

Business Connect

IBM Software Universe 2013

Meet Possible

19th March, Colombo



Smarter Integration

Integrate Your Cross-Enterprise Applications For
An Agile Business

Sargam Singh

Product Manager – Connectivity & Integration (ISA)

Here is what we will talk today...

1

Changing Business landscape and The Interconnected Enterprise

2

Building a Universal Messaging Backbone

3

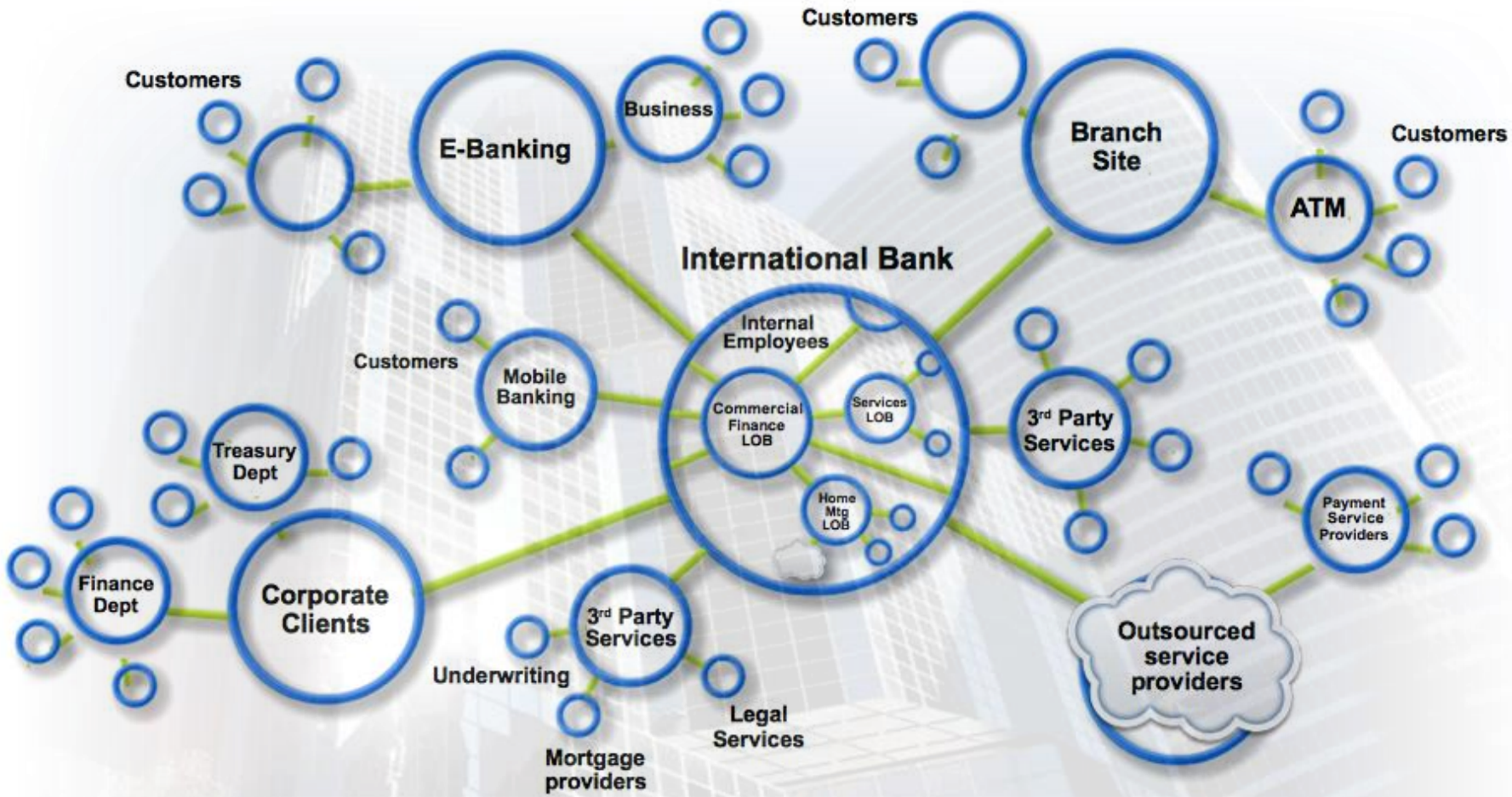
Simplifying Connectivity with an ESB and achieving Business Agility



Businesses are evolving from Local Scope....



....to Enterprise Scope and Beyond



Banking example



An Interconnected Enterprise brings information together quickly and flexibly



The “Internet of Things”

Simple connectivity from devices, sensors & feeds



Partners, Suppliers, & Customers

Streamlined and secure transactions across trading communities



Internal Enterprise

Seamless connectivity across applications and processes

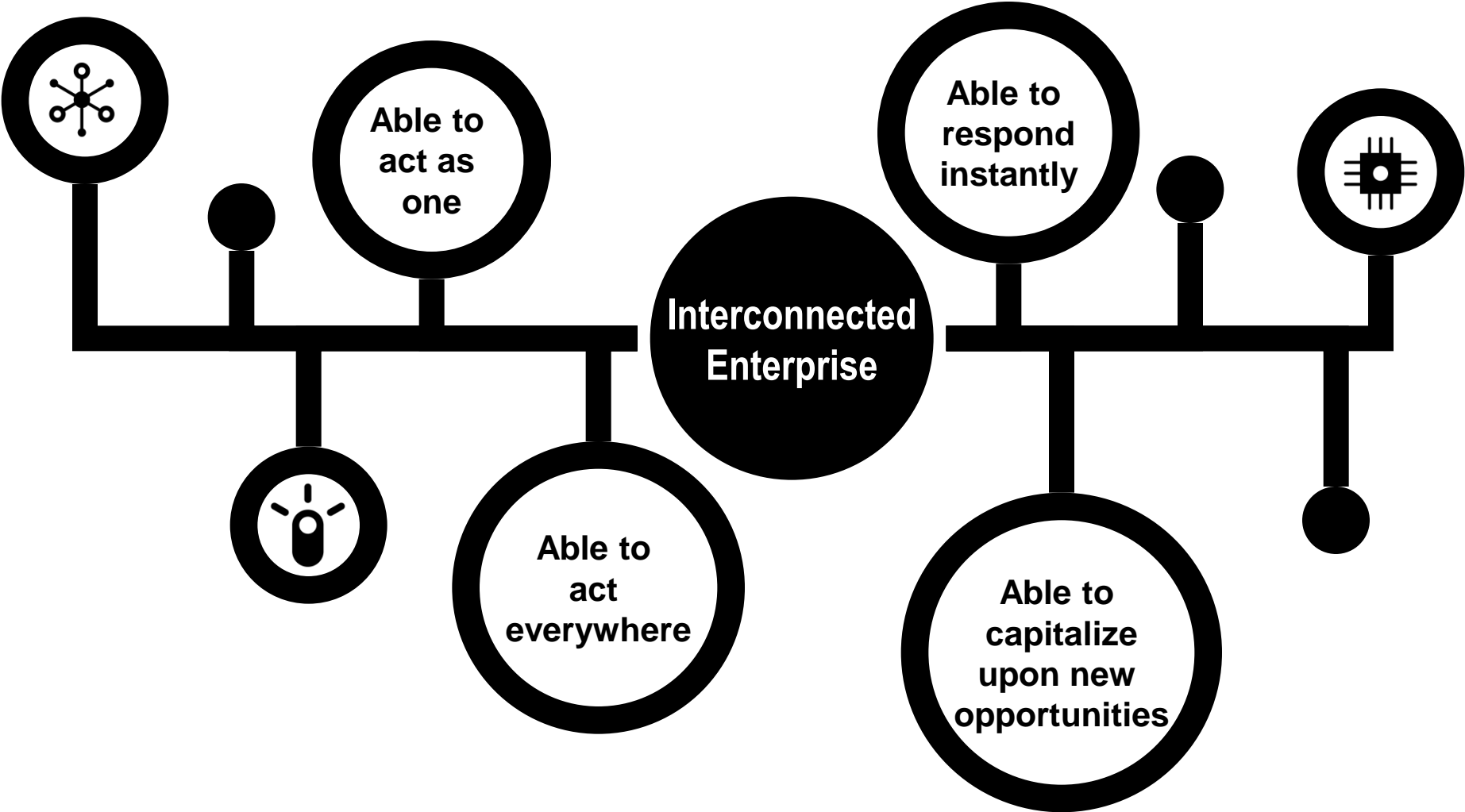


Cloud Applications

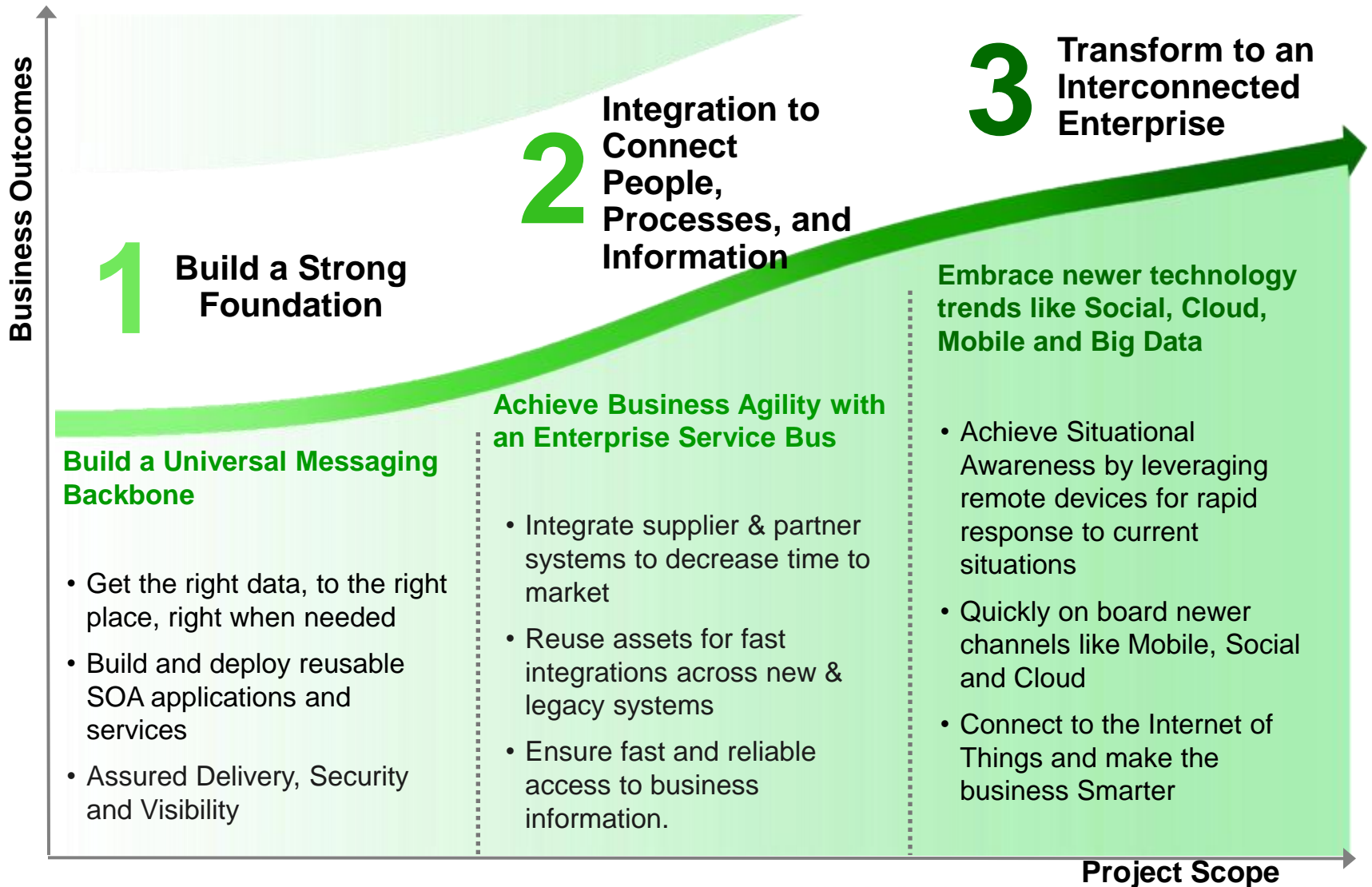
Rich integration between cloud applications and back-end systems



