Product Catalog

Billing

Inventory

Customer

Partners

Regulators

3rd Party Providers
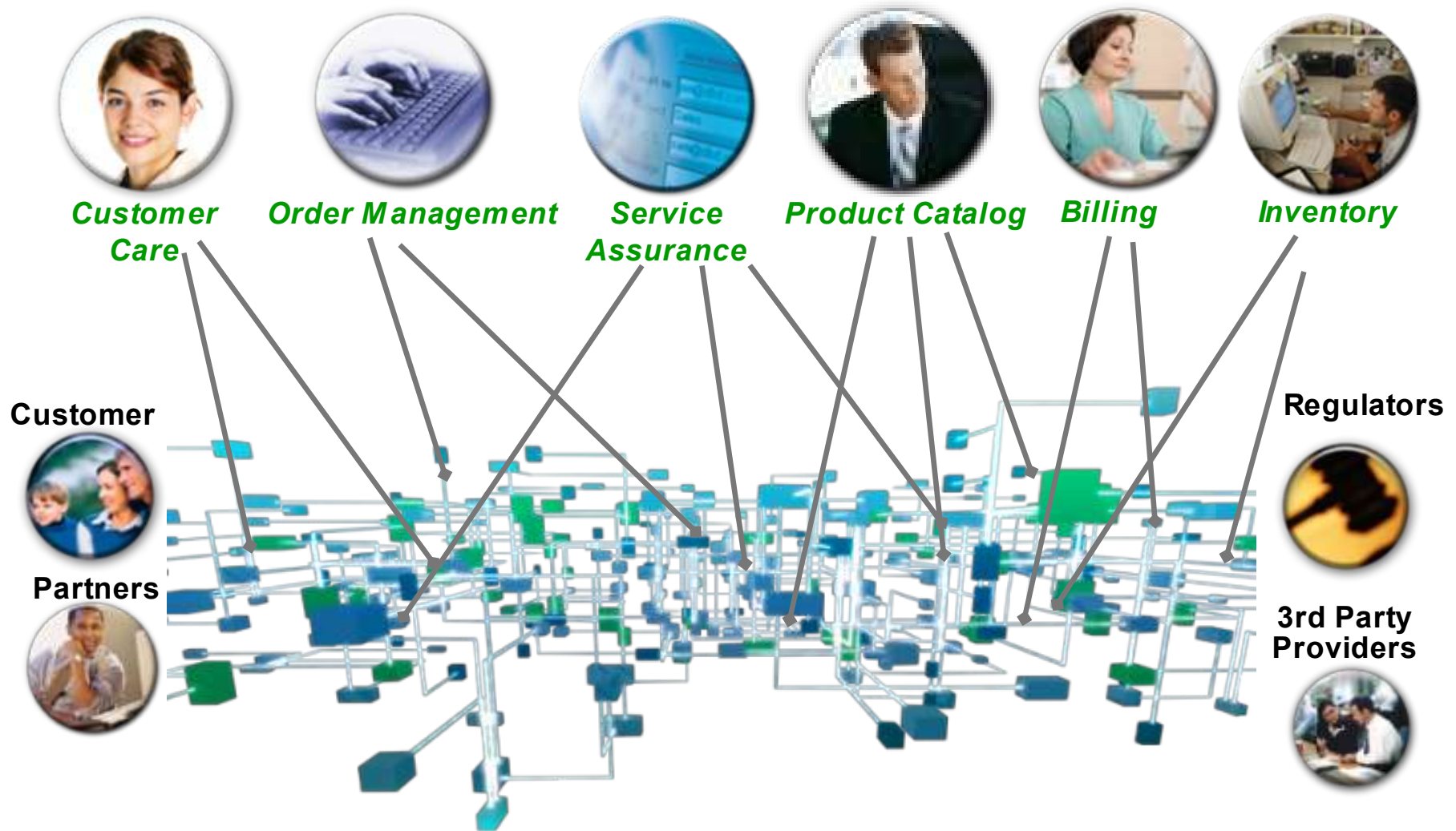
Start planning and implementing smarter communications systems

INSTRUMENTED   **INTERCONNECTED**   **INTELLIGENT**
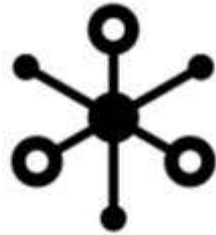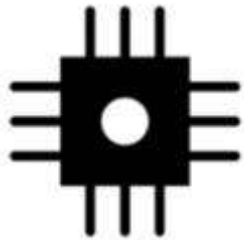
An opportunity for communications service providers to think and act in new ways.

Smarter Communications

Leverage instrumented systems and devices to help spawn innovative new services.

Enable individuals, businesses, and governments to interact in new, more efficient, and personalized ways.

Convert the increasingly vast amount of data into information to meet and predict the changing needs and behaviors of customers.

6

Leading Communications Service Providers are responding with smarter solutions

Higher customer **satisfaction** and more profitable **growth.**

Accelerate new services and business models

Airtel

Analyze real time network data to assess and **improve** the subscriber's experience

Differentiate the Customer Experience

A US Service Provider

Process **optimization** through **standards** and best practices.

Operational and Network Efficiencies

··T··Com··

→ *IBM builds repeatable technology patterns into solutions to make them smarter*

Software is critical to enabling smarter communications solutions

- **Software is increasingly viewed as a** *strategic business asset*

- *Software* **is helping CSPs:**
  - Drive business transformation with standards and flexibility
  - Increase visibility and control for operations and support IT
  - Turn network data into actionable information throughout the company

- **Leaders everywhere are deploying** *increasingly intelligent* **software, systems and products**

- **Accelerating innovation and enabling effective change is highly dependent on the ability to** *manage effective software delivery*

IBM provides a comprehensive framework that delivers smarter solution deployment for CSPs

The framework gives you speed, flexibility and choice in deploying solutions while reducing cost and risk!

Communications Service Provider Solutions

Business Partner Ecosystem

Service Innovation And Creation	Service Management	Information Management
Service Execution and Exposure	**IBM Service Provider Delivery Environment Framework**	Information Analytics
Business Process Integration		Customer Interaction

Infrastructure & Governance
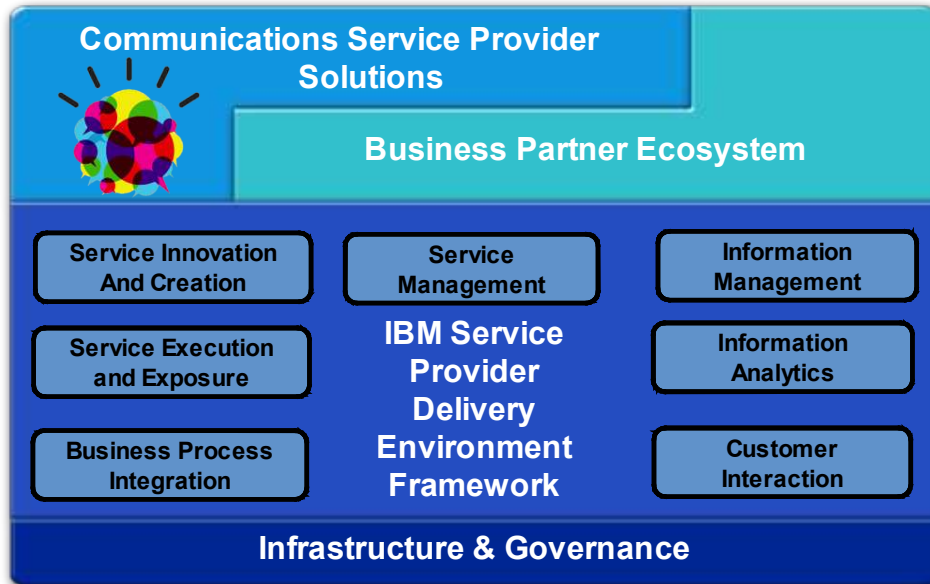
The framework provides…

- An approach to align technology with CSP business needs

- Communications industry best practices and solution accelerators to speed deployment

- Re-usable implementation patterns to lower risk

- Support for adoption of open and industry standards

- A choice of business applications from IBM business partners

Leveraging components of a framework, a CSP can progressively transform to a simplified but strategic infrastructure

3 *Achieve a simplified and agile strategic infrastructure*

2 *Build on the value of previous projects and reuse assets*

1 *Select a business problem and rationalize to deliver a quick ROI*

Business Value

Time

Increasing reuse and business agility along the way!
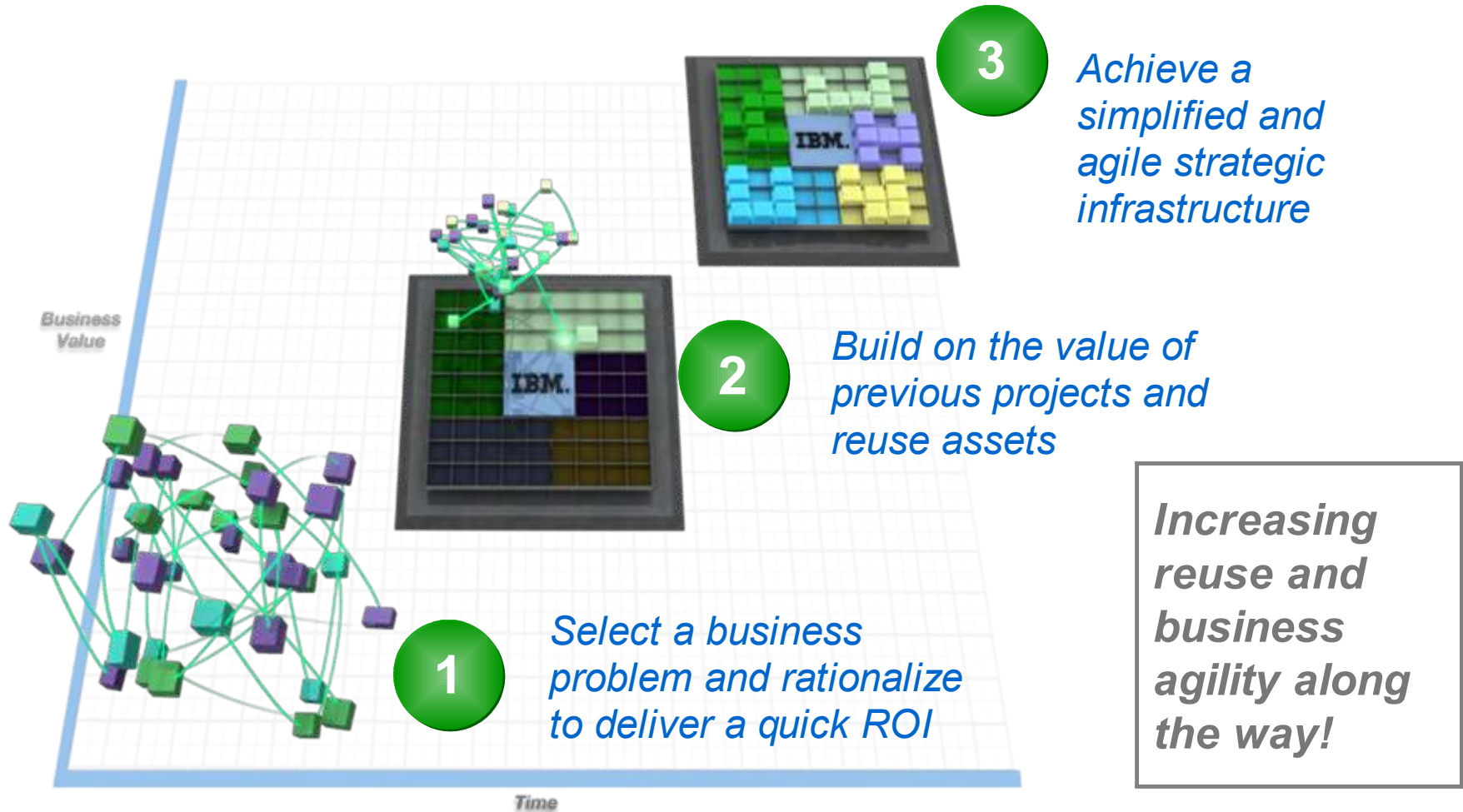
IBM's Service Provider Delivery Environment framework has evolved over time to address industry issues

2010 – SPDE 3.0

SPDE Focus in 2010
Project Area Enrichment
- Information Management
- Service Management
- Information Analytics
- Customer Interaction

2009 – SPDE 3.0

SPDE expanded

- Ideation, Service Exposure and Mashups via Web 2.0
- Dynamic SOA BPM
- Media Integration
- Info Agenda for CSP/ Business Intelligence
- Service Assurance & Customer Experience Mgmt
- Security Solutions

2006 – SPDE 2.0

SOA   **3GPP**   **TeleManagement FORUM**

SPDE enhanced with

- Service Creation
- 3GPP IMS Enablers
- SOA
- TMF NGOSS
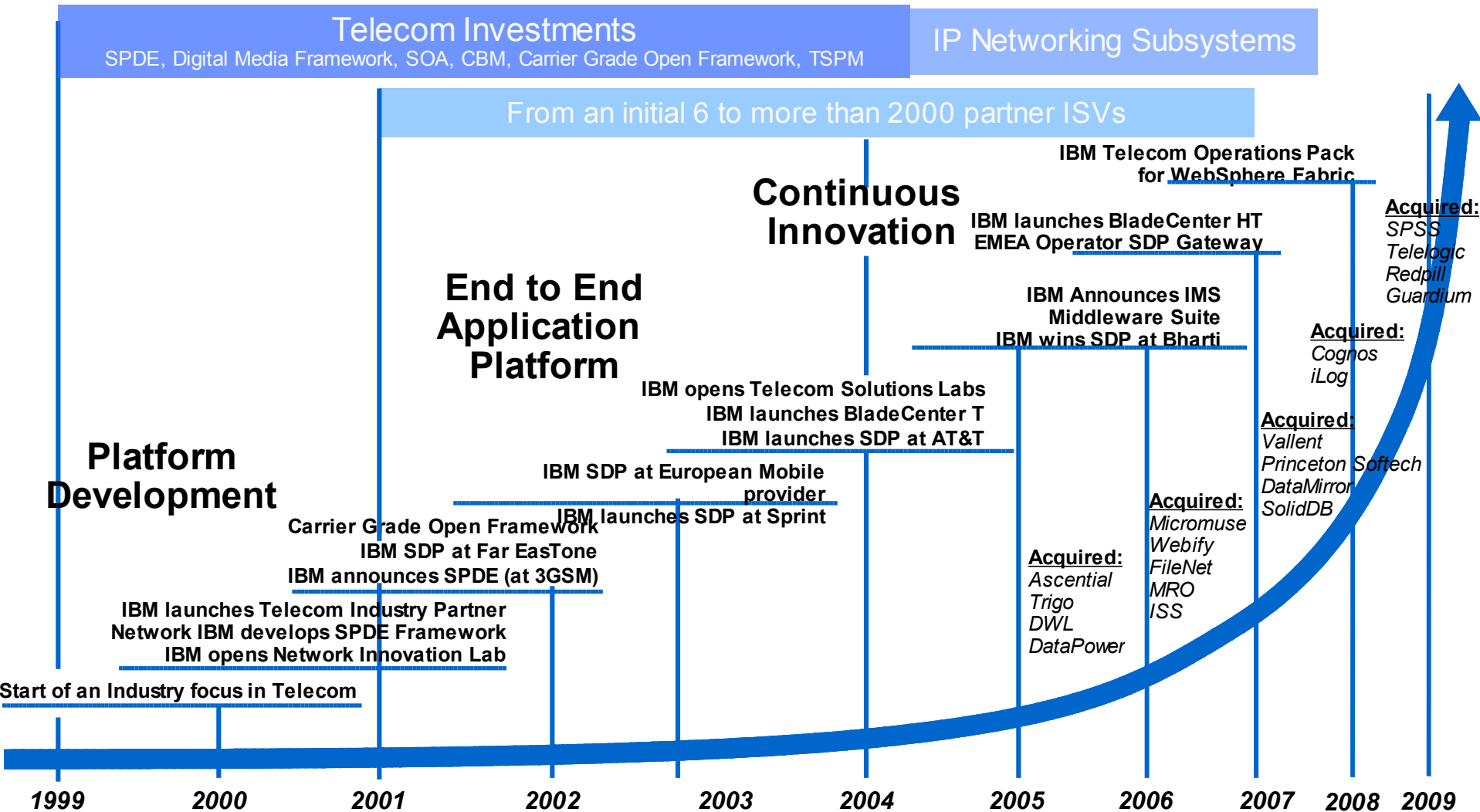
2001 – Framework introduction
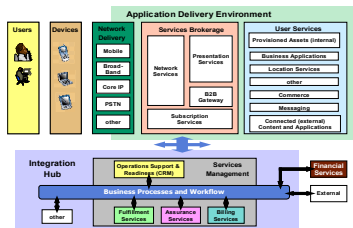
Early SPDE Solutions

- Mobile Data Services
- Subscriber Management
- Portal Management
- eTOM Process Automation

IBM is investing in the Communications Industry for the long term
Driving the continuous evolution of the IBM SPDE Framework

Telecom Investments
SPDE, Digital Media Framework, SOA, CBM, Carrier Grade Open Framework, TSPM

IP Networking Subsystems

From an initial 6 to more than 2000 partner ISVs

IBM Telecom Operations Pack for WebSphere Fabric

Continuous Innovation

IBM launches BladeCenter HT EMEA Operator SDP Gateway

Acquired:
SPSS
Telelogic
Redpill
Guardium

IBM Announces IMS Middleware Suite IBM wins SDP at Bharti

Acquired:
Cognos
iLog

End to End Application Platform

IBM opens Telecom Solutions Labs IBM launches BladeCenter T IBM launches SDP at AT&T

Acquired:
Vallent
Princeton Softech
DataMirror
SolidDB

IBM SDP at European Mobile provider
IBM launches SDP at Sprint

Platform Development

Carrier Grade Open Framework IBM SDP at Far EasTone IBM announces SPDE (at 3GSM)

Acquired:
Micromuse
Webify
FileNet
MRO
ISS

Acquired:
Ascential
Trigo
DWL
DataPower

IBM launches Telecom Industry Partner Network IBM develops SPDE Framework IBM opens Network Innovation Lab

Start of an Industry focus in Telecom

| 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |

IBM Service Provider Delivery Environment (SPDE) 3.0

February 2010

Level 0

Cloud Computing

| Developers | Service Providers | Prosumers | Content Providers | Information Providers | Enterprises | Device Vendors | Advertisers |

3rd Party Access Domain

Creation Domain

Marketing

Development

Services Choreographies

Service Execution Domain

Service Applications

Content & Media

Web 2.0

Converged Services

User Interaction

Business Process Integration

Support Systems Domain

Core BSS and OSS functions

Billing

Assurance

Fulfillment

Care

Business Analytics & Optimization

Network Access Domain

Network Domain

Device Domain

| Consumer | Professional User | Machine |

Service Oriented Architecture

Security

Carrier-grade Virtualized Dynamic Infrastructure

IBM Service Provider Delivery Environment (SPDE) 3.0

February 2010

Cloud Computing

| Developers | Service Providers | Prosumers | Content Providers | Information Providers | Enterprises | Device Vendors | Advertisers |

3rd Party Access Domain

| Development and test cloud | Service Exposure | Rich media content | Partner portal |

Creation Domain

Marketing
Ideation and collaboration
Customer Insight
Campaign Management
Portfolio Management

Development
Concept and design
Development and assembly
Test
Deployment

Services Choreographies

Service Execution Domain

Service Applications

Content & Media
Web 2.0
Converged Services

Services Registry

Presence and Location

Commerce

User Interaction

| Service Access | Personalized Content | Multi-channel Adaptation | Self-care Access |

Business Process Integration   eTOM SID TAM

Support Systems Domain

Core BSS and OSS functions

Billing
Assurance
Fulfillment
Care

Identity Management | Customer Experience Management | Service Management

Business Analytics & Optimization

Business Intelligence

Analytics

Information Management

Network Access Domain

| Network Abstraction Layer | Network Support Interfaces |

Network Domain

Device Domain

| Consumer | Professional User | Machine |

Service Oriented Architecture

Security

Carrier-grade Virtualized Dynamic Infrastructure

The SPDE Framework spans the enterprise

Accelerate new services and business models

Operational and Network Efficiencies

Differentiate the Customer Experience

Cloud Computing

Developers | Service Providers | Prosumers | Content Providers | Information Providers | Enterprises | Device Vendors | Advertisers

3rd Party Access Domain

Development | ich media content | Partner portal

Dynamic Process Integration

Creation Domain

Service Execution & Exposure

Support Systems Domain

Core BSS and OSS functions

Billing

Assurance

Fulfillment

Care

Information Analytics

Service Innovation & Creation

Customer Interaction

Identity Management

Service Management

Information Management

Network Access Domain

Network Abstraction Layer | Network Support Interfaces

Network Domain

Device Domain

Consumer | Professional User | Machine

Service Oriented Architecture

Security

Carrier-grade Virtualized Dynamic Infrastructure

The SPDE Framework spans the enterprise

Linking business and IT to enable new capabilities

Accelerate new services and business models

Service Innovation & Creation: Ideation and creation of revenue generating services

Service Execution & Exposure: Assemble, deliver and expose value added services quickly

Operational and Network Efficiencies

Dynamic Process Integration: Streamline integration of OSS/BSS processes

Service Management: Provide comprehensive and integrated management of services and infrastructure

Information Management: Exploit increasing volumes of customer, service and network information by establishing a foundation for data quality, consistency and accuracy

Differentiate the Customer Experience

Customer Interaction: Provide simplified and automated customer service for clients and partners across multiple channels

Information Analytics: Analyze data/information from internal and external sources to drive informed decisions and actions

IBM's CSP software strategy and SPDE framework are based on core principles that support the service lifecycle

Framework Project Areas

deliver software capability throughout the Service Lifecycle

Information Management

Information Analytics

Customer Interaction

Service Innovation and Creation

Service Management

Service Execution and Exposure

Dynamic Process Integration

An asset-based approach to Business Transformation

- Open, network-agnostic service platform *– improved re-use, time to market.*

- Communications industry extensions to industry-leading software products – *CSP function on a scalable, cost efficient base.*

- Dynamic SOA process integration - *reduce cost, time, complexity of launching new services.*

- Foundation based on IT and Communications Industry standards – *investment protection.*

- Handle emerging Telco, Media and IT standards, technologies and convergence - *adaptable and scaleable*

- Supports an end-to-end Service Lifecycle across Network and IT – *standardization, integration, automation.*

Globe Telecom
Gaining tactical agility with smarter promotions

Challenge

Globe Telecom, the number two provider of mobile communications services in the Philippines, realized that it needed to reach a new level of agility in the creation and management of promotional service offerings, if the company was to thrive in its intensely competitive market.

Solution

IBM and Nokia Siemens Networks designed and built a SOA-based service creation and delivery platform that enables Globe to rapidly and cost-effectively create service offerings from reusable service components. Hundreds of simultaneous targeted promotions, enabled by the integration of customer intelligence, behavior segmentation, profit simulation and promotion execution drive revenue improvement and are delivered through an integrated and automated solution.

- IBM® Service Provider Delivery Environment (SPDE) Framework
- IBM WebSphere®
- IBM Tivoli®
- IBM Rational®

What Makes it Smarter

Globe

- Leveraging information gathered from handsets, Globe is able to identify the optimal service promotion for each customer —and the best time to deliver it.

- Expected one-year payback period and more than 95% reduction in time and cost of developing new promotions

- 600% increase in promotion effectiveness

"We can react very quickly to promotional opportunities when they arise. Just as important, we can detect in near real time whether the mechanics of our promotion are working—and if they're not, we can change them almost instantly."

