Business Agility Technical Conference

Title: Messaging Family Update:

WebSphere MQ, LLM, FTE and AMS

Name: Sreelatha R, Product Manager,
WebSphere Connectivity & Integration

Agenda

- Connectivity and WebSphere MQ Universal Messaging
- WebSphere MQ family – where we are today
- Summary

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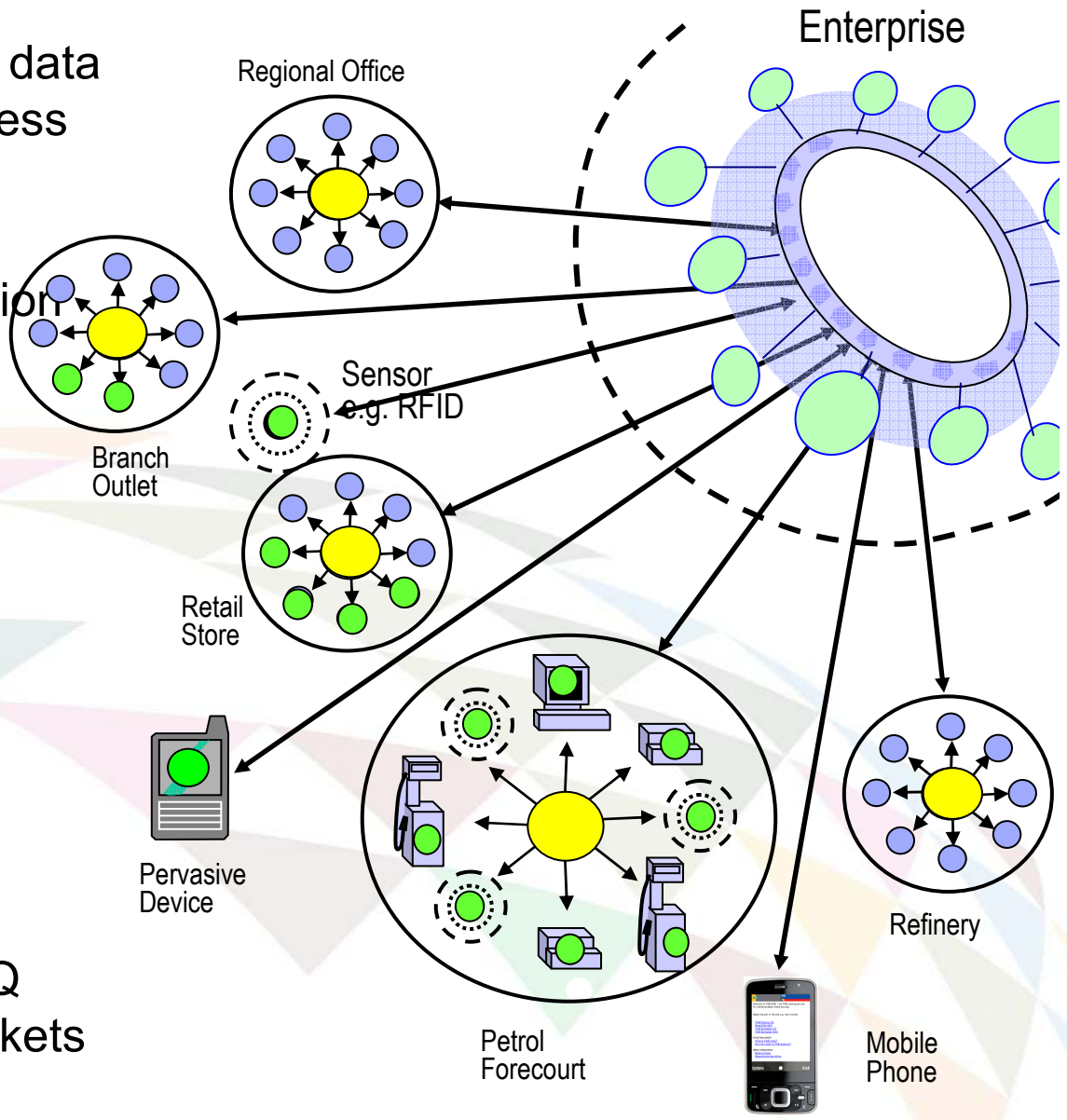
WebSphere MQ Value: Connectivity to, from and within an Enterprise

- A Universal Message Bus for access to data wherever it exists to support your business
- Provides a comprehensive range of Messaging capabilities to support your Business requirements for data integration
  - Managed File Transfer
  - Messaging integration patterns
  - Reliability and availability QoS
  - SOA foundation
- Provides appropriate data access and data privacy controls to help meet audit and regulatory requirements
- WMQ Telemetry is one step in extending the reach of WMQ to a wider world of data relevant to your business
- Recent technology demonstration of MQ Web Messaging using HTML5 WebSockets continues this progress



How WebSphere MQ meets your Connectivity needs

*Dynamic network that delivers the **data** you require from wherever it resides to wherever you want it in whatever way you want it at whatever time you want it*

Universal Messaging

1. Anything Anywhere

- Any skills
- Any traffic
- Any language
- Any environment
- Any platform

2. Best Delivery

- Choice of service
- Resilience, Integrity, Security
- Throughput, Latency
- High availability

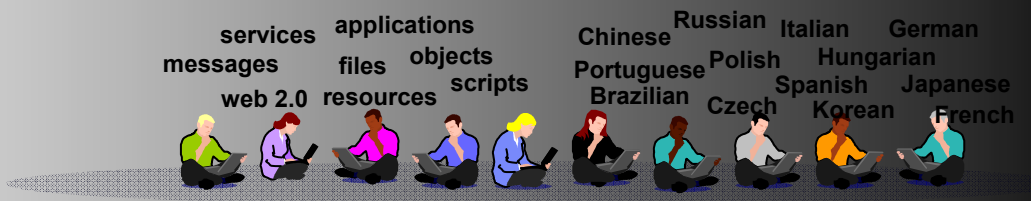
3. Scale Dynamically

- Start small
- Grow incrementally
- Stretch elastically
- Scale admin

Universal Messaging – Anything to and from Anywhere

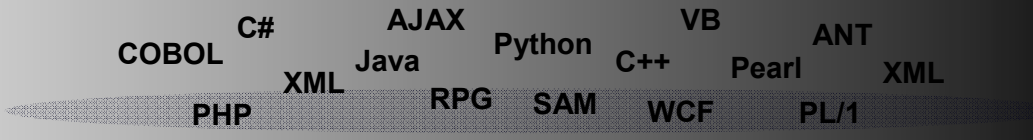
Access data and services and reuse your existing skills and platform investments

Any skills
- Use the resources at hand
- Reduce dependency on specialists
- Leverage infrastructure throughout org

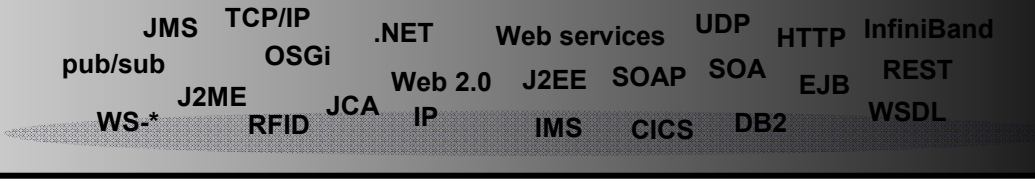


Any traffic
- Reduce maintenance by consolidation
- Unlock value of data
- Modernize infrastructure

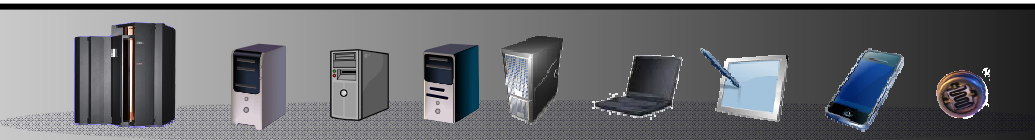
Any programming language
- Bridge the "new" with the "now"
- Protect existing investments



