

Yow!2010



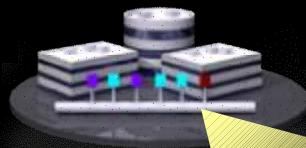
## Connectivity for today's complex world

*Greg Flurry, IBM Distinguished Engineer*

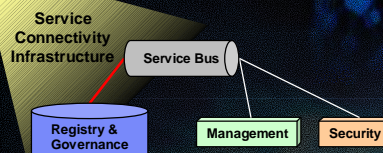


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## Service Connectivity in the Enterprise



For a Service Oriented world ...



- § Connectivity Infrastructure must encompass many facets
- Service visibility and interoperability (registry & bus)
  - Service security
  - Service monitoring and management
  - Service governance (design time and runtime)

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## Yesterday's best in class is not good enough



To fuel **new growth while optimizing costs** organizations must leverage:

- Greater business understanding and measurement
- Rich, integrated information, transactions, and decisions
- Flexibility-enabling technologies
- New social and collaboration capabilities
- Efficiency in IT and capital expenditures



to increase awareness and control over their business processes for **Greater Business Agility**

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## We are at an inflection point because...



§ IT users need to support a **faster rate of business change** while raising the speed limit **safely**

§ Dramatic **shift in resources** that are applied to the integration challenge, and increased pressures to **show business value**

§ Growing need to **connect everything** - employees, customers, suppliers, partners and even physical world

IT is moving from just "solving the integration problem" to facilitating a **smarter way of working**

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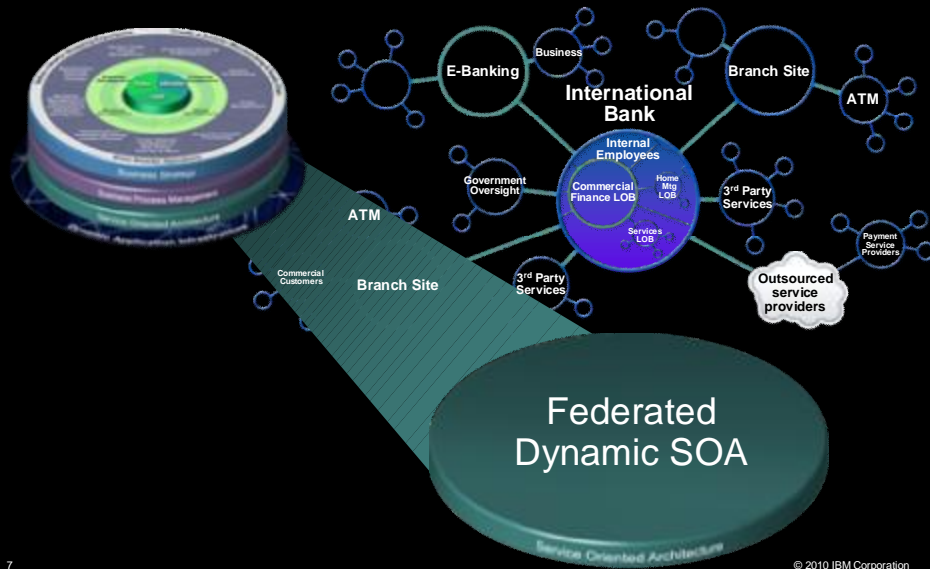
## Connectivity lessons learned

- § One size does not fit all
  - Variety of products implementing ESB pattern, service metadata management & other facets of Connectivity
- § Things get easier
  - Years of experience in implementing SOA resulting in better understanding and support of common patterns
- § Things get more dynamic
  - Towards a patterns-inspired declarative Connectivity programming model via policy decorations and SLAs
- § Connectivity needs (the right level of) governance
  - Dynamic programming models need governance counter-balance – control who can affect what kind of change
- § Towards ubiquitous Connectivity
  - Connectivity within business units, across the enterprise, between enterprises and into Clouds

