IBM Software Strategy for Communications Service Providers

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IBM Software Group

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We spoke to 1,130 CEOs and conducted in-depth analyses to identify the characteristics of the Enterprise of the Future

**How are organizations addressing . . .**
- *New and changing customers* – changes at the end of the value chain
- *Global integration* – changes within the value chain
- *Business model innovation* – their response to these changes

**Findings:** CEOs Respoended

- Expecting significant change (increased by 33%)
- Ability to manage change has not kept pace – 39% feel unprepared
- Investing heavily in prosperous, informed and collaborative customers
- Moving aggressively toward global business designs, deeply changing capabilities, partnering more extensively and M&A
- Corporate social responsibility becoming an opportunity to differentiate

**Analysis: Five core traits of the Enterprise of the Future**

- Hungry for change
- Innovative beyond customer imagination
- Globally integrated
- Disruptive by nature
- Genuine, not just generous
Communications CEOs Anticipate More Change Ahead
And are Changing Their Business Models

Hungry for Change

Globally Integrated

Disruptive by Nature

Genuine, Not Just Generous

Innovative Beyond Customer Imagination

Source: Global CEO Study 2008, IBM Institute for Business Value
Convergence and consolidation are blurring industry boundaries, lowering barriers to entry, and expanding the definition of “Service Provider”

**Convergence within Telecom**
- Move to all IP networks
- Voice + Video + Data
- Fixed + Mobile

**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
- Virtual Operators
The overlap of media content over the internet as well as traditional networks requires that Service Providers offer new service combinations more frequently and at lower cost.

- Bring more services to market more quickly
- Generate new revenue faster through new partners and business models
- Reduce costs by integrating services with business processes
Market Forces are Driving the Communications Industry To Seek New Approaches and Business Models

**Economic Issues**
- Core product (Voice) is being commoditized
- Cost / complexity of new services

**Widening Field of Competitors**
- New market entrants from other industries
- Convergence Is spawning “Telemedia” Industry

**Defend Market Share and Grow New Revenues**
- Quickly / cost effectively roll out new products
- Move to lower-cost IP networks while maintaining service quality, brand image and profitability

**Subscriber Expectations**
- Demand for multimedia, services and content
- Quick to abandon underperforming services
“The reality is that there probably is no killer application, no silver bullet that the Telco's can latch onto to carry them into a 21st Century... Instead, there are probably hundreds - perhaps thousands - of niche applications... And the only way to find which of these work for you is to **try out lots** of them, ramp up the ones that work, and discontinue the ones that fail.”

**Martin Creaner**  
President & CTO  
TM Forum
Communication Companies Must Innovate and Be Agile

*To Win in the Market*

- Improve time to market **AND** quality of value added services
- Lower operating costs **AND** drive profitability
- Deliver converged voice, video **AND** data services
- Increase retention **AND** drive new revenue
- Monitor **AND** manage services and user experience quality
- Integrate services **AND** connect with backend support systems
- Leverage existing network infrastructure

Communication Companies Must Innovate and Be Agile

*To Win in the Market*
New Capabilities Are Required in Order to Succeed
And Meet Their Strategic Objectives

Customer/Partner Management
Gain customer insight to deliver targeted/relevant offerings

Service Innovation
Online communities foster innovation for new services

Service Creation
Bringing value added services to market more quickly

Service Execution
Deliver innovative services with greater speed and quality

Service Integration
Integrate new services with fulfillment, assurance, billing and care systems (BSS/OSS)

Service Management
Improve quality and increase customer satisfaction
Aligning Business and IT Objectives
*Is Critical To Success*

**How do I…**

…*speed* the creation of *new services* to meet business objectives?

…*get the flexibility* to re-use existing resources and IT systems while enabling new process capabilities?

…*ensure I have a choice of emerging technologies and commitment to IT standards* that best support our strategy and deliver a quick ROI?
The IBM Solution Strategy

Clearly Links Business and IT to Enable New Capabilities

Provide **solution offerings** based on industry assets, partners and best practices supporting new business models, the transformation of business operations and the acceleration of the end-to-end service lifecycle.

Provide a standards-based industry **framework** that creates flexibility, enables integration and provides a unified platform.
IBM’s CSP Software Strategy and Framework are Based on Core Principals

- Horizontal Integration across business domains and functions (SDP – OSS - BSS)
- Foundation based on IT (SOA, Web 2.0, ITIL, etc.) and Communications Industry (eTOM, SID, NGOSS, IMS, SIP, etc.) standards
- Provides a common, consistent and network agnostic service platform
- Supports multiple service execution environments
- Network Abstraction and Exposure through standards-based network API’s & web services
- Supported by loosely coupled SW components with telco extensions to leading SW products
- Adaptable and scaleable to handle industry evolution and convergence
- Supports an end-to-end view (the big picture)
## Service Provider Delivery Environment (SPDE) Framework

### Solution Offerings

- **Telco Solution**
  - Service Creation & Innovation
  - Partner Integration
  - Content Services Management
  - Service Delivery and Portals

- **SPDE Framework**
  - Industry Extensions
  - Idea Factory
  - Telecom 2.0 Widgets
  - NGOSS Contracts
  - Web Service Interfaces
  - Triple Play Provisioning

### IBM Assets

- Unified Service Creation
- Telecom Web 2.0 / Mashups
- MediaHub
- Service & Network Assurance
- Telco Data Warehouse

### Key Components from SOA Foundation

- **Information Mgmt.**
  - InfoSphere Information Server
  - InfoSphere MDM Server
  - IBM FileNet
  - IBM Cognos
  - IBM Optim
  - Informix
  - DB2

- **WebSphere**
  - Application Server
  - WID
  - Business Modeler
  - Business Fabric
  - Business Monitor
  - Process Server
  - DataPower