Any environment
- Connect new innovations
- Extend core investments
- Span independent departments



Any platform
- Virtually any commercial IT platform
- Over 80 platform configurations
- Native exploitation of IBM System z



AIX, Alpha, Apple Mac, BSD, DG/UX, HP-UX, i5/OS, IRES, Itanium, Linux, MPE/iX, MP-RAS, NLPOS9, NonStop, NUMA-Q, OpenVMS, OS/400, PA-RISC, Red Flag, Reliant, RHEL, SCO OpenServer, SGI, Solaris, SPARC, SUSE, System p, UnixWare, VSE/ESA, VxWorks, Windows, x86-32, z/OS, zLinux, …

Universal Messaging – Best Delivery

Meet wide range of business requirements within a common infrastructure

Choice of service

- Offer whole range over single network
  - From transactional to low latency
- Enable more granular optimization

Resilience, Integrity, Security

- Choice of persistence strategies
  - Message queue for high resilience
  - Message storing for high speed
  - Granular security for data and transport

Throughput, Latency

- Daemon-less, Peer-to-peer, Shared memory
- Re-play for late joiners
- Re-ahead delivery for consuming apps

High Availability

- Choice of availability strategies
  - Software-only for ease (multi-instance)
  - Hardware-based for highest recovery
  - Shared queues z/OS for continuous availability

Universal Messaging – Scale dynamically

Grow at your speed while protecting your existing investments

Scale admin

- Manage larger networks with fewer resources
- Remote admin across entire network
- Self and zero admin clients and devices
- Leverage Tivoli to auto-generate topology view

Stretch Elastically

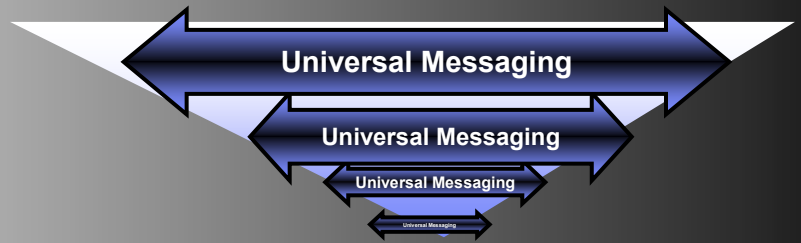
- Vertical scaling leveraging multi-processor, multi-core
- Horizontal scaling leveraging distributed clustering
- Shared queues leveraging System z parallel sysplex
- Cloud deployments

Grow incrementally

- Expand network one node at a time
- Share resources across departments
- Plug in services and apps as needed

Start small

- Easy to try, quick to start
- Reduce required IT resources
- Address needs of Growth markets



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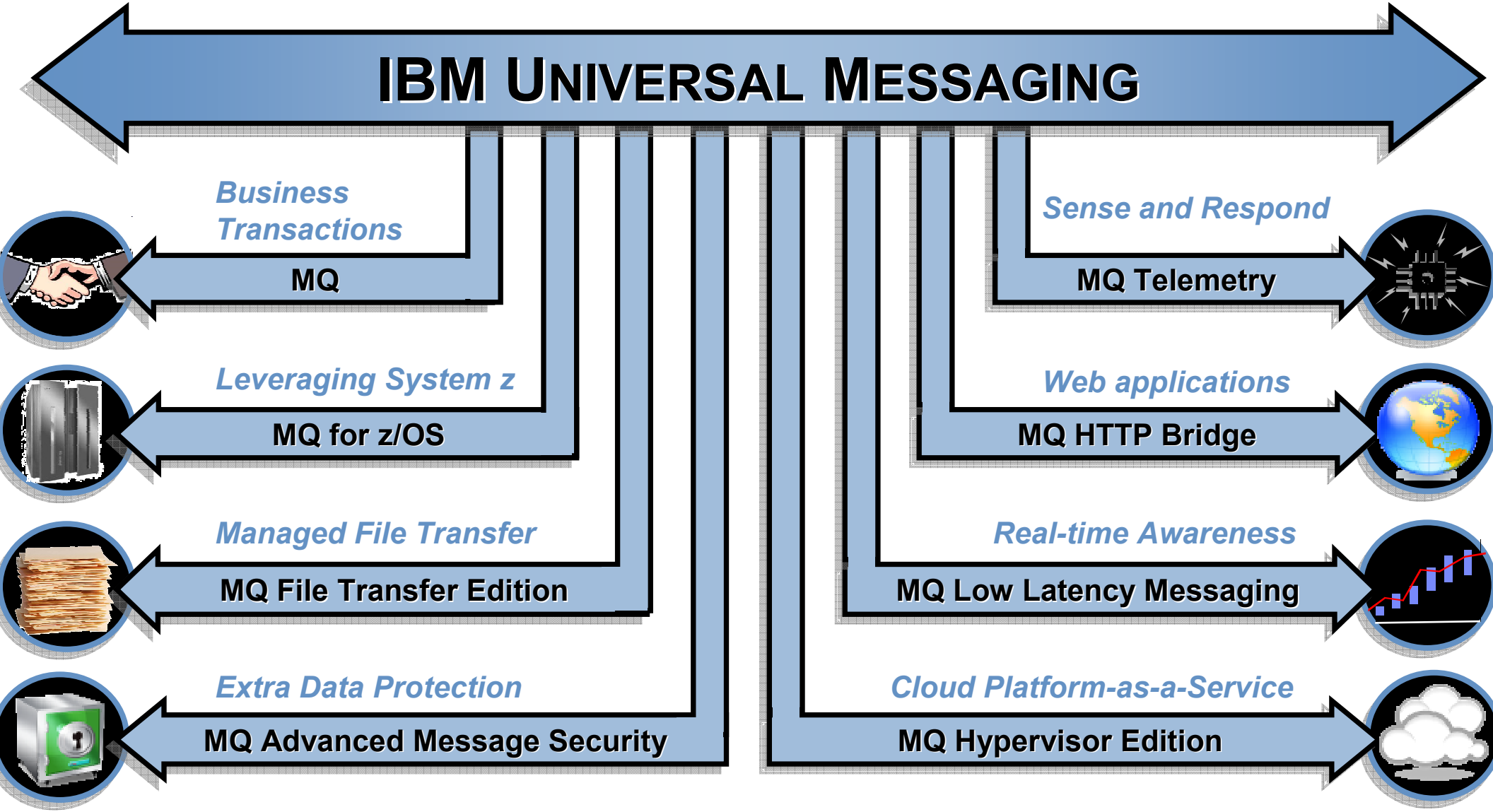
IBM's Universal Messaging Backbone