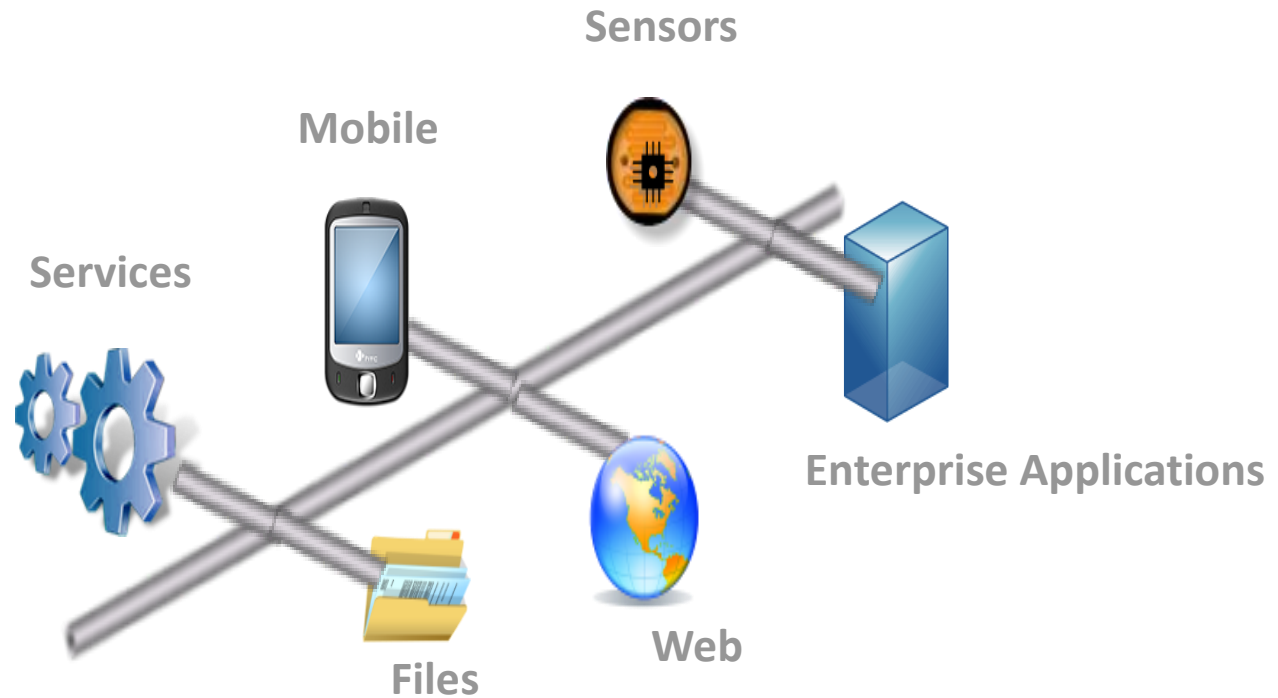
Smarter organizations are Interconnected Enterprises



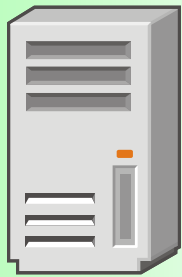
The Journey to an Interconnected Enterprise



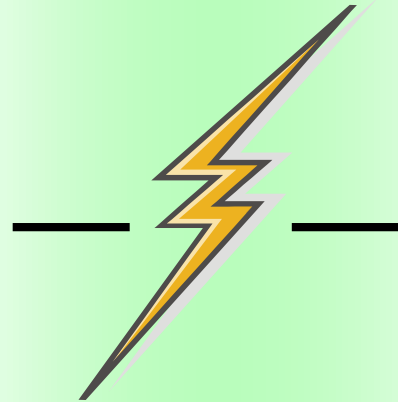
A strong messaging backbone is the foundation for building an “Interconnected Enterprise”



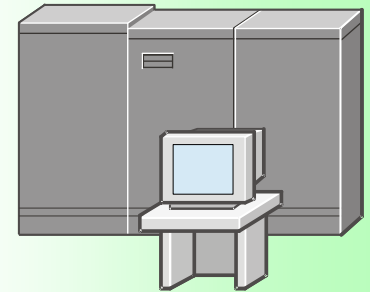
We need to Integrate Systems often connecting them in a “point to point” manner



Update
system A
to enable
integration



Use an
agreed protocol
(Network, MQ,
Web Services,
REST, HTTP,
Files etc.)



Update
system B
to enable
integration

How are You Addressing this need today?

Do NOT leave your business-critical messaging needs to ...

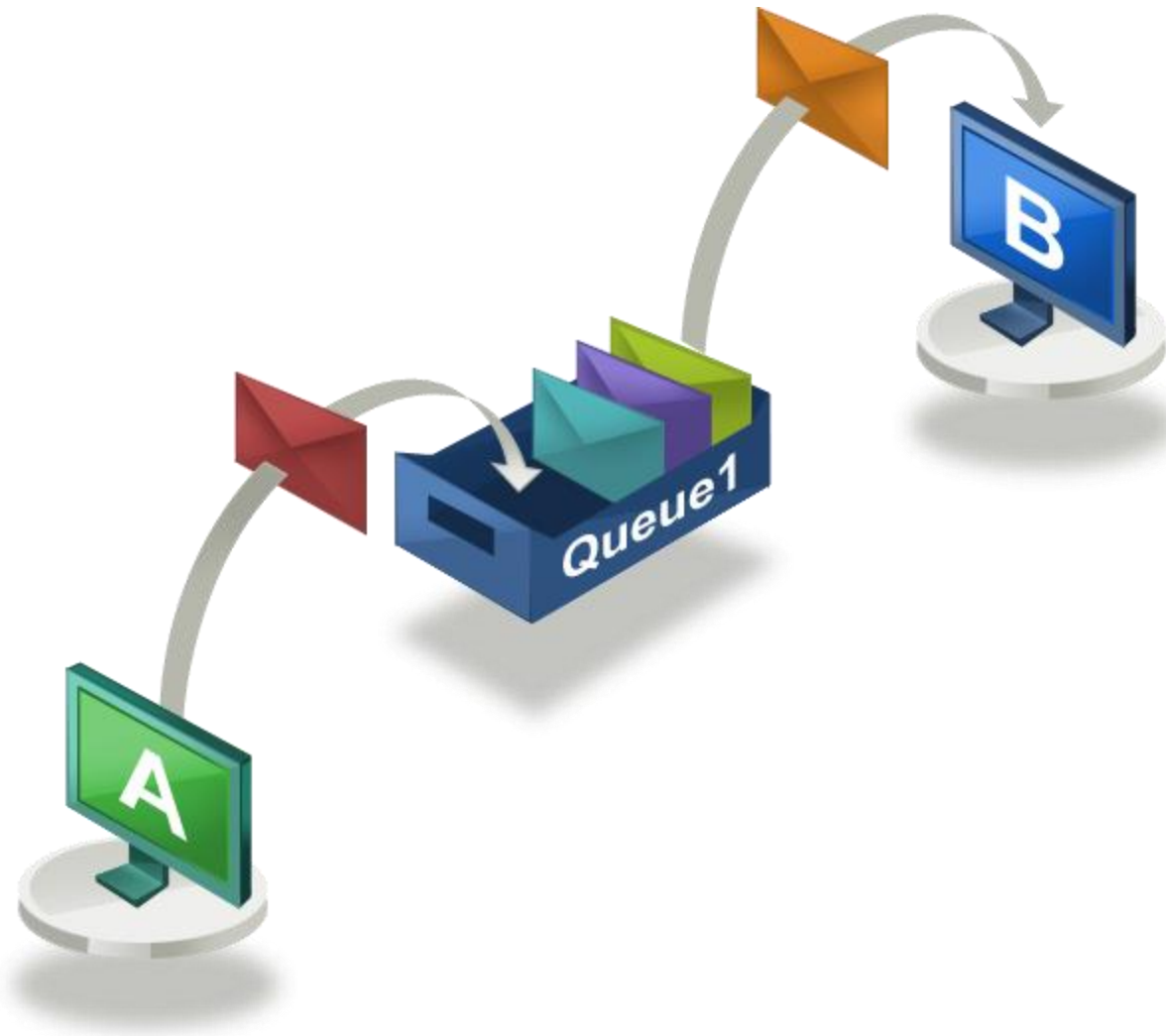


- HTTP
 - A *document centric, request-response protocol*
 - *Not* an *inherently reliable* transfer medium
- JMS
 - Standard on the API level *NOT* the *messaging and communication* level
 - Costly to manage *multiple engines*
- “Homegrown”
 - *High costs* associated with *specialized skills* to secure communications
 - *Cannot provide* the *quality of service* needed for business-critical events

*...Does this Give you the **quality of service** needed to **succeed in this complex and changing environment ???***



The power of Messaging...