- **Rational**
  - RequisitePro
  - System Architect
  - Software Architect
  - Performance Tester
  - TUP
  - Asset Manager

- **Tivoli**
  - Access Manager
  - Identity Manager
  - Netcool
  - Voltar
  - Maximo
  - ITCAM

- **Lotus**
  - Portal
  - WEMP
  - Connections
  - Mashup Maker
  - Expeditor

### Infrastructure

- IBM servers, IBM storage, IBM BladeCenter family, IBM iDataPlex
- Carrier Grade
- I/O Density
- Open Standards
- Flexible Storage
- Telco

### Industry Framework

- Target ISV Ecosystem
  - Alcatel-Lucent
  - Huawei
  - Amdocs
  - Nortel Networks
  - Iperia
  - Comverse

### Telco Solution

- Unified service creation environment for CSP
- SIP model, coding & testing
- TM Forum NGOSS, eTOM, SID, TAM

- **Service Execution**
  - WAS SIP App Server
  - IMS Connector
  - Presence Server
  - XDMS Server
  - Telecom Web Services Server
  - WESB Media Extensions

- **Service Integration**
  - WBSF and Telecom Operations Content Pack
  - eTOM Process Models
  - Netcool / Vallent
  - Maximo

- **SPDE Framework**
  - Key Components from SOA Foundation
  - IBM Assets
  - Telco Solution
Driving the Continuous Evolution of the IBM SPDE Framework

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

IP Multimedia Subsystems

From an initial 6 to more than 2000 partner ISVs

End to End Application Platform
- IBM launches BladeCenter HT
- EMEA Operator SDP Gateway
- IBM Announces IMS Middleware Suite
- IBM wins SDP at Bharti

Continuous Innovation
- IBM announces SPDE (at 3GSM)
- IBM launches SDP at Far EasTone
- IBM opens Telecom Solutions Labs
- IBM launches BladeCenter T
- IBM launches SDP at AT&T

Acquired:
- Ascential
- Trigo
- DWL DataPower
- Vallent
- Princeton Softech
- DataMirror
- SolidDB
- Cognos
- iLog
- IBM Telecom Operations Pack for WebSphere Fabric
- IBM Telecom Operations Pack for WebSphere

Platform Development
- Carrier Grade Open Framework
- IBM SDP at Far EasTone
- IBM announces SPDE (at 3GSM)
- IBM launches Telecom Industry Partner
- Network IBM develops SPDE Framework
- IBM opens Network Innovation Lab

Start of an Industry focus in Telecom

IBM Service Provider Delivery Environment 3.0

Service Oriented Architecture

3rd Party Domain

Service Execution Domain

Support Systems Domain

3rd Party Access

Process Choreographies

Service Runtime Support

Core BSS & OSS Functions

Information Management

Core Runtime Functions

Content & Media

Web 2.0

Convergent Services

Service Applications

User Interaction

Portal & Presentation

Personalization

Network Abstraction Layer

Network Access

Device Domain

User interaction

Device Support

Business Intelligence

Security
IBM Service Provider Delivery Environment 3.0: Detailed

Service Oriented Architecture

<table>
<thead>
<tr>
<th>3rd Party Domain</th>
<th>Service Creation Domain</th>
<th>Service Execution Domain</th>
<th>Support Systems Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developers</td>
<td>Service Providers</td>
<td>Content Providers</td>
<td>Enterprises</td>
</tr>
<tr>
<td>Enterprises</td>
<td>Application Providers</td>
<td>Developers</td>
<td></td>
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</tbody>
</table>

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Process Choreographies

Core Runtime Functions

- Content & Media
- Web 2.0
- Convergent Services

Service Applications

- Context & Media
- Presence & Location
- Advertising
- Commerce

Service Runtime Support

- Charging
- Subscription & Activation
- Systems Management
- Runtime Device Management

Core BSS & OSS Functions

- Billing
- Assurance
- Fulfillment
- Care

Information Management

- Analytics
- Customer Profiling
- Master Data

Network Abstraction Layer

- Network Delivery Domain
  - User interaction
  - Server Access
  - Client-centric Applications

- Device Domain
  - Device Management
  - Device Support

Network Access

- Scalable Real-time Data

Business Intelligence

Security
Multiple capabilities/on-ramps target specific benefits

*Improve time-to-market, offer new services and reduce costs*

**Service Innovation**
- **Service Innovation:** Ideation and rapid refinement of new services

**Service Creation**
- **Service Design/Creation:** Rapid creation of revenue generating services

**Service Execution**
- **Service Exposure:** Reliable, controlled third party’s access to core network resources
- **Service Execution:** Assemble and deliver value added services quickly
- **Security Services:** Prevent and respond to security threats
- **Media Integration:** Adapting content for the chosen medium

**Service Integration**
- **BSS/OSS Integration:** Minimize the time from service creation until billing can begin

**Service Management**
- **Service Assurance:** Provide end-to-end service quality to ensure customer satisfaction

**Customer/Partner Experience Management**
- **Information Management & Integration:** Unlock the business value of information for competitive advantage
- **Business Intelligence:** Gain insight from enterprise data to enable informed decision making
IBM SW Capabilities and SPDE 3.0

Service Oriented Architecture

3rd Party Domain
- Service Creation

Service Creation Domain
- Developer Access
- Ideation and Collaboration
- Concept and Design
- Service Innovation
- Development and Assembly
- Test
- Deployment

Service Execution Domain
- 3rd Party Access
- Partner Portal
- Enablers Exposure
- Rich Media Content
- Service Execution
- Context & Media
- Content & Media
- Web 2.0
- Convergent Services

Support Systems Domain
- Contract
- Revenue Sharing
- SLA

Support Systems Domain
- Service Assurance
- Billing
- Fulfillment
- Care

Process Choreographies
- Service Runtime Support
- Charging
- Subscription & Activation
- Systems Management
- Runtime Device Management