Proven, Flexible, Robust business data delivery from anywhere to everywhere



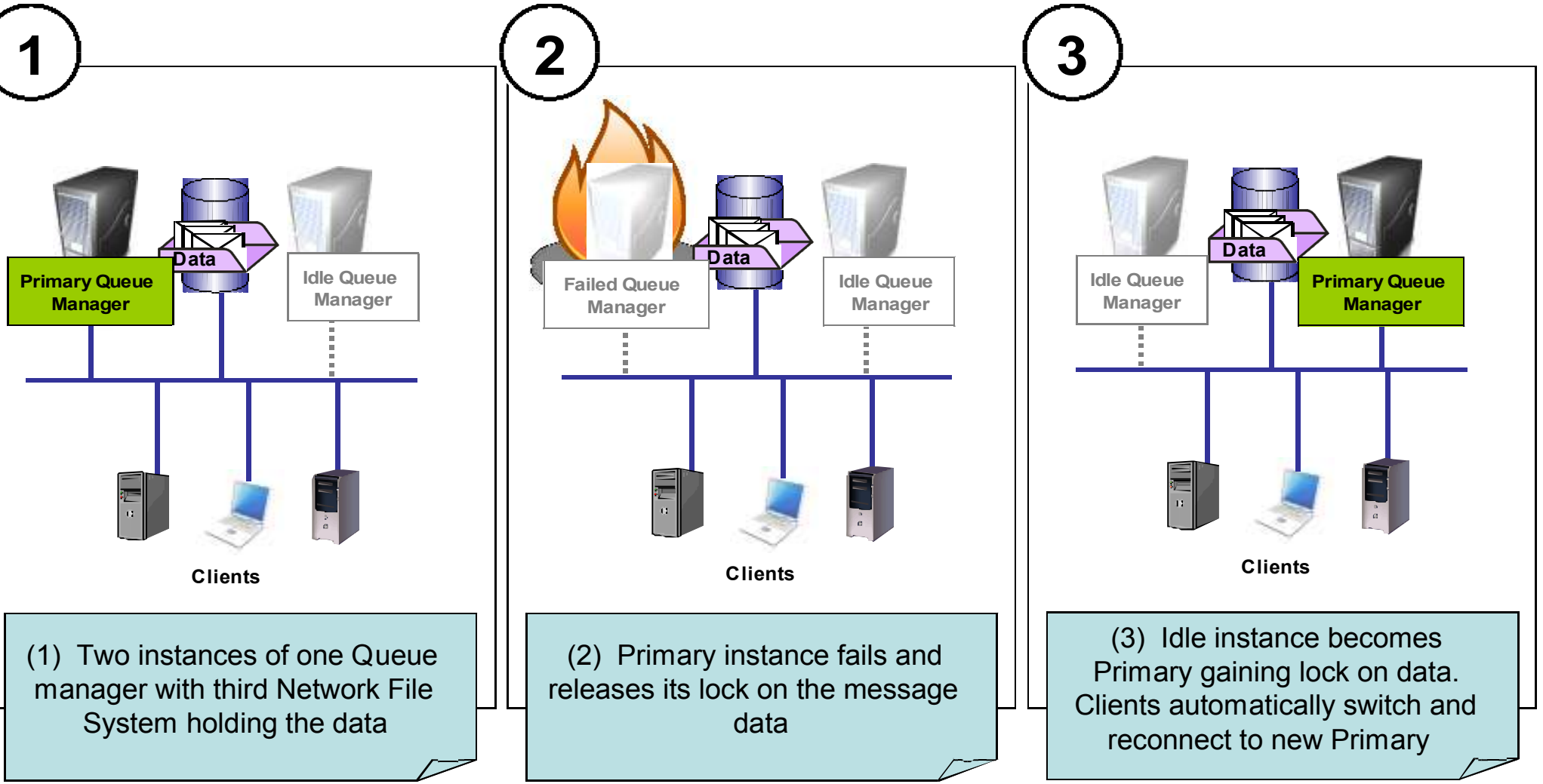
WebSphere MQ – Summary

WMQ V6 EOS news

- V6 End of Service: **NOW September 2012**
  - Distributed and z/OS

Idle Standby with Multi-Instance Queue Managers

(New failover option in WMQ V7.0.1)



WebSphere MQ V7.1: Feature Summary

WebSphere MQ V7.1
Announced: 4 October 2011
Availability: 11 November 2011

Simplification

New Feature	*Benefits*	
Multi-Version Install capability on Distributed platforms	Makes it easier to deploy and upgrade systems and stage version to version migration	Unix and Windows support for multiple versions of MQ V7.x (AND one copy of MQ V7.0.1) down to fixpack levels. Relocatable installation support. Applications can connect to any Qmgr
Enhanced Security	Simplified Configuration Enhanced Authorisation and Auditing	IP address Authorisation capability Additional crypto algorithms More granular authorisation for non-local queues Application Activity Reports
Cloud Support	Simplifies and support Cloud deployments	Additional HVE images
Enhanced Clustering	Improves ease-of-use	Authorisation on Cluster Q rather than XMIT Q on Dist. Platforms Bind-on-Group Support
Multicast capability	New messaging QoS provides low latency with high fan-out capability	MQ Pub/Sub Topic space can now map to multicast Group Addresses Provides direct interoperability with MQ LLM
Improved scalability and availability on z/OS	Further exploitation of z196 Customer control over CF storage use CF Connectivity Loss improvements	Code contention reduced to improve multi-processor linear scaling Use of MQ Datasets rather than DB2 significantly improves “large” message capability Structure rebuild capability for CF Connectivity Loss scenarios
Improved Performance on Dist platforms	Improved multiprocessor exploitation	Various code improvements

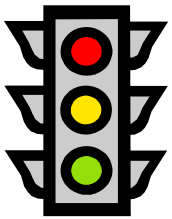
WebSphere MQ Telemetry – Summary

Extending the reach of WMQ – MQ Telemetry Transport (MQTT)

- Industrial control systems (aka SCADA) are well-suited to a messaging solution
  - Loose coupling, multi-protocol, separation of concerns...
- IBM developed a protocol designed for the constraints of the SCADA world
  - Later renamed MQ Telemetry Transport – (MQTT) due to broader telemetry adoption
  - Designed to expect and cater for frequent network disruption
  - Built for low bandwidth, high latency, unreliable, high cost networks
  - Tailored for resource-constrained client application environments
  - Published protocol for ease of adoption by device vendors and third-parties - http://mqtt.org/
- Traditional messaging qualities of service provided where environment allows