— Mario Domingo, Head of Product Design and Creation, Globe Telecom

IBM software capabilities and SPDE framework projects for CSPs

IBM

Framework
Project Areas
deliver software
capability
throughout the
Service Lifecycle

- Information Management
- Information Analytics
- Customer Interaction
- Service Innovation and Creation
- Service Management
- Service Execution and Exposure
- Dynamic Process Integration

Accelerate new services and business models

Expand sources of innovation and shorten development cycles

• Service Innovation and Creation

Increase revenues and retain customers by applying web 2.0 tooling from Lotus and service development capabilities from Rational to create rich composite services

• Service Execution and Exposure

Meet subscriber demands for composite services through a SOA-based, WebSphere execution platform that leverages presence, voice, media and IT enablers plus service exposure of telecom network capabilities and web 2.0 connections

Partners

3rd Party Access to exposed enablers

Service Innovation

3rd Party Domain

3rd Party Access

Service Execution Domain

Service Creation Domain

Service Applications

Content & Media

Service Runtime Support

Web 2.0

Service Design and Creation

Convergent Services

Service Execution

Network Abstraction Layer

Network Delivery Domain

Service Exposure of Network Enablers

Subscribers

Service Innovation and Creation

Ideation and creation of revenue generating applications and services

Utilize the **power of collaboration to foster innovation** and more rapidly bring to market new products and services

Reduce the time and cost to bring innovative new services to market with **Product Delivery Performance Improvement**

Increased new service ideas by 122% and productized services by 800% (China Telecom)

"...we have reduced development time by at least 25 percent." (RCTV)

Service Innovation and Creation at China Telecom
Exploiting innovation with collaboration, social networking, search and portal software

Service Innovation & Creation

Contest Period	Apr 6 – Dec 2007
Users	554
Ideas	576
Comments	397
Ratings	934
Published time of the first idea	10 minutes after launch

Innovation Index

Without Collaboration: 3 productizations / 259 ideas

With Collaboration: 27 productizations / 576 ideas

Service Innovation and Creation
Delivering the right products for the right market at the right time

Service Innovation & Creation

IBM Lotus Connections

Service Innovation Community

LOB Employees

Developers

Partners

Subscribers

Self Service Portal

- Polls
- Wikis
- Forums
- Communities
- Surveys
- Blogs
- Profiles

Lotus. software

Product Manager

Service Planner

Feedback

Market-driven requirements
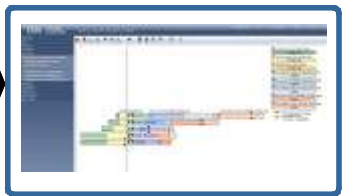
IBM Rational Product and Portfolio Management
Value-based product analysis
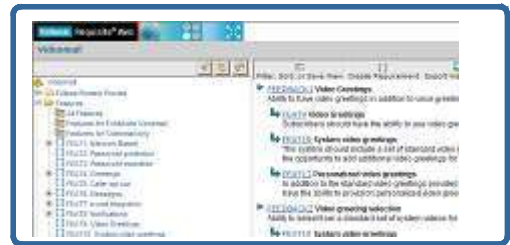
Requirements Management
Collaborate-in-context to define high quality requirements

Delivery Team

Unified Service Creation Environment
Collaborative Application Lifecycle Management

- *Make value-based project, product, and portfolio decisions*
- *Deliver quality solutions to meet stakeholder objectives*
- *Adapt the project to changing business and customer needs*

Service Innovation & Creation

Collaboration helps CSPs elevate relationships and revenue

Lotus Connections

All your social software needs, ready for business.

Profiles

Quickly find the people you need by searching across your organization and connecting to others.

Communities

Create, find, join, and work with communities of people who share a common interest, responsibility, or area of expertise.

Bookmarks

Save, organize, and share bookmarks; discover bookmarks that have been qualified by others with similar interests & expertise.

Blogs

Use a weblog to present your idea and get feedback from others; learn from the expertise and experience of others who blog.

Activities

Organize your work, plan next steps, and easily tap your expanding professional network to help execute your everyday deliverables, faster.

Homepage

Manage your attention by viewing relevant social data aggregated across your subscriptions, notifications, and network of colleagues.

Files

Upload and share any type of file with colleagues and communities. Store versions and view downloads, comments and ratings.

Wikis

Create wiki spaces for individuals, groups, and communities to coauthor pages. View changes across pages, ratings, and comments.

Service Innovation & Creation

A successful CSP needs to manage software/service creation and delivery as a robust business process

Requirements

Design

Implementation / Sourcing

Quality Assurance

Deployment
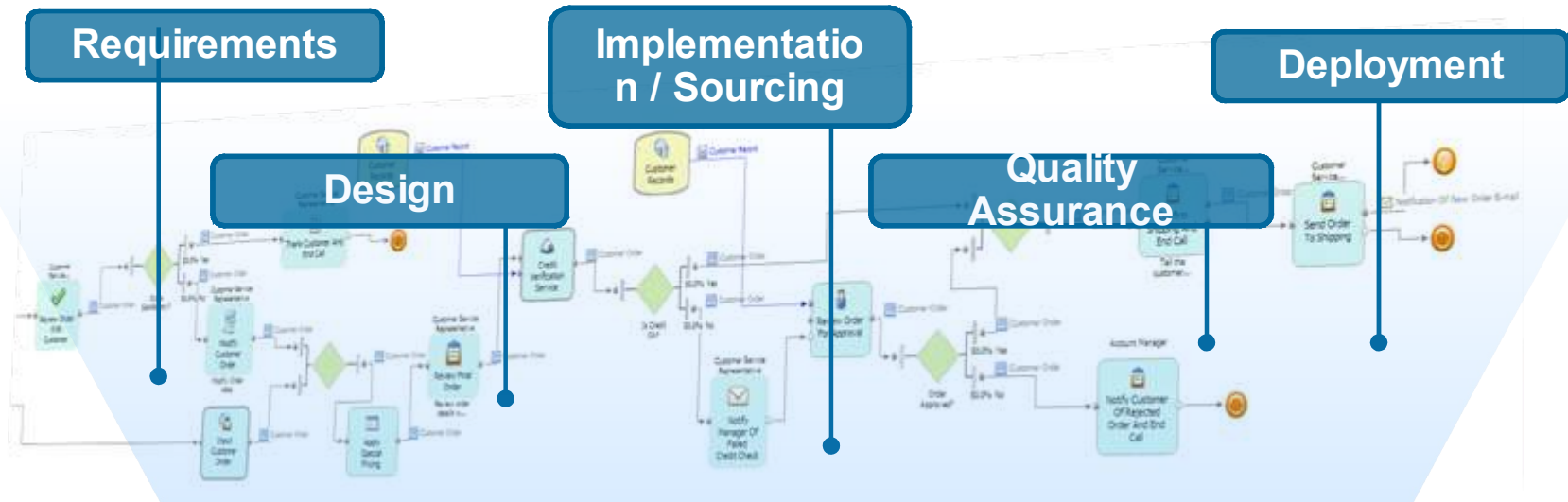
Collaborate

Achieve common goals by optimizing how people work

Automate

Increase control and efficiency by integrating workflows

Report

Continuously improve by measuring progress in real time

Repeatable activities producing a desired business outcome

The result is continuous improvement against business outcomes

Service Innovation & Creation

	Improve Automation	Improve Collaboration	Improve Process	Increase Flexibility & Investment Value
Business Value	**Implement tools to integrate workflows** **Productivity:** **5-25%** *Timeframe = Days*	**Implement tools & processes & leverage skills** **Productivity:** **15-35%** *Timeframe = Weeks*	**Implement iterative / adaptive processes** **Productivity:** **25-100%** *Timeframe = Months*	**Implement enterprise architecture & reuse web services** **Productivity:** **2x-10x** *Timeframe = Years*
Efficiency				
Control				

ECONOMIC IMPACTS

Rational software
IBM Rational is used by 20 of the top 22 Telecommunications companies as listed in the Fortune 500

Individual　　*Team*　　*Organization*　　*Business*

Product Delivery Performance Improvement

Note: Implementation costs are per person per year.

Service Innovation & Creation

Collaborate and integrate service creation across the entire lifecycle
Empowers teams to simplify, automate and govern service creation

Modernize Enterprise Assets

Transform Information Technology

Deliver Smarter Products

Business Planning & Alignment	Product & Project Management	Compliance & Security

Collaborative Lifecycle Management

Design & Development

Best Practice Processes

Rational Software Delivery Platform
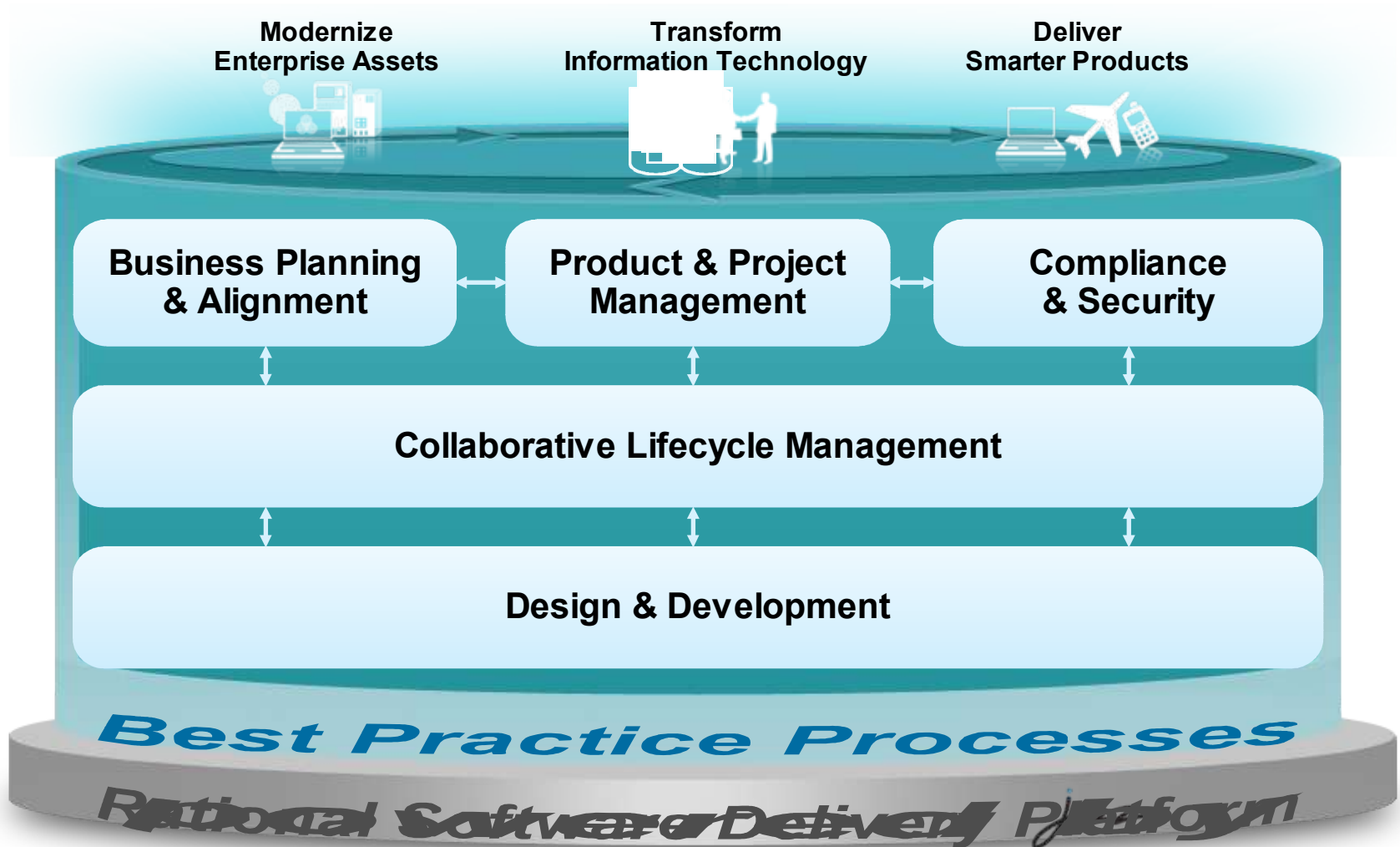
Collaborate, automate and report across internal teams and external suppliers

Service Innovation & Creation

Product Idea → Product Concept → Product Launch → Profitable Operations

takes too long, costs too much and lacks sufficient quality

BUSINESS DOMAIN

DEVELOPMENT DOMAIN

Business Executive → Business Planning & Alignment

Product/Project Manager → Product & Project Management

Controller → Compliance & Security

| Analyst | Architect | Developer | Tester |

Collaborative Lifecycle Management

Design & Development

OSS/BSS

Network

Internal Teams

External Teams
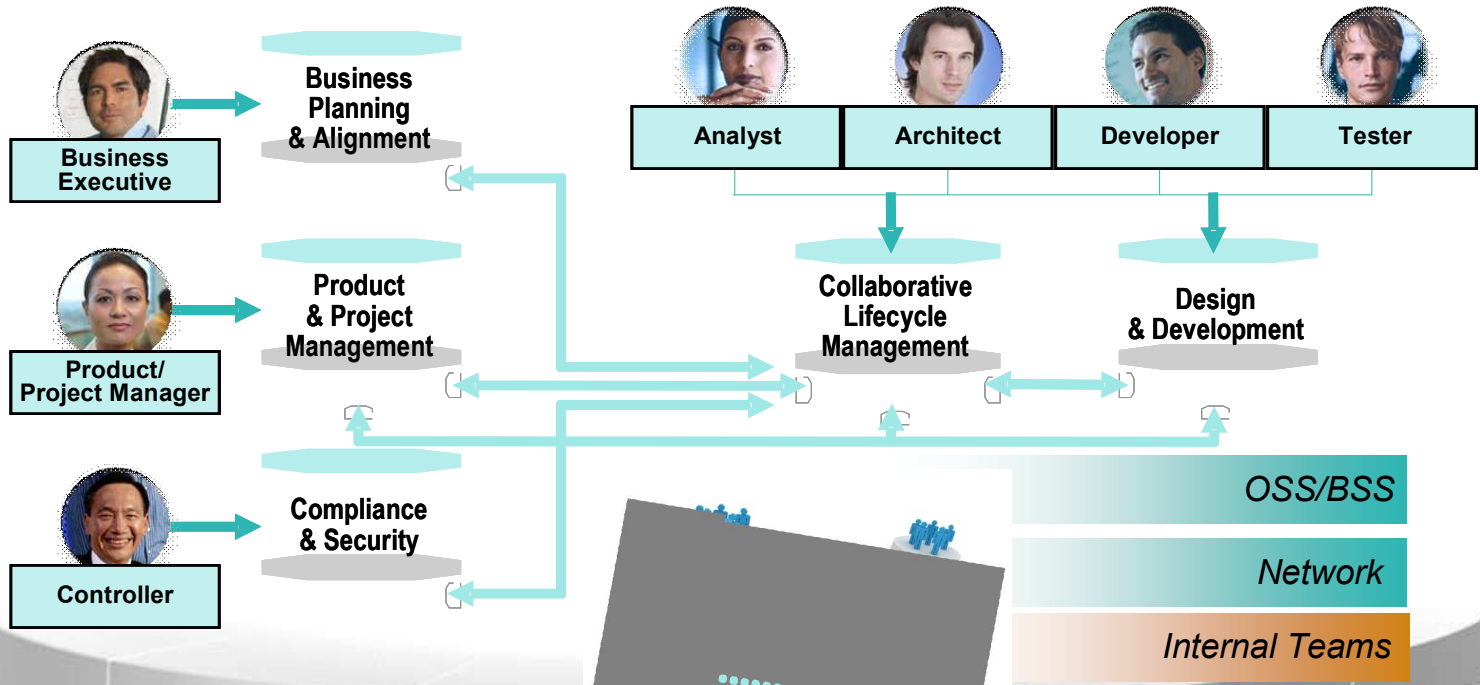
25% faster delivery cycles
80% reduction in delivered bugs/defects
33% reduction in delivery costs

IBM Rational is used by 20 of the top 22 Telecommunications companies as listed in the Fortune 500

Provide compelling *product delivery performance improvement* (PDPI)
Building better software, faster, despite ever-changing business goals

Service Innovation & Creation

"...we have reduced development time by at least 25 percent." - Odila Rubin de Ayala, Vice President of Information Technology, RCTV

verizon business

"IBM Rational solutions have created opportunities to improve the quality of our software as well as our organization." – Douglas Cook, Verizon Business

Bell Aliant

Jordan telecom

Increased customer satisfaction by improving time to problem resolution

25% faster delivery cycles

80% reduction in bugs

33% reduction in delivery costs

Rational software

IBM Rational is used by 20 of the top 22 Telecommunications companies as listed in the Fortune 500

Your Existing Capabilities

Business Planning & Alignment

Future IBM Capabilities

Product & Project Management

Compliance & Security

Collaborative Lifecycle Management

Design & Development

3rd-Party Jazz Capabilities

Best Practice Processes

Collaboration

Presentation: *Mashups*

OPEN SERVICES

Discovery

Query

Storage

Administration: *Users, projects, process*

jazz

IBM Internal Use Only
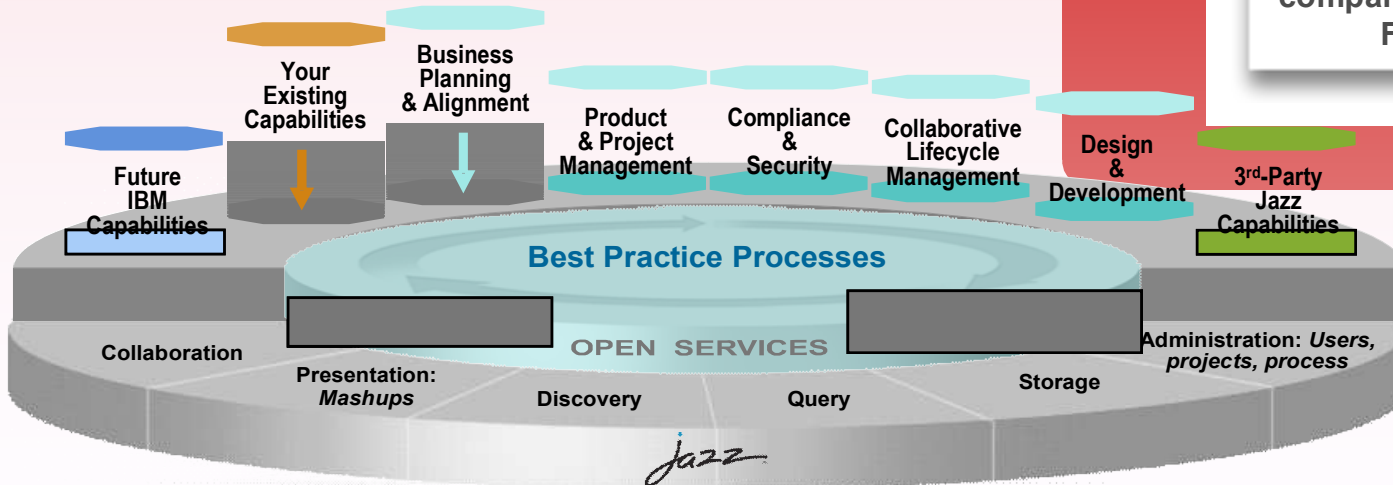
Service Execution and Exposure

Assemble, deliver and expose value added services quickly

Service Execution & Exposure

Provide a **high-performance execution environment** for converged services

Centralized, real-time information on the capability, availability, and willingness of users to communicate

Secure, third party access to network services (e.g. location, presence, call control)

Enable **connectivity to IMS networks** as will as some reference points for functions such as billing

Integrate content delivery into existing application portfolios

The time to market for new service is reduced significantly — by up to 90% (Bharti)

Delivers innovative services to ~40M users by exposing network service capabilities to enterprise and 3rd party developers (Sprint)

Provide a "Carrier Grade" Application Platform with 99.998% availability (Ap Server)

Service Execution & Exposure

Accelerate application development and integration
Service Execution Software Stack

WebSphere Presence Server
Standalone, carrier grade IMS-compliant presence server
Consolidates presence information across disparate devices, applications, and network elements

WebSphere XML Document Management Server
Stores XML documents such as group lists, user profiles, contact information, authorization rules, policy data, etc.
Control information privacy with flexibility

Mobile Portal Accelerator
WebSphere Portal extension
Develop device independent content to over 5000+ devices

WebSphere IMS Connector
Delivers integrated interfaces for connection to IMS network elements
Diameter-based communications with subscriber mgmt and billing systems

WebSphere ESB Media Extensions
Media objects can be integrated with business processes
Dynamically invoked media processing based on media content and business process model

WebSphere Media Extensions
Media objects can be integrated with business processes
Dynamically invoked media processing based on media content and business process model

WebSphere Application Server
"Carrier Grade" Application Platform with 9.9998% availability
Built-in converged J2EE SIP/HTTP container for composite voice and web applications

WebSphere Telecom Web Services Server
Industry standards based service exposure of telecom network capabilities via Parlay X Web Services
Provides single point of access for 3rd parties including policy-driven AAA security, SLA enforcement and more

Diagram labels:
- External Web Based Applications
- Mobile Portal
- Portal
- IBM ISV Partner Applications / Services
- Service Provider Java SIP Servlet Applications
- Telecom Web Services Server
- IMS Connector
- Sh
- Ro
- Rf
- ISC
- Presence Server
- XDMS
- ESB
- Legacy Protocol Service Platform
- WebSphere Application Server
- J2EE Servlet / JSR289 Servlet Converge Container
- HTTP Stack
- SIP Stack
- TCP/TLS Stack
- UDP Stack
- IIOP

Service Execution & Exposure

IBM WebSphere Application Server
Optimized for Service Provider Requirements

Applications & Enablers (ISVs and/or home grown)

WebSphere Application Server

Enablers
Presence Server
XML Data Manager
TWSS

Converged HTTP/SIP Container

Converged HTTP/SIP Proxy

Carrier Grade (XD,ND)
- SIP/HTTP Performance Management
- Sophisticated SIP Overload Control and Policy mgt
- Synchronous Data replication
- Enhanced High Availability
- Enhanced SIP App performance
- Faster Failover speed

IMS Connector
(ISC) (Rf) (Ro) (Sh)

Shared platforms and common management tools
- Reduce operating costs
- Flexibly meet changing customer needs

Built-in converged J2EE SIP/HTTP Container
- Reduce Design Complexity
- Seamlessly manage and monitor composite applications

Built-in proxy server
- Simplify deployment and improve service availability
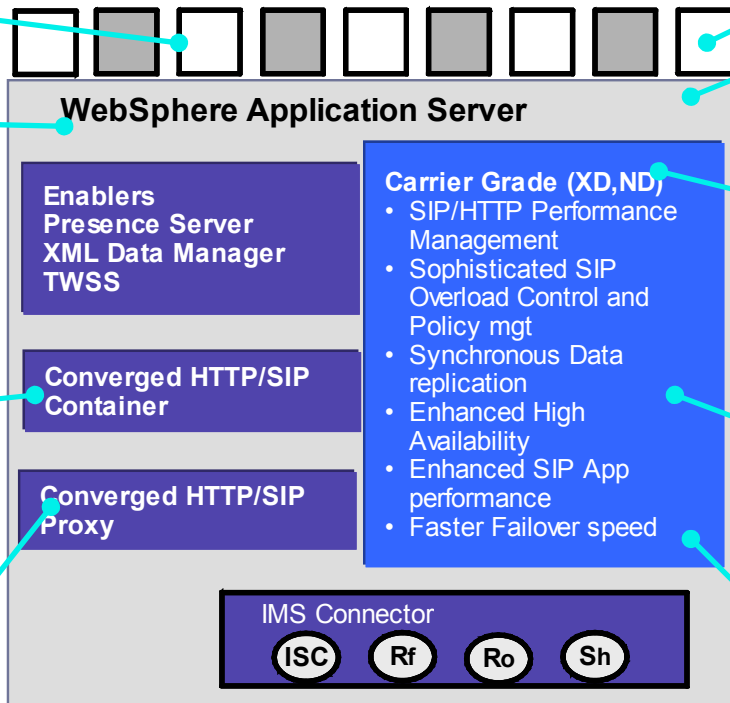
Open standards-based development environment
- Reduce application programming model complexity
- Lower development costs

Carrier Grade Application Platform
- Provide sophisticated clustering
- Load balancing that is "IMS Ready"

High-performance transaction engine
- Supports building, running, integrating, and managing dynamic composite services

Service management linkage
- Sufficient software probes for supplying industry leading management systems with statistics and data for performance, faults and QoS
- Handling failover, recovery

Providing a highly available platform helps ensure customers will not experience service delays or performance degradation

Service Execution & Exposure

Market Leader Success Story: Service Execution
WebSphere Application Server

Challenge

AT&T needed:

- A platform for deployment of next generation wireline services
- A carrier grade platform for creation and integration of next generation services

Solution

- Hardware, software and services to support functional, integration and performance test to meet AT&T's carrier grade requirements

- Demonstrates the value of reusable eTOM business processes to accelerate SOA migration

- AT&T is using IBM WebSphere Application Server and BladeCenter systems as a Session Initiation Protocol (SIP) service logic execution environment platform to develop mission-critical services for deployment on AT&T's IP-based network.

at&t

Benefits

- **Standard platform for development of next generation services**

- **IBM and AT&T collaborated on a Super Catalyst project for TMF Dallas for Digital Content management that was delivered in about 8 weeks using IBM's SOA Software products**

33

Service Execution & Exposure

Create aggregate services, incorporating centralized real-time network and enterprise-based information
WebSphere Presence Server

John is looking for the best way to contact his coworker Lisa

John needs to contact Lisa

➤

John uses a Presence-Enhanced Phonebook

John uses his company's Service Provider-hosted corporate phonebook.