Information Management
- Analytics
- Customer Profiling
- Master Data

Network Delivery Domain
- Scalable Real-time Data

Device Domain
- User interaction
- Server Access
- Client-centric Applications
- Device Management
- Device Support

Network Access
- Information Management & Integration

Smart SOA

Security Services

Business Intelligence

Security

3rd Party Domain
- Service Providers
- Content Providers
- Application Providers
- Developers
- Enterprises

NGOSS Contracts

BSS/OSS Integration

Media Integration

Process Choreographies
- Core Runtime Functions
- Content & Media
- Presence & Location
- Personalization
- Context awareness

Network Abstraction Layer
- Process Choreographies
- Network Access

Service Innovation
IBM SPDE SW Capabilities & Sample Engagements

Service Oriented Architecture

3rd Party Domain
- Service Creation
  - Ex. Bell Alliant, CHT

Service Creation Domain
- Developer Access
- 3rd Party Access
- Partner Portal
- Content Providers
- Service Exposure
  - Ex. CHT, Swisscom, Vodafone, Sprint
- Application Providers
- Enablers Exposure
- Service Creation
  - Concept & Design
  - Service Creation
    - Ex. Bell Alliant, CHT
  - Service Execution
    - Ex. AT&T, Bharti
  - Media Integration
    - Ex., TMF Catalyst, Bharti

Process Choreographies
- Core Runtime Functions
  - Content & Media
  - Web 2.0
  - Convergent Services

User Interaction
- Portal & Presentation
- Self-Care access
- Service access

Service Application
- Context awareness
- Profiling

Service Execution
- Service Execution
  - Ex. AT&T, Bharti

Support Systems Domain
- Contract
- Revenue Sharing
- SLA

Support Systems Domain
- BSS/OSS Integration
  - Ex. T-Systems, Telstra, AT&T Lightspeed

Service Innovation
- Ex. China Mobile, Sprint

Information Management
- Billing
- Assurance
- Fulfillment
- Care
- Analytics
- Customer Profiling
- Master Data

Business Intelligence
- Ex. CSL, Korea Telecom

Device Support
- Device Management

Network Delivery Domain
- Scalable Real-time Data

Device Domain
- User interaction
- Server Access
- Client-centric Applications

Network Abstraction Layer
- Network Delivery Domain
- Network Access

Deployment
- 3rd Party Access
- 3rd Party Access

Test
- Test

Ideation and Collaboration
- Ideation and Collaboration
- Concept and Design

Security
- Security Services
  - Ex. Orange
IBM Software Capabilities for Communications Service Providers
Service Innovation

**Improve service innovation and time-to-market**

- Support trials of new services with social computing tools for subscriber feedback
- Reduce the time and cost to bring innovative new services to market
- Deliver compelling new services to compete with various emerging, alternative service providers
- Improve the chance of market success with offerings based on a co-creation approach

**Fosters closer relationship with subscribers**

- Templates provide consistent site structure and eliminates coding
- No technical skills required
- Leverages IBM’s broad range of initiatives with Web 2.0

**Improve service innovation and time-to-market**

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IBM Idea Factory Drives Open Collaboration

- Forms-based portal creation
- Service-oriented architecture
- Web 2.0 collaboration, including blogs, wikis
- User profiles
- Social tagging
- Feeds
- Surveys

- Information discovery
- Access control/security
- Services catalogs
- Idea management
  - Versioning and history
  - Commenting
  - Rating
- Trial management
Service Creation

Rapid creation of revenue generating services

Manage Evolving Requirements

Accelerate Change and Delivery

Drive Robust Architecture

Collaborative Application Lifecycle Management Platform

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

Global Rational team of 500+ support professionals dedicated to client success, more than 10 languages supported 24/7

Rational Services is a worldwide team with access to more than 1,000 technical specialists with deep skills and broad experience in software development processes, methods and tools

Industry solutions for building IP-based converged communications applications

Industry solutions for customizing and integrating OSS/BSS software
IBM Rational Unified Service Creation Environment

The process and infrastructure to transform

Service Concept & Definition
- Rational RequisitePro
- WebSphere Business Modeler
- Rational Portfolio Manager
  - eTOM / SID support

Service Design
- Rational Software Architect
- Rational Data Architect
  - NGOSS/SID, IMS and SIP modeling

Service Development
- Rational Application Developer
- WebSphere Integration Developer
  - IMS, SIP, Parlay X, Parlay, Voice XML, JAIN, J2x, .Net, other tooling

Service Testing
- Rational Performance Tester
- Rational Functional Tester
- Rational ClearQuest
  - SIP application testing

Service Deployment
- Rational Build Forge
- Tivoli Composite Application Manager
- Tivoli Netcool / Vallent
  - IMS and legacy service management

Product Delivery Lifecycle Management

Rational Method Composer with Rational Unified Process for IMS, Rational ClearCase and ClearQuest, Rational Portfolio Manager, Rational Asset Manager

Customer Extensions

Open technology & community innovation (e.g. Eclipse)

3rd-Party Tools

25
Service Creation – Improving the Performance of Product Delivery

IBM teams and cross-industry customers utilizing a combination of best practices process, integrated tools, and expert implementation services report compelling product delivery performance improvement (PDPI) results:

<table>
<thead>
<tr>
<th>Strategic Initiative</th>
<th>Software Development Discipline</th>
<th>Customers</th>
<th>Solution Value</th>
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<tbody>
<tr>
<td>Time to market</td>
<td>Change and Release Management</td>
<td></td>
<td>25% faster delivery cycles</td>
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<tr>
<td></td>
<td>Process and Automated Software Quality</td>
<td></td>
<td>80% reduction in bugs</td>
</tr>
<tr>
<td></td>
<td>Process, Requirements &amp; Change Management</td>
<td></td>
<td>33% reduction in delivery costs</td>
</tr>
<tr>
<td>Reduce IT Costs</td>
<td>Process &amp; Portfolio Management</td>
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<td></td>
</tr>
<tr>
<td>Optimize BSS Development</td>
<td>Governance and Risk Management</td>
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<tr>
<td>Compliance</td>
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</table>