Multiple Business scenarios suitable for MQTT

predict



alert

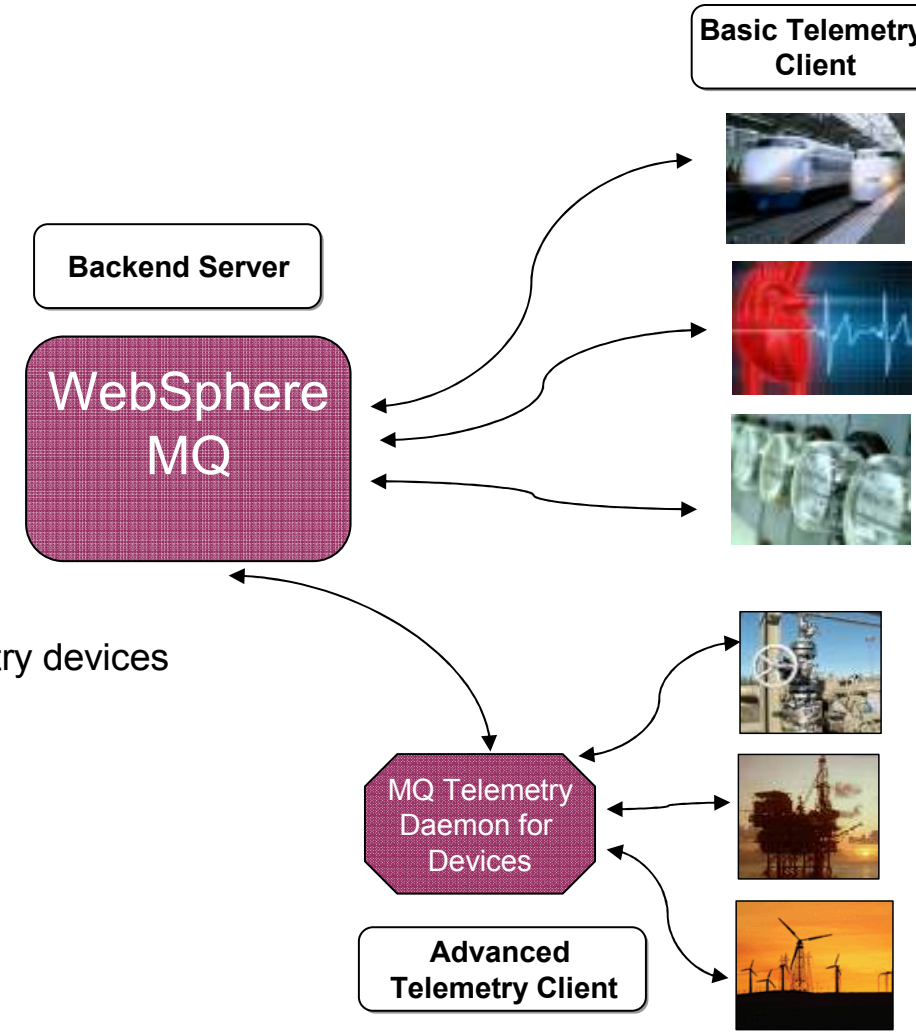
track

measure

Scenario	Key Industries	Benefits
Automated Metering	Chemical & Petroleum Energy & Utilities	*Smart metering of home energy to improve efficiency*
Distribution Supply Chain and Logistics	Retailers Distributors Consumer products Transportation	*Shipping company improves customer loyalty improvement through up-to-date tracking info.* *Transportation company improves customer safety and satisfaction with improved fleet tracking*
Industrial Tracking & Visibility	Automotive Industrial manufacturing Aerospace Defence	*Manufacturing company automates inventory checking to improve management of stock and optimize production rates*
Healthcare Personal & Resource Tracking	Pharmaceutical companies Health trials Hospitals Nursing Homes	*Medical organization increases safety and quality of patient care* *Hospital reduces waiting lists and improves efficiency with surgery equipment tracking*
Location Awareness and Safety	Chemical & Petroleum Energy & Utilities Homeland Defence	*Gas company improves pipeline monitoring and control* *Government improves early-warning capability by monitoring dams and flood-risk areas*
Executive Alerting	Insurance Banking	*Bank alerts Personal Account Managers when new clients open key accounts*

Extending the reach of WMQ - M2M with WMQ Telemetry V7.0.1

- Highly scalable
  - A single queue manager can handle up to 100K concurrently connected devices
  - Fully integrated / interoperable with WMQ
    - Publishers and subscribers can exchange messages with MQI and JMS applications
- Ships with two types of client:
  - Basic
    - direct connectivity from a device
  - Advanced:
    - Acts as a "concentrator/hub" for mini-networks of Telemetry devices
    - Can connect to multiple backend servers
    - Can failover to alternate backend server
    - Can buffer messages
- Provides rich security
  - Network: SSL
  - Authentication: JAAS
  - Authorisation: OAM



- In addition any 3rd party, open source or roll your own MQTT client can be used

WMQ V7.0.1 Telemetry improves Electricity Usage

***Consert** developing an Intelligent Utility Network offering for optimizing load on electricity grids*

Business Partner Needs

- Needs robust middleware technology to connect to remote smart meters
- Needs to be able to rapidly scale solution nationwide

Real Results

- ***Able to offer** daily energy savings of 15-20%*
- ***Enables** utilities to reduce peaks and avoid punitive charges*
- ***Helps save** electricity through better peak load management*

WMQ V7.0.1 Telemetry transforms Patient Care

***St Jude Medical** created a remote pace-maker monitoring solution to provide better patient care*

Client Pains

- Physicians needed better monitoring of cardiac patients
- Improve efficiency of checkups
- Meet Healthcare data capture standards

Real Results

- ***Enables** higher level of patient care and peace of mind*
- ***Improves** administrative efficiency and maintenance*
- ***Helps** conform to standards and ease integration of data*

Extending the reach of WMQ – B2C and B2E with MQ Web Messaging

- Connectivity for B2C & B2E with WebSockets
  - Tech preview at Impact
- MQ Web Messaging is designed with the following primary intentions:
  - 1st class web support built on web standards (IETF and w3C)
  - Aimed at the new class of Rich Internet Applications that run in web browsers
  - Works seamlessly on both Mobile and Fixed devices with a modern web browser.
  - Provides efficient message and event distribution to and from the web browser.
    - Unlike HTTP messages / events are “Pushed” each way.
  - A publish/subscribe messaging paradigm accessed via JavaScript API
  - Provide traditional messaging qualities of service in a modern way

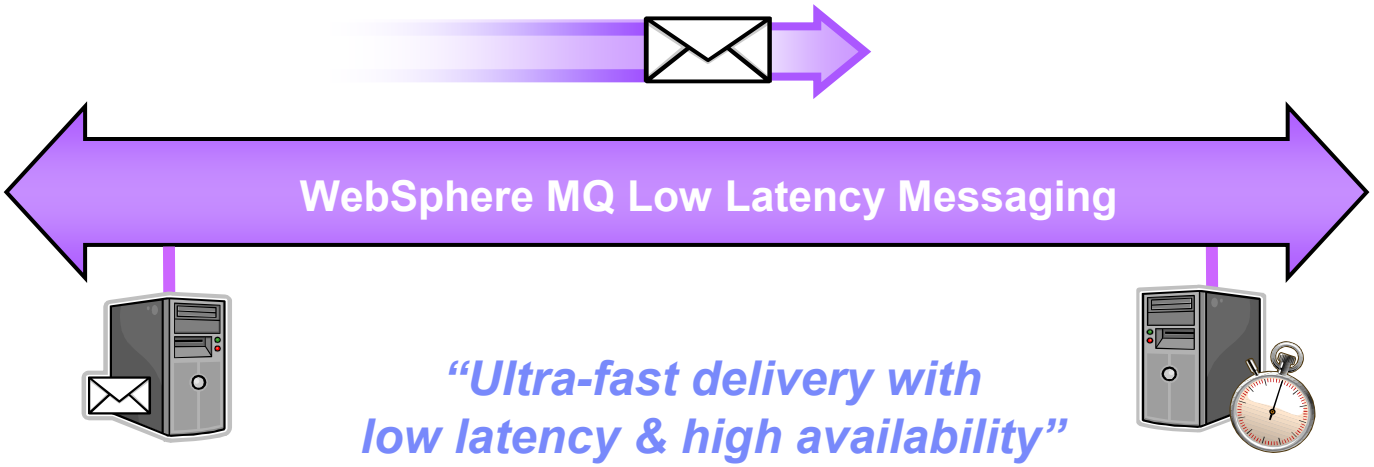
WebSphere MQ Low Latency Messaging - Summary

IBM WebSphere MQ Low Latency Messaging

- Peer-to-peer messaging transport optimized for ultra low latency, high-throughput delivery
- Capable of over 90 million messages per second over native InfiniBand
- Can bridge to MQ networks with DataPower XM70
- WMQ LLM is also included in WebSphere Front Office for Financial Markets

Low Latency capabilities

- Less than 10 microsecond latency at high throughput rates
- Stream failover for high availability
- Dynamic congestion traffic control
- Flexible message filtering
- Multicast & Unicast distribution
- Message store for reliable delivery
- Highly configurable API
- Ordered (FIFO) delivery
- Infiniband & 10GbE support



WMQ LLM V2.6 Performance

Setting the Bar for Throughput

98 million messages per second on Native Infiniband and Shared Memory

75 million messages per second on 10 Gigabit Ethernet

Industry Leading Latency

1 microsecond for shared memory

2 microseconds over Native InfiniBand

4.5 microseconds over Ethernet (10 GbE*)

High Throughput

10 Gigabit Ethernet

Message size (bytes)	Message Rate (msgs /sec)
12	75,914,578
45	25,253,255
120	9,724,107
1200	985,846
12,000	98,225

Low Latency

Single hop Average

Network	Message size (bytes)	Transmission rate (msgs /sec)	
		10K	100K
1 GbE Ethernet	120	29 µs	34 µs
10GbE Ethernet*	120	4.5µs	4.5µs
InfiniBand	120	2 µs	3 µs
Shared Memory	120	1 µs	1 µs

System Configuration

- IBM HS22 blades: 2 x Quad core Intel Xeon E5570 2.93GHz 14GB RAM. Linux RHEL 5 update 3 (x86_64 64 bit)
- Voltaire 40 Gb IB Switch Module / BNT 10Gb Ethernet Switch Module
- Mellanox ConnectX MT26428 HCAs / Chelsio T320 Dual Port 10GbE Adapter
- * 10GbE using RoCEE

Responding faster with WMQ LLM

Bolsa de Comerico de Santiago *dramatically accelerate their trading rates and throughput*

Customer Needs

- Needed to better integrate with international financial markets
- Needed to support higher volumes of traffic and fulfil more of its customers' transactional requirements