He sees:
➤Lisa is away from Instant Message.
➤Lisa is not on her desk phone.
➤Lisa is actively using her cell phone.

➤

He leaves a message on Lisa's cell phone

IBM WebSphere Presence Server

IBM Lotus Sametime Gateway

An *enterprise* IM system knows Lisa is away from her desk.

A *wireless* Service Provider knows Lisa's cell phone is on and in use.

A **wireline** *PBX* knows Lisa is not on her desk phone.

Integrated presence-enabled-phonebook

Network based information & common intelligence used across applications and vendors with WebSphere Presence

Service Execution & Exposure

A North American Service Provider uses a Network Address Book to show aggregated information

Raj Cherchattil's Address Book

Edit My Profile   Logout

My Status:
Set to Unavailable

Groups   New Group

All Contacts

☐ Friends   [Edit]

☐ CoWorkers   [Edit]

Delete Group

Showing: All Contacts   New Contact

☐ Mary, Macatee   [Edit]
   mary@ibm.com

☐ Vinod, Xavier   [Edit]
   vinod@ibm.com

☐ Baillie, David   [Edit]
   david@ibm.com

☐ Boehm, Dan   [Edit]
   dan@ibm.com

☐ Deepak, Koshy   [Edit]
   koshy@ibm.com

☐ Harish, N   [Edit]
   harish@ibm.com

Delete Contact   Add to Group ▽

Reusable Information

Information is centrally stored in the XDMS. This includes:

- Group lists
- Profile information
- Authorization policies

The information can be used by any application, such as

- Messaging
- Conferencing
- Call routing

Presence

Presence information is pulled from the centralized Presence Server and can include various devices or applications, such as mobile, PC, or instant messaging status.

Enhancements such as reusable information, presence, and click to X provide addition end user value to existing services such as Network Address Book.

Service Execution & Exposure

Ease the delivery of network stored information to a wide range of entities and composite services and applications

Standardized access to XML documents **such as group lists and profile information**

Email	Instant Message	Multi-Player Game	Call Routing Policy
Emails his friends to let them know a new game came out	Opens an IM chat session to coordinate when to play	Talks with his friends when they are playing.	Routes house calls to his cell, but only if it is these friends

Group in **Email App**	Group in **IM Server**	Group in **Gaming Server**	Group in **Call Server**
➤ Alice	➤ Alice	➤ Alice	➤ Alice
➤ Bob	➤ Bob	➤ Bob	➤ Bob
➤ Cindy	➤ Cindy	➤ Cindy	➤ Cindy
➤ Dave	➤ Dave	➤ Dave	➤ Dave

The groups are the same, but Tim has to set up and manage each one separately.

Today, users have different group lists for different applications, even when the groups have the same members

Email	Instant Message	Multi-Player Game	Call Routing Policy
Emails his friends to let them know a new game came out	Opens an IM chat session to coordinate when to play	Talks with his friends when they are playing.	Routes house calls to his cell, but only if it is these friends

Group in **WebSphere XDMS**
➤ Alice
➤ Bob
➤ Cindy
➤ Dave

Tim only has to set up and manage the group once.

With **WebSphere XML Document Management Server (XDMS),** groups can be used across applications

IBM

Service Execution & Exposure

Secure access to Network Services using SOA/Web 2.0 principles
WebSphere Telecom Web Services Server
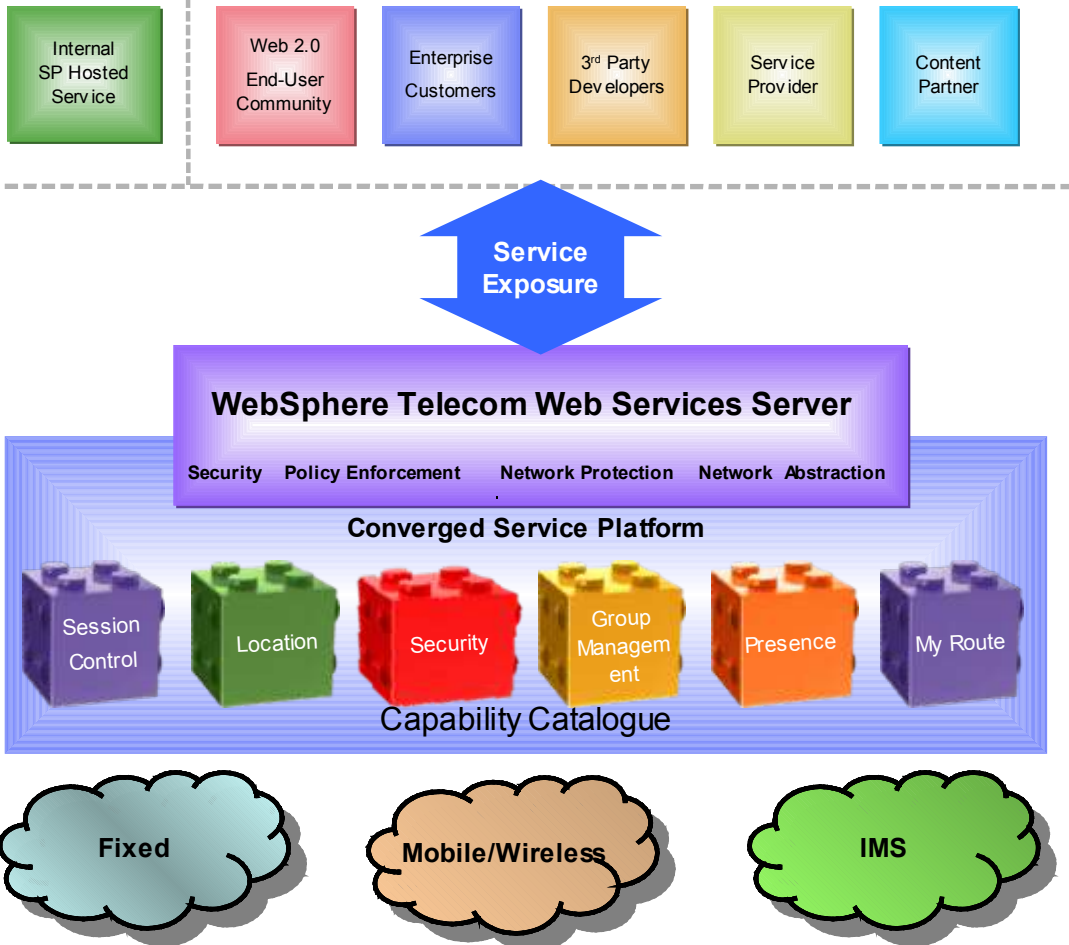
Internal SP Hosted Service	Web 2.0 End-User Community	Enterprise Customers	3rd Party Developers	Service Provider	Content Partner

Service Exposure

WebSphere Telecom Web Services Server

Security   Policy Enforcement   Network Protection   Network Abstraction

Converged Service Platform

Session Control | Location | Security | Group Management | Presence | My Route

Capability Catalogue

Fixed   **Mobile/Wireless**   **IMS**

- IBM's WebSphere Telecom Web Services Server provides:
  - Secure, industry-standard Web service exposure of telecom network capabilities

- Enables highly personalized services through policy-driven execution and service level agreements

- Extensible design facilitates rapid development of new services for 3rd party exposure and Web 2.0 delivery

- Web 2.0 mashup tools to help create, deploy and share customized Web applications faster and better

IBM's WebSphere Telecom Web Services Server provides secure, industry-standard Web service exposure of telecom network capabilities

IBM

Success Story: Service Execution and Exposure

Service Execution & Exposure

Chunghwa Telecom

Challenge

- Expose core telecom capabilities such as SMS/WAP/Calling, and their IMS network to internal employees and external users

- Use Web 2.0 as a way to build Web/Telecom combined applications among groups of people, allowing them to share, collaborate on projects/services

- Generate new and market leading revenue streams

Solution

- IBM Web 2.0 framework with WebSphere Telecom Web Services Server exposing services to Lotus Mashup tools

Benefits

- **Chunghwa Telecom sponsored a university contest to develop next generation applications**

- **By providing secured, controlled access to network information and exposing network services as web services Chunghwa Telecom will be able to offer new services to its existing customers and service providers and address the Long Tail market**

38

Service Execution & Exposure

WebSphere IMS Connector delivers out-of-the-box interfaces for IMS applications

Delivers pre-built interfaces for connection to IMS

- Support of IMS Application Server reference points
- Plug-in addition to WAS

Provides the following WAS enhancements

- IMS Security Trust Association Interceptor (TAI). Taking advantage of the authentications performed at the boundaries of SIP and HTTP networks.
- Provides SNMP agents for WAS management

SIP based IMS Service Control

- ISC reference point support
- Enabling interaction with IMS Call Session Control Function (S-CSCF)

Applications & Enablers (ISVs and/or home grown)

IBM WebSphere Application Server

Converged HTTP/SIP Container

Converged HTTP/SIP Proxy

IBM WebSphere IMS Connector

IMS Extensions (SIP, P-Headers, etc)

Web Service APIs

ISC   Rf   Ro   Sh

SIP   Diameter

CSCF   **Charging Functions**   **HSS**

IMS Core Network Elements
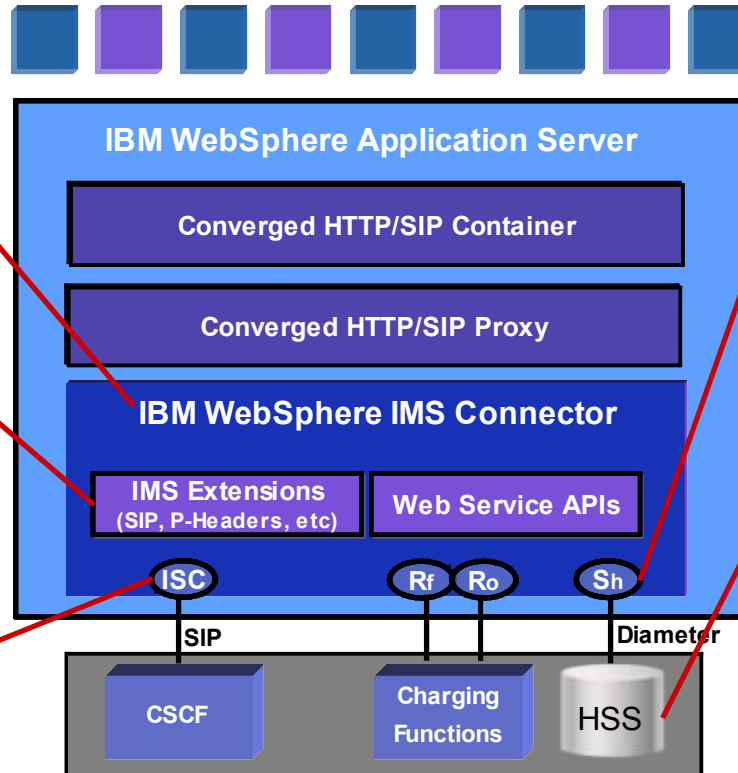
IMS Application Server Diameter support

- Web Services access for Diameter interactions
- Reduces the programming model complexity

Diameter based interface for IMS subscriber management and billing

- Sh interface supports HSS (Home Subscriber Server) based Subscriber Profile management
- Rf interface supports off-line charging for post-paid billing models
- Ro interface supports on-line charging for credit and pre-paid applications

Integrate content delivery into existing application portfolios

Service Execution & Exposure

Dynamic Routing

Look inside content properties to make routing decisions

Mediation

Requests and responds to partner applications with connectors/adapters

Transformation

Implicitly converts content from one format to another

Transport

Implicitly moves content from one location to another

Persistence

Ensures service flow and content delivery
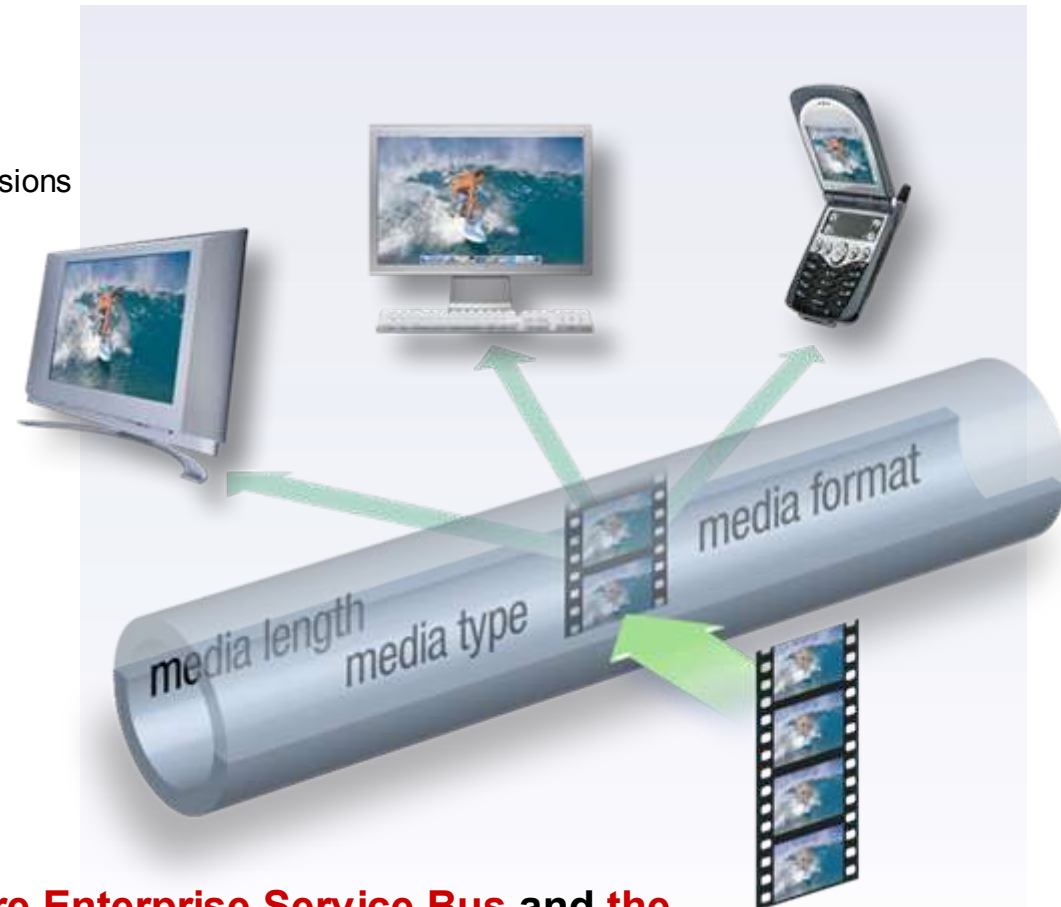
Media Extensions for IBM WebSphere Enterprise Service Bus and the Media Hub Workflow Builder to provide unique digital media functionality for SOA
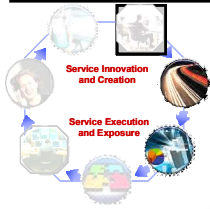
Customers Realizing Smarter Business Outcomes
Accelerating new services and business models

Using IBM Idea Factory to accelerates the Innovation Life Cycle

China Telecom
Increased new service ideas by 122% and productized services by 800%

By exposing network service capabilities to enterprise and 3rd party developers

Sprint
Delivers innovative services to ~40M Sprint-Nextel users

Using an intuitive web application that provides the user with a converged services experience

Vodafone
Teamed with IBM to develop a new revenue generating Social Networking Application

Using the IBM SPDE Framework to deliver innovative services and mobile content

Bharti
• 80M subscriber base growing 2.5M per month
• 1.2M unique portal users/ day

By using a carrier grade platform for creation and integration of next generation media services

AT&T
Working with IBM, delivered a TMF Super Catalyst project in 8 weeks

Using the IBM SPDE Framework as a pilot for service creation and execution

Swisscom
Proved the architecture facilitates the rapid assembly of innovative services

Framework Project Areas — deliver software capability throughout the Service Lifecycle

- Information Management
- Information Analytics
- Customer Interaction
- Service Innovation and Creation
- Service Execution and Exposure
- Service Management
- Dynamic Process Integration

Operational and Network Efficiencies

Expand sources of innovation and shorten development cycles

Dynamic Process Integration

Exploiting Business Process Management and SOA to achieve business agility and reusable services

Service Management

Improve the service quality of next-generation content and application-based services, while reducing operational costs and the risks associated with today's more open networks

Information Management

Integrate silos of information and make the information available in a relevant, timely way to the business processes and LOB applications to improve operational efficiency

Order to Cash

Information

Fulfillment   Assurance   Billing

Process

Dynamic Process Integration
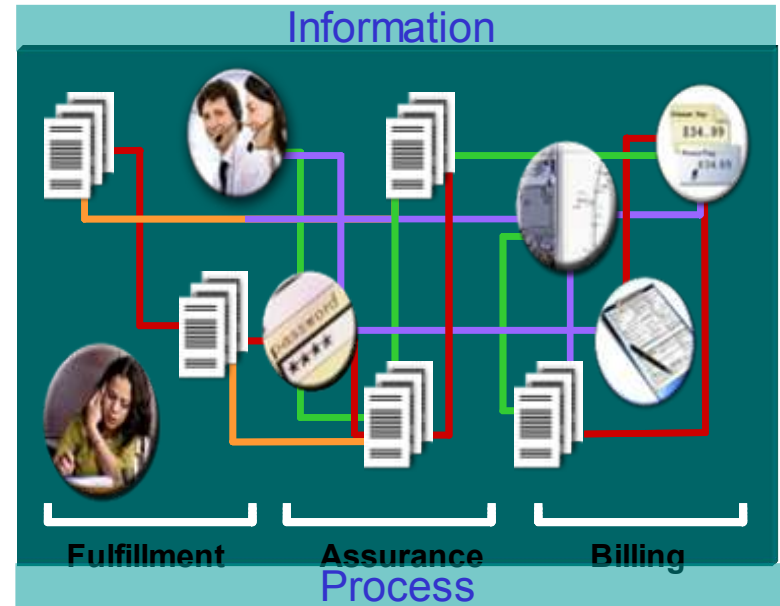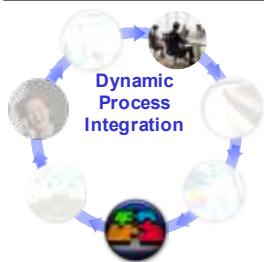
Dynamic Business Process Integration

Streamline integration of OSS/BSS processes

Jump-start delivery of new products & services by connecting back office operations to customer service.

Role-based collaboration on processes, perform and manage human tasks, manage key performance indicators, & adjust business policies.

Analyze, document and deploy business processes with minimal IT involvement. Streamline workflows and automate escalations & exception handling.

Centralize, standardize and automate compliance and regulatory processes to reduce costly exceptions and lowering risks

Accelerate Time to Value for Initial Build by up to 64% (Mobitel)

Streamline Order Management with 90% Straight-thru-Processing (SWISSCOM)

Reduced time to market for new services up to 85% (Globe Telecom)

Reduce monthly billing from 10 days to 36 hours (mBlox)

Achieve business agility with BPM powered by Smart SOA

Dynamic Process Integration

Dynamic Process Integration
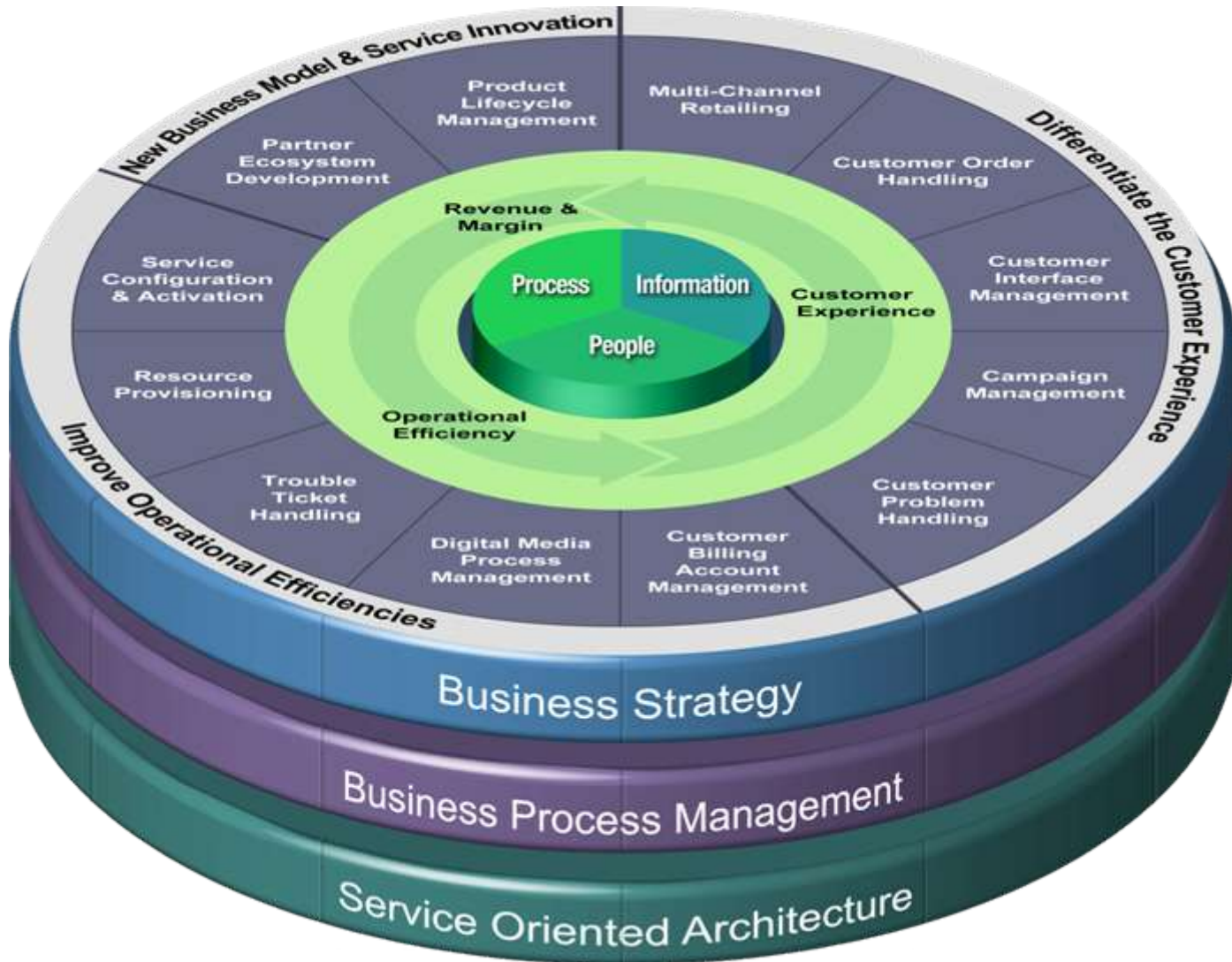
WebSphere Business Process Management
Continuously optimize key business processes

Deploy, Execute, and Change

Model and Simulate

Continuous Process Optimization

Business Process Management
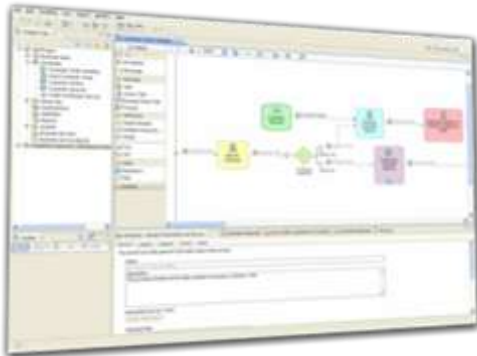
Monitor, Analyze, Predict and Act

Business Leader

Process Owner

Business Analyst

IT Architect

IT Developer

IT Leader

Start Anywhere. Use Only What You Need.
Deploy quickly Service Provider Industry Standards from TMF

45

BPM solution delivery using Telecom Content Pack

Dynamic Process Integration

2 Associate relevant processes using *Process Maps*

Process Owner

Model detailed process flows, business measures and KPIs using *Process Models* **3**

Business Analyst

1 Use *Capability Maps* to identify target business areas

Business Leader

Use *Business Vocabulary* to define Business Services & Policies **4**

Solution Architect

7 Implement dashboards using *Business Measures & KPIs*

Developer

Assemble Integration Solution by using *Service Interfaces* and *Common Components* **5**

Developer

6 Implement Physical Data Model using *Business Object Models*

Data Architect

Dynamic Process Integration

WebSphere Telecom Content Pack v7.0
Telecom Solution Assets for WebSphere BPM

Configurable & extensible BPM solution assets for fulfillment, assurance, billing, customer interaction, inventory, catalog and media processing ; Based on eTOM, SID, NGOSS standards

Capability Models

Capability Maps & Process Maps align business strategy with process execution

Based on eTOM Process Framework

Process Models

Process Flows & Business Measures simulate human workflows & automate processes

Based on eTOM Process Framework

Service Models

Service Interface & Schemas facilitate creation & assembly of process implementations

Based on SID Model & IBM's Best Practices

Common Components

Common Services & Utilities enable interoperability with the application ecosystem

Based on OSS/J, MTOSI & IBM's Best Practices

Business Vocabulary

Repository of Business Concepts, Terms & Relationships to ensure consistency

Based on SID Model & IBM's Best Practices

Business Object Models

Conceptual Data Models to provide a foundation for information management

Based on SID Model & IBM's Best Practices

BPM Solution Scenarios

Order Feasibility, Incidents & Problem Management – Includes UI Forms, Dashboards, Process Implementation

Dynamic Process Integration

Improve time-to-value for telecom solutions
Using IBM Telecom Content Pack (TOCP) for WebSphere BPM

GBS Solutions, Partner, ISV Assets

Accelerate delivery of

IBM WebSphere Telecom Content Pack

Fulfillment, Assurance, Billing,
Customer Interaction, Inventory, Catalog,
Media Lifecycle Processing

Telecom

Built & supported on

WebSphere BPM Offering

ILOG BRMS	Business Modeler	Integration Developer	Process Server	Business Monitor
Business Events		Business Services Fabric		

WebSphere Dynamic Process Edition

WebSphere Telecom Content Pack

- Pre-built solution accelerators that speed time to market for Telecom solutions.