- Improved time to market by 50 percent
- Achieved estimated savings of US$2 million per year
- Increased customer satisfaction levels, enabling the company to win a key contract extension
- Decrease development cost and time-to-market. Provide enhanced risk management for 3rd party development
- Reduced time and effort to submit, track and make changes to customer service applications by 60 percent
- Development increased by 25%, able to meet government regulations within 15 days
Service Exposure

*Meet increasing subscriber demand for richer, innovative communications services*

- Secure, industry-standard Web service exposure of telecom network capabilities
- Extensible design facilitates rapid development of new services for 3rd party exposure
- Enables highly personalized services through policy-driven execution and service level agreements
- Enhance services and revenue opportunities by providing third-party access to telecom network capabilities
- Tap into the creativity and innovation of third party developers and Web 2.0 clients
- Rapidly respond to new market opportunities
- Extend market reach with finer grain targeting of service offerings
Enabling Telco 2.0 service exposure within Idea Factory

Idea Factory providing:
- Collaboration
- Trial Support
- Trial Feedback
- Documentation
- Capture Requirements

Idea Factory providing:
- Mashup Hub: Widget catalog and feed generator
- Mashup Maker
- Widget catalog and feed generator
- Content Provider
- Internet Widgets
- Telecom Widgets
- Telecom Web Services
- Service Delivery Platform
Market Leader Success Story: Service Exposure

Chunghwa Telecom

**Business Challenge**

Chunghwa needed to:
- 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 is sponsoring 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
Vodafone’s BuddyComm
IBM collaborated with Vodafone to develop a Social Networking Application

**Functionality:**
An intuitive web application which provides the user with a converged communications services experience

- Maintain an aggregated Buddy and Contact List, including presence
- Make calls: fixed, mobile, VoIP
- Send messages: IM, SMS, MMS
- Enhance, accelerate and aggregate activities with your existing social networks
# Market Leader Success Story: Service Exposure

**Large European Telecommunications Company**

## Business Challenge

This company needed to:
- Find new ways to differentiate themselves from the competition
- Grow subscriber base
- Build barriers to new entrants
- Take advantage of the “Long Tail” effect

## Solution

- Enables secure, controlled access to network information and exposes network services as web services and re-mixable widgets
- Provides third-parties with a single, common entry point for access to network services
- Based upon WebSphere Telecom Web Services Server

## Benefits

- Reduces the cost and ‘Time-to Market’ for new revenue generating services
- Ability to capitalize on innovative third party services and Web 2.0 business model
- Creates barriers to new communication service provider entrants
- Enables consistent Quality of Service
- Provides security for the Network Elements/Services
Market Leader Success Story: Service Exposure

**Sprint**

**Business Challenge**

Sprint needed to:

- Generate customer loyalty through new differentiated network services
- Cost effectively create new applications
- Drive new data-driven revenue

**Solution**

- By working with IBM, Sprint has enabled its Business Mobility Framework which exposes network capabilities to 3rd person application providers and customers.
- With this solution, Sprint delivers realtime services to approximately 40 million subscribers while securing their network

**Benefits**

- Delivers messaging, presence and location network services to developers who building enterprise applications
- Leverage eco-system of partners to create new applications
- Integrates into existing security, customer data, privacy and billing systems
- Leverages open standards to speed development and availability of new applications
IBM WebSphere Portal Mobile enables Mobile Service and Content Delivery to hundreds of different devices

*Bharti Airtel*
Service Execution

Deliver innovative services with greater speed and quality

Utilize a high-performance execution environment for converged services

Ensure reliability with an industry proven highly available, carrier-grade service execution platform

Extend functionality like presence and group list management across multiple services

Flexible, controlled access to network capabilities through standards based Web Services

Enable a broad range of ISVs to build new converged HTTP and SIP applications

Create and deploy new revenue enhancing services quickly with pre-built, standard interfaces

Provides SIP based IMS Service Control Interface with the Call/Session Control Function in the IMS Control Plane

IBM's Web 2.0, SOA and IP technology leadership provide the capabilities needed to deliver innovative services with greater speed and quality in a much more open and flexible environment
IBM WebSphere Software Delivers a High Performance Service Execution Platform

**J2EE-based, IMS-Compliant Converged SIP/HTTP Application Platform**

- Improved speed to market and administration with a common, open standards-based runtime platform
- Reliable execution with proven WebSphere Application Server and IBM SIP technology
- Out-of-the box IMS interfaces and technologies to speed IMS service implementation
- Ease of deployment with tightly matched, integrated toolset and broad support of modular service enablers and applications
IBM WebSphere Application Server
Optimized for Service Provider Requirements

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

Applications & Enablers (ISVs and/or home grown)
- Presence Server
- XML Data Manager
- TWSS

Converged HTTP/SIP Container

Enablers
- Presence Server
- XML Data Manager
- TWSS

Carrier Grade
- SIP/HTTP Performance Management
- Sophisticated SIP Overload Control and Policy mgmt
- Synchronous Data replication
- Enhanced High Availability
- Enhanced SIP App performance
- Faster Failover speed

Converged HTTP/SIP Proxy

IMS Connector

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
IMS Extensions to Enable Interface with IMS Control Plane Elements