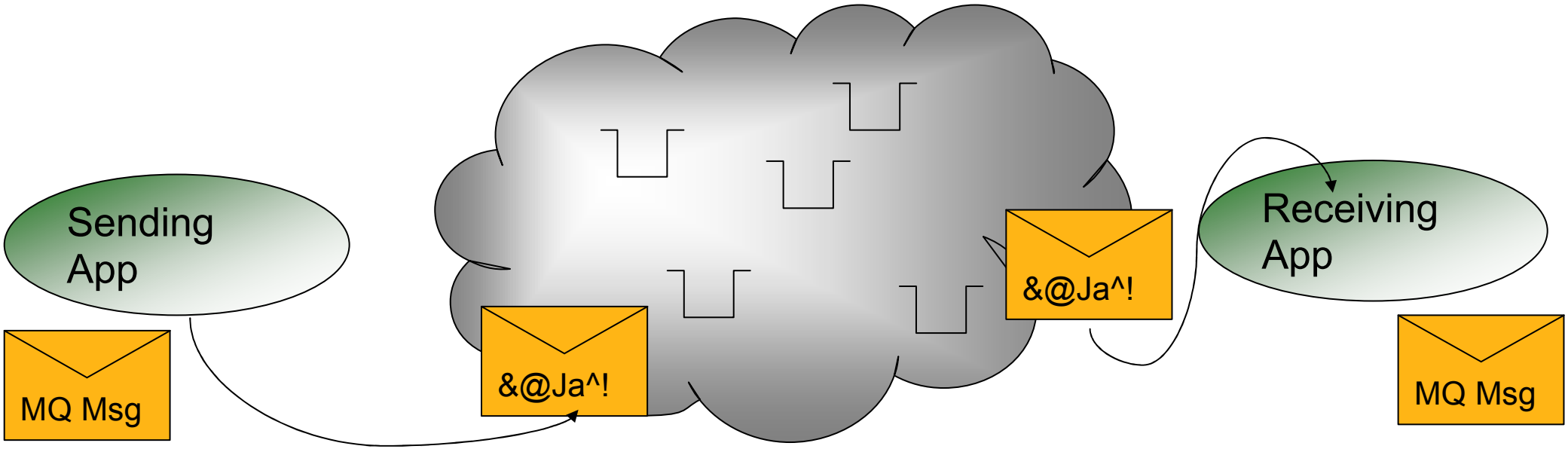
Real Results

- ***Able to scale 100 times*** *to millions of messages per second*
- ***Reduced latency*** *from 2 secs to milliseconds per transaction*
- ***Increased customer access*** *to additional market data sources*

WebSphere MQ Advanced Message Security – Summary

Extended data security and integrity with WMQ AMS

- Adds message-level security to existing MQ V6 and V7 networks
  - Protecting customer data application-to-application, at rest (queues, logs) and in transit
- Provides message-level integrity
  - Assuring that the data has not been changed in transit
- End-to-end secure delivery
  - Receiver validation of sender; only the intended recipient(s) can view data
- Assists regulatory compliance (PCI, HIPAA, SOX, et al.) for audit and privacy



WebSphere MQ V7.0.1 Advanced Message Security

- End-to-End Message Security - Secures application data even before it is passed to MQ
- Extension to base MQ – No changes to existing applications

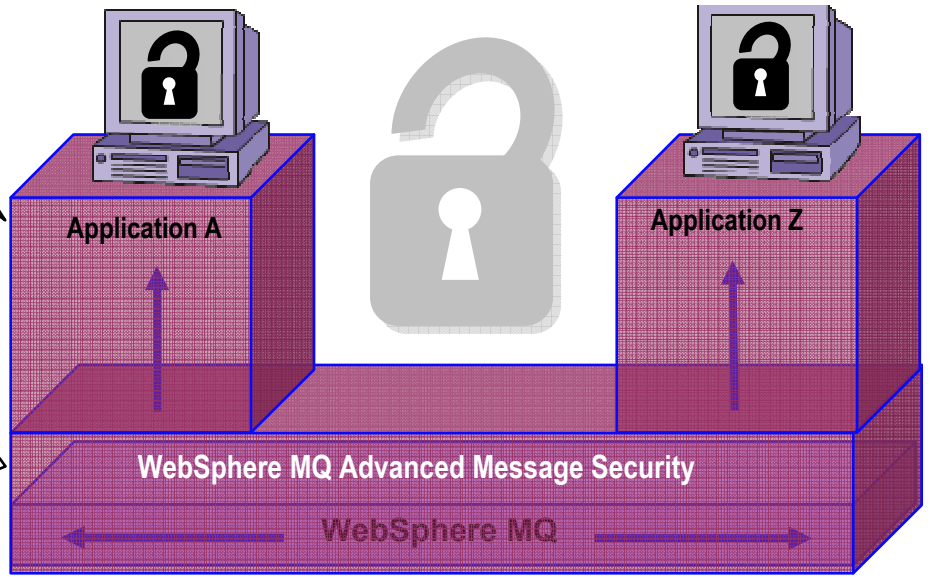
WebSphere MQ standard security:

- Message data can be encrypted in transport (SSL) but not when it resides in the queues
- Authentication is based on Operating System identifier of local process

WebSphere MQ Advanced Message Security

Supplements WMQ's security features:

+ Assurance that messages have not been altered in transit
+ Assurance that messages originated from the expected source
+ Assurance that messages can only be viewed by intended recipient(s)
+ Administered using queue based policies created from the WMQ Explorer or command line tooling.



Securing the data and the applications

Securing private customer information with WMQ AMS

A large North American life insurance provider, delivers high quality customer service, in support of growing membership

Client Pains

- Negative exposure due to loss of customer personal insurance information and credit card data
- Securing large volumes of personal data traversing multi-channels

Solution Benefit

- Standardize governance and lower total cost of ownership with little or no changes to existing applications
- Simplified installation and maintenance to prevent operational downtime
- Limits access to secure data, reducing opportunities to compromise data

WebSphere MQ File Transfer Edition – Summary

Shortcomings of Basic FTP (or “Why do we treat file data differently ?”)

Limited Reliability

- Unreliable delivery – Lacking checkpoint restart – Files can be lost
- Transfers can terminate without notification or any record – corrupt or partial files can be accidentally used
- File data can be unusable after transfer – lack of Character Set conversion

Limited Security

- Often usernames and passwords are sent with file – as plain text!
- Privacy, authentication and encryption often not be available
- Non-repudiation often lacking

Limited Flexibility

- Changes to file transfers often require updates to many ftp scripts that are typically scattered across machines and require platform-specific skills to alter
- All resources usually have to be available concurrently
- Often only one ftp transfer can run at a time
- Typically transfers cannot be prioritized

Limited visibility and traceability

- Transfers cannot be monitored and managed centrally or remotely
- Logging capabilities may be limited and may only record transfers between directly connected systems
- Cannot track the entire journey of files – not just from one machine to the next but from the start of its journey to its final destination

What is Managed File Transfer?