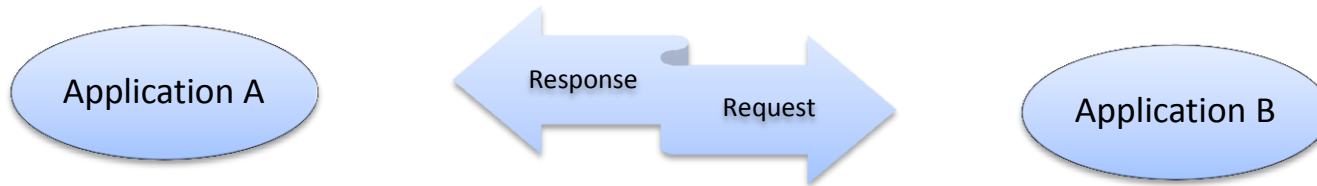


...Robust, scalable transfer of data

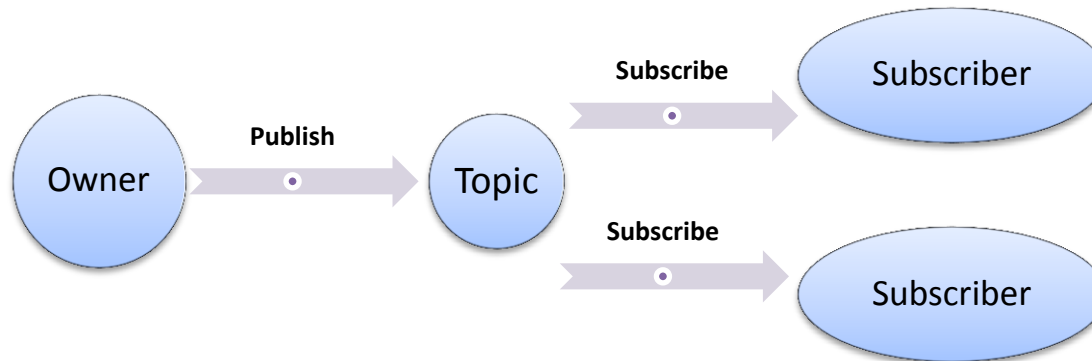


What is Messaging...

Application to application communication



Event distribution on any scale



...Reliable delivery of information wherever it is needed

The power of effective messaging

Scalability

Seamlessly manage change and spikes in transaction volume



Reliability

Once and only once transaction processing, no loss, no duplication



Standardize

Adopt new industry standards without changing processes



Security

Protect sensitive data and files to meet industry regulations (PCI-DSS...)



Auditability

Know the when, who and the how of data in your network



Flexibility

Turn existing events and data into immediate customer insight for a competitive advantage



The Vision - IBM's Universal Messaging

... that gets the right data to right place, right when needed



Any Skills

- Languages
 - COBOL, C/C++, RPC
 - Java, JEE, JMS
 - .NET, C#, VB, WCF
 - AJAX, Perl, Python...
- Orientations
 - Services
 - Batches
 - Files
 - Messages
 - Resources...
- Mindsets
 - WSDL, XML, WS-*
 - REST, MEST, KISS



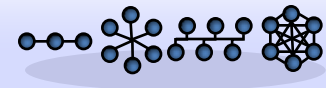
Any End-Points

- Vendor Platforms
 - JEE, .NET, etc
- Operating Systems
 - Exploitation & Support
- Applications
 - SAP, Siebel, etc...
- Devices
 - Mobile, Wireless, PoS,
 - Sensor, Actuator, RFID...
- Web services
 - SOAP, WSDL, SOAP/JMS
- Web 2.0
 - HTTP, AJAX, REST,...
- Appliances



Right Quality-of-Service

- Transactional
- Guaranteed
- Persistent
- At-Most-Once
- Replay
- At-least-once
- Best-Effort
- Fire-and-Forget
- Request-Reply
- Fastest speed
- Lowest Latency

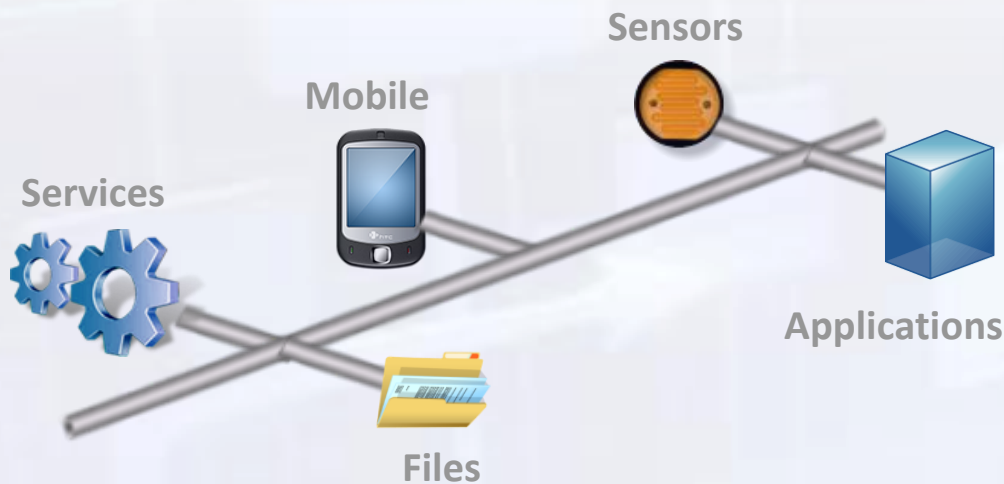


Any Deployments

- Client-Server
- Backbone
- Point-to-Point
- Peer-to-Peer
- Publish/Subscribe
- Grid
- Bus
- Multicast
- Unicast
- Appliance
- Cloud

WebSphere MQ

What is WebSphere Message Queue?



- Industry's most widely deployed messaging middleware
- 20 years of Industry Leadership
- Extremely prominent skill base – over 10,000 customers
- Guaranteed Quality of Service
 - *Proven reliability*
 - *Transactional integrity*
 - *Consistency*
 - *Time independence*
 - *Ease and Speed*
 - *Flexibility*
 - *High-performance*
 - *Security*
 - *Scalability*
 - *Auditability*

MQ is like email/mail service for SOA application Universally supported by over 80 platforms with > 15 years leading in transactional message delivery

Build a universal messaging backbone with...

...WebSphere MQ and flexibly integrate the pieces of your business

Managed File Transfers

Extend to the B2B file Gateway over the internal messaging backbone

Advanced Message Security

Securing your business events and helping meet industry regulations



MQ Messaging

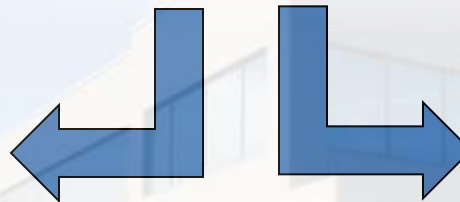
Supporting JMS, HTTP, REST and WEB 2.0

Telemetry Transport

Harness the power of data outside your internal network

Ultra Low Latency Messaging

Highest message throughput and lowest message latency over any transport



Establish a Messaging Backbone

VocaLink delivers payments at the speed of business



Client Pains

- Government regulation limiting payment clearing times requires faster payment processes
- Needed to deliver near-instant money transfers between banks

Solution

- High-performance payment solution leveraging WebSphere MQ to route message traffic

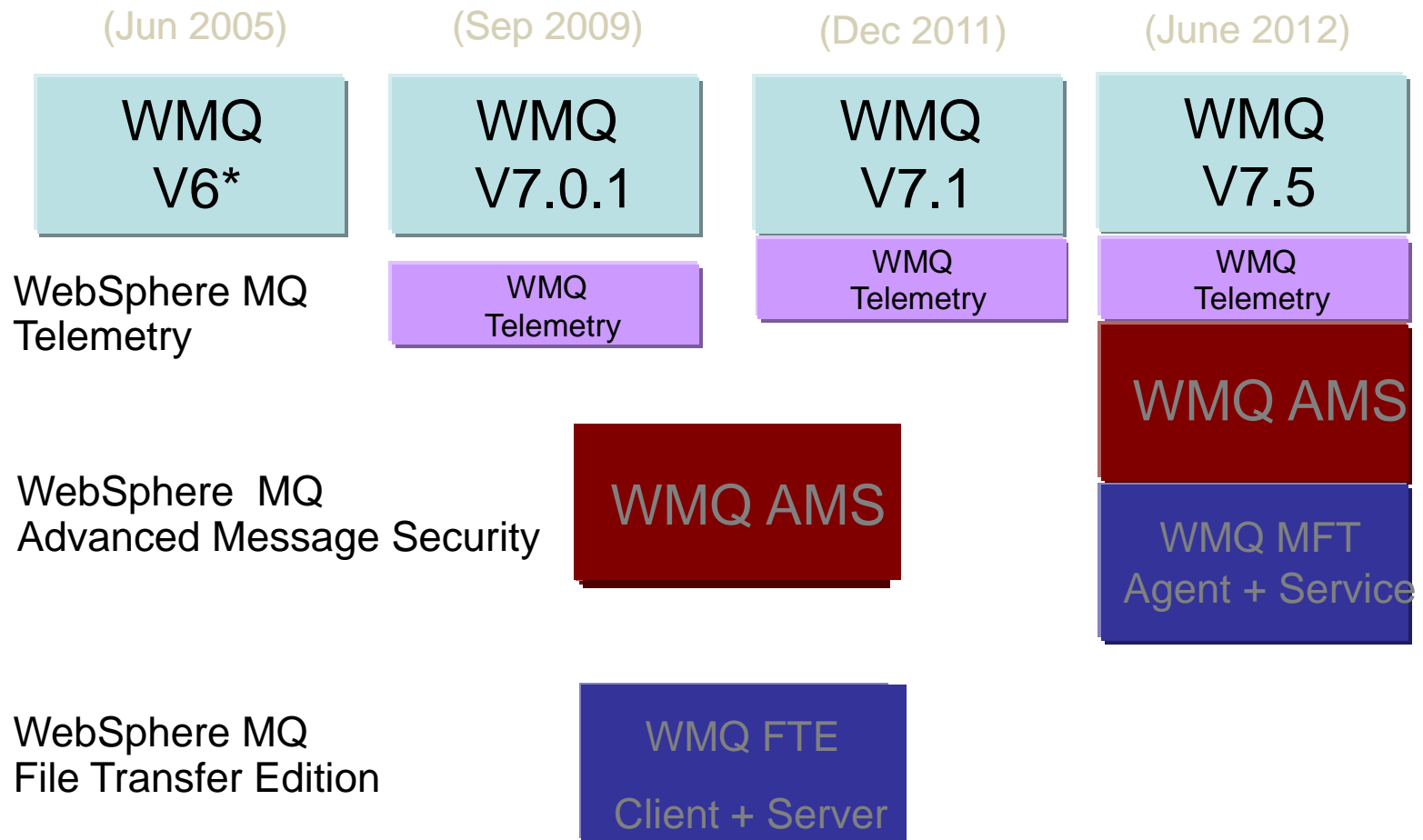
Benefits

- Processes more than 5 million transactions per day
- Scales to peak volumes of over ten million transactions per day

“The WebSphere MQ messaging technology has been a key enabler, because it is so scalable. It has been able to handle the transaction volumes without any problems, and it’s a very...efficient solution, so it delivers good performance without requiring massive investments in hardware.”