*WebSphere IMS Connector*

**IMS Enablers & Applications**

- Delivers pre-built interfaces for connection to IMS core elements
- Provides IMS Service Control (ISC) reference point support enabling interaction with the Call/Session Control Function (CSCF) in the IMS Control Plane
- Provides Diameter stack interface support for communication with IMS based subscriber management and billing systems
  - Sh reference point support for HSS (Home Subscriber Server) based Subscriber Profile management
  - Rf reference point support of off-line charging for post-paid billing models
  - Ro reference point support of on-line charging (V6.2): Diameter Credit Control Application: pre-paid applications
  - Web Services access for Diameter interactions reduces the programming model complexity

**WebSphere Application Server**

- Converged HTTP/SIP Container

**WebSphere IP Multimedia Subsystem Connector**

- IMS Extensions (ISC, P-Headers, etc)
- Web Service APIs
- ISC
- Diameter
- CSCF
- Charging Function
- HSS
WebSphere Presence Server Enhances Collaboration Services across Devices and Applications

- An aggregated presence platform:
  - Enables the extension of applications and services to include collaboration information about how to best reach people
  - Increases the intelligence and capabilities of applications
  - Consolidates presence information across disparate devices, applications, and network elements

- The IBM WebSphere Presence Server:
  - Is a standalone, carrier grade IMS-compliant server
  - Builds on IBM’s extensive experience with presence
  - Integrates with the Service Provider environment by interoperating with elements including CSCFs, group list management, and charging interfaces
  - Extensible to various entities beyond just people, such as conferencing equipment, RFIDs, documents, or network elements

Easing the delivery of presence information to a wide range of entities and composite services and applications.
WebSphere XDMS Enables Network-stored Information Easily Accessed by Other Applications

- **Any XML Document**
  - Stores XML documents.
  - Examples: Group lists, User profiles, Contact Information, Authorization rules, Policy data

- **Easy, standards-based access to documents**
  - Provides an easy HTTP interface for document retrieval and management according via XCAP (XML Configuration Access Protocol). This is easier for applications to implement than database or LDAP connections.
  - Subscriptions and notifications of document changes enabled through SIP.

- **Preconfigured XML schemas based on standards**
  - Group Lists and Presence Authorization rules are enabled by default.
  - Other document types can be added.

- **Control information privacy with flexibility**
  - Enables permissions to be assigned to users or administrators at any level, whether specific to a single document or more broadly across document sets
  - Allows for detailed customization on the type of access allowed for individual users or administrators.

Easing the delivery of network stored information to a wide range of entities and composite services and applications.
IBM WebSphere Application Platform for Service Delivery

WebSphere Application Server
- WebSphere Presence Server
- WebSphere XML Data Mgmt Server
- IMS/SIP Applications
- WebSphere Telecom Web Services Server
- Access Gateway
- Service Implementations

WebSphere Telecom Web Services Server
- Parlay Gateway
- SMSC/MMSC
- Location

Applications

Web Service Interfaces

VoIP Networks
- SIP/ISC
- SIP/HTTP
- SIP/CSCF

NGN/IMS Networks
- HSS
- Charging Function
- DB

Current Networks
- Usage Records
- Location, Messaging
- Messaging
- Terminal Location
- Parlay
- SMPP/MM7
- MLP

Converged HTTP/SIP Proxy
- Converged HTTP/SIP Container
- Presence Notification 3rd party call
- Terminal Location
- 3rd party call
- Location Notification
- SIP/ISC
- Diameter/Sh
- Diameter/Ro, Rf

Service Implementations
- Parlay
- SMPP/MM7
- MLP
Federated Identity is a key component of the Service Delivery Platform.

Prevent and respond to security threats

Supports federating Web Services between companies and application platforms.

Enable secure Portal integration with Data & applications using Web Services.

- Test-to-production transition tools to ease deployment
- Route, transform, and help secure multiple applications without code changes
IBM SOA Appliances Centralize and Simplify Key SDP Security Functions for North American CSP

- IBM DataPower Appliance used as the front end of a Web Services Gateway for Service Exposure
  - Location, Multimedia Messaging and other services
- Provides AAA functions – Authentication, Authorization and Audit
- Content-based routing, utilizing digital signatures & encryption features in addition to validating schemas & protecting against malicious attacks
- Clustered carrier grade deployments in the wireless network supporting high availability
Integrated Mobile Identity Management Portal using Tivoli Federated Identity Management

“Single Identity” for Federated Service Access

Tivoli Federated Identity Manager

Mobile Platform Services Portal

Tivoli Access Manager SSO

Liberty, WS-Federation or SAML

Identity Federation with 3rd Party Web Sites

3rd Party Services

3rd Party Services

Business Units

Business Units

Business Units
Media Integration

Integrate content delivery into existing application portfolios

Allow subscribers to share and download user generated content over multiple channels - Mobile, Broadband DSL and IPTV

Generate customer loyalty and stickiness through value added service

Bundle service with other Telecom based services and service enablers – Presence, Location

Presence and Location information can be used to provide targeted context aware advertisements

“Media-enabled” SOA, is content aware, meta-data aware, and media transaction aware

Media objects can be integrated with business processes, and the appropriate media processes can be invoked dynamically based on the actual media content and business model needs

Media Extensions for IBM WebSphere Enterprise Service Bus and the Media Hub Workflow Builder
IBM WebSphere Enterprise Services Bus extended to provide unique digital media functionality for SOA

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
BSS/OSS Integration
Exploiting SOA to enable business flexibility and reusable services

**Integrate new services with fulfillment, assurance, billing and care systems**

- Minimize the time from service creation until billing can begin
- Facilitate communication and workflows between internal organizations, suppliers & customers
- Improve customer satisfaction with improved order management
- Leverage open standards to gain efficiencies, ease integration & drive value from existing investments

**Pre-built Business Services templates for billing, fulfillment, and assurance**

**Optimized for use across the communications industry**

**Based on telecom NGOSS, identified & organized around TAM**

**Extensible and configurable to support unique client needs**
NGOSS based SOA for OSS/BSS Integration
Improve business process flexibility and time to market