"Reliable, controlled, auditable movement of files around an organization"

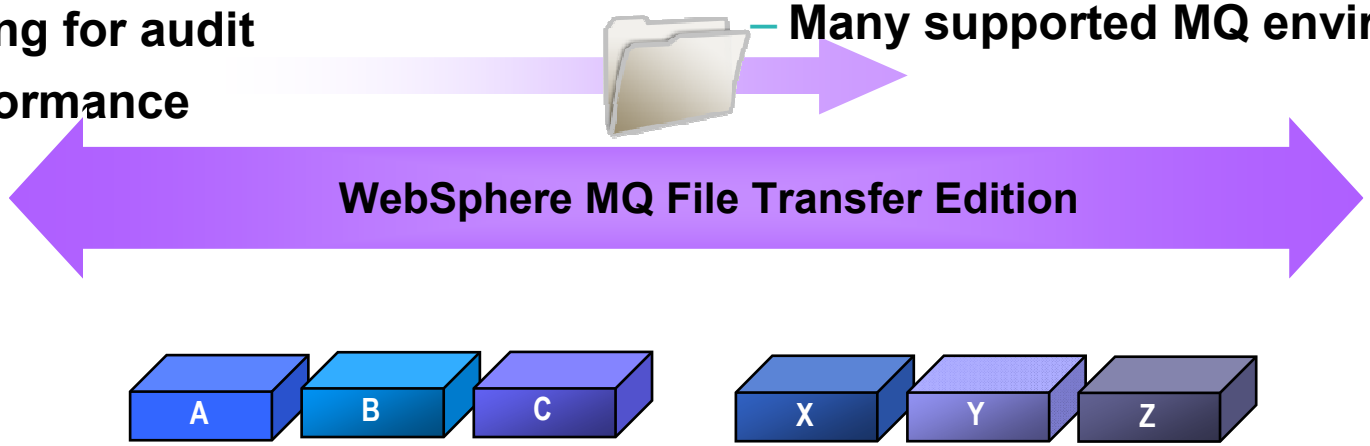
☑ **Auditable**	Records complete and detailed audit log of entire file journey "What went where, when and to whom"
☑ **Reliable**	File contents not corrupted or partially transmitted Files only appear at destination whole and intact
☑ **Secure**	Files content encrypted during transmission File access authenticated and controlled
☑ **Automated**	Eliminates need to manually detect problems and restart transfers Providing scheduling and triggering for event-driven transfers
☑ **Centralized**	Remote control and monitoring of file progress from anywhere
☑ **Flexible**	Able to deploy and re-configure file transfers instantaneously from anywhere Managing transfers end-to-end across a network – not just between 2 points
☑ **Any file size**	No upper limit on the size of file than can be moved
☑ **Integrated**	With SOA infrastructure: Messaging, ESBs, Governance, B2B and BPM
☑ **Cost Effective**	Provides a consolidated transport for moving both Files and Messages

WebSphere MQ File Transfer Edition

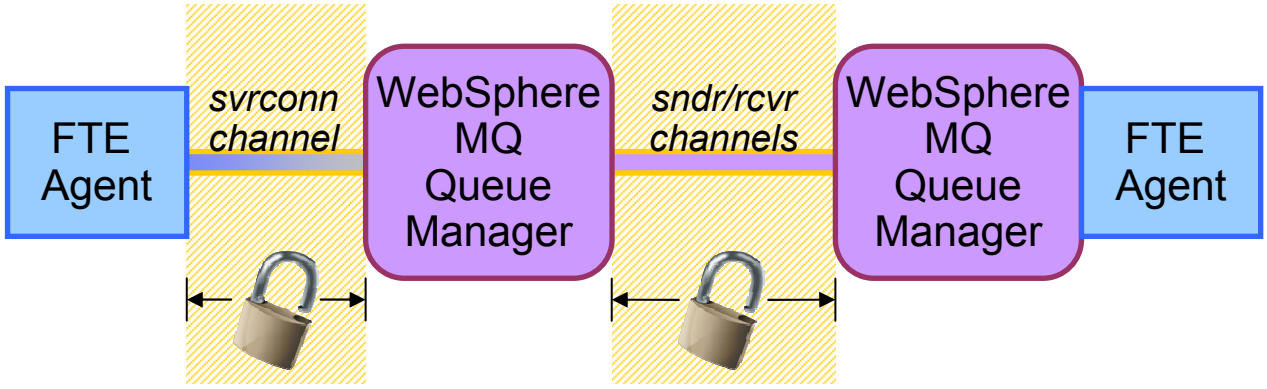
- WMQ FTE adds managed file transfer services to WMQ V6 & V7 networks
- Enables reliable, secure and traceable file transfers
- Replaces costly, ad hoc solutions that lack management controls

File transfer capabilities

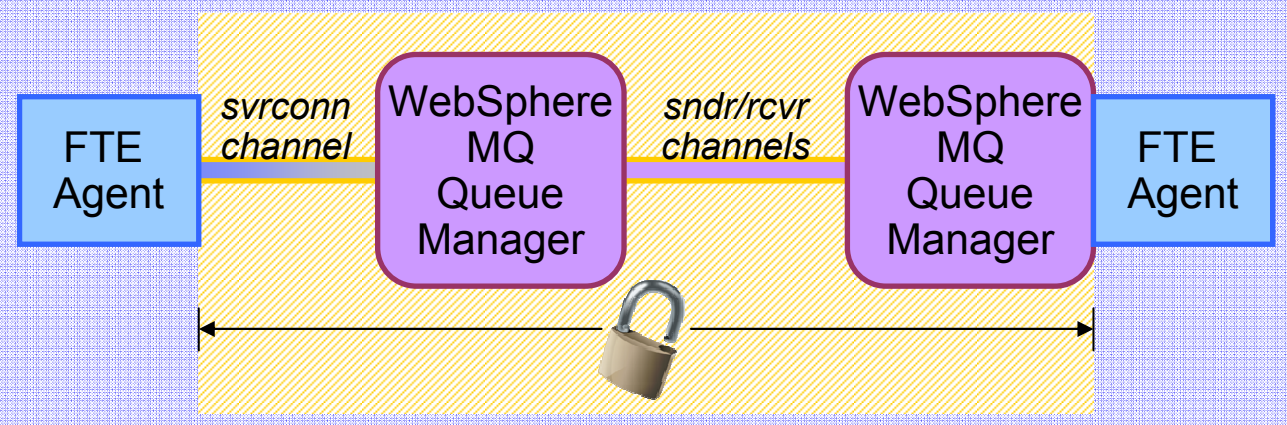
- **Any file size (KB, MB, GB…)**
- **Powerful graphical tooling**
- **No need for programming**
- **Reliability leveraging MQ**
- **Full logging for audit**
- **High-performance**
- **Code page conversion**
- **SSL security**
- **Distributed job automation**
- **Multi-purpose solution – transports both messaging and files**
- **Many supported MQ environments**



End-to-end encryption using WebSphere MQ Advanced Message Security

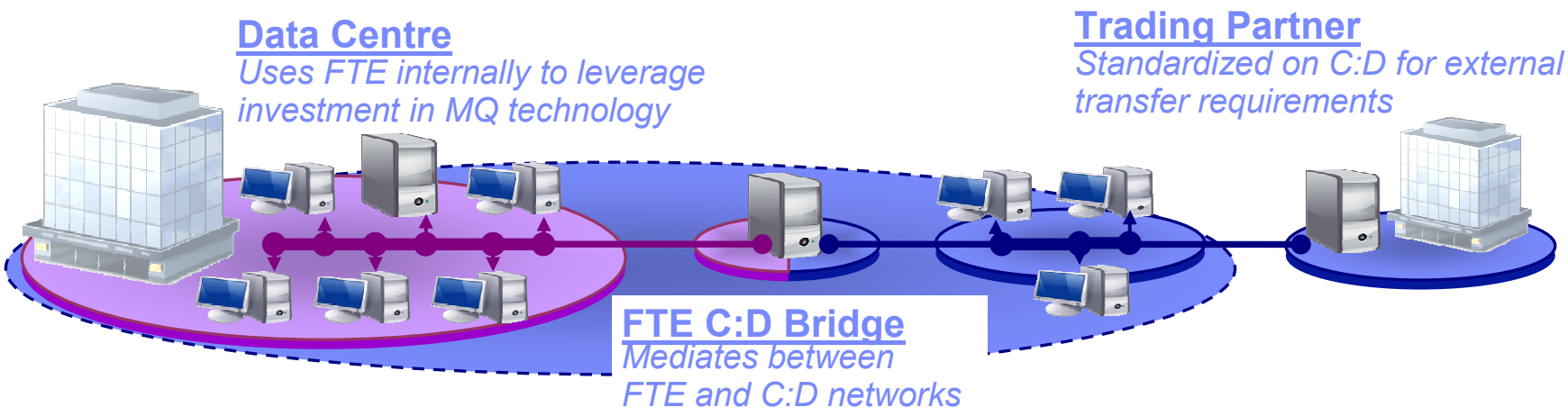


- WMQ FTE already supports transport level encryption using SSL
- Data is encrypted before it is sent over a channel and decrypted when it is received



- V7.0.3 (when combined with WMQ AMS v7.0.1) allows file data to be encrypted at the source system and only decrypted when it reaches the destination system
  - This helps reduce encryption costs
  - Data is secure even when at rest on a queue

FTE V7.0.4 – MQ File Transfer Edition and Connect:Direct



- Leverage WebSphere MQ File Transfer Edition to move files around your MQ network
- Develop a protocol standard for trading partner exchanges over the security and strength of Connect:Direct
- This new integration feature allows organizations to leverage their combined investments in both their WebSphere MQ and Connect:Direct infrastructure for mission-critical managed file transfer throughout their organization.