The latest release : WebSphere MQ V7.5

WebSphere MQ simplification for ease of use



MQ Advanced: For customers who want to get serious about real integration but still demand a simplified package...

What's New

- Messaging layer integrated with advanced message security and managed file transfer solution
- Single pricing for all server based functionality
- All enabled projects get immediate access to all capabilities

Client Benefits

- Quickly and cost-effectively address integration requirements from new technologies
- Increase infrastructure agility and rapidly pursue new market opportunities

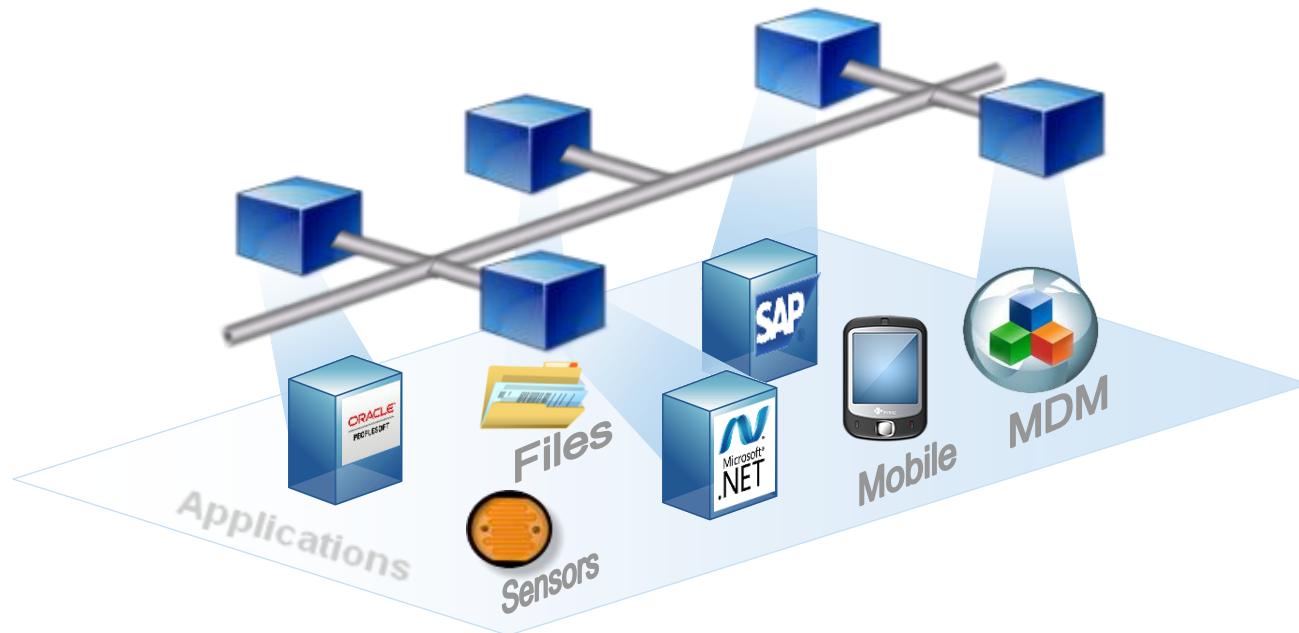


Convenience of a single, integrated offering

Enhanced!

IBM WebSphere MQ Advanced V7.5

Having established a secure communication infrastructure...
**Achieve Business Agility using an
Enterprise Service Bus**



Achieve Business Agility with an ESB

What is Enterprise Integration?



- Enterprise systems consist of many logical **endpoints**
 - Off-the-shelf applications, services, web apps, devices, appliances, custom built software...
- Endpoints expose a set of inputs and outputs, which comprise
 - Protocols - e.g. MQ, TCP/IP, HTTP, File system, FTP, SMTP, POP3 etc.
 - Message Formats - e.g. Binary (C/COBOL), XML, Industry (SWIFT, EDI, HL7), User-defined
- Integration is about connecting these endpoints together in meaningful ways
 - Route, Transform, Enrich, Filter, Monitor, Distribute, Decompose, Correlate, Fire and Forget, Request/Reply, Publish/Subscribe, Aggregation, Fan-in, Complex Event Processing...


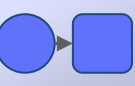
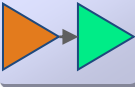

At the heart of an Interconnected Enterprise is an Enterprise Service Bus (ESB)

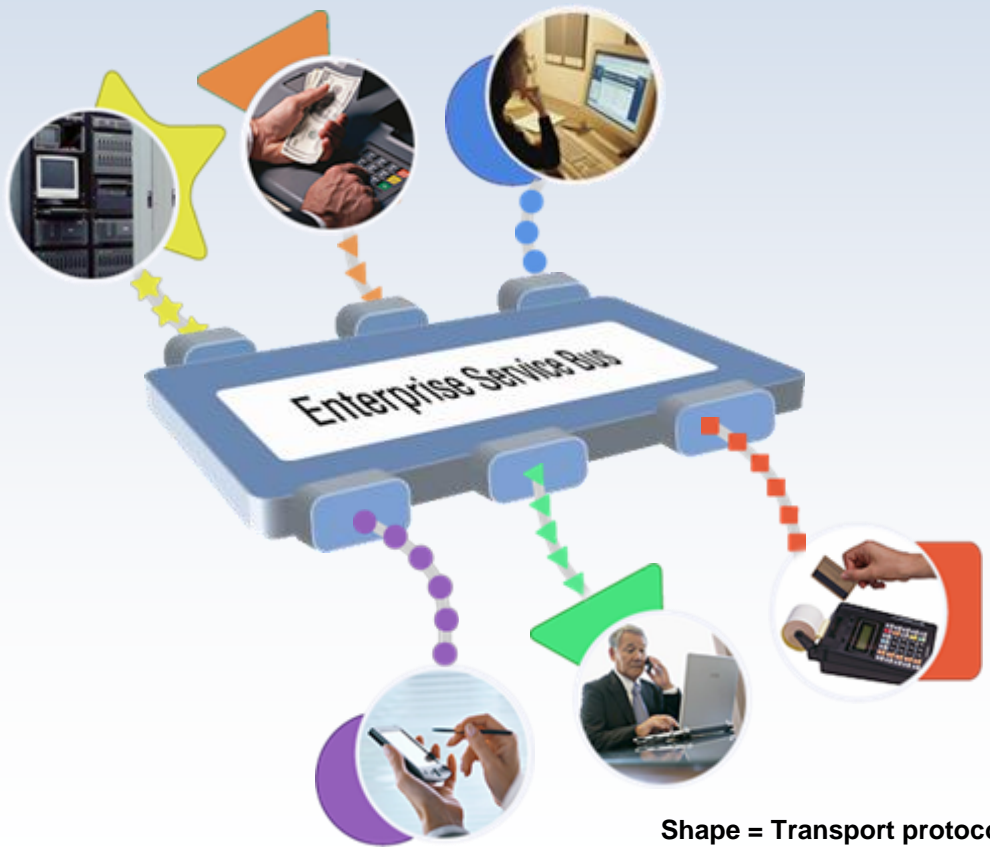
What is an ESB?

An ESB is an Architectural Pattern

A flexible connectivity infrastructure for integrating applications, systems and services.

An ESB performs the following between requestor and service

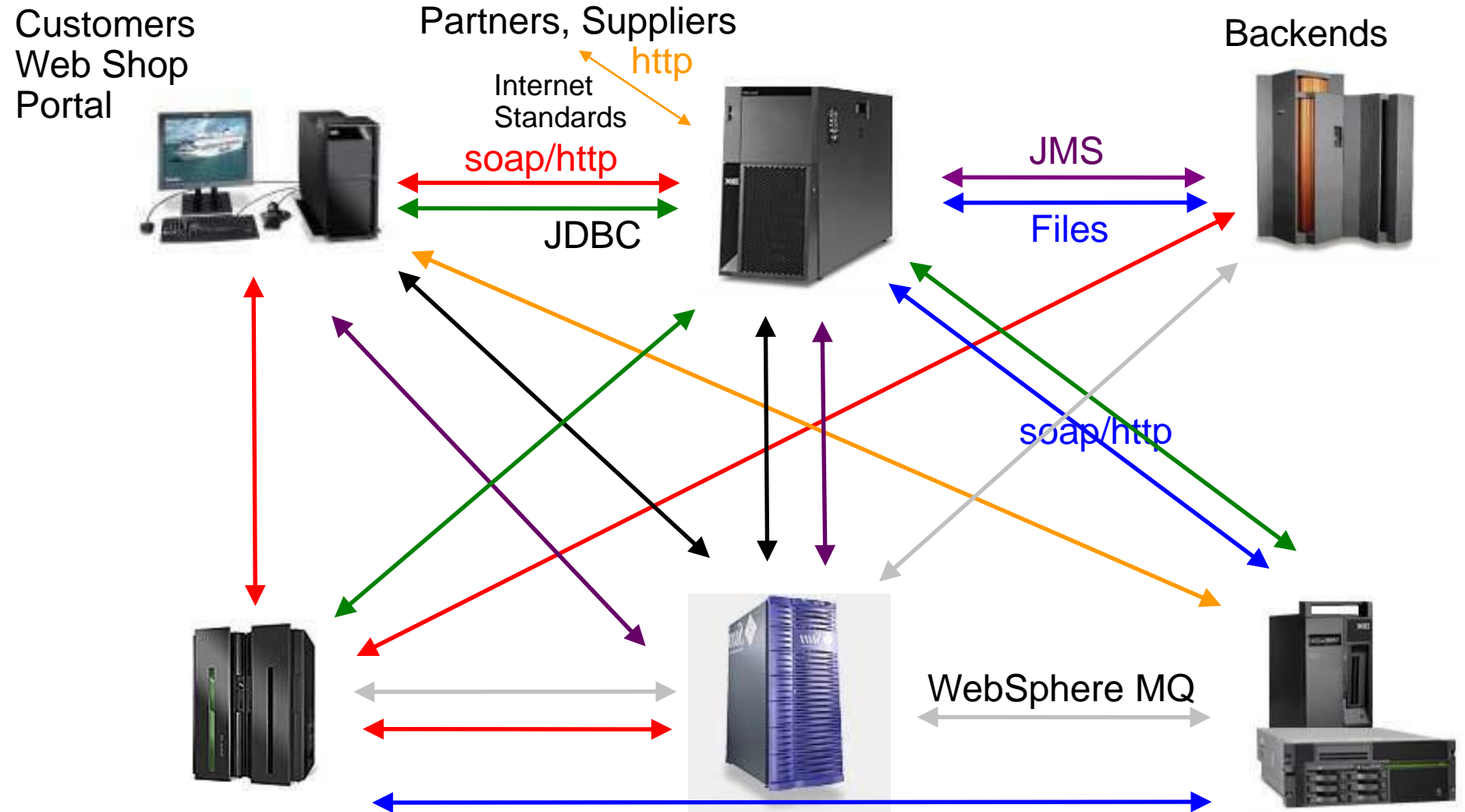
-  **MATCHES & ROUTES** communications between services
-  **CONVERTS** between different transport protocols
-  **TRANSFORMS** between different data formats
-  **IDENTIFIES & DISTRIBUTES** business events