- With V7, WTCP now available on WDPE, WebSphere Business Services Fabric <u>or</u> WebSphere Process Server

- Based on TMForum standards and IBM best practices

- Provides vendor independence and neutrality (one of the most important characteristic of an NGOSS Technical Neutral Architecture (TNA)

Business Benefits

- Top line growth – New differentiated products/ services assembled from business services and pre-built industry SOA content

- Reduction in cost – Optimize IT asset reuse and reduce time to market for industry SOA solutions

"IBM transformation solutions include WebSphere Business Services Fabric (WBSF) and Telco Operations Content Pack (TOCP) to enable the assembly of existing and new IT assets into business process management (BPM) and SOA-based, reusable, components." - Gartner Dataquest Insight: Operations Support System Market Overview and Strategic Scorecard for Vendors, 2009, 13 January 2010, by Martina Kurth

Dynamic Process Integration
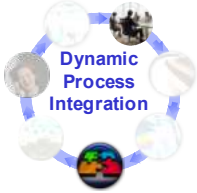
Gain early ROI with Telecom Solution Assets
WebSphere Telecom Content Pack for WebSphere BPM

ROI Benefit with WebSphere Industry Content Packs *

WebSphere BPM + Industry Content Pack

WebSphere BPM

☐ Define Solution   ☐ Business Modeling & Requirements

☐ Analysis and Design, Build and Unit Test   ☐ System Test, QA and UAT
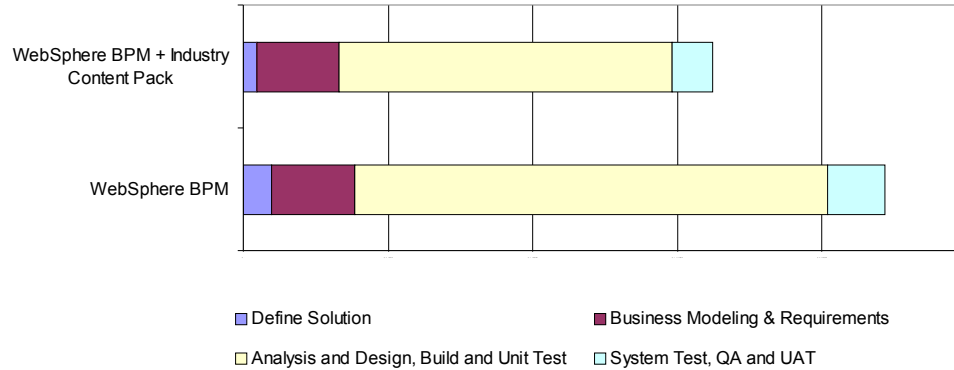
Accelerates Time to Build
by ~ 30%

Never start from scratch!
- Telecom solution assets baked WebSphere BPM offering

Reusable assets across fulfillment, assurance, billing, customer interaction, inventory, catalog & media processing
- Based on NGOSS eTOM, SID, TAM standards & IBM's best practices
- A key offering under IBM's Service Provide Delivery Environment (SPDE) industry framework

Ready for use and quick customization
- Capability/Process Maps from Telecom Pack available at BPM Blueworks

---

As per IBM Business Value Assessment exercise; Varies as per client's BPM solution needs, existing IT applications, etc.

Dynamic Process Integration

ILOG offering for Telecom

Automate Order Management & Customer Facing Interactions

Optimize Network Resources & Workforce Management

Monitor Services

Powerful Business Rule Management System
Build or select best offers, deploy flexible pricing and promotions, streamline order management, enable loyalty programs…

Advanced Suite of Optimization Tools
Solves network resource allocation problems. Plan for upgrades, manage workforce scheduling…

Efficient Supply Chain Management
Review supply chain networks, position intermediate inventory, minimize transport cost…

Innovative Visualization Tools
Transform insight into action, monitor networks, results, manage large sets of data, build intelligent dashboard to monitor operations…

Dynamic Process Integration

Achieving business agility with dynamic process integration

Using BPM, increased customer satisfaction with better problem handling resolution

China Mobile - Shanxi
Reduced time to resolve customer service calls from two weeks to less than one hour

Decoupled their OSS from their network to facilitate bringing new services to market.

TELUS
Introduced new & exciting services (IPTV) to customers

By integrating OSS/BSS processes and standardizing on WebSphere platform

Mobitel
Teamed with IBM to develop a new mobile payments system - Moneta

Using BPM & eCommerce solutions to deliver new business model

GridIT
Creating new customer self-service commerce platform

With BPM solution, sped delivery of new services with automatic provisioning of ADSL

Telefónica São Paulo
Increased # of ADSL customers with faster delivery

Next generation Order Management System based on ILOG BRMS

Swisscom
Achieved 90% straight-thru-processing

Service Management

Provide comprehensive and integrated management of services and infrastructure

Optimizing service quality and focus on the **customer experience**

Managing the increasingly **complex network** to streamline operations

Maximizing the **value of IP and IT assets** to minimize the cost of ownership

Brings together **energy management** with operations to create smarter operations.

Manage next generation **4G LTE Networks**

$4.8 - $7.2M in untapped revenue discovered in one day with Tivoli Netcool

$23.5M Annual avg. benefit to Communications Service Providers who use Tivoli Netcool

20-30% reduction in energy costs

Service Management
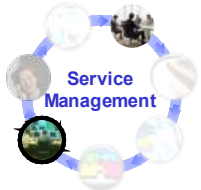
Service Quality and Customer Experience Management

Business Drivers

- Focus on customer and quality to reduce churn and improve customer satisfaction
- Launch innovative new services quickly to
  - Capture market share and increased revenue
  - Ensure positive first-time user experience to improve new service uptake

Business

Customer

Network

✓ **Drive Revenue Growth**
✓ **Reduce Churn**
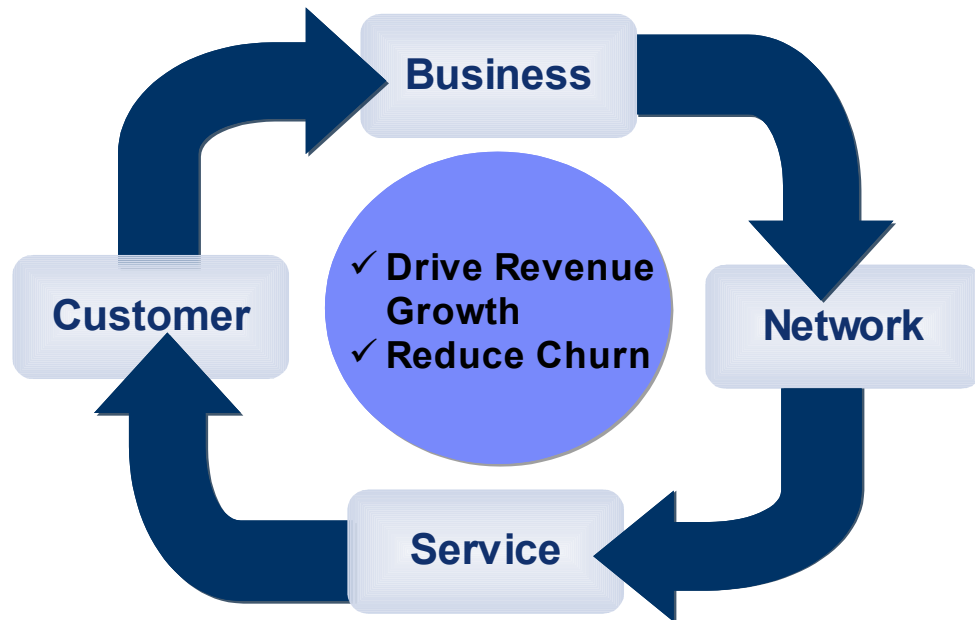
Service

Service quality, SLA and customer experience management – benefits

Drive revenue growth

- Bring new services to market quickly with prepackaged SQM modules for IPTV, VoIP, SMS,Voicemail, DSL, HSDPA, Roaming, Blackberry
- Evaluate and increase service usage
- Offer SLAs to retain and attract corporate customers
- Target new services to profitable customers
- Design campaigns that generate the optimal use of the network and content

Reduce churn and improve customer satisfaction

- Provide instant, relevant customer experience information to Customer Care
- Automate root cause analysis of service performance problems
- Prioritize network issues by customer/business impact
- Measure service quality experienced by specific enterprises and subscriber demographics

Improve customer experience with real-time monitoring data

A world-leading telecommunications company

Service Management

Challenge

The business, a global telecommunications company, wanted to take steps to provide visibility into the actual experience delivered to end customers, and prioritize customer experience issues across the organization. Existing management tools within the organization did not provide a customer centric view of issues but primarily from the network perspective. With many problems not being network related, this left a significant gap, leading dissatisfied customers to take their business to competing companies.

Solution

Working with IBM, the company performed a proof of concept for a customer experience system using passive probe data to monitor trends and issues in real time. Using IBM Tivoli® Netcool® Customer Experience Manager software it is possible to navigate the customer experience from a number of perspectives (e.g. customer, customer group, service, device, location) to proactively monitor the customer experience, and localize customer issues rapidly. Intelligent customer experience reporting also identified significant revenue discovery opportunities among the existing customer population.

Benefits

- Provides increased insight into the customer experience, encouraging upselling and helping to increase revenue streams

- Identifies customer issues in real time, enabling the business to resolve problems before they are reported

- Empowers customer facing organizations to knowledgably interact with their end customers base, thereby driving customer satisfaction and brand loyalty

$4.8 - $7.2M untapped revenue

In one day's data for 6 million subscribers, the wireless operator uncovered an estimated $4.8 - $7.2M worth of untapped annualized revenue for customers who were unable to access and use the operator's data network.

Fault and Performance Management
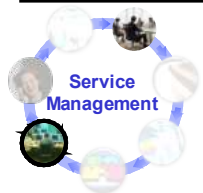
Service Management

Business Drivers

- Improve operational efficiencies
- Reduce capital expenditures
- Improve staff effectiveness
- Embrace new frameworks such as SDP, IMS and SOA
- Drive convergence of fixed/mobile and telco/IT/media
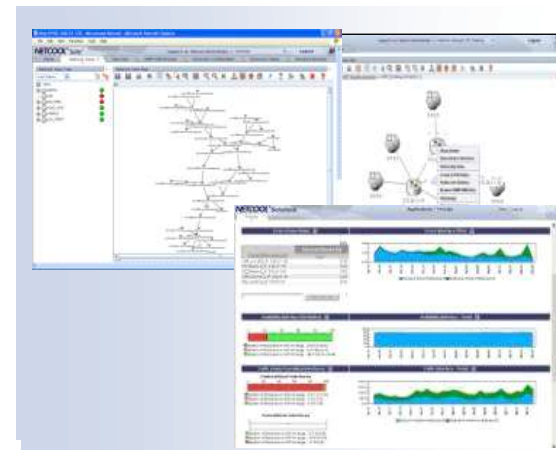
Fault and Performance Management– benefits

Tivoli Netcool Customers can benefit an average of up to $23.5M per year*

Improve operational performance

- Monitor entire services infrastructure to ensure uninterrupted availability
- Gain end-to-end view of network performance
- Conduct rapid root cause analysis

Manage complexity

- Support for complex, multi-technology/vendor wireless, wireline/IP and converging network infrastructures
- Receive automated alerts based on thresholds
- Visualize topology and target fault isolation

Minimize new capital expenditures

- Identify network bottlenecks and capacity planning issues
- View historical and predictive utilization across infrastructure
- Provide key customer visibility of network utilization and trending

Accelerate time to market with new technology support

- Access comprehensive network interface library
- Leverage IBM's Network Equipment Provider relationships
- Standards-based, scalable solutions

*IDC ROI Whitepaper: Profitability and OSS Support: A Return on Investment Analysis of IBM Tivoli Netcool- Feb 2009

Service
Management

End-to-end visibility and real-time monitoring of the mobile infrastructure

Challenge

With the rapid rise in mobile subscribers in Hong Kong, SmarTone-Vodafone needed to increase operational efficiency and ensure competitive pricing while continuing to deliver high quality service.

Solution

IBM Tivoli Netcool allows SmarTone-Vodafone to monitor business and consumer services across its mobile infrastructure to proactively deliver a high-level of quality voice and data services to customers. The ability to manage its network in real time and anticipate problems is a key differentiator for SmarTone-Vodafone, as it aims to reduce the level of customer churn providing consistently reliable services

Benefits

- Improved customer service for increased customer retention
- Reduced number of events per day—from 20,000 to 4,000 — reducing the amount of time it takes to manage the network by 80%
- Helps staff understand the impact of a service degradation and prioritize time and resources to address critical problems first
- Enables staff to determine which services require additional resources, or alternatively, identify where unnecessary investment is occurring

"Tivoli Netcool software has made an immediate and positive impact on SmarTone-Vodafone's GPRS network. The solution not only integrated easily with our systems and improved the level of service we provide, but has also provided the technological platform to assist us in continuing to succeed in Hong Kong's telecommunications market."

— Mr. KK Luk, Assistant General Manager Engineering and Operations, SmarTone-Vodafone

Asset Management

Service Management
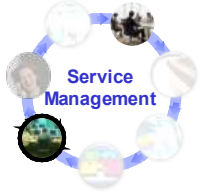
Business Drivers

- Lower total cost of ownership for each asset
- Improve efficiency
- Converge assets to streamline operations
- Obtain asset visibility and control
- Ensure compliance

Asset Management– benefits

Management of physical network & IT assets
- Routers, DSLAMs, switches
- Base stations, antennas, towers
- Servers, storage, VAS platforms
- Cables, Cabinets, Power Supplies

Full lifecycle coverage
- Planning
- Procurement
- Deployment
- Maintenance
- Retirement

Delivers
- Process optimization and efficiency
- Reduction of stranded/lost assets
- Better service quality
- Superior financial management

Complements inventory
- Increases accuracy
- Stable foundation for logical inventory
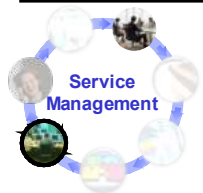
Cell Tower Management

Business Drivers

- Passive mobile network infrastructure operational silos
- Service providers use ~60-90% of their energy in mobile network (BTSs, MSCs)
- Data and systems for passive infrastructure lack integration to allow end-to-end optimization
- Inability to measure energy end to end to provide a base for carbon management to meet regulations and caps

Cell Tower Management– benefits

- CSP's can reduce costs 20-30% from operational and energy usage improvements with IBM Smarter Tower Operations
- CSP's can integrate operations to provide a competitive revenue opportunity from their mobile passive infrastructure
- CSP's can establish a base to actively management energy and carbon footprint

Service Management

Smart Cell Sites powered by Netcool and Maximo
A major mobile service provider in Asia Pacific

Challenge

- Rapid growth of cell site infrastructure

- 90% of all energy consumption at cell sites, 50% due to HVAC

- Widely distributed field workforce to support infrastructure

- Government incentives being offered to reduce energy consumption

Solution

Combined Maximo/Netcool solution to for smart energy management

Maximo mobile workforce management solution

Benefit

- Targeted 30% reduction of energy consumption and costs

- Targeted 10% reduction of facility maintenance costs

- Projected savings of $200M over 3 years

Service Management
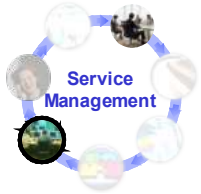
LTE Management

Business Drivers

- Meet demand for increased capacity
- Lower CAPEX and OPEX
- Enable new revenue streams (advanced services)
- Accelerate Time to Market
- Transformation and Convergence
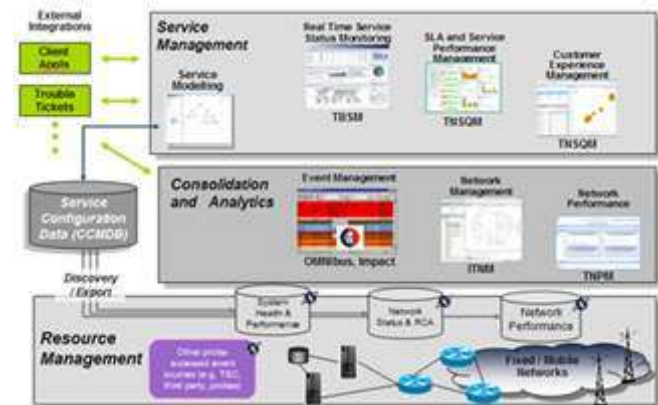
LTE Integrated Service Management– benefits

- **Integrated Service Assurance strategy**
  - Single point of contact for product groups

- **LTE integrated monitoring**
  - Event and Discovery Management
  - Performance Management
  - Service Management

- **Reduces silo'd management**
  - End to end wireless / wireline IP monitoring

IBM

Service Management

IBM is helping service providers optimize their dynamic infrastructure with Service Management

kpn

Business Challenges

- Drive down operational expenditures
- Deliver high service quality to retain and grow customer base

Business Results

- Optimized service quality with end-to-end visibility
- Helped contain staffing costs
- Improved process efficiency

T··Mobile

Business Challenges

- Deploy engineering work force efficiently
- Reduce outages on critical assets

Business Results

- Saved revenue by reducing churn
- Dramatically improved operational efficiency
- Reduced dependency on internal IT development

Bell

Business Challenges

- Offer ICT outsourcing for key customers
- Manage complex contract
- Integrate with many legacy systems

Business Results

- Market share gain with ICT outsourcing
- Improved service management delivery
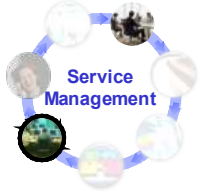
Customers Realizing Smarter Business Outcomes

Service Management differentiates offerings and improves the customer experience

Service Management

By deploying a Tivoli Netcool Solution

BT

Achieved 100% availability of critical service with only 5 engineers assigned to oversee environment

BT

Using Tivoli Netcool software and trouble-ticketing integration

Cablecom

Reduced time needed to correlate a network alarm to the service impacted from 50 minutes to just 10 seconds

cablecom

Using IBM Tivoli Netcool to monitor business and consumer services

SmarTone

Reduced the amount of time it takes to manage the network by 80%

SmarTone | **vodafone**

The Tivoli Netcool service assurance system for monitoring existing and future wireless networks allowed

Swisscom

To triple the growth of their services and infrastructure without a corresponding rise in headcount

swisscom

The Tivoli Netcool end-to-end management solution helped

T-Mobile

To reduce the average number of events by a factor of 100

T··Mobile·

By implementing a Tivoli Netcool solution

Telekom Austria

Reduced fault investigation time by 50% (less than 25min on average)

TELE KOM AUS TRIA

Information Management

Exploit increasing volumes of customer, service and network information by establishing a foundation for data quality, consistency and accuracy.

Establish a foundation for data quality, consistency and accuracy.

Accurate, complete, **integrated view** of Customer/Product/Service

Manage data and **information lifecycles** from point of creation to final disposition

Protect **privacy** of confidential customer information; conform to regulatory requirements.

Increased analysis, design, and development by 25-50% in pilot exercises

Projected savings of $73+ million from reduction of databases and storage costs

Efficient customer interactions via access to all relevant customer information

Avoid fines and damage to corporate reputation by complying with data privacy laws

Establish an foundation for data quality, consistency and accuracy
Information On Demand Solution Architecture
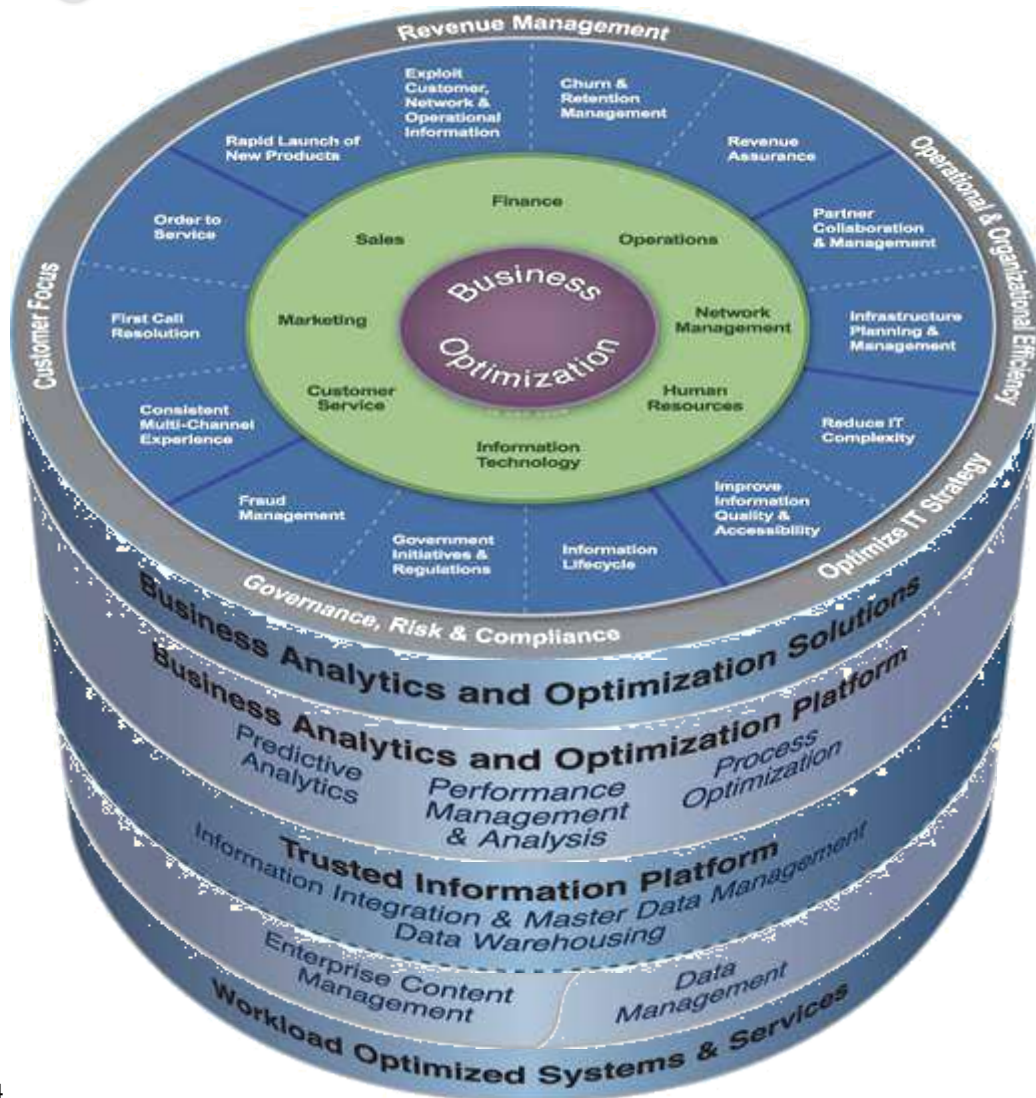
The **Information Agenda** for communications industry solutions is supported by a foundation of software assets

Information Management

Establish a foundation for data quality, consistency and accuracy
InfoSphere Foundation Tools

InfoSphere Information Analyzer	Rational Data Architect	InfoSphere Metadata Workbench	InfoSphere FastTrack	InfoSphere Business Glossary
Data profiling, analysis and rules monitoring	Data modeling and mapping	Metadata lineage, interchange and visualization	Business rule specifications	Business glossary, stewardship and classification

In-depth analysis of heterogeneous information – IBM or non-IBM sources	Leverage profiling results from Information Analyzer	Web-based exploration of metadata relationships – InfoSphere, modeling and BI applications	Design transformation rules to optimize business information	Web-based authoring, sharing & management of business metadata
Data-centric analysis of databases, files & enterprise applications for content, quality, and structure	Create and optimize physical and logical data models	Explore and analyze both graphically and textually	Leverage Information Analyzer profiling results for most complete requirements	Aligns business and IT goals
Secure, detailed profiling of fields, & relationship analysis across fields & across sources	Define enterprise standards to govern data models	Assess and mitigate change management risk	Centrally track design decisions for auditing	Accelerate project delivery via collaboration
On-going measurement & baseline reporting of information quality	Analyze models for conformance	Support compliance and governance initiatives	Define and link InfoSphere Business Glossary terms to physical structures	Drive information trust across enterprise applications
	Create glossary models and exchange with Business Glossary	Trace data lineage of modeling, BI reports and InfoSphere objects	Accelerate InfoSphere integration job development	From any application, click and automatically search glossary

Trusted Information begins with foundation tools

Information Management

Challenge

- Data quality & consistency

- Lack of trusted information for reporting & BI

- Lack of visibility of the source data for the executive level reports

- Inconsistent terminology within departments and across organization

- Lengthy (days to weeks) impact analysis whenever data changes were being considered

Solution

- **IBM InfoSphere Foundation Tools**
  - Information Analyzer
  - InfoSphere Data Architect
  - Business Glossary
  - Metadata Workbench
  - FastTrack

- **IBM Telecom Data Models – Telecom & Retail**

- **IBM Information Server**

- **IBM InfoSphere Balanced Warehouse**

Benefits

- **Central metadata repository links business and technical teams**

- **Data quality issues easily identified, resolved and tracked**

- **Business users have a single repository, which assists delivering trusted information**

- **Project impact assessments completed quickly – hours versus weeks**

- **Increased analysis/design/development by 25-50% in pilot exercises**

- **Full lineage - source system to report - provides clear graphical audit trail**

"Quite simply, leveraging the power of the InfoSphere Foundation tools will deliver reliable information to the business when and where they want it."