Improved File Transfer with WMQ FTE

Higher Standards meijer Lower Prices

***Meijer** replaces aging home-grown file transfer tool increasing reliability and visibility of transfers*

Customer Needs

- Needed to overcome file size limitations & increase reliability
- Remove bottlenecks slowing delivery of pricing & PoS data
- Replace difficult to maintain, time-consuming and costly tools

Real Results

- ***Timely delivery** of critical file data without size limitations*
- ***Improved visibility & audit** of files transfers across business*
- ***Reduced admin costs** through automation, detection and resending failed transfers due to network outages*

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Why WebSphere MQ ?

Over 17 years of proven experience	Leader in Messaging technology innovation
Connect virtually anything	Broad coverage of platforms, technologies, languages Draw skills from a larger pool – use who you have today Over 9,300 certified developers for IBM Messaging alone
Most widely deployed Messaging Backbone	Over 10,000 customers using IBM Messaging Backbone Over 90% of the Fortune 50 and 9 of the Fortune 10 Over 80% of the Global 25 and 7 of the Global 10
Entrusted with Tens of billions of messages each day	Government client sends 675 million messages per day* Banking client handles over 213 million messages per day on z/OS alone*
Relied upon as the mission-critical Backbone	Financial Markets client handles $1 trillion worth of traffic per day on one MQ network* Banking client sends $7-$35 trillion worth of traffic per day on just one MQ-based SWIFT gateway*
Continuously Investing and Innovating	Over 120 patents and filings within messaging space New WebSphere MQ family products Regular enhancements, updates and new releases

* ***Results reported from actual WMQ implementations***

Business Agility
Technical Conference

Connecting a Smarter Planet with WebSphere Message Broker

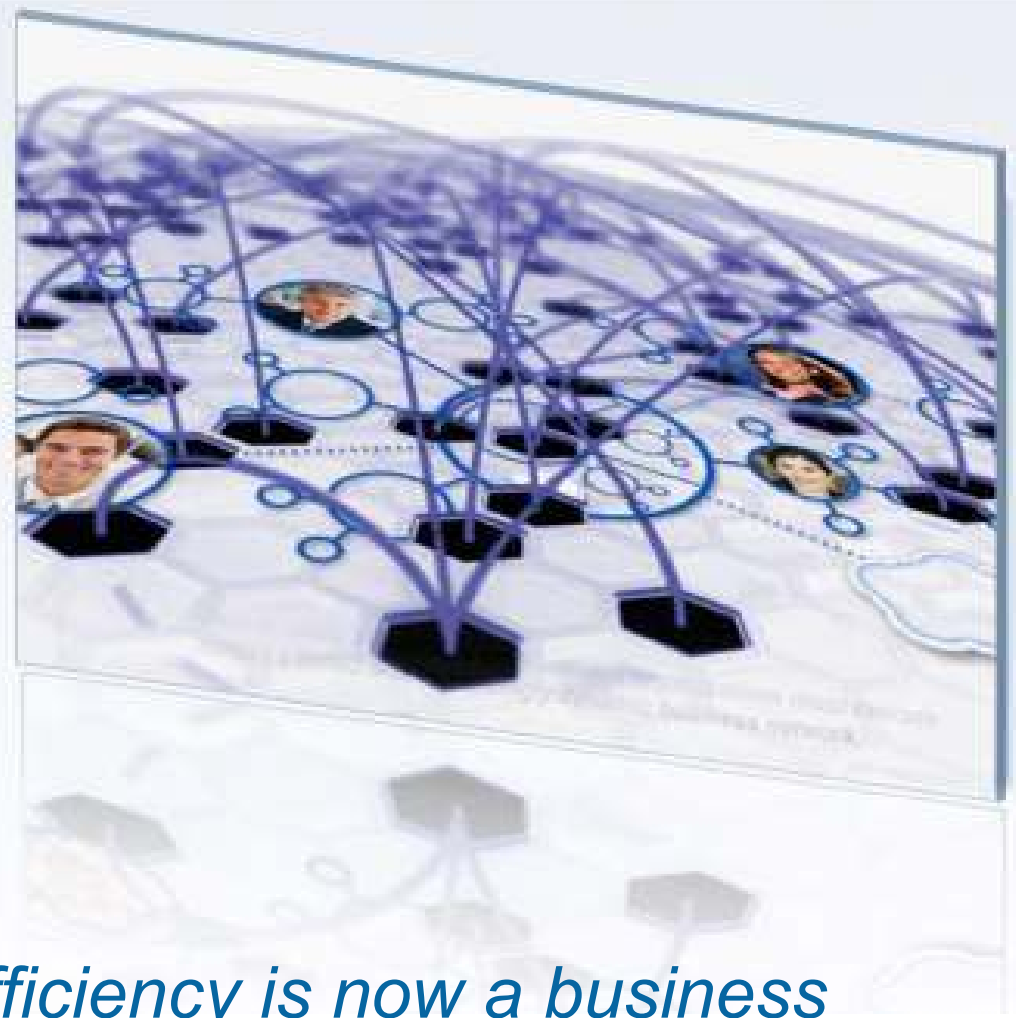
Top Challenges of Companies to drive growth

- Improve efficiency and reduce costs
- Strengthen customer relationships, new customer acquisition, and sell more to existing customers
- Better insights and collaboration capabilities to predict and respond to new trends

Companies that can best identify new opportunities and quickly align their resources will be the winners.

Companies struggle to meet the demands of the business…

- Lack of **flexibility** hinders a business's ability to capture new markets
- Lack of IT **efficiency** limits businesses ability to operate cost effectively
- Lack of **visibility** hinders the ability to effectively reach all your customers



Visibility, flexibility and IT efficiency is now a business requirement to effectively compete in today's marketplace.

The reality is many organizations struggle with basic connectivity

68%

of executives report that integration challenges impede **collaborative relationships** with partners

93%

of businesses do not believe they can **innovate faster** than their competitors

87%

of businesses do not believe they are effectively reaching their customers through **digital channels**

Without connectivity you can't analyze, you can't change, you can't innovate

Sources: Accenture: Overcoming Barriers to Innovation 2008, Onward and Up - How Marketers are Refocusing the Front Office for Growth 2009, Economist Intelligence Unit: Companies without Borders - Collaborating to Compete 2008

Interconnection makes it easier to capitalize on new demands

A Smartly Interconnected Enterprise Enables…

…VISIBILITY

- Make informed decisions with new information across your entire business network
- Improve customer satisfaction with better insights

…FLEXIBILITY

- Quickly onboard new channels
- Quickly innovate and capture new market opportunities

…EFFICIENCY

- Simplify your network so change is a competitive advantage, not an inhibitor
- Optimize operational costs

and deliver faster innovation, richer interactions, and deeper collaboration

Source: IBM CEO Study, 2010

Interconnected enterprises are working smarter and delivering results

Visibility

SEBS

- Improved their ability to retain their global customers
- Consolidated all of its payments traffic onto a single hub
- Offers faster payments with transparency, monitoring and alerts