Shape = Transport protocol
Color = Data format



Application Complexity without an ESB

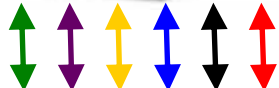


An ESB Simplifies Connectivity

Customers
Web Shop
Portal



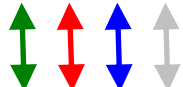
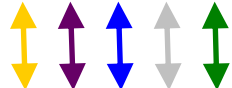
Partners, Suppliers



Backends

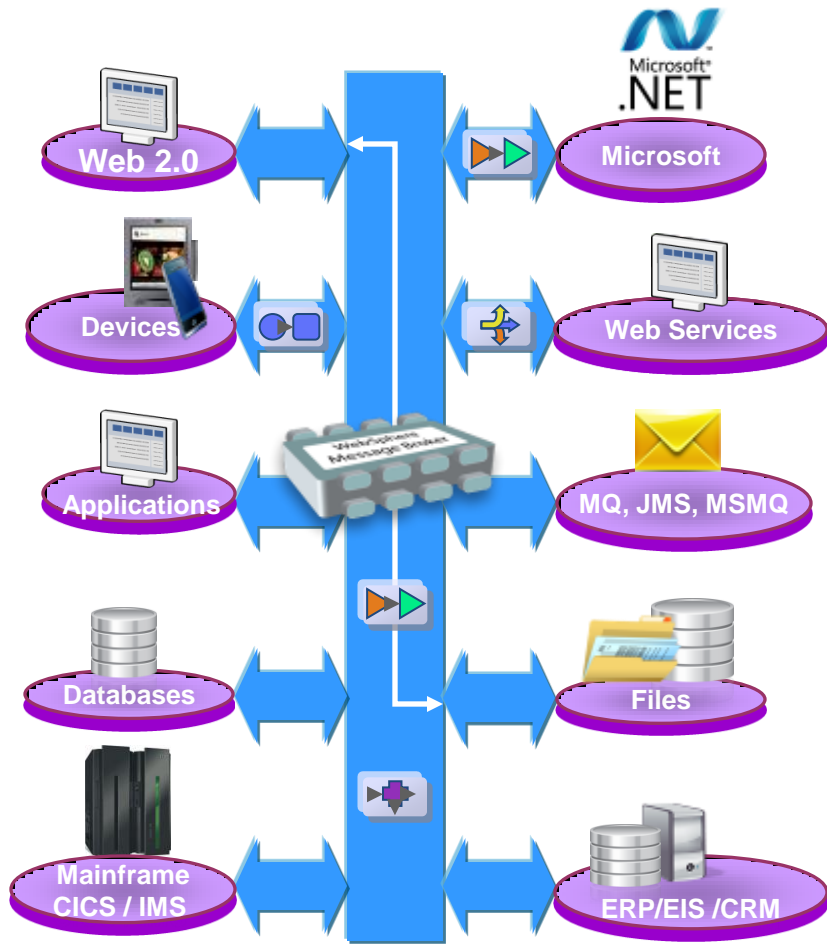


Enterprise Service Bus



WebSphere Message Broker v8

Eliminate point-to-point connections and Unlock the value of your business data



- **Simply Connect** FROM anywhere, TO anywhere
- **Simple & Easy** –to Install, Learn, Develop, Deploy and Manage
- **Visually Map** and Transform between any two message or file formats

MATCHES & ROUTES communications between services

CONVERTS between different transport protocols

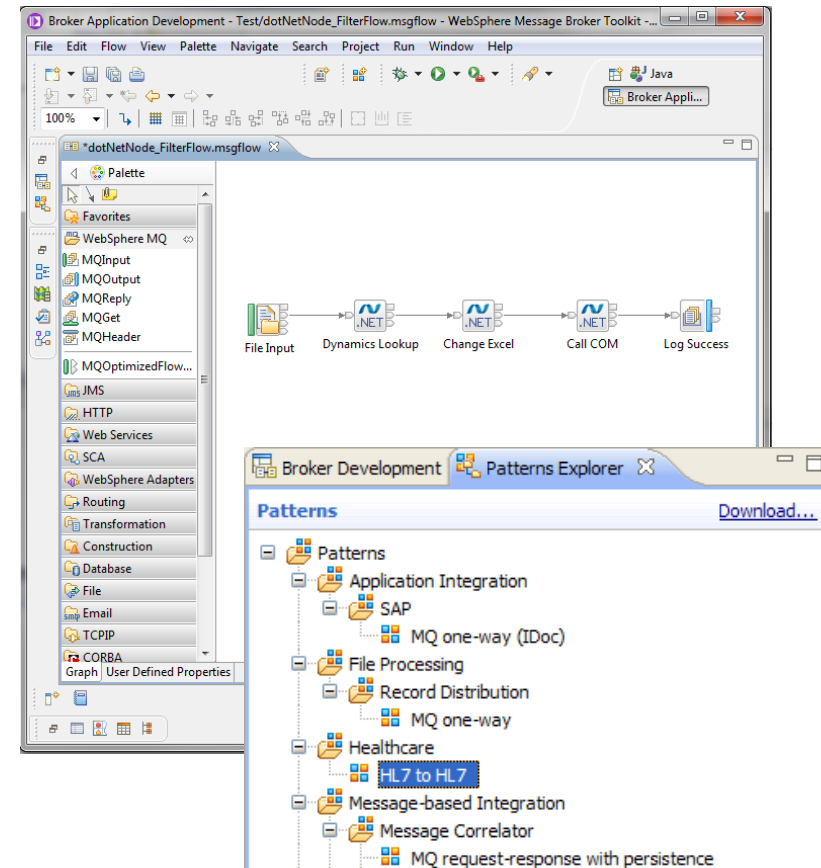
TRANSFORMS between different data formats

IDENTIFIES & DISTRIBUTES business events



WebSphere Message Broker has never been so easy to use

- **Easy to Install**
 - - Ready to develop in minutes
- **Easy to Learn**
 - - Intuitive tools with easy to follow examples & patterns
- **Easy to Develop**
 - - Visually design your integration & transformation
- **Easy to Deploy**
 - - Drag and drop to deploy and quickly test behavior
- **Easy to Manage**
 - - User-friendly monitoring and management



Easy to Install

Ready to develop in minutes



- Install on as many developer workstations as you like
- Installed and ready to develop in 15 minutes
- No installation pre-requisites
- Select components to install:
 - **Graphical Toolkit** – visual designer, integrated with Rational and Microsoft Visual Studio
 - **Runtime** – run your business
 - **Explorer** – single management console
- **Launchpad** provides:
 - A view of current install status
 - Selection of optional components
 - Links to installation guides and product tours

WebSphere. Message Broker v8.0 IBM

Welcome to the WebSphere Message Broker Launchpad on Windows 7

Installation
This will install all the selected products listed below. Deselect a product if you do not wish it to be installed. Note: deselecting a product that is a prerequisite of one of the other products will deselect that at the same time.
Click on the plus (+) buttons below to expand the details on each product.

Component	Status
<input type="checkbox"/> WebSphere MQ V7.0.1	Installed
<input type="checkbox"/> WebSphere Message Broker, V8.0.0.0 <small>Install WebSphere Message Broker V8.0.0.0 runtime components. Time to install is approximately 7 minutes.</small>	<input checked="" type="checkbox"/> Pending
<input type="checkbox"/> WebSphere Message Broker Toolkit, V8.0.0.0	Installed
<input type="checkbox"/> WebSphere Message Broker Explorer, V8.0.0.0	<input checked="" type="checkbox"/> Pending

Installation Guide

Readme Launch Installation for WebSphere Message Broker Refresh

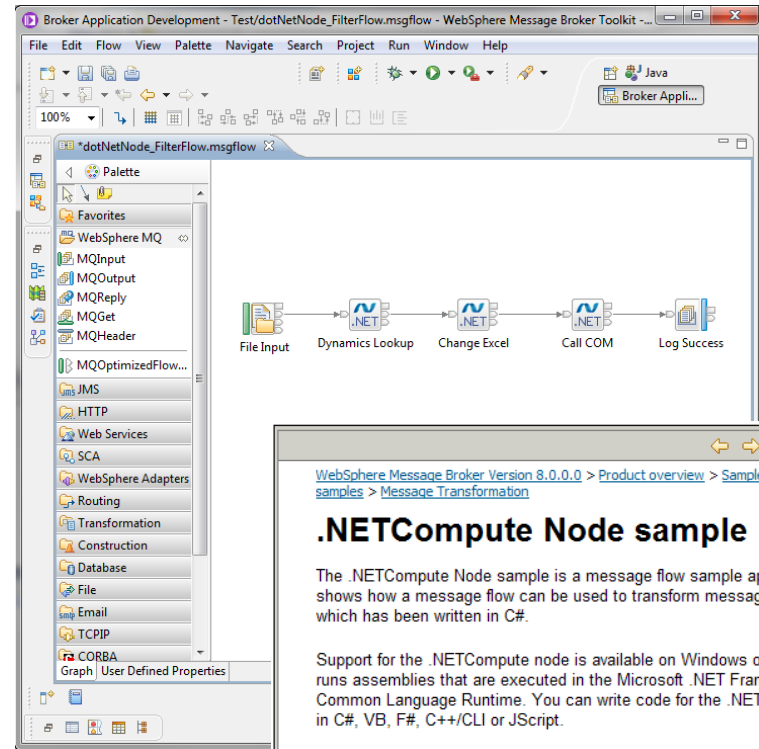
Quick Tour Exit Launchpad

Easy to Learn

Simple basic concepts supporting powerful capability



- **Great Samples** for common scenarios
 - Learn by practical example
 - Quickly customize a working flow rather than starting from scratch
- Easy **Graphical tools** help first time users become quickly productive
- WebSphere Message Broker has two key building blocks
 - **Nodes** connect to sources of data and perform route or transform operations
 - **Flows** connect nodes together into processes which achieve desired business results



The screenshot shows a web browser displaying the .NETCompute Node sample documentation page. The page title is ".NETCompute Node sample". The content includes a description of the sample, its support on Windows, and a list of links for more information and deployment instructions.