NGOSS based
Enterprise Architecture

NGOSS based
Solution Architecture

Web service definition to enable “plug and play” integration across BSS/OSS applications/systems and with new service applications

BPEL used for SOA-based service integration including connection of BSS/OSS functions with new service applications

Asset management
WSRR
RAM

Quality Assurance
Testing
SOA, Web, Siebel, SAP, Oracle, zOS

Security & Compliance

NGOSS based SOA Governance and Lifecycle Management:
RUP (SOA, BDD), ClearQuest, ClearCase
Manage project portfolio: Focal Point / RMC

Web Services
Custom interfaces

WID
WPS

WBSF + Telco Content Pack

ReqPro, RQM, Requirements Composer

Telelogic
System Architect
Jumpstart delivery of standards-driven, Communications SOA solutions

*IBM Telecom Operations Content Pack for the WebSphere Business Services Fabric*

Telecom Operations Composite Business Applications

Available from IBM GBS / Business Partners or customer-specific implementations

Applicable across Telecom OSS/BSS processes

Focused Business Areas
Fulfillment, Assurance, Billing, Customer Interaction, Inventory, Catalog

Telecom Operations Content Pack

- Reusable, pre-built assets
- Telecom standards based
- Governing architecture
- Extensible to client needs

Content Pack assets are pre-certified on IBM SOA platforms and methodology
Pre-built Assets in Telecom Operations Content Pack

- **Telecom Operations Capability-Process Maps**
  - [eTOM]

- **Telecom Operations Business Services Templates**
  - [TAM, eTOM, Best Practices]

- **Telecom Operations Service Interfaces**
  - [NGOSS SID, Best Practices]

- **Telecom Operations Common Services**
  - [NGOSS SID, OSS/J, MTOSI]

- **Telecom Operations Business Object Model**
  - [NGOSS SID]

- **Telecom Operations Business Glossary**
  - [NGOSS SID]

Knowledge Assets
IBM Helped European Mobile Provider Identify Opportunity to Build and Exploit 7 Reusable Composite Business Services

**Composite Business Applications**
- Customer Information Management
- Customer Billing Management
- Order Management
- Service Inventory Mgt
- Resource Inventory Mgt
- Service Quality Monitoring & Impact Analysis
- Supplier Partner Fulfilment

**Business Services**
- Customer Info Mgt
  - Adjust Bill
  - Inquire on Bill
  - Maintain Customer Info
  - Maintain Product Inventory
  - Manage Contact Person
- Customer Billing Mgt
  - Manage Billing Account
  - Adjust Bill
  - Inquire on Bill
  - Maintain Customer Info
- Order Management
  - Process Customer Order
  - Maintain Resource Inventory
  - Test Service
  - Maintain Service Inventory
- SVC Quality & Monitor
  - Maintain Resource Inventory
  - Test Service
- Resource Info Mgt
  - Maintain Resource Inventory
- Supplier Ptnr Fulfilment
  - Process S/P Order
  - Process Customer Order

**Service Interfaces**
- Assumed quantities
  - Easy: 10
  - Medium: 24
  - Complex: 19
  - Total: 53

**Examples:**
- Find Customer
- Create Customer
- Query Service Order
- Activate Billing Account
- Modify Services
- Reserve Resource
- Submit Customer Order
- Amend Service Order

* = Second Reuse of Service, ** = Third Reuse of Service
Significant Benefits Projected from Mobile Service Provider’s Business Value Assessment

Accelerate Time to Value For Initial Build by 64%

Reduced 5 year IT Total Cost of Ownership by 19%

Build Days Effort

Days

1. Customer Information Mgt
2. Customer Billing Mgt
3. Order Mgt
4. Service Inventory Mgt
5. Resource Inventory Mgt
6. Service Quality Monitoring & Impact Analysis
7. Supplier Partner Fulfillment

5 Year TCO

Fabric + Pack
Fabric
Generic

ESB Maintenance
Business Model Change
Implementation
Start up costs
Hardware
SW Maintenance
SW Licence

19%, €0.8m
Market Leader Success Story: BSS/OSS Integration

*MobiFon S.A.*

<table>
<thead>
<tr>
<th>Business Challenge</th>
<th>Solution</th>
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</thead>
<tbody>
<tr>
<td>MobiFon S.A. needed to:</td>
<td>Engaged IBM Global Technology Services to help design, deploy and manage an integration solution for its large application environment</td>
</tr>
<tr>
<td>▪ Improve the company’s market standing by enhancing its ability to deliver new services</td>
<td>▪ Obtained process integration for critical business applications and information exchange among disparate systems using IBM WebSphere Business Integration Server and WebSphere Business Integration Adapter Software</td>
</tr>
<tr>
<td>▪ Deploy a flexible IT infrastructure to speed rollouts of new, highly available applications and services</td>
<td></td>
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</tbody>
</table>

**Benefits**

- Improved the company’s competitive position in the domestic marketplace
- Cut provisioning time for new customer services from a couple of days to only a few minutes
- Maintains 99.5 percent uptime for over 50 of its business application services
T-Systems - Alignment of Process and IT Architecture
IBM telecom SOA assets & software accelerated IP-Revolution by enabling shareable, reusable SOA services packaging business functionality

**Business process model**

**Architectural domain model with architecture building blocks**

**ESB / Orchestration**

**Service Access Point Outer edge of IT Applications**

**SBB (IT Applications)**

**SOA Services**

**Mapping ABB to SBB**

**ABB: Architecture Building Block; SBB: Solution Building Block; ESB: Enterprise Service Bus; E2E:**
Service Assurance

*Improve quality of service and reduce customer churn*

Reduce the time, cost and TCO to bring innovative new services to market

Deliver true, real time end-to-end visibility into the source and resolution of issues

Maximize return on assets & reduce risk by implementing a cost-effective, robust, secure and agile foundation

Build agility in an operational environment by streamlining processes and implementing process automations

Enables you to leverage your existing resources, assets, best practices and processes

Offers the freedom to choose either best of breed modules or a fully integrated and collaborative true lifecycle management platform

Simplifies management, transparency and control while reducing redundancy and administrative burdens
IBM Service Management for CSPs
Enabling innovation through integrated visibility, control and automation

Visibility
See My Business

Control
Manage & Secure My Investments

Automation
Build Agility Into My Operations

Improve service quality & customer retention
True, real time end-to-end visibility into the source and resolution of issues that compromise network performance and availability, service quality and the customer experience.