Telecommunications data warehouse and models

Creating a trusted view of customer/service/network across LOB applications and channel applications

Information Management

TDW Solution Architecture
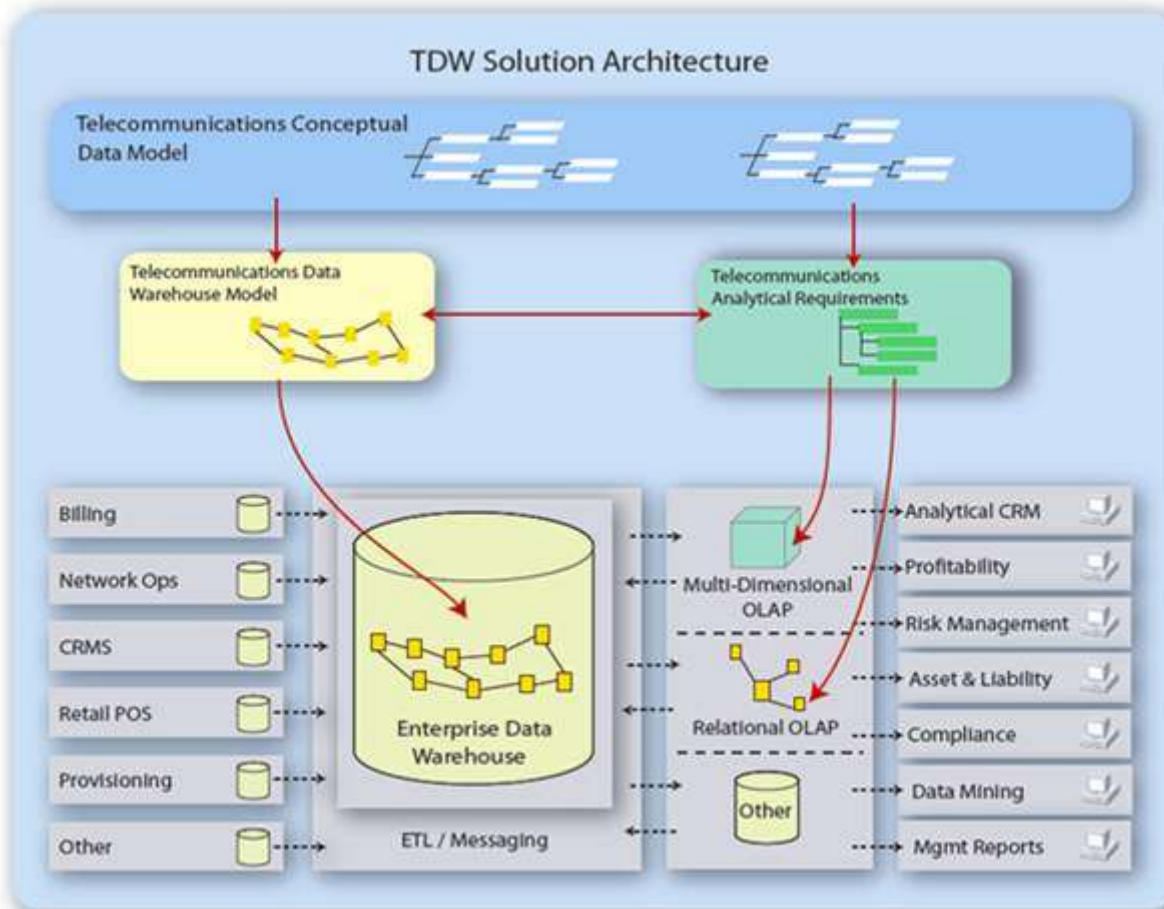
- Common Customer View
- Product Lifecycle Management
- Campaign Performance Management
- Analytical Customer Relationship Management
- OSS/BSS Re-engineering
- Data Warehouse and Data Mart Consolidation

Data model and analytical requirements have been shown to reduce development effort by as much as 50%.

Enhanced Decision Support with Single View of Customer & Products

Information Management

Challenge

- Subsidiaries need to operate as a single entity
- Customer information stored in multiple systems
- Products are siloed by subsidiary with no cross-selling, up-selling, bundling
- Customized reporting difficult
- Multiple business intelligence systems make enterprise view difficult

Solution

- Single customer view across LOBs
- Common product views across LOBs
- Core model for rapid creation of customized reports and joining of business warehouses
- Common data definitions and structures based on new CRM and billing systems
- IBM Telecommunications Data Warehouse (TDW) Model
- IBM Telco Business Solution Templates

Benefits

elisa

- **Design phase shortened even in first project**
- **Easier integration of new data sources**
- **Source application changes are manageable**
- **TDW model has a "place" for almost everything**
- **Data from different sources integrated into one data model**
- **General Ledger Data into TDW model including financial data from SAP and new analysis for financial reports**
- **New reporting for top management from multiple data sources for dashboards/ scorecards, performance management, financial and sales forecasting with Cognos**

Single View of Customer

Information Management

Establish an environment for data quality, consistency and accuracy that enables aggregation of all relevant information to create a "single view" of customer

master data management

INTERNAL DATA

EXTERNAL DATA

InfoSphere software
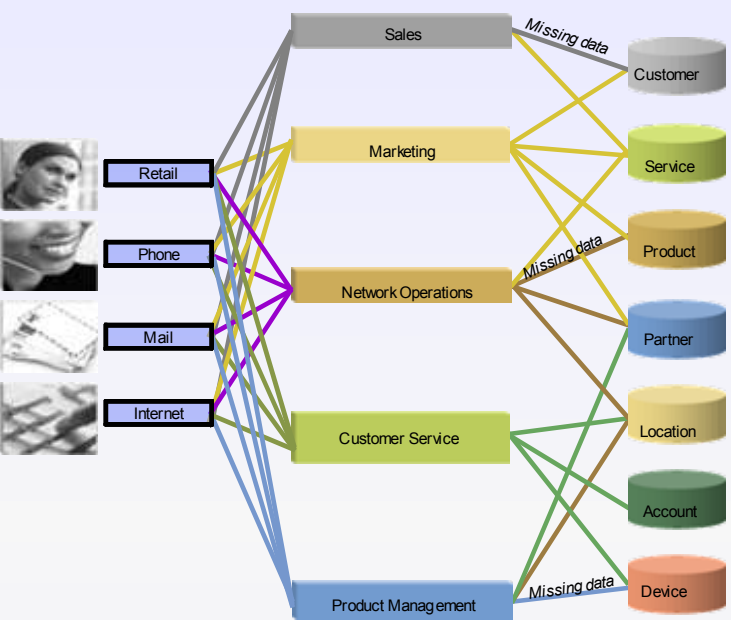
The "Single View" Challenge

- *Information about customers, products, services, accounts is incomplete, inaccurate, inconsistent, outdated – due to silos across the enterprise*

- *Valuable knowledge gained in one part of business not getting to other parts*
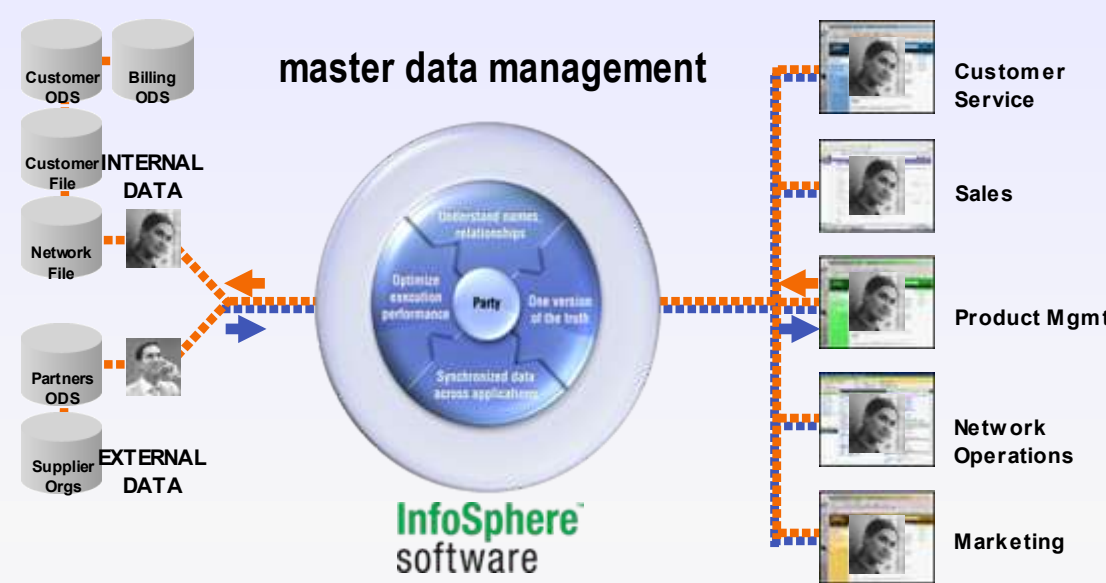
IBM's Single View Solution

- *Consolidate, Operationalize And Deliver Trusted Information*

- *Deliver right elements of mastered data to applications, databases, data marts, individual users, tools that consume comprehensive, complete, accurate, consistent 'view' to facilitate customer service or make decisions*

A Comprehensive Platform For A Single View Of Trusted Information About Customers, Services, Network, etc.

Information Management

Classify Customers, Reduce Churn, Improve Customer Service

Challenge

- Identify the most profitable customers

- Provide appropriate offers to the right target market

- Reduce customer "churn" and improve customer loyalty

- Improve customer service

Solution

- Delivered consolidated view of customer information across all product lines, to all residential and business customers through all channels (call center, IVR, email, web self-service, etc.)

- IBM® InfoSphere MDM Server

- IBM® InfoSphere DataStage SOA Edition to publish their master customer information in a SOA

Bell

Benefits

- **Improved marketing campaigns as a result of updated customer account and relationship information.**

- **Ability to quickly identify & classify customers at the CSR level resulting in offers that accurately represent segment and customer profile**

- **Enhanced experience for customer leading to increased loyalty and reduced "churn"**

- **Reduced administrative costs through improved efficiencies**

Information Management

Single View of Product

Data quality, consistency and accuracy to create a "single view" of product across LOB applications and channel applications

Internal Systems

Databases

Customer Support

Internal Docs

Emails

Spread sheets

External Resources

D&B

Dun & Bradstreet

Direct from Suppliers
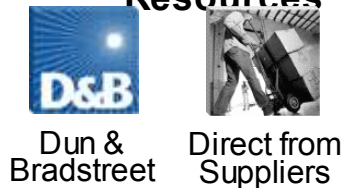
Product Producer

Finance

IT

Sales

MDM Server for PIM

Collaborative Authoring

Business Process workflow

NPI   Catalog Mgt   Multi-Commerce

MDM Custom-Built Domains

Product   Location   Supplier   *Others*
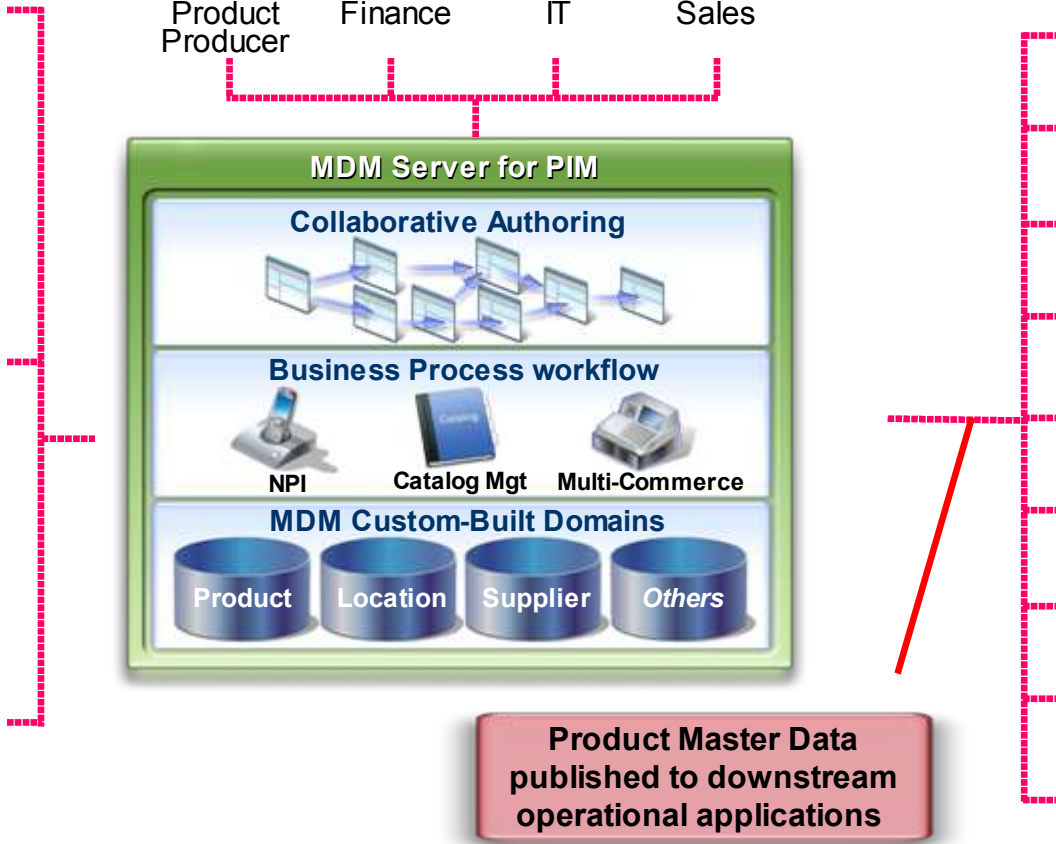
Product Master Data published to downstream operational applications

Operational Applications

BSS/OSS

website

Portals

LOB Catalogs

Ordering Systems

Corporate

Partners

Billing Systems

Amdocs

Integrated Ordering & Billing for Mass Market

Information Management

Challenge

- Order Entry - needed highly flexible product catalog to support order entry from Mass Market via call center and web channels

- Billing system could not support promotions being offered by product managers who wanted to offer discounts based on key rules such as product bundles (e.g., customers with wireline service receive a discount if they also acquire wireless service)

Solution

- IBM InfoSphere MDM Server for PIM with a highly customizable product hierarchy (e.g., product catalog supports multiple permutations and combinations of the DSL service)

- Selectica configuration engine

- Pilot implemented for 350 support staff

- Production – 4Q09 for 5,000 support staff

- IBM Global Business Services

Benefits

Qwest

- **7% revenue growth within the pilot**

- **CSR training reduced from 12 days to 2 hours – significant given 100% annual attrition rates**

- **Decreased time-to-market for of new bundles/packages from (3 months to estimated 1 month)**

- **Streamlines the selection and configuration of products to one simple screen**

- **Significant reduction in the time involved to add and change products and promotions**

- **Lower IT costs through consolidation of product catalog information.**

- **Improvement in first call resolution.**

72

Information Management

Information Lifecycle

Manage data and content lifecycles from point of creation to final disposition

- Find, identify and verify value of data/information sources
- Eliminate redundant or outdated sources to reduce storage and energy costs
- Automatically classify and assign retention schedule at point of capture or creation
- Eliminate the cost and inefficiency of manual records declaration
- Eliminate risk of retaining information longer than legally required
- Efficiently prove compliance with government and industry regulations
- Reduce costs associated with electronic discovery

discover profile metadata aggregate collect create	classify store	search retrieve update monitor activity	discover analyze hold	destroy consolidate archive retain

SAP   SIEBEL   ORACLE   PeopleSoft.   JDEdwards   amdocs   Office SharePoint

Oracle   SQL Server   Sybase   Informix   DB2   IMS   Teradata   VSAM   Adabas   XML   More...

Windows XP/2000   Solaris   HP/UX   Linux   AIX OS/390   Linux   z/OS   i-series

NAS   SAN   ATA   CAS   Optical   Tape

Information Management

Expanded Archiving Strategy Builds on Past Success

Challenge

- Retire 1,140 legacy applications within 4 years
- Reduce administrative and energy costs associated with legacy applications
- Cost-effective management of petabytes of data growth

Solution

- Optim Solution for Application Retirement
- Optim Data Growth Solution (for custom and packaged applications)
- Optim Data Growth Solution for Siebel CRM
- Optim Data Growth Solution for Oracle E-Business Suite
- Optim Mashup
- Optim Development Studio

at&t

Benefits

- **Projected savings total more than US $73 million**
- **Reduce size of production databases and associated storage and infrastructure costs**
- **Support its end-of-life plan for servers**
- **Allow access to archived data after applications have been retired**

AT&T has already been using Optim for three years and has fully implemented the product on the mainframe side to retire more than 110 applications.

Information Management

Data Privacy and Security

Protect privacy of confidential customer information; conform to regulatory requirements

Production

Application X

Application Y

Validate and Compare

Subset → **Mask** → **Propagate**

- De-identify for privacy protection
- Deploy multiple masking algorithms
- Substitute real data with fictionalized yet contextually accurate data
- Provide consistency across environments & iterations
- Enable off-shore testing

Test

Application X

Application Y
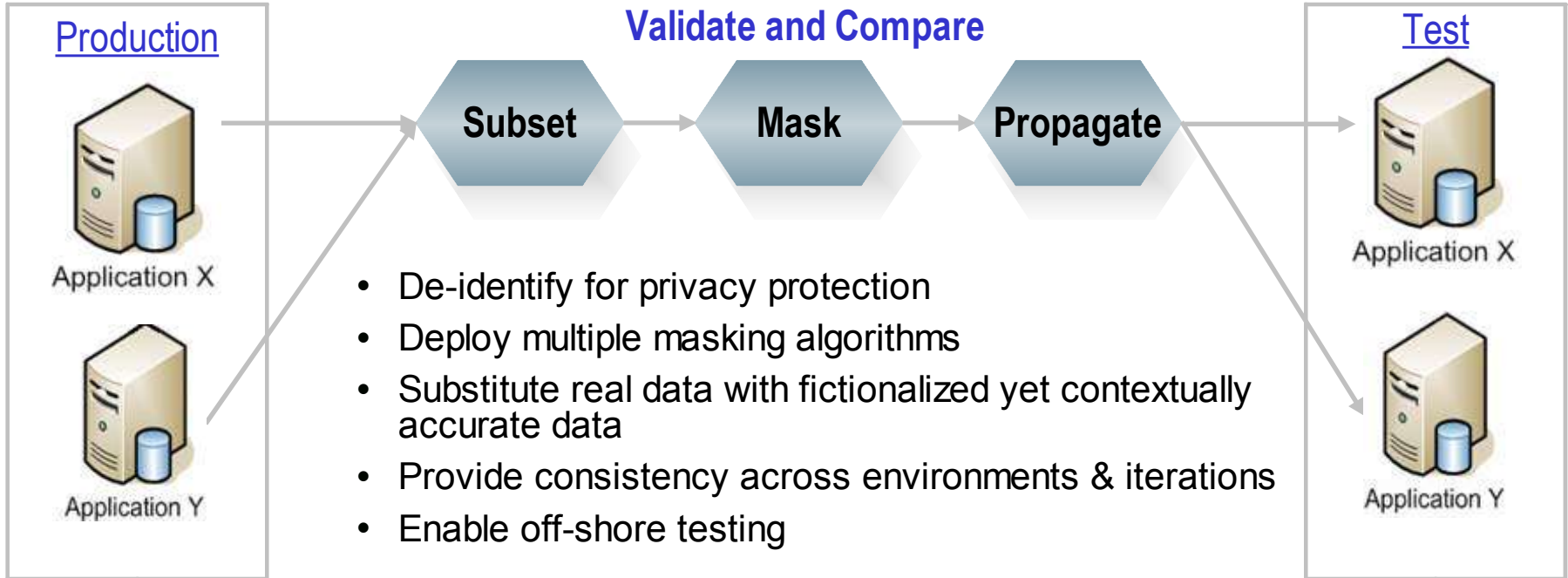
F. Name	L. Name	Credit Card #	ID #
Silvio	Alessi	5298774132478855	254-77-6644
Malia	Radovic	4324115574123654	154-74-7788

F. Name	L. Name	Credit Card #	ID #
Silvio	Alessi	5326458711224956	164-95-3792
Malia	Radovic	4972584612457744	294-09-1849

Information Management
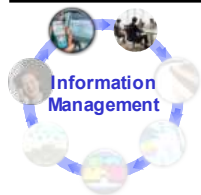
Reduced Test Data Storage and Faster Testing Cycles

Challenge

- Resource utilization concerns
  - Test data storage demands
  - Test data creation time
  - Need to frequently refresh test data

- Corporate mandates for data security - privacy concerns when production data is used in tests

- Difficulties in gathering proper data (from multiple sources) for testing

- Bring new capabilities to market sooner

Solution

- IBM Optim for Test Data Management

- IBM Optim for Data Privacy

Benefits

vodafone

- **Reduced data storage - create right-sized test environments instead of cloning entire production environments**

- **Development environments are more manageable, speeding the testing process**

- **Reduced time spent creating new data thereby allowing for execution of more tests**

- **Enables creation of an unlimited number of test data sets, each with unique ID's to ensure clean testing data**

Test data management will reduce the amount of time spent creating new data thereby allowing execution of more tests.