## Connectivity Middleware Trends

- § Simplification
  - From Highly Configurable Point Products to Pattern-driven Capability Mixes... exploiting lessons learned from years of experience in building SOA solutions
- § Scale
  - Smart Planet scenarios dramatically increasing # of connected devices... Service Federation within the enterprise and beyond
- § Dynamic SOA Runtimes
  - Driving SOA Runtime behaviors from Service interaction contracts... automating runtime provisioning and task flows in support of SLA-driven runtimes
- § Clouds
  - Connectivity to, between and in Clouds

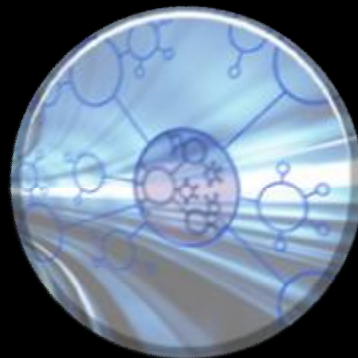
## Seamlessly integrate your business network With Federated Dynamic Connectivity



## Delivering federated, dynamic connectivity

Powering business agility through ubiquitous, simple, federated, intelligent connectivity

- § Universal messaging
  - Provide a broad range of QoS that scales horizontally
- § Extended reach
  - Extend the reach of connectivity to the physical world
- § Accelerated integration
  - Change the role of the "integration developer" with patterns-based connectivity
- § Business value from governance
  - Show business value, and provide visibility into all elements of an enterprise
- § Federation
  - Connect within, across and outside an enterprise, over a broad spectrum of topologies and architectures, in a dynamic yet governed fashion



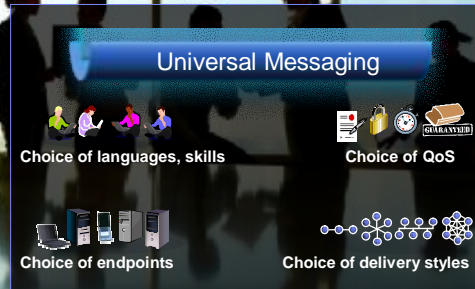
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## Universal messaging

Get the right data to the right place, right when it's needed

- § Beyond guaranteed message delivery across different platforms ...
- § Enable rapid **change** and visibility
- § Allow massive **scale** incrementally and stretch elastically
- § Provide **choices**



## Universal messaging – market drivers

- § **Reliably** transport and **share** all kinds of business data
- § Leverage **existing** investments in hardware & networks
- § **Reduce cost** of making changes
- § Grow **incrementally**
- § Achieve massive **scale**

**Financial Markets**

- § Delivering \$1 trillion transactions per day
- § Exchanging £400B+ in messages

**Government**

- § Agency sends 675m messages per day
- § ~ 7,500 agency users & 50,000 citizen transactions daily

**Banking**

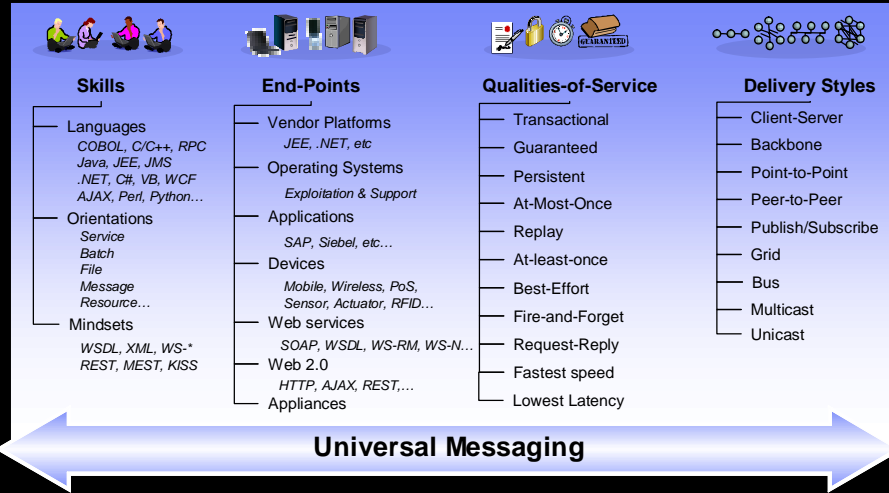
- § \$7-\$35 trillion messaging traffic per day
- § 213+ million messages daily