[WebSphere Message Broker Version 8.0.0.0](#) > [Product overview](#) > [Samples](#) > [Technology samples](#) > [Message Transformation](#)

.NETCompute Node sample

The .NETCompute Node sample is a message flow sample application that shows how a message flow can be used to transform messages using code which has been written in C#.

Support for the .NETCompute node is available on Windows only. The node runs assemblies that are executed in the Microsoft .NET Framework Common Language Runtime. You can write code for the .NETCompute node in C#, VB, F#, C++/CLI or JScript.

The sample specifically demonstrates:

- How the .NETCompute node is used in message flow creation.
- How prebuilt .NET framework assemblies can be deployed to the broker.

Click the following links to find out more about the sample and how to get the prebuilt sample to run by using the wizards.

- 🕒 **Import and deploy:** 5 minutes
- 📖 [Read about the sample](#)
- 🔍 You can set up the sample in one of the following ways:
 - [Import and deploy the sample](#)

Easy to Develop

Use Patterns to rapidly create and reuse common integrations



Pattern Based Development

- **Select** a pattern
 - Wide range of built-in patterns
- **Use** a pattern
 - As few as 4 clicks to a running solution
- **Create** new patterns
 - Turn your solutions into reusable patterns in less than 5 minutes
- **Reuse** everywhere
 - Achieve consistency and avoid costly duplication

Graphical Mapper for XML, text, and binary data

- Visually map and transform source to target data
- Apply transformations to single and multiple elements
- **Drag and drop** to move, join and add conditional logic

Healthcare: HL7 to HL7 pattern

The Healthcare: HL7 to HL7 pattern integrates an application that can send Health Level Seven International (HL7) v2 messages with one or more applications that can receive HL7 messages. The applications must be capable of sending and receiving HL7 messages by using Minimal Lower Layer Protocol (MLLP) over TCP/IP.

The Receiver flow in this pattern supports the following options:

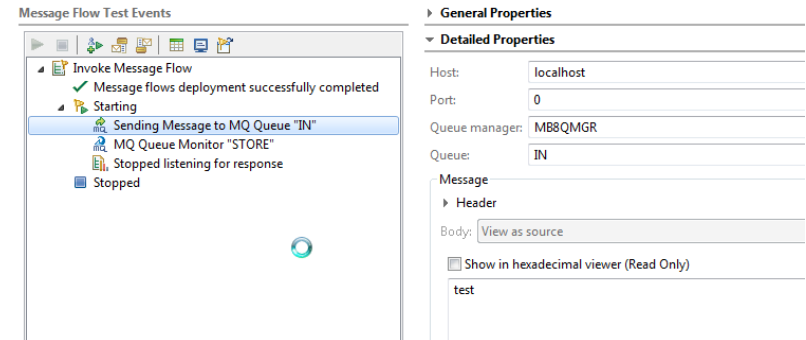
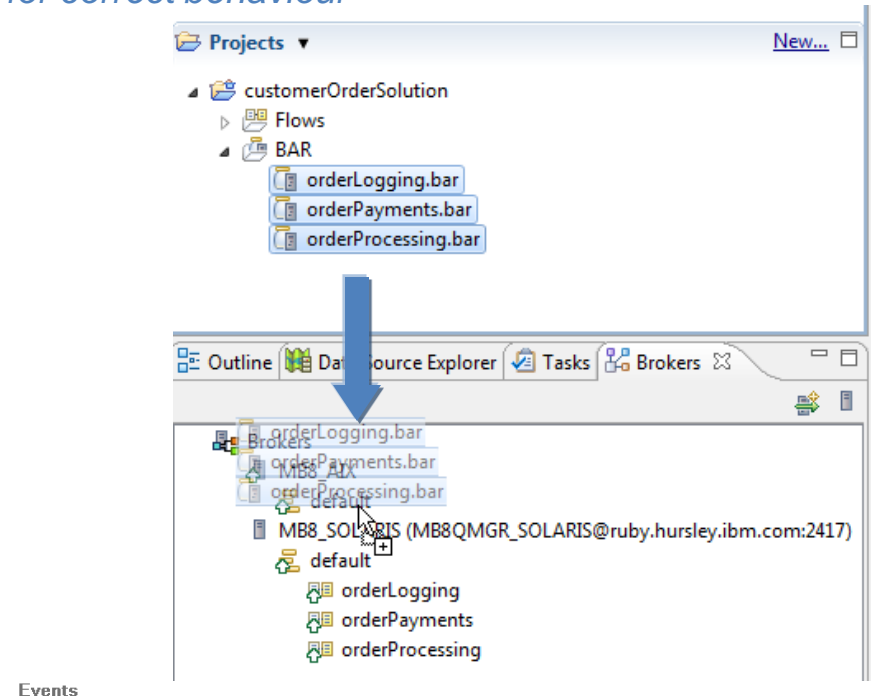
1. Receiving HL7 messages by using MLLP over TCP/IP
2. Validating and parsing of messages
3. Auditing incoming messages
4. Checking and processing of duplicate messages

Easy to Deploy

Deploy to a runtime in a single operation and quickly test for correct behaviour



- **Drag and drop** to deploy Broker resources to the runtime
 - Choose from a single list of local and remote Brokers
 - Clear view of runtime status and deployment success
- **Develop once**, deploy to runtimes on all supported platforms
- **Built-in test client** for rapid test and debug activities
 - Auto-generate test data or import your own
 - View overall results and drill into individual test events



Easy to Manage

Tools focused at the user, not just the technology



Web based Operations Monitoring

- Zero footprint, easy to use from anywhere

Activity Trace

- User centric view of resources:
 - “File *DailyOrders.xml* is ready for processing”
 - “Database *Invoices* has gone offline”

Simple Monitoring of performance and resources

- Graphical analysis of system health and performance information
- Integrates with ITCAM, BMC, HP OpenView via JMX

Industry tailored views*

* Via purchase of additional pack. Healthcare already available

Message ...	Timestamp	Message Summary
BIP12001I	20-Jun-2011 06:28:07.03...	Connected to JMS provider 'WebSphere_MQ'
BIP12002I	20-Jun-2011 06:28:07.06...	Created a 'Transaction_None' session for JMS provider 'WebSphere_MQ'
BIP12004I	20-Jun-2011 06:28:07.17...	Created JMS producer for destination 'ACTIVITYLOG_JMS_REC'
BIP12014E	20-Jun-2011 06:28:07.24...	Failed to send message to 'ACTIVITYLOG_JMS_REC'
BIP12004I	20-Jun-2011 06:28:07.17...	Created JMS producer for destination 'ACTIVITYLOG_JMS_REC'
BIP12014E	20-Jun-2011 06:28:07.25...	Failed to send message to 'ACTIVITYLOG_JMS_REC'
BIP12001I	20-Jun-2011 06:28:09.77...	Connected to JMS provider 'WebSphere_MQ'
BIP12004I	20-Jun-2011 06:28:09.80...	Created JMS producer for destination 'ACTIVITYLOG_JMS_REC'
BIP12014E	20-Jun-2011 06:28:09.81...	Failed to send message to 'ACTIVITYLOG_JMS_REC'
BIP12004I	20-Jun-2011 06:28:07.20...	Created JMS producer for destination 'ACTIVITYLOG_JMS_REC'
BIP12014E	20-Jun-2011 06:28:07.24...	Failed to send message to 'ACTIVITYLOG_JMS_REC'
BIP12004I	20-Jun-2011 06:28:09.81...	Created JMS producer for destination 'ACTIVITYLOG_JMS_REC'

Large bank reduces integration complexity

Business Need

- Required continuous integration and capacity from existing e-channel and middleware services deployed on multiple legacy systems
- Complexity in launching new e-channel services

Solution

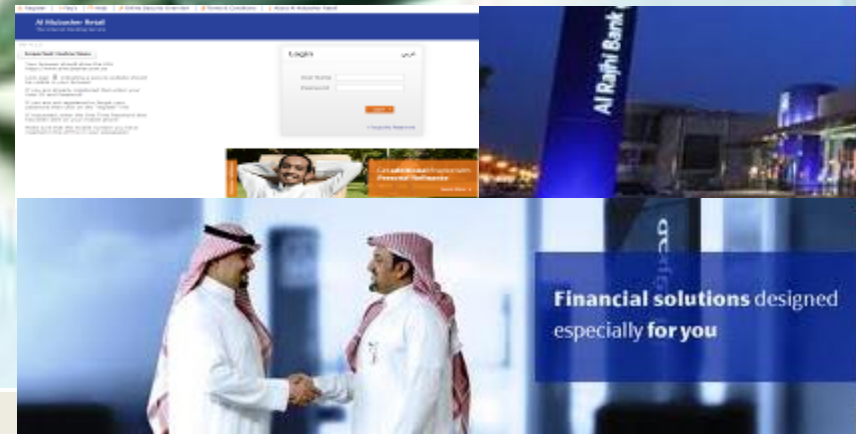
- Defined the overall e-Channels architecture, strategy and roadmap.
- Consolidated multiple heterogeneous systems creating an easy to manage a communication hub