Information Management

Customers Realizing Smarter Business Outcomes
Information Management

**Foundation Tools
Telecom Data Models
Telecommunications Data
Warehouse**

3 UK
Increased analysis/
design/ development by
25-50% in pilot exercises

**Optim Solution
for Data Growth
Tivoli Storage Manager**

Bharti Airtel
Audit/regulatory data
retrieval requests reduced
from 30 days to 4 hours

**IBM Change Data
Capture**

Bell Canada
Eliminated ETL delays
and as much as 40 days
data latency

**Telecommunications Data
Warehouse
& Data Model**

COLT
Out-of-box templates met
80% of business reporting
requirements

**IBM DB2, Datastage,
Business Glossary,
Metadata Server, Cognos**

Idea Cellular
Aggregated multiple data
sources to create a
"single version of truth"

**IBM InfoSphere MDM
Server for PIM**

Qwest
Decreased time-to-market
for of new products from (3
months to 1 month)

Information Management

Information Analytics

Framework Project Areas

Customer Interaction

deliver software capability throughout the Service Lifecycle

Service Innovation and Creation

Service Management

Service Execution and Exposure

Dynamic Process Integration

Differentiate the customer experience

Gain deep customer insights through real-time analytics while providing a seamless customer experience across all channels

Customer Interaction

Enable customer personalization and self care reducing churn and customer care volumes using Lotus and Tivoli

Information Analytics

Analyze data/information from internal and external sources to drive informed decisions and actions that improve customer experience, subscriber churn, campaign management, advertising effectiveness, mobile marketing, network performance, etc.
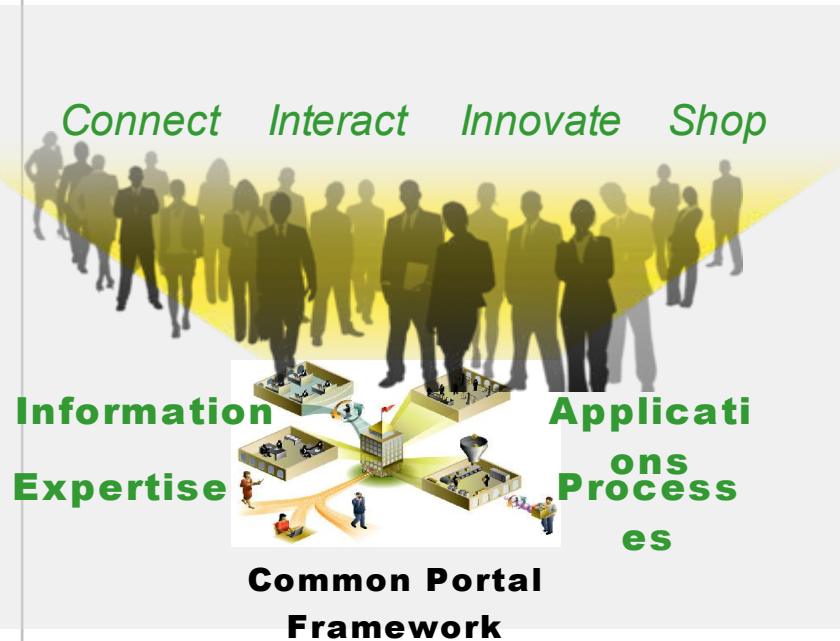
Connect   Interact   Innovate   Shop

Information

Expertise

Applications

Processes

Common Portal Framework

Customer Interaction

Customer Interaction

Provide simplified and automated customer service for clients and partners across multiple channels

Simplify and automate **self-serve** for customers and partners across **multiple device access points**

Simplify and automate **customer shop and buy** across multiple channels

Provide a rich, seamless consumer experience to an **application storefront**

Enable **vendor/partner** to self-maintain services online with ease and efficiency

Reducing subscriber churn through improved **service quality (CEM)**

Lowers cost of providing quality customer service

Supports 1000s of mobile devices

Enables customers to buy and configure services online with ease and efficiency

Improves cross-selling through integration of customer-facing processes

Increases Average Revenue Per User (ARPU)

Enables new revenue streams with 3rd party applications

Customer Interaction

Synergies and complements of IBM's integrated software industry solutions deliver exceptional customer experiences

Portal – Commerce

- **Portal as Presentation (View) Layer** and Aggregator / Integration Services (On-the-Glass)

- **Commerce as Business Logic Layer** (and Integration Services, calling back-end systems)

- **Non-Commerce functions that are in Portal** stack:
  - Personalization Rules
  - Document Management
  - Multi-Device or Wireless (Mobile Portal),
  - Collaboration
  - Content Management
  - Web2.0 (AJAX, JSON, REST),

Commerce

Portal

Exceptional Web Experience

Web Content Management

Social
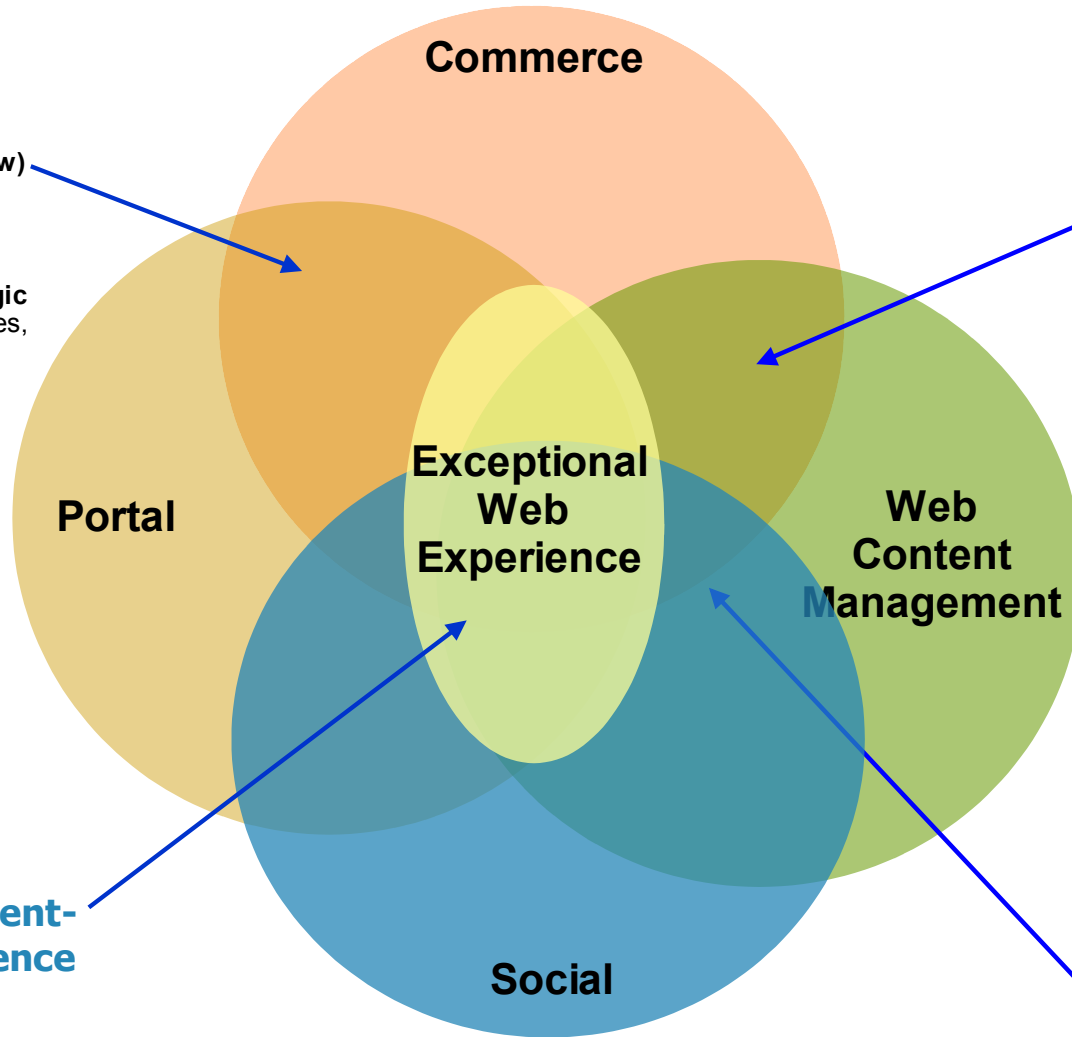
Commerce - WCM

- WCM to manage Content Spots and e-Spots in Commerce

- E-spots are connected to campaign rules for dynamic targeting and personalizing

- Manage articles, About Us, FAQs, and other static pages on the site

- Manage catalog-related data such as product description and images

- Content is created and managed in WCM and synchronized with Commerce via the WWCM API or with RSS/Atom Feeds (or WCI)

Commerce - Social

- Integration of social media and communities

- Effective display / proper location of social content on product page

- Integrated Product/Category Blogs, Wikis, Social Profiles

Consistent, client-centric experience

- Consistent branding
- Unified presence
- Pervasive Look & Feel
- Personalized & responsive

80

Customer Interaction

Exceptional customer self service: "*Have you checked the Portal?*"

CSPs leverage self service to drive cost savings, operational efficiencies, revenue increases, and improved customer satisfaction

Attract Customers
Increase Customer accessibility to the Web

Customer Experience
Provide a reliable customer experience that integrates all content (user generated & corporate) into a unified user interface

Exceptional Web Experience

Multi-Channel
Integrate web service across multiple channels (sms, chat, ivr, retail, any device)

Personalization
Personalize the web experience with targeted and responsive content

81

Customer Interaction

Exceptional user experience with Mobile Portal for customers on-the-go
Simplified customer self service at Verizon Wireless

Goals

- Deliver value to customers

- Exceptional user experience to customers on-the-go

Business Drivers

- Timely adoption of smart phones

- Promote mobile web growth and data usage

- Reduce call center costs via customer self service

- Support for diversified handsets and custom browsers

- Cross sell/Up sell (ring tones/ring back tones, games, etc)

Smart Phones

verizon wireless

Self Provisioning

Customer Interaction
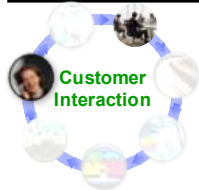
Exceptional user experience for customer self-service with Websphere Portal
Intuitive customer self care at a global Communications Service Provider

Challenge

- Allow easy customer access to value added services.

- Eliminate fragmentation of services, caused by different web portals/applications, via a unified page & consistent look and feel

- Promote new value-add services to customers while maintaining subscriber growth, increasing revenue and improving loyalty

Solution

- B-to-C portal that allows subscribers to view all their services through a common access point.

- 'Product Portal' provides a single user view

- 'Family Portal' presents a view for multi-line accounts

- Includes a web 2.0 experience w/AJAX to drive the interface that accesses the user's data

Business Benefits

- **New efficiencies and increased flexibility**

- **Improved client enrollment and increased adoption of new service offerings by presenting all options on a consolidated page**

- **Significant IT and business value through cost savings and the creation of reusable components.**

- **Reduced time-to-market for future products by providing reusable components**

Portal plus Mobile Portal delivers exceptional user experience to thousands of different devices
Mobile customer self service at Bharti Airtel

Customer Interaction

Airtel

Ad Revenue

Sell Digital Assets

User can buy digital assets for someone else

Home Page

Google Search Page

Images & Videos

Account Self Service

Customer Interaction

Simplify and automate on-line shopping across multiple channels
WebSphere Commerce easily supports complex Telco offerings and transforms the customer shopping experience
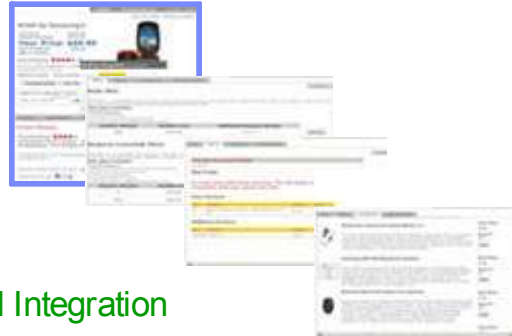
Multi-channel Integration

- Supports the sale of devices, plans, and sales as part of a single integrated experience across multiple channels

- Personalized Bundles

Integrated Social Commerce

- Embrace active participation and community

- WebSphere Commerce incorporates social interaction, community, and consumer driven content into the shopping experience

Web 2.0 Store Model

- A *Natural Shopping Experience* keeps customers on the path to purchase
- Web 2.0 dynamic interfaces accommodate different buying styles, motivations, and criteria

Support a Rich Digital Media Shopping Experience

- Cross-sell your digital media, devices, plans and services

- Aggregate content from multiple providers

- Easily integrate Digital Rights Management solutions

Productivity Tools

- High performance processes for the way customers want to do business
- Advanced purchasing and productivity tools
- B2B Capabilities: RFQ, Support for Contract based pricing, terms, and conditions, organizational modeling

Precision Marketing

- Precision marketing provides targeted information and recommendations at key decision points throughout the purchase process (and across channels)

Customer Interaction

Innovative, personalized, automated, social commerce differentiates the customer experience

A global communications company leads with e-commerce

Challenge

- Serve customers on the web

- Engage customers to build relationships

- Speed roll out of new promotions, products, and features projected to increase on-line sales

- Optimize purchasing paths with increased flexibility

- Expand company's network of Partner Co-Branded Web sites and add new on-line properties

Solution

WebSphere Commerce solution leverages the benefits of one platform with a set of common assets that can be used to support all web and telesales channels

Benefits

- Improved web experience
- Optimized web sales and conversions rates and

- Automated web self service to deflect customer service calls

- Enhanced user loyalty

- Increased up-selling and cross-selling opportunities

- Enables user communities and social networks to improve site 'stickiness'

"Delivering an exceptional Web Experience"

Commerce

Portal

Portal

WCM

Web Analytics
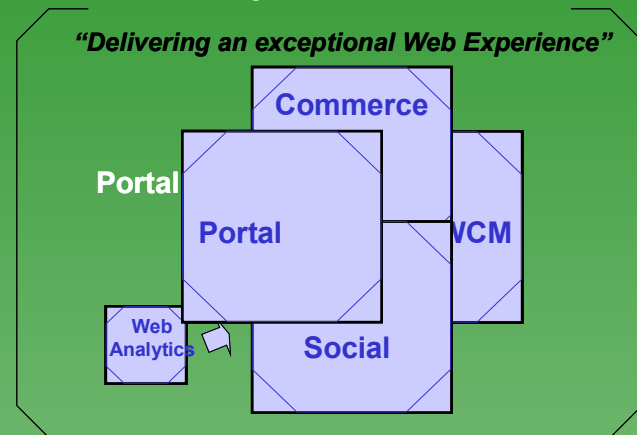
Social

Application Storefronts provides rich, seamless consumer experience
Using IBM WebSphere Portal and Social Commerce

Customer Interaction
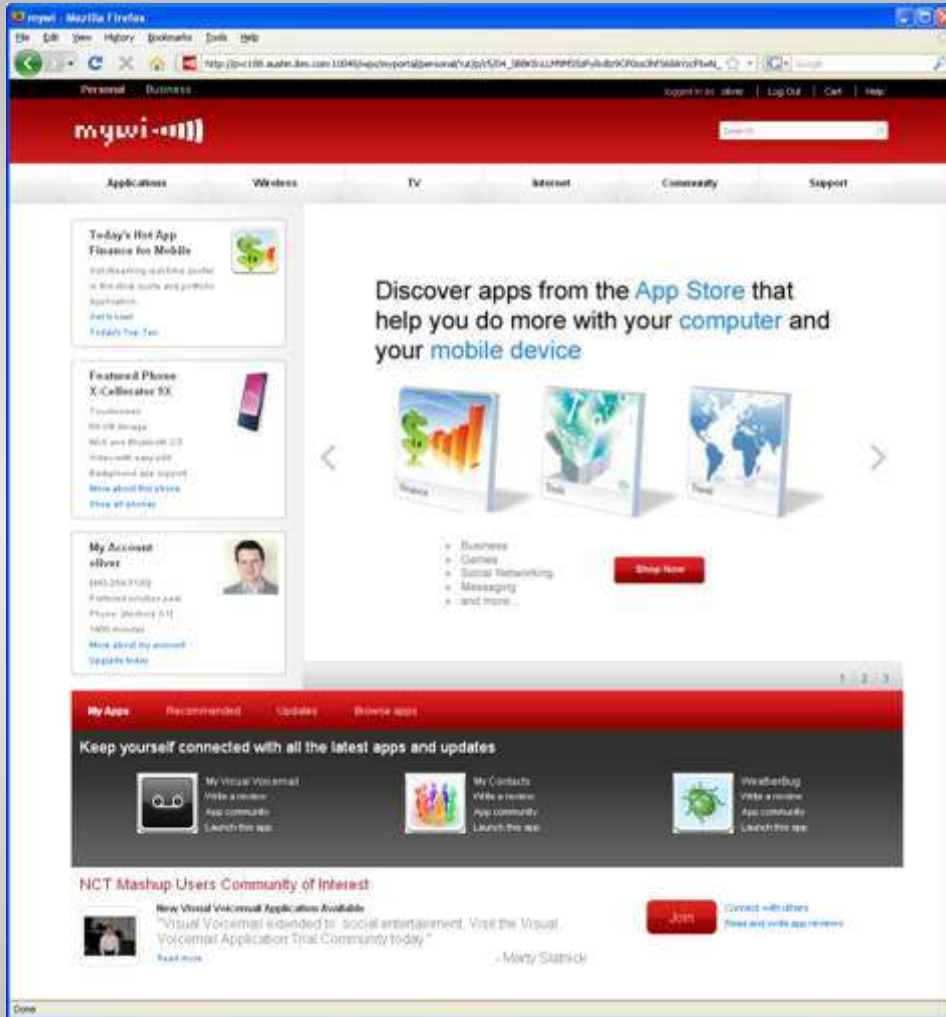
WebSphere Portal provides an exceptional user experience

- Commerce features for personalization, cross-sell, up-sell, intelligent cart

- Applications combine widgets from multiple sources: industry, internet, enterprise and personal widgets

- Applications run across multiple devices: desktop, mobile phone, TV, etc.

- Integrated community for collaboration, feedback and ratings

Customer Interaction

Application Storefronts drive new revenue opportunities
## *At an Asian Telecom*

Challenge

Provide a portal that would enable consumers to buy content and applications across all three major wireless telecommunications companies served in the geography. Product set includes ring tones, games, wallpapers, and telecommunications applications such as ring back tones and location based advertising
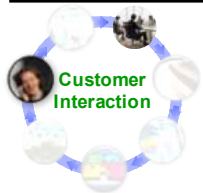
Solution

- Phase 1 implemented WebSphere Commerce and WebSphere Portal
- Phase 2 expanded the footprint with WebSphere Mobile Portal to provide an optimized UI for users wanting to buy services directly from their mobile devices

Benefits

- **Enabled marketing and sales of digital assets**

- **Increased Average Revenue Per user (ARPU)**

Customer Interaction
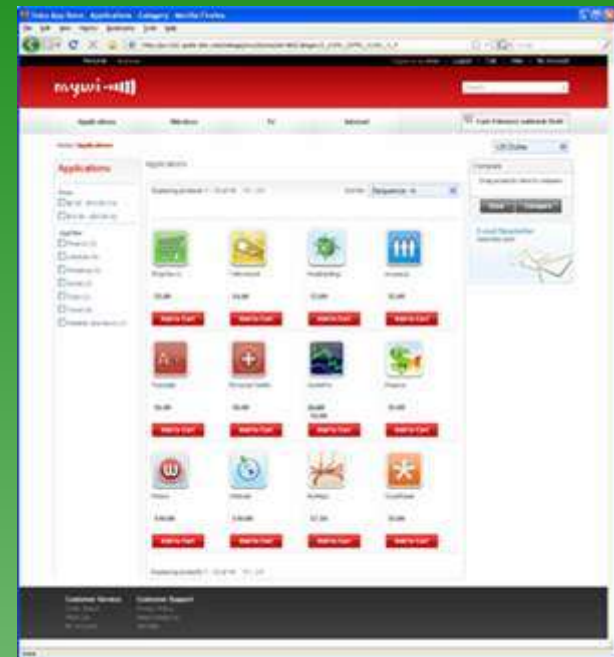
Enable partners to on-board and self-maintain services online with ease and efficiency

Lotus software solutions extends the value chain

- **Agile product innovation and creation** - accelerate product/service innovation (frameworks discussion), 3rd party partner access

- **Defect reduction** – Forms used consistently as a means to contain and control high volume of critical information needed to design and deploy services in a high quality manner

- **Automated workflow** – Streamlines communication of critical information through the organization. Staff is only needed at specific steps (e.g. additional data entry, review, approval, etc) and is then diverted into processes via alerts.

- **Role-based delivery** – Tasks and alerts are served to individuals according to where and when they are incorporated in the execution of the core processes

- **Collaboration** – In the even that there are exceptions, in stream communications methods are incorporated to get the processes back "in the box"

- **Dashboards and reporting** – As all work is now moving on ESB, state is visible across the value network and can be rolled up to dashboards to provide insight and remediation opportunities to management.

Customer Interaction
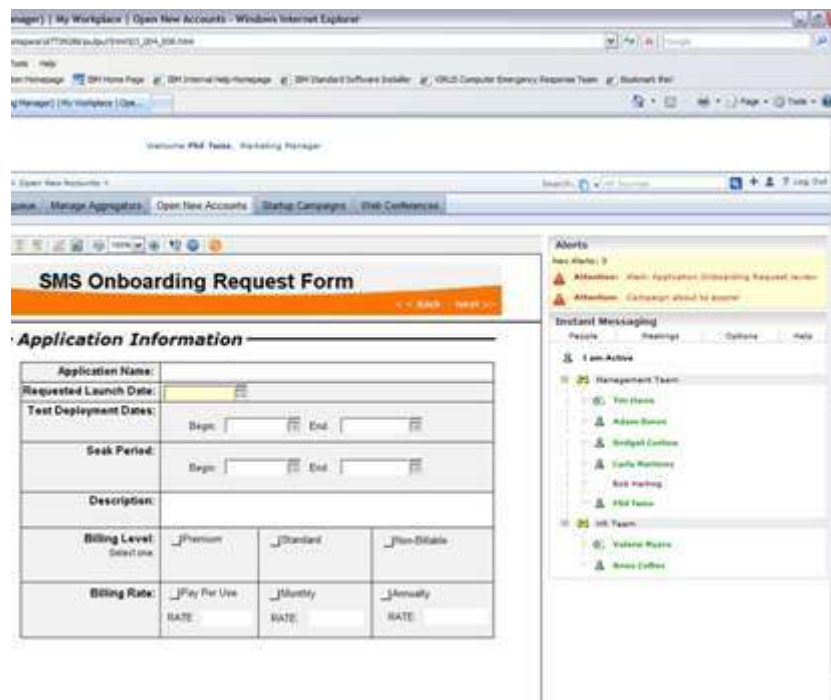
Extending enhanced customer experience to partners and large customers
Sprint facilitates 3rd party custom integration

Challenge

- A strong push by their large customers and partners to directly consume Sprint services as SOAP API's.

- This allowed the customers/partners to provide custom integrations within their own applications

Solution

- Build on Sprint's plan to simplify and enhance customer experience and extend it to our "service" consumers

- Enables vendors to onboard and begin offering their services with ease and efficiency

- Provide service consumers "Simply Everything" in a consistent manner

- Create a new Sprint standard Web Services Integration Architecture

Benefits

Sprint ahead

Complexity Management
- Automates workflows and streamlines communication of critical information through the organization

Agility
- Repurposes Business Processes or Discreet services on demand
- Accelerates product/service innovation

Customer Focused
- Consistent customer facing interfaces and standards by way of publication

Financial Efficiency
- Cheaper time to market thru reduction of time to deliver

Business Effectiveness
- Tighter alignment to the business strategy, more effective support based on reduced complexity of

90

Customer Interaction

Customer Experience Management spans the customer experience lifecycle

Customer Acquisition
Acquire new customer to the business

Customer Provisioning
Configure the new customer

Service Consumption
Customer uses the services

New Customer

Target Customers
Target existing and new customers for new / improved services

Customer Billing
Customer is billed for the services used

Customer Experience Management

Customer Retention
Manage the customer relationship and deliver on their needs

Customer Growth
Grow the business with the specific customer

Value of Customer Experience management

Reduce churn

Improve customer satisfaction

Ensure successful launch of new services and user devices

Empower customer-facing groups

Provide marketing visibility into customer behavior and service usage

IBM SQM / CEM Solution

Control operational and investment costs

Discover un-tapped revenue among existing customer base

Provide operations insight into customer impact

Protect and increase roaming revenue

Our World-Class Package

Global scale & reach

Comprehensive global business services

Innovation driven

Customer Interaction

Customer Experience Management using network transactions to improve customer interactions
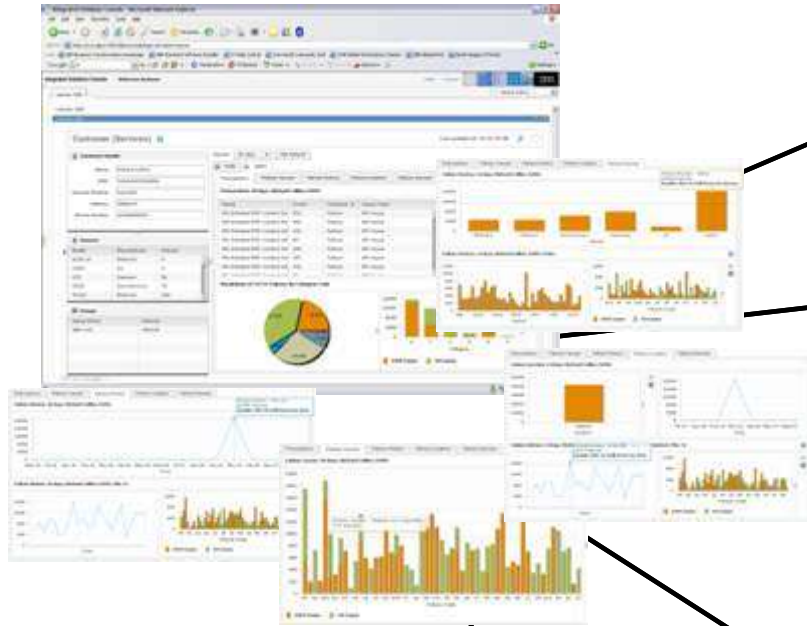
Customer Care:
- How can we show our customers that we understand their individual quality issues?
- How can we correlate more individual customer issues to known service quality problems?