"Using my existing team and infrastructure, I need to provide different messaging capabilities for my business applications and scale up, while keeping costs down" – Enterprise Architect, Travel Industry



## Universal Messaging Instantiated

Unified backbone to address entire spectrum of transport requirements



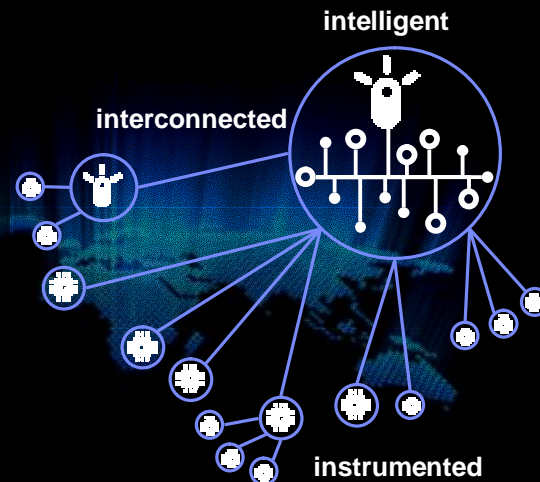
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## Extended Reach for a Smarter Planet

Extend the reach of connectivity to the physical world

- § **Extend** connectivity beyond enterprise boundaries to smart devices
- § Offer connectivity capabilities **optimized** for sensors and devices
- § Deliver **relevant data** to intelligent decision making assets
- § Enable **massive scalability** of deployment and management of solutions
- § Create **self-managing** device networks



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## Extended Reach – market drivers

### § Monitor

- **Government** monitoring natural events, volcanoes, rivers, dams
- **Energy & Utilities** monitoring oil pipelines, grids, SCADA

### § Track

- **Manufacturing** inventory and goods tracking
- **Government** traffic and public transport tracking

### § Measure

- **Energy & Utilities** smart metering
- **Healthcare** patient monitoring, trials

### § Predict

- **Retail** predictive re-stocking to optimize deliveries
- **Logistics** optimizing shipments to move less empty containers

**Water**



- § Global agriculture wastes 60% of the 2,500 trillion liters each year
- § Municipalities lose 50% of water supply

**Retail**



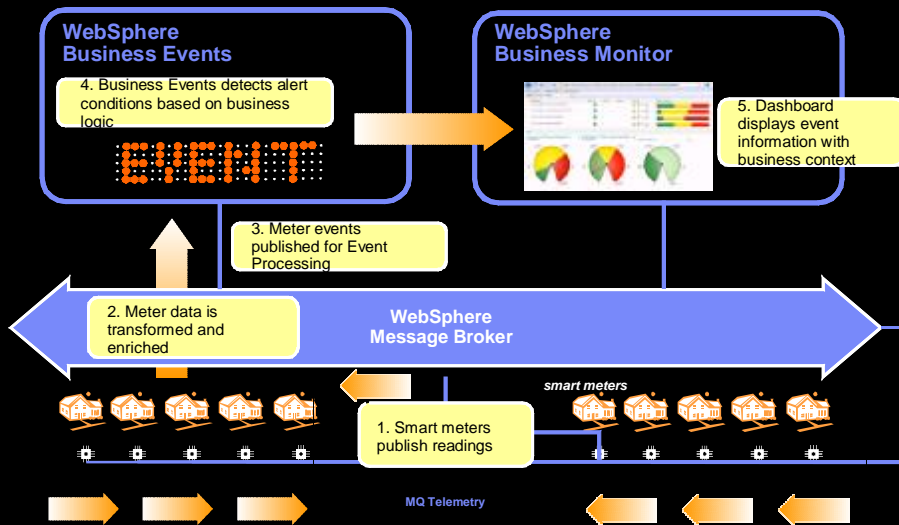
- § Retailers lose \$93B in missed sales every year, due to supply chain inefficiencies