Maximize return on assets & reduce risk
Cost-effective, robust, secure and agile foundation on which to build delivery of next generation services - backed by best practices.

Streamline processes & accelerate growth
Integrations across service management portfolio and with other OSS/IT systems to reduce costs, improve efficiency and increase responsiveness.
Ensure Service Quality

Address the complete service lifecycle with integrated service creation, execution and assurance

Service Lifecycle

Service Creation
Create services with speed and quality
- Consistently incorporate OSS requirements in service designs
- Streamline communication between creation & assurance
- Ensure quality throughout the delivery lifecycle

Service Execution
Deliver a high-performance, highly available execution environment
- Provide performance and reliability including seamless failover and security
- Enable third party access with policy-driven access to network resources

Service Assurance
Service Quality Management
- Manage the service execution & SDP platform & network
  - Real-time service status monitoring
  - SLA and service performance
  - Customer experience management
Unlock the business value of information for a competitive advantage

- Plan understand and optimize business performance
- Establish and maintain an accurate, trusted view of the customer
- Manage information over its lifetime and use it as part of business processes

- Rapid launching of innovative new services
- Enhance customer experience
- Optimize operational efficiency and reduce costs
- Manage risk and compliance
Information Management and Integration

Unlocking the Business Value of Information for Competitive Advantage

Business Optimization

- Plan, understand and optimize business performance
- Establish and maintain an accurate view of your data
- Manage data over its lifetime
- Use information as part of business processes

Targeted Services

Context Marketing

Monetizing Customer Segmentation

Multi-Channel Marketing

Relative Profitability

Plan, understand and optimize business performance. Establish and maintain an accurate view of your data. Manage data over its lifetime. Use information as part of business processes.

IBM Offerings

Industry Models, Blueprints & Frameworks

IBM Cognos 8 BI
IBM Cognos 8 Planning
IBM Cognos TM1

IBM InfoSphere Warehouse
IBM InfoSphere MDM Server (ex-WCC)
IBM Information Server (Ascential, DataMirror)
WebSphere Product Center

DB2, IMS, Informix
IBM Content Manager, IBM FileNet, Optim

IBM Offerings

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IBM Information Server (Ascential, DataMirror)
WebSphere Product Center

DB2, IMS, Informix
IBM Content Manager, IBM FileNet, Optim
Organizations need an Information Agenda
An approach for unlocking the business value of information

Establish an information-driven strategy & objectives to enable business priorities...

Discover & design trusted information with unified tools and expertise to sustain competitive advantage over time...

Accelerate information-intensive projects aligned with the strategy to speed both short-term & long-term return on investments...

Deploy open and agile technology and leverage existing information assets for speed and flexibility...

Information Agenda

Strategy

Define & Govern

Information Infrastructure

Road Maps
Information Agenda for Communication Service Providers

Blueprint for Unlocking the Business Value of Information

- CSP Specific Roadmaps
- CSP Information Agenda Guides
- CSP Tailored Workshops
- IOD Competency Centers
- Foundational Tools
- Information Accelerators
Information Management and Integration
Delivering measurable business and IT value in CSP

**Business Initiative/Sale Plays**

- **Manage LoB Convergence/Company Consolidation**
  - Consolidation of Operational Systems
  - Improved Data Quality improve customer care. $4M saved in 3 years by reducing duplicate mailings and increasing accuracy of customer relationships

- **Enhance Customer Experience**
  - Single View of Customer
  - Allows support staff to gain greater insight into each customer’s account and more quickly respond to service inquiries

- **Launching of Innovative New Products/Service**
  - Customer Segmentation & Analysis
  - Understanding needs of 20 million customers for improved sales responsiveness and #1 market share

- **Manage Risk & Compliance**
  - High data availability
  - Keeps customer service high with a resilient, flexible information infrastructure

- **Optimize Operational Efficiency/Reduce Costs**
  - Enterprise Strategy for Content and Process
  - Improved Customer Service via BPM. First year FTE cost avoidance of $2.5 million, and a 150% return on investment

**IT Project**

**Customer Success**

**Customer Value**
AT&T Example: Business Automation To Optimization
Information as Competitive Differentiator

Capture all customer interactions via multiple sales & service channels
Integrate customer information across 70 major operational systems
Automate and streamline manual processes for higher productivity & faster revenue realization

Business Value

Capture all customer interactions via multiple sales & service channels
Integrate customer information across 70 major operational systems
Automate and streamline manual processes for higher productivity & faster revenue realization

Information Management Evolution

2002: Enterprise Content Repository
- Automate and accelerate customer order processing
- Cost Avoidance of $2.5 Million for first year, with 150% ROI!