Account Managers:
- How do I track a single user or user group within an account?
- How do I authenticate concerns regarding quality?

Marketing:
- View Service Usage by region, customer demographic, time of day?
- How can I check the effectiveness of marketing campaigns?

Operations:
- How can I relate customer impacting issues to network problems?
- How can I figure out if a customer complaint is device, location, time or specifically customer related?

Service Managers:
- How are my services doing against other dimensions like location, device and segment?
- How can I analyze my service delivery trends by customer and in aggregate?

Customer Interaction

Customers Realizing Smarter Business Outcomes
Delivering exceptional user experiences

By exposing network service capabilities to enterprise and 3rd party developers

Sprint

Delivers innovative customer services to ~40M Sprint-Nextel users

Sprint

Using an intuitive web application that provides the user with an enhanced converged services experience

Vodafone

Teamed with IBM to develop a new revenue generating Social Networking Application

vodafone

Using the IBM SPDE Framework to deliver innovative customer services and mobile content

Bharti

• 80M subscriber base growing 2.5M per month
• 1.2M unique portal users/ day

bharti

Promotes mobile web growth and data usage while reducing call center cost via customer self service

Verizon

Teamed with IBM to deliver a Mobil Portal platform

verizon

Information Analytics

Analyze data/information from internal and external sources to drive informed decisions and actions.

Apply analytics to identify trends, **understand behaviors and purchase propensities**

Utilize analytics and business intelligence to identify and proactively **retain valued customers**

Apply sophisticated analytics to provider-controlled data/information to achieve carefully **targeted customer interactions**

Employ analytics to identify existing and potential sources of **fraud**

Analyze network performance and develop **models to** optimize network performance or plan for network upgrades/expansion.

Identified unprofitable buyer segment; implemented program to avoid customer acquisitions of this type

Establish detailed customer profiles (accessible by 20,000 CSRs) to enable up-sell cross-sell

Campaign conversion rate of 4% improved to 12% using predicative analytics

Established single point & process for evaluating potentially fraudulent accounts

35% reduction of spare capacity

Customer Analysis

Apply analytics to identify trends, understand behaviors and purchase propensities

Customer data:

Demographics
Products/Services

…

Transaction & billing data:

CDRs, SMS, MMS, mobile internet, …

Interaction data:

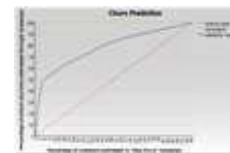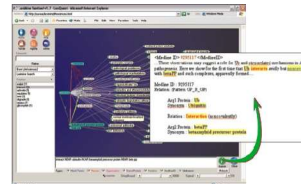Website usage, call center interactions, email, call logs

…

Attitudinal data:

Surveys
Social media,
Net promoter score,

…
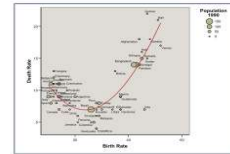
statistics - customer segmentation, sales trends, fraud analysis, customer satisfaction, customer interactions

modeling – preferences, buying propensities, customer lifetime value, capacity planning, product strategy

reporting – APRU, product profitability, sales performance, campaign effectiveness, churn trends

text analytics – voice of customer, improve FAQ data base, market sentiment, social network insight , call center optimization

prediction – buying behaviors, churn & retention, next best offer, campaign optimization, targeted marketing

Information Analytics

Customer Analysis – Unstructured Content

Apply analytics to identify trends, understand behaviors and purchase propensities

market research transcripts

CSR logs

web

blogs

email

Content Analytics

Customer Service

Service Management

Partner

- **Churn alerts**
- **Monitor FAQs**
- **Market sentiment**
- **Corporate reputation**
- **Voice of the customer**
- **CSR training & monitoring**

Product Management

Marketing

Sales

Information Analytics
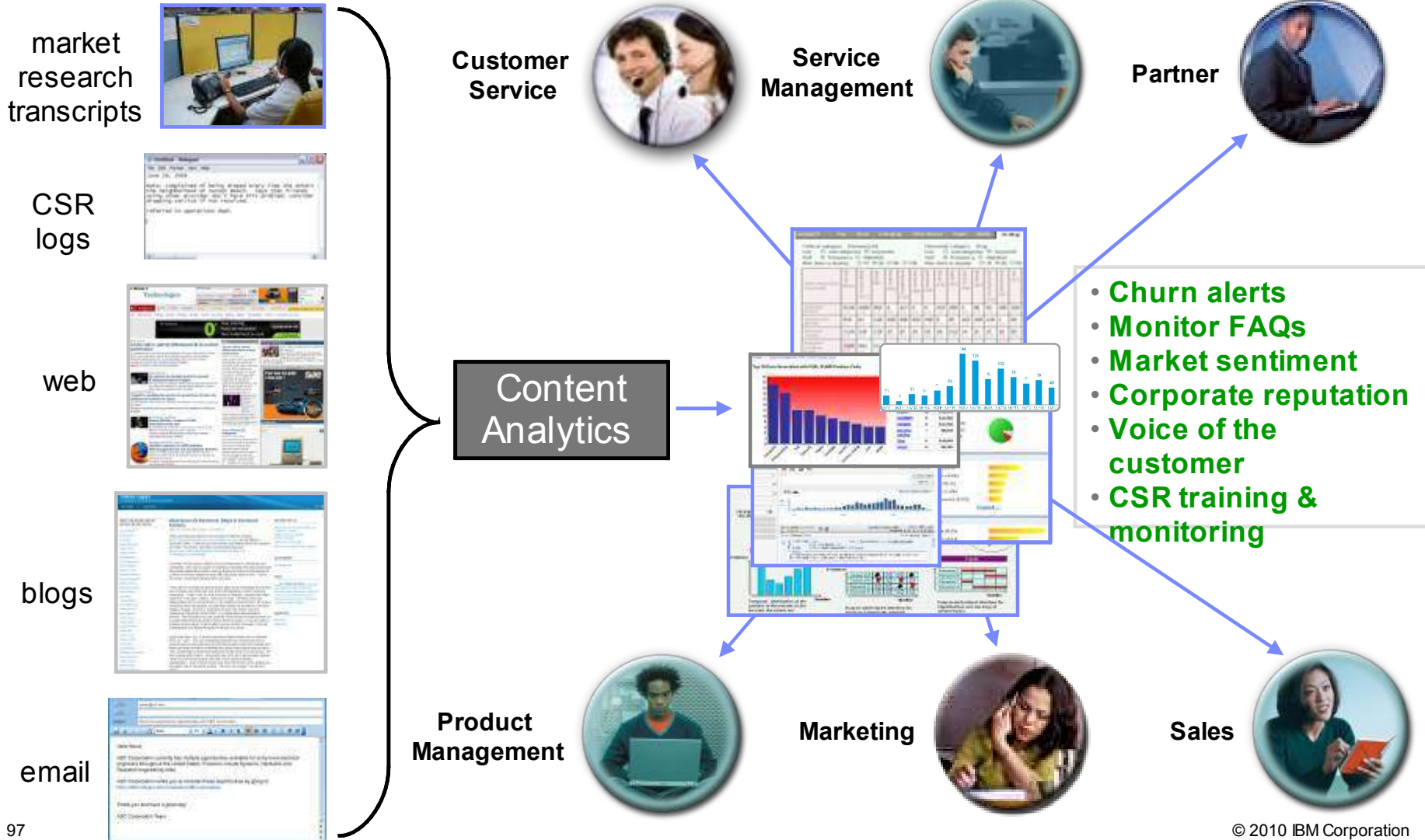
Deeper Customer Insight via Content Analytics

Challenge

- Obtain customer insight ("Voice of Customer") from unstructured information sources such as: CSR logs, customer correspondence, etc.

- Enable multiple LOB groups to access and analyze "Voice of Customer" information in a manner that is relevant to their specific business responsibilities

Solution

- Cognos Content Analyzer - DoCoMo was an early adopter and has been a "design partner" for Content Analyzer's evolution.

NTT docomo

Benefits

- **LOB (product management, marketing, finance, sales, service management, etc.) gain current and accurate insight into customer opinions and issues**

- **Quicker identification of, and response to, customer issues/concerns**
  - Establish parameters of mobile phones based on VoC
  - Create Premium Club points program based on VoC
  - Establish more favorable offers in model and service upgrades for loyal customers

DoCoMo's "Voice of Customer" strategy enrichment has been strengthened through deployment of IBM Content Analyzer

Information Analytics

Customer Analysis

Pre-integrated InfoSphere, Cognos, on the IBM Smarter Analytics Server (ISAS) with the Telco Data Warehouse (TDW)

Deeply optimized by IBM experts

Flexible growth to meet changing business needs

Analytics Software Options
- ☑ Business Intelligence capabilities
- ☑ Cubing Services
- ☑ Text Analytics & Data Mining
- ☑ . . . more to come

Powerful Data Warehouse
- ☑ Warehousing Platform
- ☑ Advanced Workload Management
- ☑ System Automation

Hardware & Services
- ☑ Power 550 Express + AIX
- ☑ IBM System Storage DS5300
- ☑ Build, Deploy, Health Check & Services

- Gain **advanced analytical insight** into subscribers

- Provide **predictive analytical insight**

- Add **social network analysis** models

- Deliver **real-time** predictive analytical insight w/ Cognos NOW!

- - - - - .

✓ **An integrated, high-performance analytics solution for accelerating delivery of insights for faster, smarter action**

✓ **Able to adjust and grow based on the telco's changing business needs**
- ❑ *broad analytic capabilities*
- ❑ *powerful warehouse capabilities*
- ❑ *scalable and fully-integrated IBM hardware*
- ❑ *set-up services and single point of premium support*

✓ **Delivering results in days instead of months**

Churns by Customertype and Month

Churned Subscribers

2,400

1,600

800

0

Private

Corporate

July 2008

September 2008

November 2008

January 2009

Customer type

Month

Information Analytics
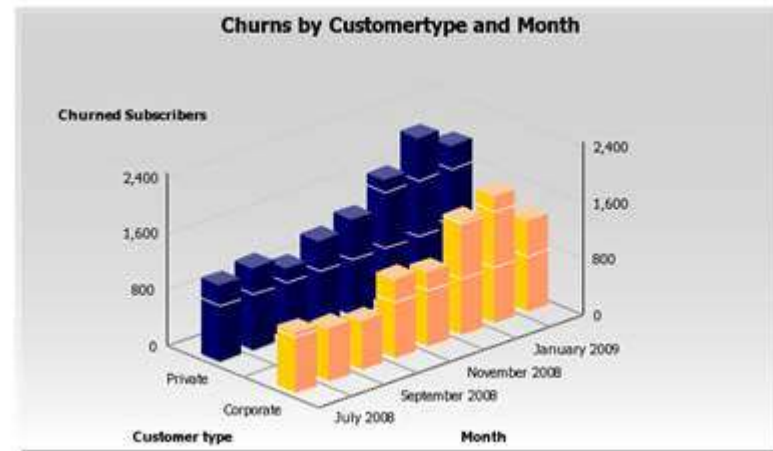
Churn and Loyalty Management
Utilize analytics, modeling and business intelligence to identify and proactively retain valued customers

Capture

Predict

Act

Customer data:
Demographics
Product/Services
Correspondence
...

Attitudinal data:
Satisfaction;
Net promoter score,
Social Media
...

Interaction data:
Website usage,
call center interactions
...

Transactional data:
CDRs, SMS, MMS,
mobile internet, ...

**Reports,
KPIs, KPPs**

Analyses
Segments
Profiles
Scoring models
...

Scoring
Lifetime value
Influence

Social Network Analysis
Churn candidates
Group leaders – customer & competitors

Which valued customers are most likely to churn?

What is the overall impact of their defections?

How can we most effectively mitigate churn?

Combine real-time predictive social network analytics with advanced churn models to retain customers

Research and Modeling Improves Retention Rate

Information Analytics

Challenge

- Analyze market research data with the goal of improving customer satisfaction (Market Research division is constantly generating new studies that require statistical processing)

- Segment customers for more strategic cross-selling, up-selling, and retention campaign

Solution

- *SPSS PASW Statistics Base* **for market research**

- *SPSS PASW Modeler* **to segment its subscribers and develop acquisition, cross-sell, up-sell, and churn models**

Benefits

- **Increased retention rate by 13 percent**

- **Identified a segment of impulse buyers that weren't profitable and implemented program to avoid customer acquisitions of this type**

- **Improved ability to perform market research on increasingly larger volumes of data**

> "With PASW Modeler, we're able to quickly predict who in our customer database is more likely to churn and then execute retention campaigns before it is too late."

Success Story: www.spss.com/success/template_view.cfm?Story_ID=168

Campaign Management Optimization

Apply sophisticated analytics to provider-controlled data/information to achieve carefully targeted customer interactions

Information Analytics
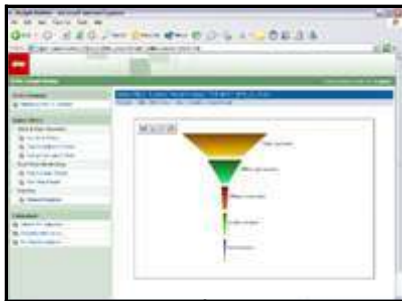
- Do you know customers well enough to tailor campaigns for each unique group?
- Do you need to reduce marketing costs associated with campaigns?
- Can you identify the best prospects or customers for a campaign?
- Can you align customer behavior to marketing activity?
- Can you evaluate campaign effectiveness?

Drive campaigns and interactions

Increase response rate by effectively targeting the best customers

- Identify shared characteristics of customers and propensity scores to improve target profile, offer and timing of campaigns

- Leverage test-control capability to understand how customers respond to new offers & campaigns and fine tune strategy accordingly

- Optimize marketing strategies and approach based on analytics

- Eliminate cost and resources associated with poor performing campaigns

Information Analytics
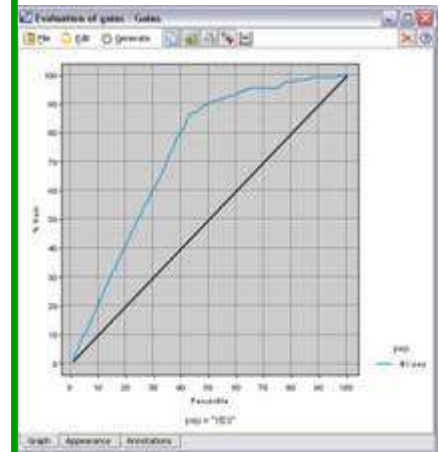
Model Customer Propensity and Improve Campaign Results

Challenge

- Campaign optimization/Customer segmentation

- Identify individual's propensity to purchase specific product(s)

- Calculate likely comparative value once they became customers

- Develop new products targeted to specific customer groups

Solution

- SPSS PASW Modeler to analyze data and build exploratory models for campaigns aimed at small business customers

- Measure the predictive strength of individual data attributes in relation to customer's propensity to buy a product

Benefits

- **Improved direct mail campaign response rate by 100 percent**

- **Provided sales and marketing with a targeted "best prospects" for specific campaigns**

- **Future plans: identify customers who have**
  - Have greatest profit potential
  - demand lots of attention but do not buy

"Even before completing the final models, we were able to surpass our original target— and increase the campaign response rate by 100 percent."

Success Story: www.spss.com/success/template_view.cfm?Story_ID=31

Fraud Identification and Prevention
Employ analytics to identify existing and potential sources of fraud

Information Analytics

Identity Insight

order →

approved → shipment → usage monitoring → billing → payment collection

updated fraudsters

updated bad debt

potential fraud
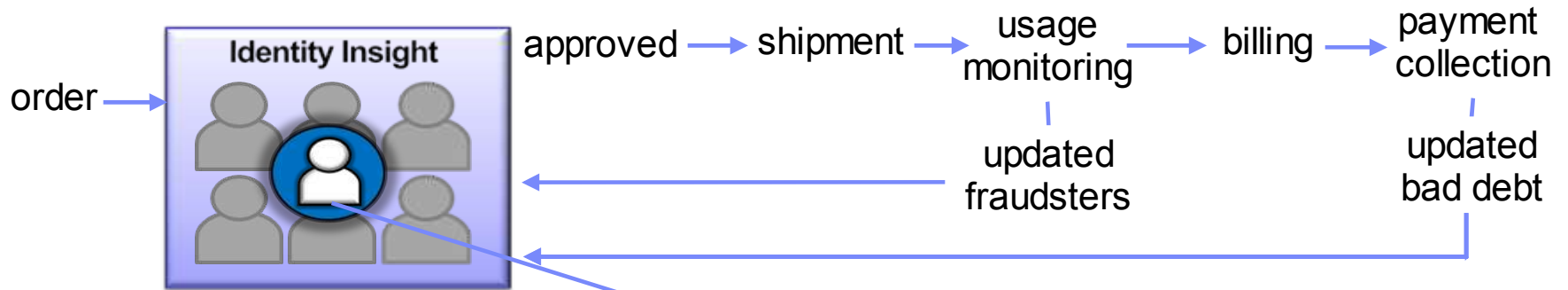
Each order is compared to key historical holdings (previous fraud, bad debt, and other orders) instantly.

Who is who?
- Establish Unique Identity
- Integrate Data Sources
- Physical/Digital Attributes
- People & Organizations
- Biometric Validation
- Multicultural Names

Who knows who?
- Obvious & Non-Obvious
- Links people & groups
- Degrees of Separation
- Role Alerts

Who does what?
- Events & Transactions
- Complex Event Processing
- Criteria Based Alerting
- Quantify Identity Activities

Eliminate cost and burden of fraud by preventing fraudulent accounts from being established.

Identify and Eliminate Potential Fraud

Information Analytics

Challenge

- Prevent accounts from being established by fraudulent individuals on-line or in retail stores.

- Significantly reduce costs associated with fraudulent account provisioning, services and mediation

- Counter increasingly sophisticated fraudulent techniques

Solution

- IBM Identity Insight used to identify potentially fraudulent on-line and in-store account openings

Benefits

Bouygues Telecom

- **Eliminated cost of establishing, provisioning and mediating fraudulent accounts**

- **Obtain greater insight into current fraud techniques and practices**

- **Established a single point & process for evaluating potentially fraudulent accounts regardless of channel of initiation**

- **Continually improve ability to identify potential fraud through fine-tuning of analytics parameters and rules**

Today, only the risky online orders are analyzed. In the future, all the orders will be processed in real-time.

Information Analytics

Network Capacity Planning

Analyze network performance and develop models to optimize network performance or plan for network upgrades/expansion

Provision and dimension networks

- MPLS & ATM network planning and design
- Traffic engineering
- Optimization of capacity purchase from other operators

Complex routing decisions

- Compute VPN route according to QoS constraints
- Call center queuing and routing

Field technicians scheduling

- Technician & resource allocation for fulfillment or troubleshooting

The ILOG Optimization Suite

Model Development Tools	Application Development Tools
ILOG OPL Development Studio	ILOG Optimization Decision Manager (ODM)
Math Programming Engines (MP)	Constraint Programming Engines (CP)
ILOG CPLEX	**ILOG CP Optimizer**
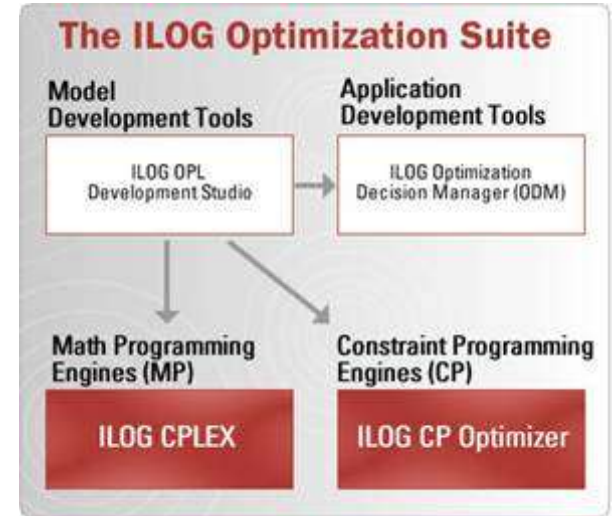
- create the best possible plans and schedules
- explore alternatives & understand trade-offs
- respond to changes in business operations

Information Analytics

Telecom Network Planning & Optimization

Challenge

- Need better tools to support network planning & optimization regarding:
  - Upgrade network to 3G
  - Improve capacity & performance of existing network

- Design network that accommodates increasing traffic requirements at the lowest cost

Solution

- ILOG CPLEX chosen as standard for network planning and optimization

- Apply optimization algorithms to plan routing, station selection for 3G upgrade and next generation network topology

vodafone

Benefits

- **Established best practices to optimize network given the constraints of coverage, capacity, cost & quality of service**

- **Facilitate faster Vodafone expansion for new geographies and services**

- **Enabled rapid creation of new algorithms to meet Vodafone-specific planning and optimization requirements**

- **Easily expand platform to optimization and planning needs of other divisions**

Build a network that meets traffic requirements at the lowest cost.

**Information
Analytics**

Customers Realizing Smarter Business Outcomes
Information Analytics

SPSS PASW Modeler

BT
Improved direct mail campaign response rate by 100 percent

BT

SPSS survey application and text analytics technology

Cablecom
Customer churn rates reduced from average of 19 % down to 2 %

cablecom

Cognos Content Analyzer

NTT docomo
Lines of business gain current, accurate insight into customer opinions and issues

docomo

Cognos TM1

Pelephone
Analyze business and subscriber performance, ARPU, profitability in real-time

FileNet P8 – Business Process Manager, Process Simulator and Process Analyzer

T-Mobile
Real time reporting, process visibility & continual process improvement

T·· Hrvatski Telekom

Cognos 8 Business Intelligence

Telenet
Access to over 1,000 well-structured reports to advise line-of-business decisions

telenet

What makes IBM different?

IBM Business Partners
IBM Centers of Excellence
IBM Research

IBM Communications Industry Differentiators

- IBM has the industry-leading **experience**, comprehensive **technology**, and cost-effective **methodologies** to help CSPs transform their business systems and realize value.

- IBM Communications Industry proven **solution portfolio** is enabled by SPDE – an SOA-based Communications industry framework – which allows CSPs to **accelerate the development** and delivery of new capabilities and offerings.

- IBM supports BSS and OSS integration by driving **standards**, working with **policy** makers, helping define the future of the industry, and innovating on first of a kind technologies.

- IBM's network of **solution partners** provides choice and flexibility from a portfolio of integrated technologies.

- IBM Centers of Excellence, Proofs of Concept and Research First of a Kind projects **demonstrate innovation** and competence in solution implementation.