**Petroleum**



- § Just a 1.5% increase in recovery from existing oil wells would yield enough oil for half a year's global consumption

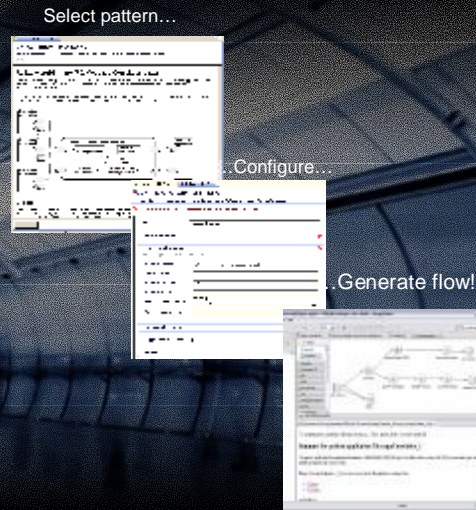
## Extended Reach Instantiated



## Accelerated integration

Change the role of the "integration developer" with patterns-based connectivity

- § Beyond integration for the senior integration developer
- § **Integrate in hours** with patterns-based integration using common patterns and ability to capture patterns
- § Enable the **commodity developer** to do integration
- § Make connectivity relevant to the **business**
  - Integrate **B2B** with SOA, BPM



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[www.ibm.com/developerworks/wikis/display/esbpatterns/](http://www.ibm.com/developerworks/wikis/display/esbpatterns/)

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## Accelerated integration – market drivers

Easily "select, configure, and deploy" known integration scenarios

- § A dramatic **shift in resources** applied to the integration challenge
- § **New sets of users** in BRIC, mid-market
- § From integration developer role to integration architect + **commodity developer**
- § From integration developer to LoB **self-service**
- § Need to **quickly** "select, configure, deploy"



"I need to have my middleware team quickly configure the ESB, and deploy known integration scenarios." – Manager, Financial Services

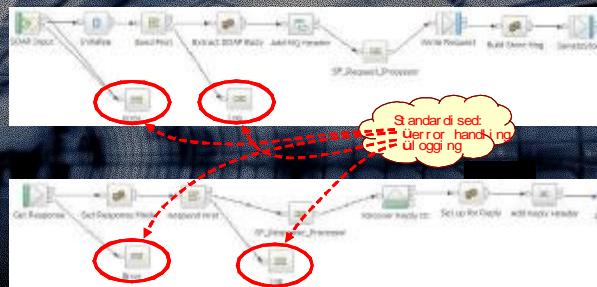
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## Patterns enhance development behavior and outcomes

- § "Select, configure, deploy"
- § Patterns supports top-down deployment as well as bottom up development
- § Pattern configuring includes full assistance and pre-deployment checking
- § "Forces" enterprise practices for error handling, diagnostics, recovery, ...



## Business value from governance

Show business value, and provide visibility into all elements of an enterprise

- § Beyond service governance in an SOA implementation
- § Enable a **Federated** and **Dynamic** SOA
- § Integrate **design-time** governance, **runtime** governance, **policy enforcement**, and **management**
- § Empower the **business** user
- § Provide
  - Visibility, management, monitoring
  - Provisioning, validation, enforcement
- § Across
  - BPM artifacts, business processes
  - B2B artifacts, partner profiles and interactions
  - Cloud hosted services and interactions
  - Rules, queues, files, events



Providing business visibility

## Business value from governance – market drivers

### § Growing need to

- govern services, processes, partner agreements, queues, files, rules, events
- show ROI to IT senior management and business users
- provide proactive governance with enforcement and management
- coordinate visibility, management and security to achieve business goals in the enterprise
- provide visibility into disconnected domains to allow sharing of services

### § But still allow for adequate levels of domain autonomy

**Insurance**

§ AMB Generali optimized claims process with reduced processing costs, faster claims cycle times and improved visibility