Results

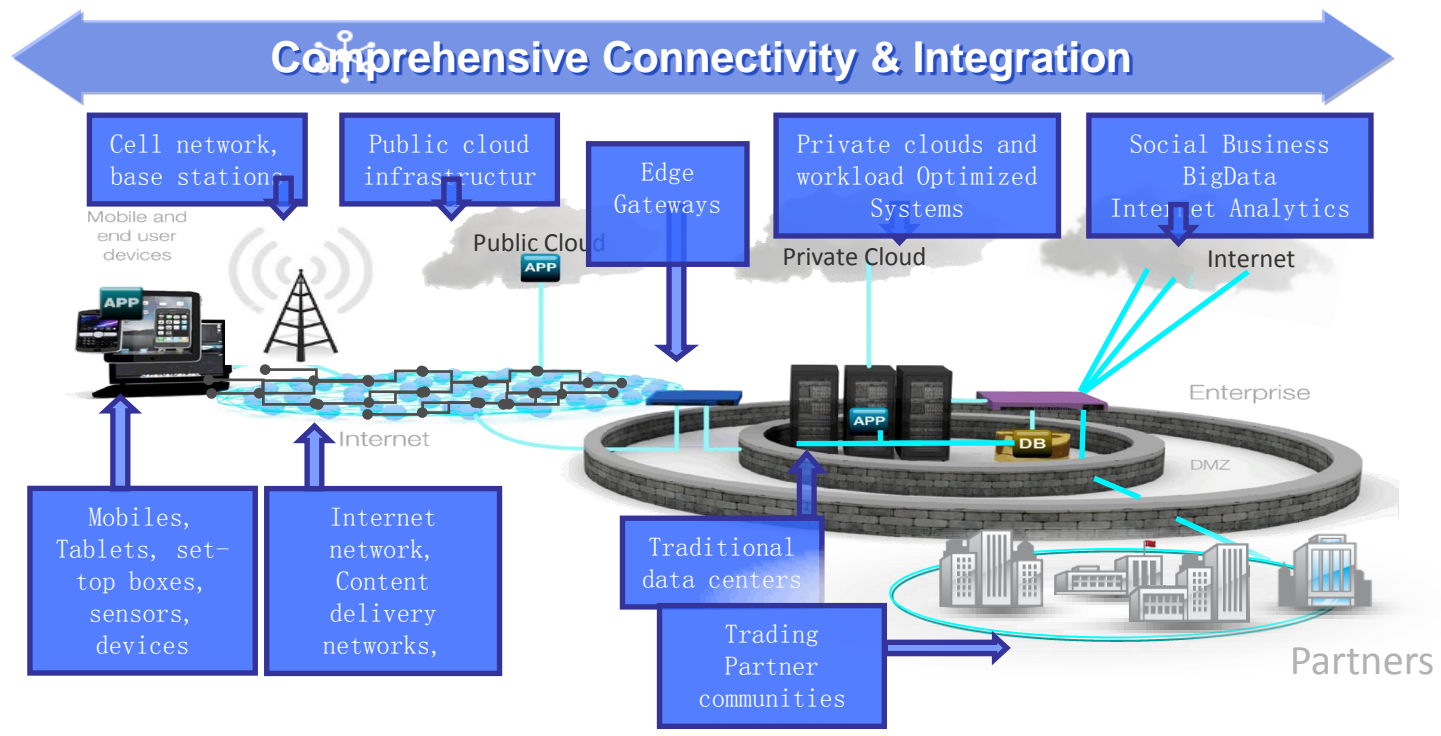
- Simplified integration of multiple e-channel applications
- Reduced complexity to manage integration with external systems
- SOA based system simplified scalability options for the bank

Able to
act as
one

Al Rajhi Bank مصرف الراجحي



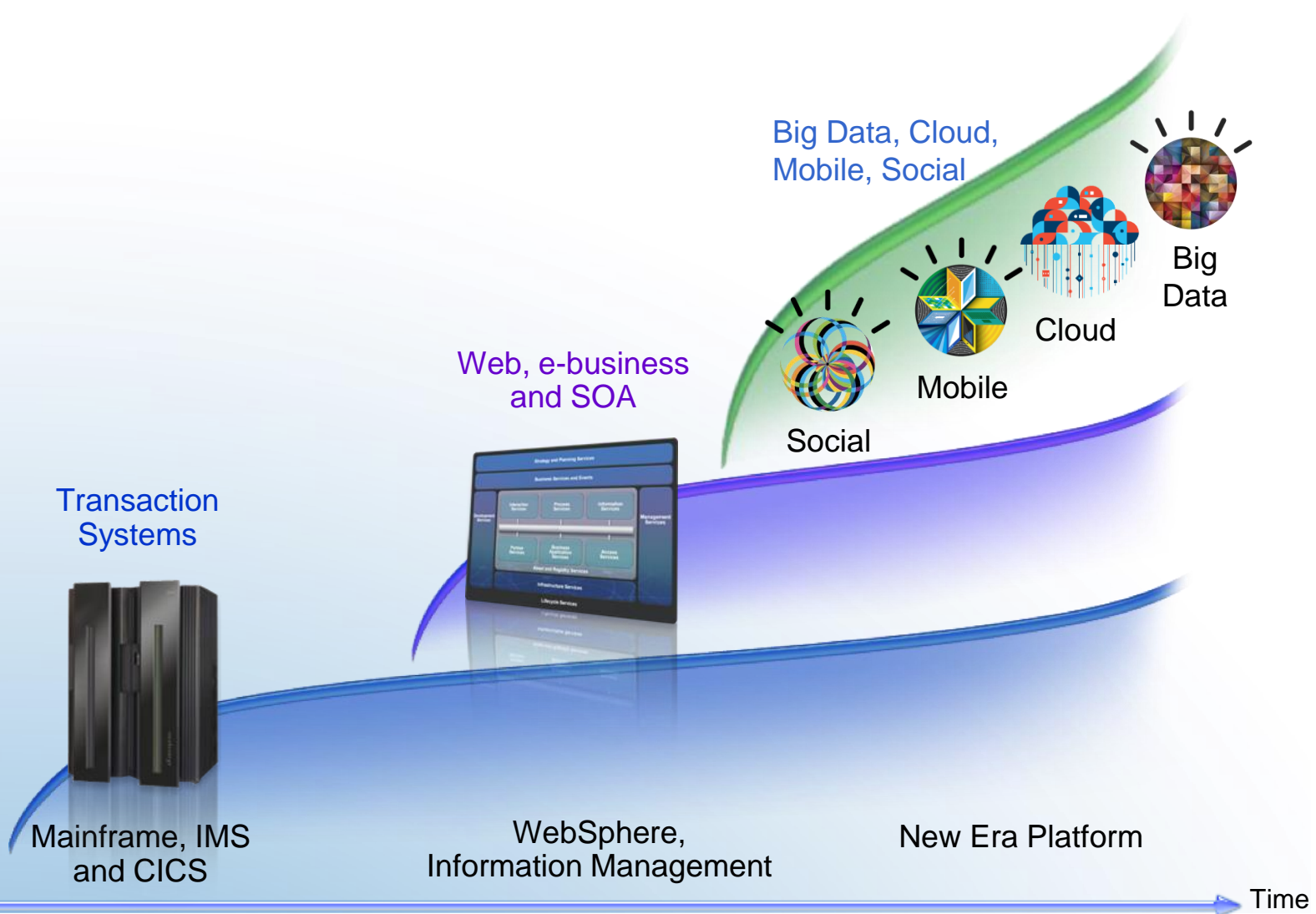
Extending the reach of Connectivity & Integration and embracing newer Business Channels like Mobile and Cloud



3
4

Social, Mobile, Cloud, and Big Data Introduce New Challenges

Reach



1960-

1990-

2010-

Time

SOA is the foundation to address these challenges



“The beauty of SOA...is that we can change our components as needed, seamlessly...it might be a business process or a whole new business model.”

-Phil Mumford, CEO, Queensland Motorways

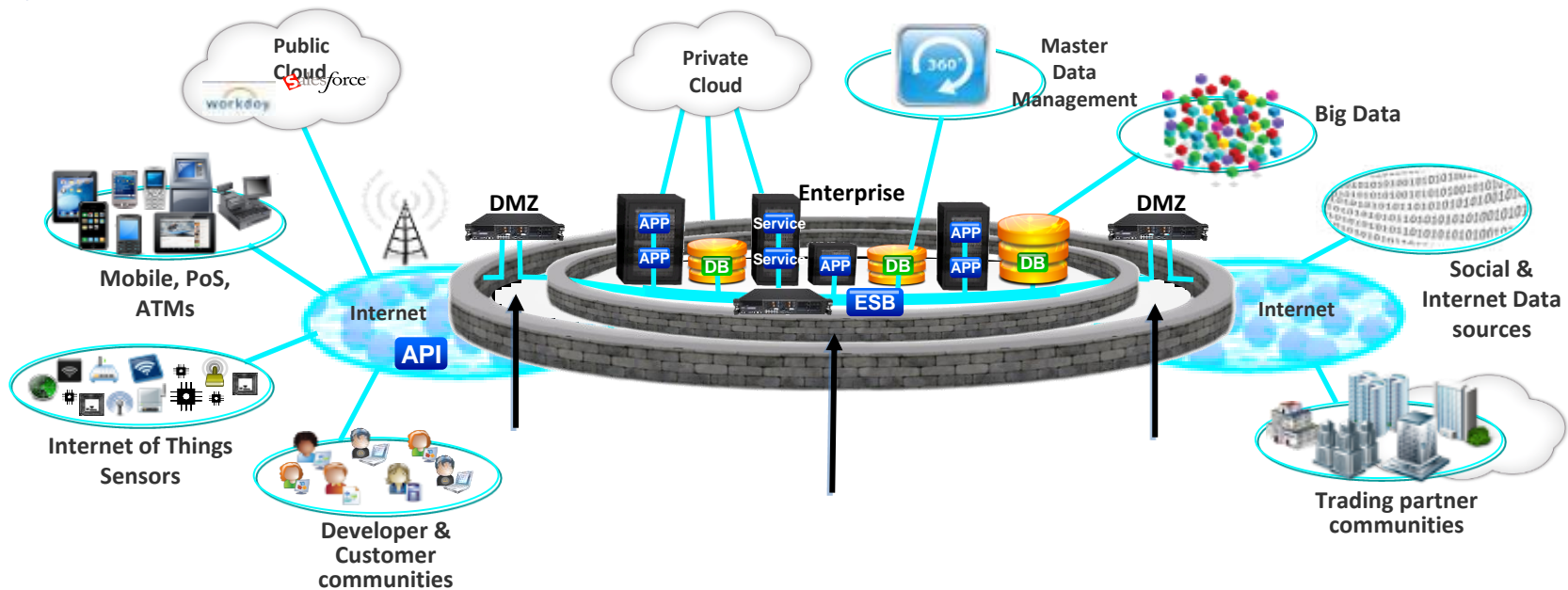
“Make SOA a prerequisite architecture. It's time to breathe new life into your SOA initiative, this time by focusing on architecture instead of technology.”