The SPDE Business Partner Ecosystem
Providing applications that are compatible with the SPDE Framework

Pre-integration between SPDE software capabilities and industry-leading partner applications provides…

- Faster deployment

- Easier integration

- Lower cost of operations

Communication Service Provider Solutions

Business Partner Ecosystem

Service Innovation And Creation	Service Management	Information Management
Service Execution and Exposure		Information Analytics
Business Process Integration		Customer Interaction

Infrastructure & Governance
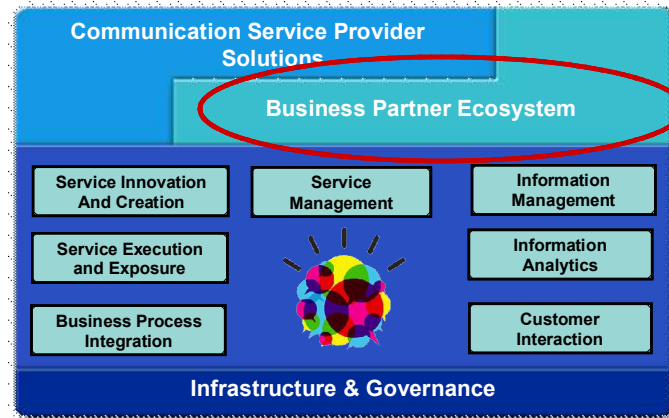
Network Equipment Providers

"Leveraging IBM's Tivoli Netcool technology in Nortel's Common Management Platform is an effective way to offer consistent, comprehensive network management"
   -Peter Mottishaw, analyst OSS Observer

"The expansion of Juniper's mobile ecosystem enables service providers to unlock the full value of their network infrastructure investments. We're freeing them to play in a Web 2.0 world, so that they can unleash the deployment of next generation broadband services to their subscribers and create new revenue streams."
-*Mike Harding, vice president of Junos Space Business Unit, Juniper Networks. "*

"This type of carrier-enabled (Unified Communications) solution is appealing to our customers since it allows them to benefit from their collaboration software while taking advantage of carrier-grade hosted communication services"
   - Bruce Morse,
IBM VP of Unified Communications and Collaboration

Featured Benefits & Joint Solution

- IBM Services delivery Platform – Enablers & IMS supporting NEP network offerings

- Services Assurance/OSS/BSS

- Carrier Hosted Unified Communication and Collaboration

- Shared Ecosystem of ISV partners

- Address carrier requirements by leveraging the NEP network with IBM's IT capabilities

BSS/OSS Partnership

"IBM transformation solutions include WebSphere Business Services Fabric (WBSF) and Telco Operations Content Pack (TOCP) to enable the assembly of existing and new IT assets into business process management (BPM) and SOA-based, reusable, components."
Gartner Dataquest Insight: Operations Support System Market Overview and Strategic Scorecard for Vendors, 2009, 13 January 2010, by Martina Kurth

"Amdocs continues to deliver on our Customer Experience Systems Blueprint to **guide service providers through transformation** to deliver the digital lifestyle, this expanded relationship with **IBM delivers superior information management solutions to reduce costs, accelerate growth, and enhance the customer experience**" – *Guy Dubois; Executive, Vice President, Amdocs*

ConceptWave · KANA · Chordiant · OPENET · COMVERSE · amdocs · fenavie · MFORMATION · Telcordia

Featured Benefits & Joint Solution

- Streamline integration of OSS/BSS processes

- Provides a way for business and IT to collaborate and continuously optimize business processes

- Supported by robust governance and compliance

- Improve time-to-value for telecom solutions

- Automate Order Management & Customer Facing Interactions

Value Added Services Partners

"Our wide range of software-based solutions in value-added services, customer care, self-service and billing complements the professional services, outsourcing and technology strengths of IBM." – *Andre Dahan*

President & CEO, Comverse
July 2008

BROADSOFT · **COMVERSE** · **MOBIXELL**

cvidya Revenue Intelligence · **CTI GROUP** · **Openstream** · **soprano**

TXT e-solutions

traffix systems · **iperia** · **eglue** · **MOTOROLA**

Featured Benefits & Joint Solution

- Expand sources of innovation and shorten development cycles

- Improves time to market for new services

- Delivers innovative services to CSPs

- Provide a "Carrier Grade" Application Platform with 99.998% availability

- Network based information & common intelligence used across applications and vendors with WebSphere Presence

IBM Centers of Excellence
Comprehensive industry knowledge and analysis

- 100+ IBM Centers of Excellence Worldwide
  - Proven expertise in reliability, security, interoperability & scalability
  - 15,000+ subject matter experts
  - Industry Solutions Labs leveraging IBM Research
  - Customized briefings and training
  - Proof of Concepts

IBM Centers Include:

Global Telecom Solution Center

Industry Solutions Laboratories

Institute of Business Value

Technology & Interoperability Centers

Research Innovation Centers

Proof of Concept Centers

Centers for Business Optimization

Customer Benchmark Centers

Design Centers for On Demand

Development & Integration Centers

Deep Computing Centers

High Availability Centers

Globalization Laboratories

Business Continuity Centers

Global Simulation, Test & Performance Centers

The Lab Network
Telecom Solution Labs, Media Solution Labs and Research Labs

Comverse CoC

Customer trial platform

Research Beijing 1995

TSL China Beijing, China

TSL Europe La Gaude, FR Montpellier, FR

MSL La Gaude La Gaude, FR

MSL Dallas Dallas, TX

TSL NA Austin, TX Beaverton OR

RDE

TSL Korea (Satellite) Seoul, Korea

planned

Research Haifa 1972

The Virtual TSL TSL@SL

TSL ASEAN (Satellite) Kuala Lumpur, Malaysia

TSL India (Satellite) Banglaore, India

TSL LATAM (Satellite) Sao Paulo, Brazil

TSL Africa (Satellite) Johannesburg, South Africa

Research Delhi 1998

Summary

IBM's SPDE framework addresses the key imperatives of the global Communications Industry

*...**transform** to a **customer experience focus** with partner collaboration and enriched subscriber interaction*

*...**speed** the creation of **new services** to meet business objectives*

*...**provide** reliable, controlled, **third party access** to core network resources*

*...**streamline** IT infrastructure to **consolidate OSS/ BSS** and leverage resources across multiple business units*

*...manage **business information** for competitive advantage and actionable insights*

*...**provide** end-to-end **service quality** to ensure customer satisfaction*

Industry Solutions and SPDE Framework

Communications Solutions

Business Partner Ecosystem

Innovation and Creation	Service Manageme	Information Management
Service Execution and Exposure		Information Analytics
Process Integration		Customer Interaction

Infrastructure & Governance
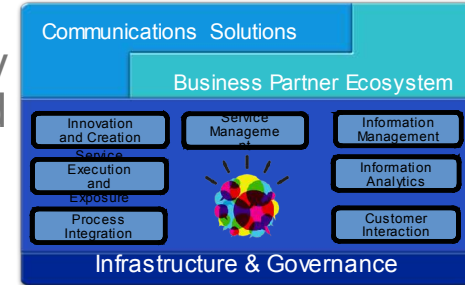
SPDE Business Partner Ecosystem

IBM Telecom Solutions Labs Network

Global TSL Network

Thank You

Appendix for References

APPENDIX: References

Please check the Customer Reference database for current content on Telecommunication reference accounts

- http://w3-01.ibm.com/sales/ssi/crmd.html

Special handling instructions for client references

- The client has agreed to be a reference for sales situations. The status of any installation or implementation can change, so you should always contact the Primary Contact or Additional Contact named in the reference prior to discussing it with your client.

  Public use requires specific approval from the client. It is the responsibility of the person or any organization planning to use this reference to make sure that this is done. The IBM representative will, as appropriate, contact the client for review. You should not contact the client directly.

Appendix for Additional Charts

Getting Started with the Service Provider Delivery Environment (SPDE) Framework

- Understand IBM's Smarter Communications vision

- Understand IBM's SPDE Framework, its software capabilities and IBM Communications Industry solutions

- Identify specific business concerns to establish a starting point

- Work together to identify how IBM software and the SPDE Framework can augment your solution and approach

- Identify a business initiative

- Conduct an Industry Business Value Assessment to prioritize initiatives and select a project

- Work on a proof of concept or production pilot

http://www-01.ibm.com/software/industry/telecommunications/

Today's Market Challenges…
Require New Actions and Solutions

ARPU* erosion increasing pressure on margins

Increased pressure on productivity

Manage mergers & acquisitions

Quickly rollout new service introductions

Ongoing need for revenue and margin growth

Complexity of new services
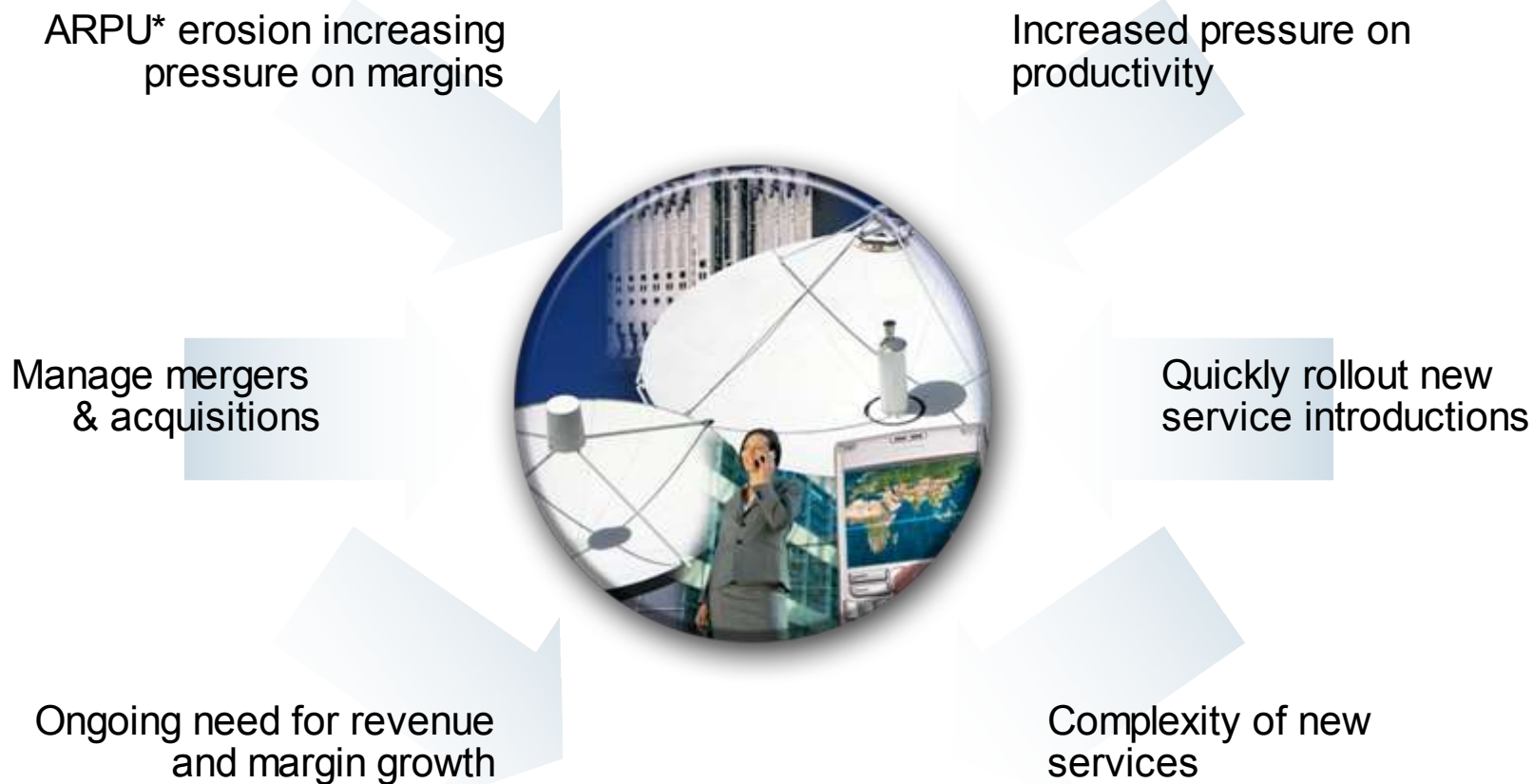
*Average Revenue Per User

The Challenges and Complexity of Convergence
Much Less Distinct, More Intertwined with Media and IT

Convergence within the Telecom Segment
- Move to all IP networks
- Voice + Video + Data
- Fixed + Mobile
- Lowered barriers to entry

Convergence across Sectors
- Telecom + Information Technology
- Telecom + Digital Media
- Telecom + Consumer Electronics
- Emerging Standards
- Convergent Suppliers

Consolidation
- Mergers and Acquisitions continue
- Regional and Global Brands
- VNO / MVNO / MNVE

Telecom

IP core networks

IPTV, wireless

Broadband, WAN

Access / bandwidth FMC

Consumer Electronics

Media

PCs, Smart-phones

PVR, games consoles

Faster, cheaper chip technology

Battery technology

Rich content

Digital Rights Mgt

Branding

Packaging

Broadcasting

IT Services

Applications

Middleware

Web services

Managed Services

Suppliers

Network IT
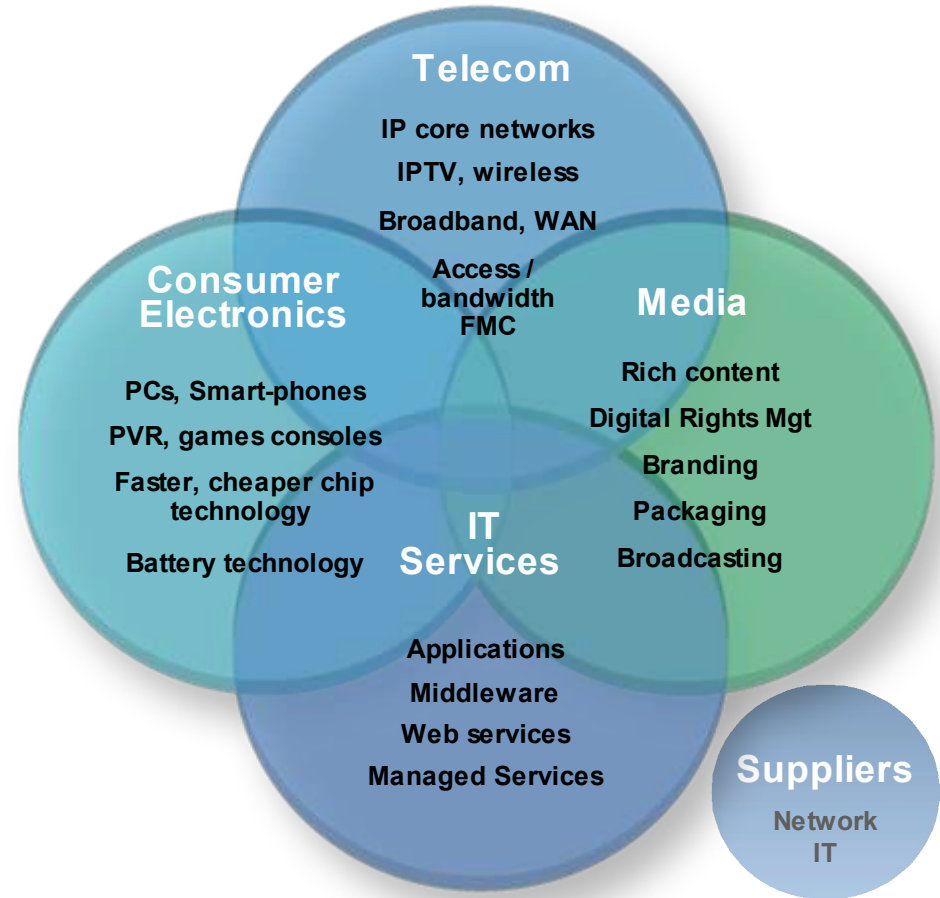
Start planning and implementing smarter telecommunications systems

The goals for smarter telecommunications are clear:

1. **Improve** what service providers do today by focusing on improving operational efficiency.

2. **Apply** the wealth of data and intelligence available today to focus on meeting customer needs.

3. **Adapt** to current and future changes by capitalizing on the opportunities for innovative new business models.

Business Models

Business Functions

Processes

Applications

Infrastructure

SMARTER TELECOM PROVIDERS
- Provide **connectivity, speed, and services** via **personalized** offerings
- That are **secure, reliable,** and **affordable**
- Delivered over intelligent systems and infrastructure
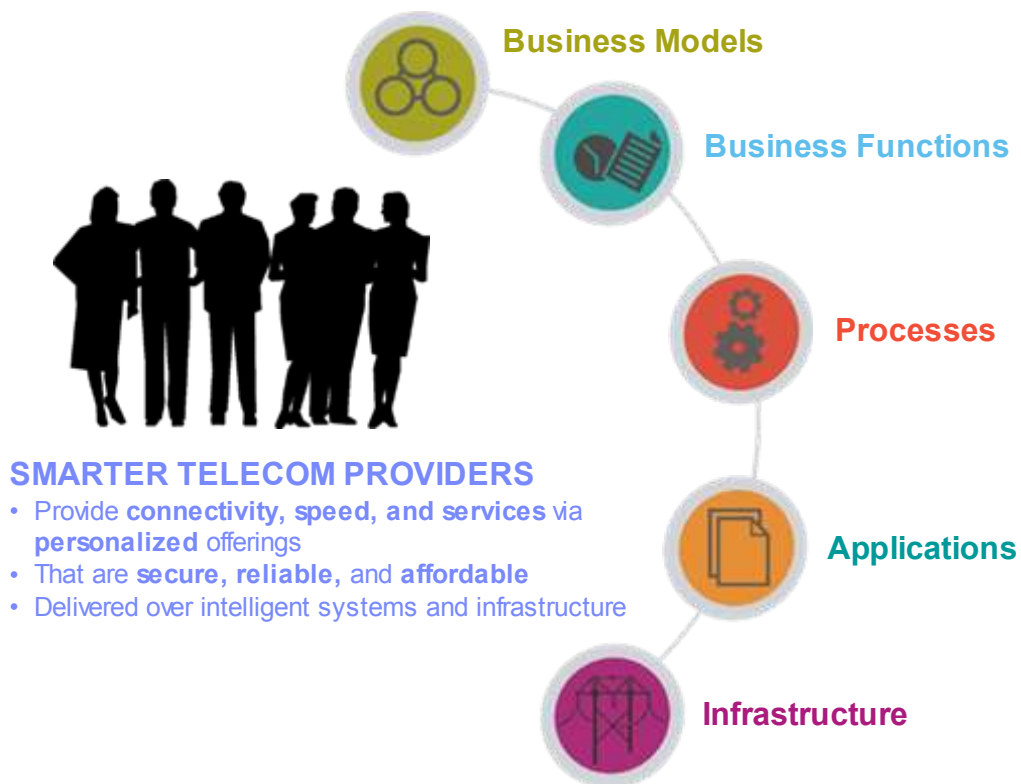
For communications providers in mature markets, this means leading in an environment shaped by four drivers and four inhibitors.

DRIVERS

OPERATIONAL PERFORMANCE
Cost reduction, operational efficiency, value enhancement, and monetization of existing assets.

GROWTH OPPORTUNITIES
Additional revenue streams from new services, expansion of outreach to underserved regions and emerging markets, and opportunities spurred by device connectivity and new technologies.

COMPETITION
The rise of worldwide competitors and "over-the-top" entrants is changing the way business is conducted, requiring rapid responses to market dynamics.

CUSTOMER RETENTION
Customer experience strategies including personalized, aware, simple-to-use, secure services.

INHIBITORS

FINANCIAL CONSTRAINTS
Access to capital is limited, revenue visibility is uncertain, and innovation and expansion must be funded through cash flow.

LEGACY INFRASTRUCTURE
Operation and maintenance of legacy infrastructure is resource-intensive, incurs a high opportunity cost, compromises integration with other systems and partners and inhibits adoption of innovative business models.

EXPLOSION IN DATA
The dramatic increase in volumes of data stored in separate repositories prevents personalized offerings and services and increases complexity for providers.

REGULATION
Compliance with regulations and consumer concern for security and privacy is expensive and can inhibit widespread adoption of new services.

For communications providers in growth markets, this means leading in an environment shaped by four drivers and four inhibitors

DRIVERS

GROWTH OPPORTUNITIES
Additional revenue streams from new services, expansion of outreach to underserved regions and emerging markets, and opportunities spurred by device connectivity and new technologies.

COMPETITION
The rise of worldwide and local competitors requiring rapid responses to market dynamics.

CUSTOMER RETENTION
Customer experience strategies, particularly for prepaid subscribers, including personalized, aware, simple-to-use, secure services.

OPERATIONAL PERFORMANCE
Cost reduction, operational efficiency, value enhancement and monetization of existing assets.

INHIBITORS

FINANCIAL CONSTRAINTS
Limited access to capital, especially foreign direct investment, could slow down expansion to underserved areas and rollout of new services.

LEAPFROGGING EFFECT
Lack of readily available technologies and resources could increase cost and time-to-market since many innovations are expected to happen in the growth markets.

COMPLEX PROCESSES
Complexity of business processes and infrastructure increases as service providers grow subscriber base and into multiple market segments.

REGULATION
Governmental organizations continue to have great influence in transitional economies and could potentially stifle growth.

IBM SPDE 3.0 – IBM Software

Service Provider Delivery Environment – Updated view, 2010

Eco-system
- WebSphere Telecom Web Services Server
- WebSphere Portal
- WebSphere Mobile Portal
- Lotus Mashups and Hub

BSS & OSS integration
- WebSphere Business Services Fabric
- Telecom Operations Content Pack
- WebSphere Process Server
- WebSphere Enterprise Service Bus
- WebSphere Modeler
- WebSphere Business Monitor

New services launch
- Idea Factory
- WebSphere Portal
- Lotus Mashups
- Lotus Connections

Service processes
- WebSphere Process Server
- WebSphere Enterprise Service Bus
- MediaHub

Context awareness
- WebSphere Business Events
- ILOG BRMS
- ILOG Optimization
- WebSphere Service Registry and Repository

BI
- Cognos

Analysis
- SPSS

Video or Application Store
- WebSphere Commerce

Web 2.0 development
- Lotus Mashups
- Telco Widgets
- WebSphere sMash

Service Runtime Platform
- WebSphere Application Server & IMS Connector
- WebSphere Presence Server
- WebSphere XDMS Server
- WebSphere Telecom Web Services Server
- TCAP Connector

Data Optimization
- InfoSphere MDM
- FileNet
- OmniFind
- Optim
- SolidDB

Service assurance
- Tivoli Netcool
- Maximo

Applications development
- Rational Unified Service Creation Environment
- Rational Software Architect
- Rational Application Developer
- SIP application tooling & testing

Security
- Tivoli Access Manager
- Tivoli Identity Manager
- DataPower

Diagram labels: Developers, Customer Providers, Enterprises, Device Vendors, Service Exposure, Rich media, Partner portal, eTOM SID TAM, Services Choreographies, Service Execution Domain, Service Applications, Content & Media, Web 2.0, Converged Services, Services Registry, Presence and Location, Commerce, Billing, Assurance, Marketing, Ideation and collaboration, Customer Insight Analytics, Campaign Management, Portfolio Management, Development, Concept and design, Development and assembly, Test, Deployment, Information and Optimization, Business Intelligence, Analytics, Information Infrastructure, Personalized Content, Multi-channel Adaptation, Self-care Access, Customer Experience Management, Network Access Domain, Network Abstraction Layer, Network Support Interfaces, Network Domain, Device Domain, Consumer, Professional User, Service Oriented Architecture, Security, Virtualized Dynamic Infrastructure

IBM Centers of Excellence

India Software Lab (ISL) Global Telecom Solutions Center

Client-driven development of telecom industry assets

- Established 2005 as a cross-IBM team of Telecom solution architects for worldwide customers

- Offering a diverse array of Telecom Service Provider solutions
  - Service Delivery Platform
  - Service Creation Environment
  - Digital Convergence
  - Web 2.0 Initiatives

- ISL and India Research Lab (IRL) Telecom teams initiated collaborative projects in 2008

IBM Centers of Excellence

China Research Lab (CRL) Global Telecom Solutions Center

Focus on Infrastructure for Enterprise Mobile & Mobile Web Applications

- 50+ researchers under solutions/software/system/services strategy areas

- 2 business development specialists with working experience in TSP, TEM

- 6 years research investment on Telco industry

- 10+ customer projects (FOAK/ODIS) in past two years

- Joint research labs with operators, TEM, ISV and academia

Haifa Research Lab (HRL) Global Telecom Solutions Center

Innovations that Make a Difference for Service Providers

- Case-in-point: TABI (Timely Analytics for Business Intelligence)

- A leading-edge innovation from HRL focused on improving customer experience and management

- A strong analytic engine integral to this innovation helps in:
    - Early predictions of customer churns
    - Effective marketing campaign management
    - Abnormal activity detection
    - Next Best Activity enables accurate promotional offers to customers based on prior purchases

- Currently, performing in-market tests with a marquee client in South Africa