§ \$50 million in projected annual savings

**Retail**

§ Sears Canada increases code reuse by 5%-15% with SOA solution

§ Supplier information exchange service used by 3000 suppliers

**Government**

§ NY State DOL achieves incredible scaling to support over 1M users

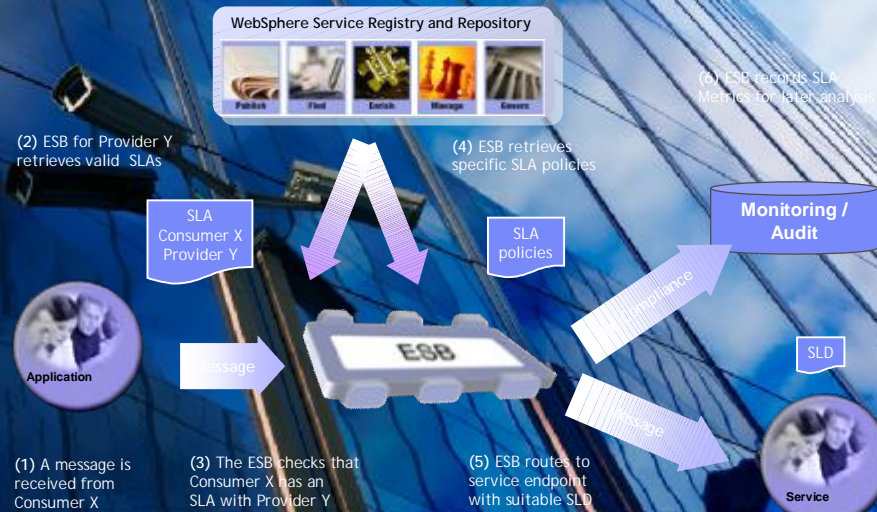
§ Reduced complexity and efficient reuse of data and applications

*"Governance is a leadership activity to ensure effectiveness and to maximize business value" – Enterprise Architect, Mass Mutual Insurance*

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## Dynamic Connectivity SLA Enforcement Pattern



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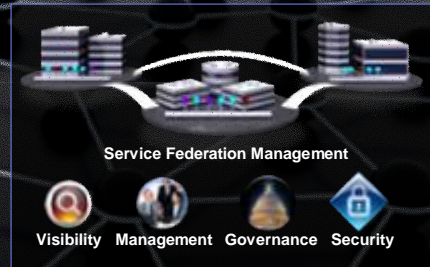
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## Federated SOA

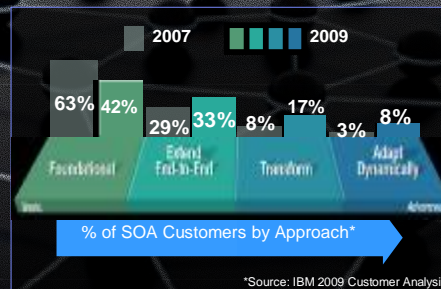
Connect within, across and outside an enterprise, in a dynamic yet governed fashion

- § Beyond integration of services within an SOA
- § **Federate** within & across SOA domains including in **cloud**
- § Maximize **service reuse** across the enterprise
- § Enhance **flexibility** across the enterprise
- § Connect SOA domains while providing control and allowing **autonomy**



## Federated SOA – market drivers

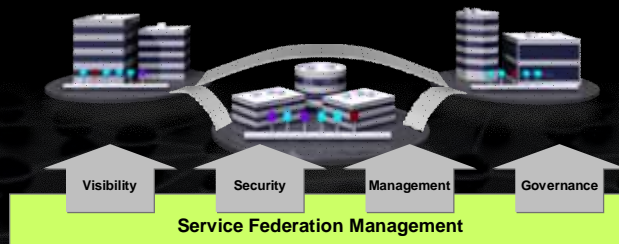
- § **Maturing** SOA implementations
  - From SOA **pilots** focused on specific business problems, tackling aspects of the SOA life cycle
  - To **mainstream SOA** with large scale roll-out of SOA across the enterprise and in the cloud, connecting “**Islands of SOA**” to extend **service reuse**
- § Need to connect **isolated** services
- § Need for **integrated SOA** across all enterprise boundaries while providing some **autonomy**