-Gartner Application and Integration Platforms Key Initiative Overview July 22, 2011

...SOA is simply good design

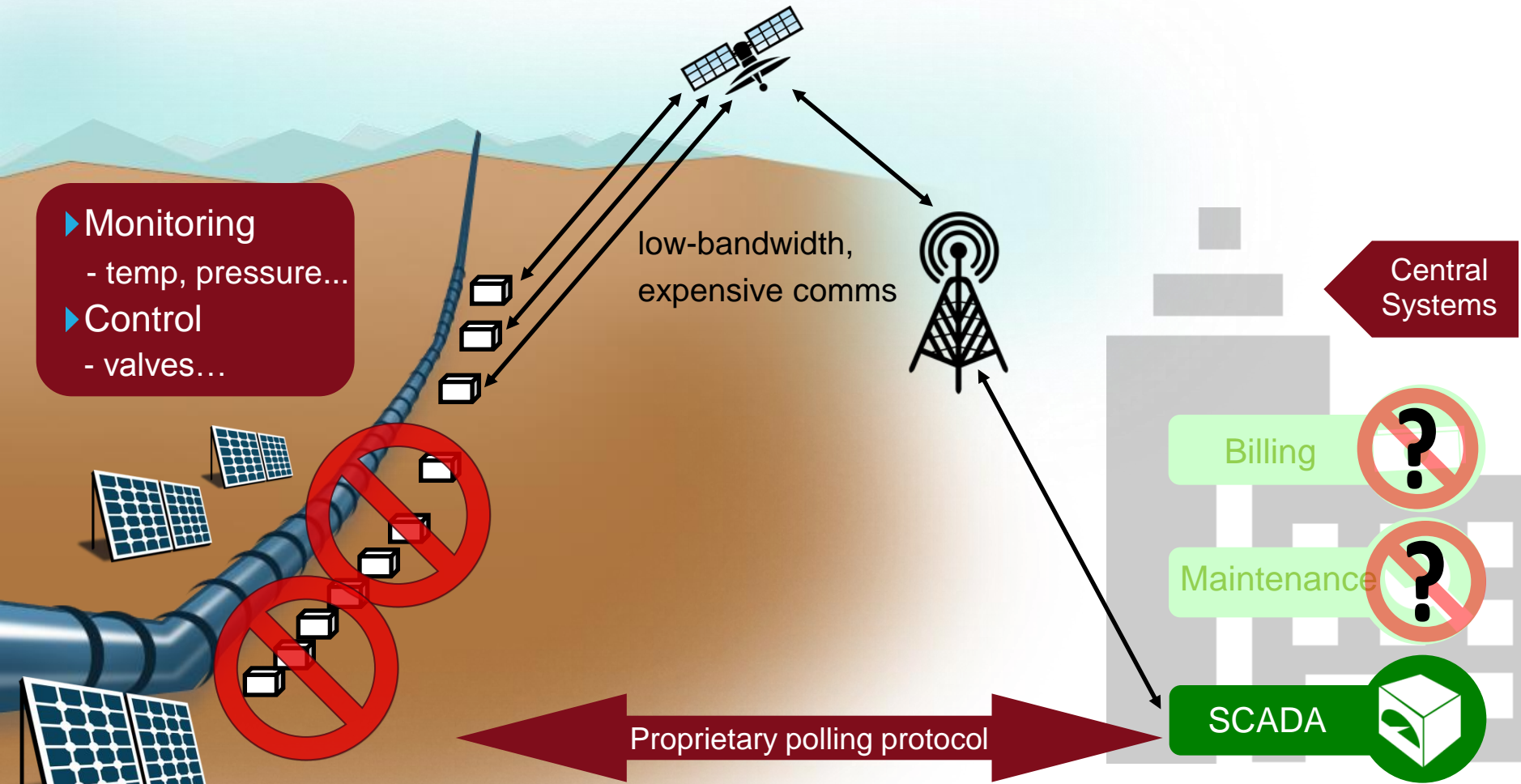
Business Agility

Comprehensive Connectivity & Integration



- 1 Universal Connectivity
- 2 Rapid & Easy Pattern based Integration
- 3 Agility to Integrate new Channels – Mobile, Cloud, Internet of Things

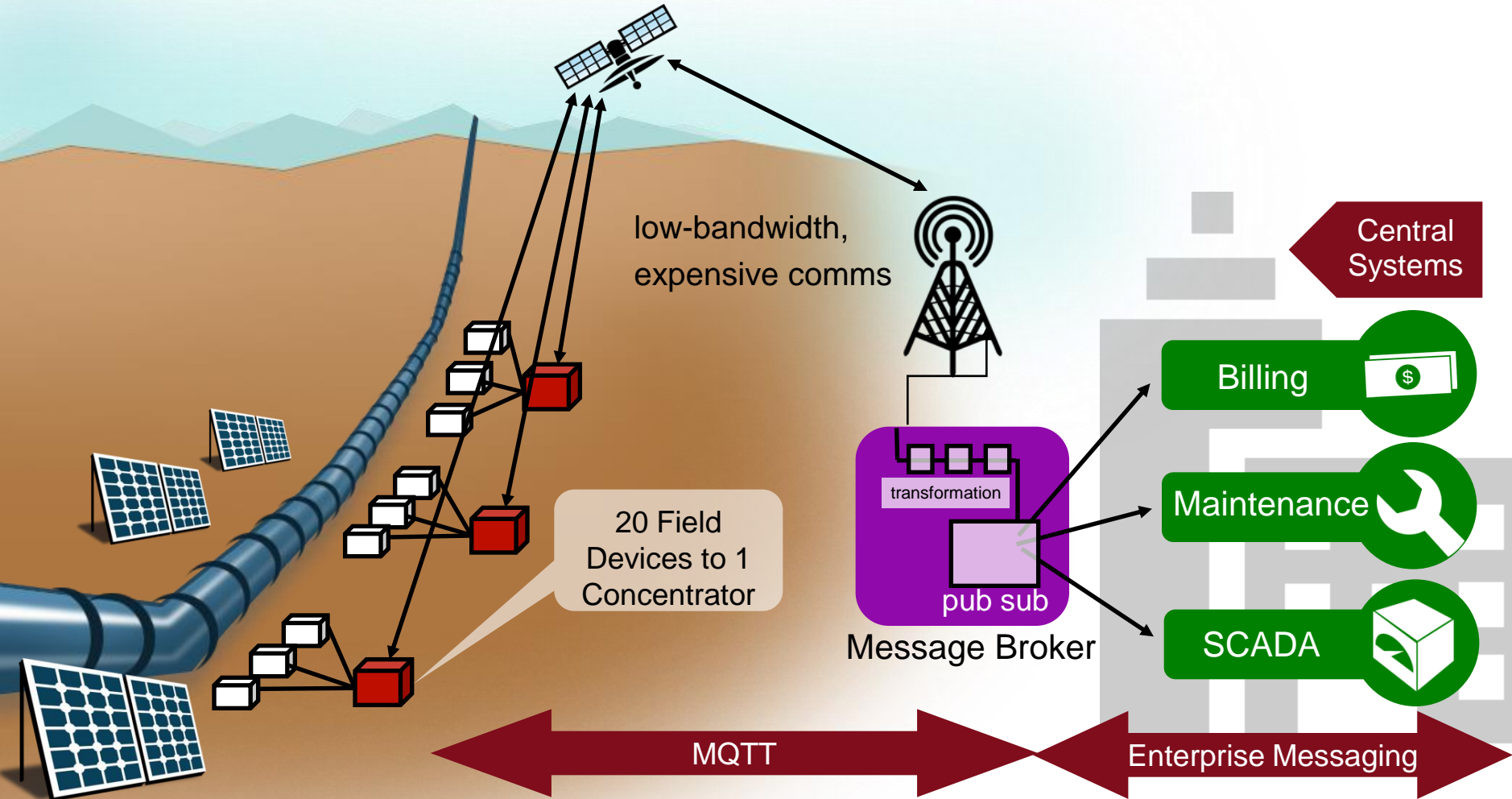
Real Life - Pipeline integration challenges



4000 devices integrated, need to add 8000 more BUT:

- Satellite network saturated due to polling of device
- VALMET system CPU at 100%
- Other applications needed access to data ("SCADA prison")

Enterprise to physical world solution with MQTT



Scalability for whole pipeline!

Network traffic much lower - events pushed to/from devices and report by exception

Network cost reduced

Lower CPU utilization

Broken out of the SCADA prison – data accessible to other applications

Get on the path to becoming an interconnected enterprise

- **Think Big** – Build an architectural strategy for the long term
- **Start Small** – Identify a key foundational project as an entry point
- **Scale Success** – Repeat and project successes and realize architectural vision through continuous ROI

“We wanted to build a more flexible, versatile architecture that would make it easier to introduce new systems and replace old ones. The idea is that with each project, we will establish more and more reusable services and components that will facilitate integration in the future.”

By introducing IBM [Connectivity & Integration] and eliminating point-to-point interfaces, we should be able to reduce the amount of time we spend on integration and reduce TCO over the next five years.”

- James Blackburn, Enterprise Architect,
Mothercare



IBM is the proven leader in connectivity & integration

Largest Customer Base

- 25,000+ Customers
- Customer success stories;
100+ on ibm.com

Strongest Ecosystem

- 1000+ business partners
- users group



Unparalleled expertise, and level of investment

- Over 15 years of industry leadership
- 100' s of assets
- Broadest, Deepest solution portfolio & services

Connectivity from IBM Delivers Unrivaled Customer Value



in Connectivity & Integration
market share*

Report: IBM Named Marketshare Leader in Middleware Software

**Announcement Marks Beginning of
Second Decade of Software Leadership**

*“Gartner reported that IBM continues to be number one in other growing and key areas including the **Enterprise Service Bus Suites, Message Oriented Middleware Market, ...and Integration Appliances.**”*

April, 2012

* Source: “IBM Named Marketshare Leader in Middleware Software”
<http://www-03.ibm.com/press/us/en/pressrelease/37376.wss>.

THANK
YOU