2004: Harmonize Customer Information Across Enterprise
- Enterprise view of large customers across 100's of locations & 10,000's of service instances
- Improved customer intimacy with largest and most profitable accounts

2006: Single View of the Customer
- Enhance Customer Service for all customers
- Reduce operational costs and increase customer satisfaction

Enhance Customer Service for all customers
Reduce operational costs and increase customer satisfaction

Enterprises view of large customers across 100's of locations & 10,000's of service instances
Improved customer intimacy with largest and most profitable accounts

Enterprise Content Repository → Harmonize Customer Information Across Enterprise → Single View of Customer
Business Intelligence

Access data and leverage this information to better understand and optimize business performance

Define marketing strategies, target high-value customers and provide innovative services

Predict which customers are most likely to churn and target them with incentives

Recognize customer trends or unusual patterns before you competition

Provide more targeted, differentiated customer service

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IBM’s BI services and solutions are recognized Global Leaders according to Gartner’s 2007 Magic Quadrant

IBM’s recent acquisition of Cognos places IBM Business Intelligence as a leader for Telco customers in the area of Business Performance Management Solutions

Forrester’s Wave has identified Cognos as a BI leader in the marketplace

*Source: Gartner Research Note: Magic Quadrant for Business Intelligence Services, North America, 2007; Alex Soejarto, Bill Hostmann, March 13, 2007*
IBM Service Provider Labs
and
SPDE Partner Ecosystem
Clients experience pre-integrated solutions that can be easily integrated with their Architecture.
The SPDE Business Partner Ecosystem

Providing a Choice of Applications That Are Compatible With the IBM SPDE Framework

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

- Faster deployment
- Easier integration
- Lower cost of operations
### SPDE Partners to complement our software

#### NEPs
- Huawei
- Nortel
- Motorola
- FiberHome Technologies
- Ericsson

#### OSS/BSS
- Amdocs
- Converse
- Huawei

#### SDP/Value Added Services
- Iperia Technologies Ltd.
- Nortel
- Global Bay
- Argea Technologies
- Convergion
- Broadsoft
- Motricity
- Covansys
- Mformation
- FiberHome Technologies
- Converse
- Intervoice
- RadiSys
- Ulticom
- Mobixell
- SIRF

#### Other
- Cirrus Technology Inc.
- Dialogic
- Foundry Networks
- Ulticom
- Traffix Systems
Why IBM Can Help You Transform Your Business

- Telecom industry knowledge and experience
- Unmatched success in business and IT transformation
- Strength and ability to share risk in business models with clients
- Ability to lower implementation risk through track record and capabilities
- Technology leadership & superior systems integration capabilities
Backup
A Framework is Needed to Deliver New Capabilities
To Support Smart Solution Implementation
Service Creation Solutions to help customers achieve greater value and performance from their investments in delivering software

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

Global Rational team of 500+ support professionals dedicated to client success, more than 10 languages supported 24/7

Rational Services is a worldwide team with access to more than 1,000 technical specialists with deep skills and broad experience in software development processes, methods and tools

Industry solutions for building IP-based converged communications applications

Industry solutions for customizing and integrating OSS/BSS software
Service Broker

**Deliver orchestration of services through business rules**

- Quickly and easily create business rules that blend services and enablers to add value and additional revenue.
- Allow interaction between different service and network domains.
- Derive the most value from your existing network assets while capitalizing on new growth opportunities.
- Offer feature-rich, personalized services to subscribers wherever they are from whatever device they are using.

Uses Business rules with Complex Event Processing (CEP) to provide events and actions between services.

- Ease of use of “codeless” rules allows the business user to implement themselves.
- Support requirements of IT and telecom.
- Allow for incremental deployment of service orchestration.
- Deliver high-performance and scalability.
Link Services with Charging Systems

IBM Service Broker Solution

Business Need: A solution that highlights the convergence of Web 2.0 with next-generation networks, with particular emphasis on a flexible approach to deliver, charge and manage value-added services by a Telecom operator.

Solution:

- WebSphere Business Events
- WebSphere Application Server
- WebSphere Telecom Web Services Server
- WebSphere IMS Connector

Benefits:

- Support flexible billing solutions for services per type of call

Potential Charging Scenarios

For example, the service provider might wish to offer any or a combination of the following:

- Subscription fees
- Transaction fees to vendor (per request, on success etc)
- Free-to-subscriber, vendor pays
- Call duration
- Operator “per transaction” revenue share

In an ideal world, different models may be offered to different subscribers and vendors to suit their needs.
Business Finder “Call-a-cab” Service Orchestration solution exploiting IBM’s Service Broker Solution
Helping to Shape Next Generation Networks  
*IBM is a Leader in IT & Industry Related Standards*

<table>
<thead>
<tr>
<th>Application Server</th>
<th>Session Control</th>
<th>Transport &amp; Endpoint</th>
<th>OSS / BSS Integration</th>
<th>Physical</th>
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<tr>
<td>Parlay</td>
<td>3GPP</td>
<td>W3C</td>
<td>TMF</td>
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<td>DMTF</td>
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<td>OASiS WSDM</td>
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<td>OASiS WS-Security</td>
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</tbody>
</table>

- Over 160 business integration technology patents
- First Web Services Gateway
- First integrated private UDDI directory

*IBM is a Leader in IT & Industry Related Standards*
Market Forces

Driving the Communications Industry to Transform

Widening Field of Competitors

- Convergence is spawning a “Telemedia” Industry among Service Providers, Internet Portals and Media

Economic Pressures

- Risk of commodization and increasing operating expenses are driving the need to find new sources of revenue and profit

Subscriber Expectations

- Demand for innovative, multimedia, services and content
- Subscribers are quick to abandon services that under perform

Defend market share, grow new revenues

- Reduce customer churn and improve average revenue and profit per user

Accelerate the End-to-End Telecom Service Lifecycle
Communication Companies Must Innovate and Be Agile
To Win in the Market

- Improve time to market AND quality of value added services
- Lower operating costs to drive profitability
- Increase retention AND drive new revenue
- Deliver converged voice, video AND data services
- Integrate services AND connect with backend support systems
- Leverage existing network infrastructure
- Monitor AND manage services and user experience quality