“We need to integrate with and maximize reuse of applications and services across all our regional business units and still provide some level of autonomy” - Chief Architect, Auto Manufacturing



## Service Federation Management



**Service Federation Management** enables a federated enterprise, allowing service reuse that spans domain boundaries. It manipulates the connectivity infrastructure of the individual service domains to establish service visibility, service security, service management and service governance across and beyond the enterprise

### Objectives

- § Enable enterprise-wide service reuse seamlessly and transparently
- § Secure, Manage, Monitor and Govern one logical service connectivity fabric
- § A simple model for defining connectivity across heterogeneous domains
- § Provide IT flexibility that handles the necessary separation of concerns and responsibility required by the different service domains

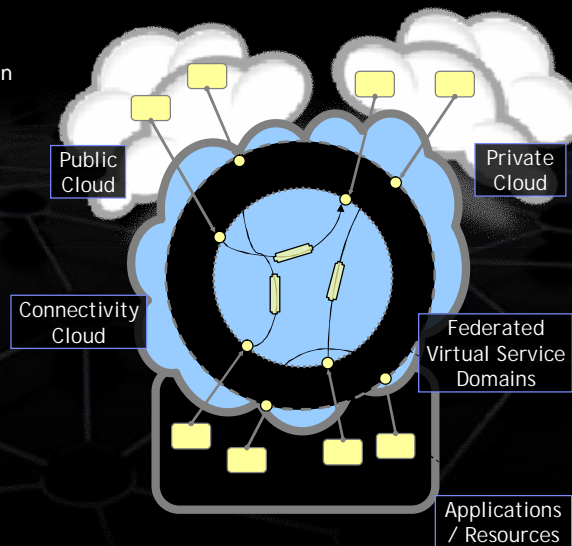
A federation **model** that supports a holistic approach  
 Simple Service Connectivity Management **protocol**  
 Simple federation **console** for managing federations across IBM and non-IBM runtimes

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## Connectivity & Clouds - Vision

- § Make it easy to connect and integrate resources across, within and between clouds and enterprises
- § Virtualize and simplify consumption of connectivity middleware to create "Connectivity Clouds"
- § Enable enterprises to participate in an ecosystem of service providers and consumers "in the cloud"
- § Provide elastic scaling of connectivity resources based on usage and demand



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## Federated, Dynamic & Governed Connectivity Vision

### § Federated

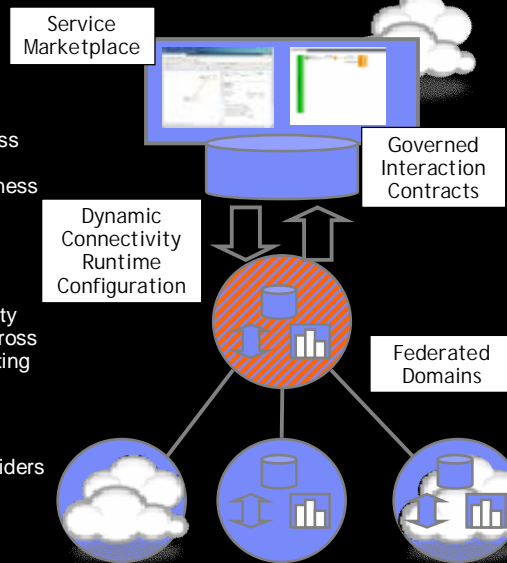
- Managing service interactions across service domains representing data centres, departments, clouds, business partners with heterogeneous connectivity underpinnings

### § Dynamic

- Automated translation of service interaction contracts into connectivity runtime configuration within and across service domains dynamically adjusting to policy changes

### § Governed

- All driven off a service marketplace where service consumers and providers collaborate to establish interaction contracts



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Questions?

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