Flexibility

Nanjing Tanker

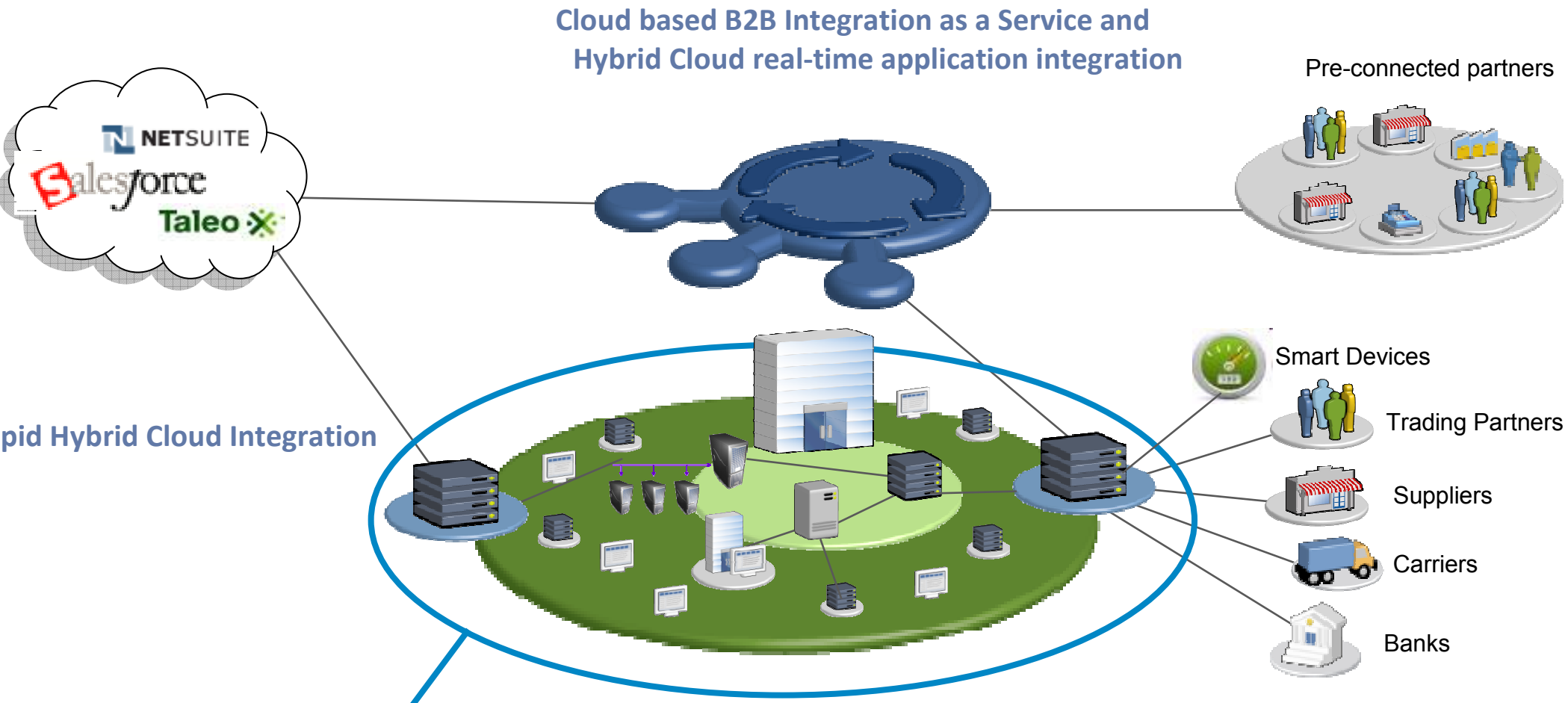
- Delivers new levels of IT performance, scalability, and manageability
- Facilitates collaboration and integrated business process management
- Provides cluster multiprocessing to help ensure high availability

Efficiency

University of Pittsburgh Medical Center

- Lowered the cost and complexity of its IT infrastructure
- Eliminated the need to create a new USD$80M data center,
- Doubled data center capacity with a flat budget
- Reduced power and space requirements by reducing Unix servers from 162 to 14 and reducing Wintel servers from 1200 to 16

What does a smartly interconnected enterprise look like?



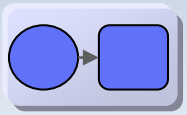
…and at the heart of an interconnected enterprise is an Enterprise Service Bus (ESB)

What is an ESB?

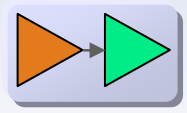
An (ESB) is a flexible connectivity infrastructure for integrating applications, systems and services.

An ESB performs the following between requestor and service

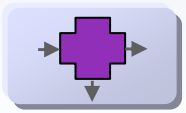
MATCHES & ROUTES communications between services



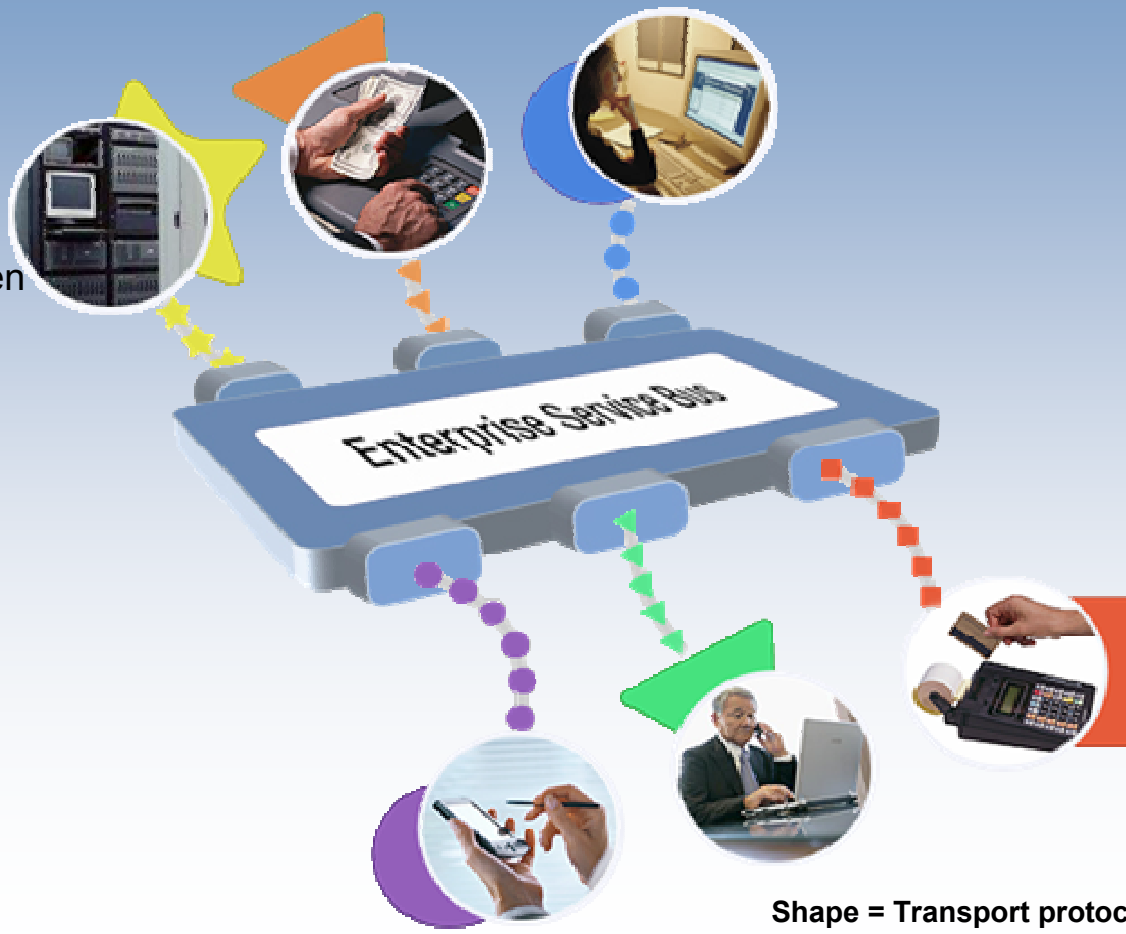
CONVERTS
between different transport protocols



TRANSFORMS
between different data formats

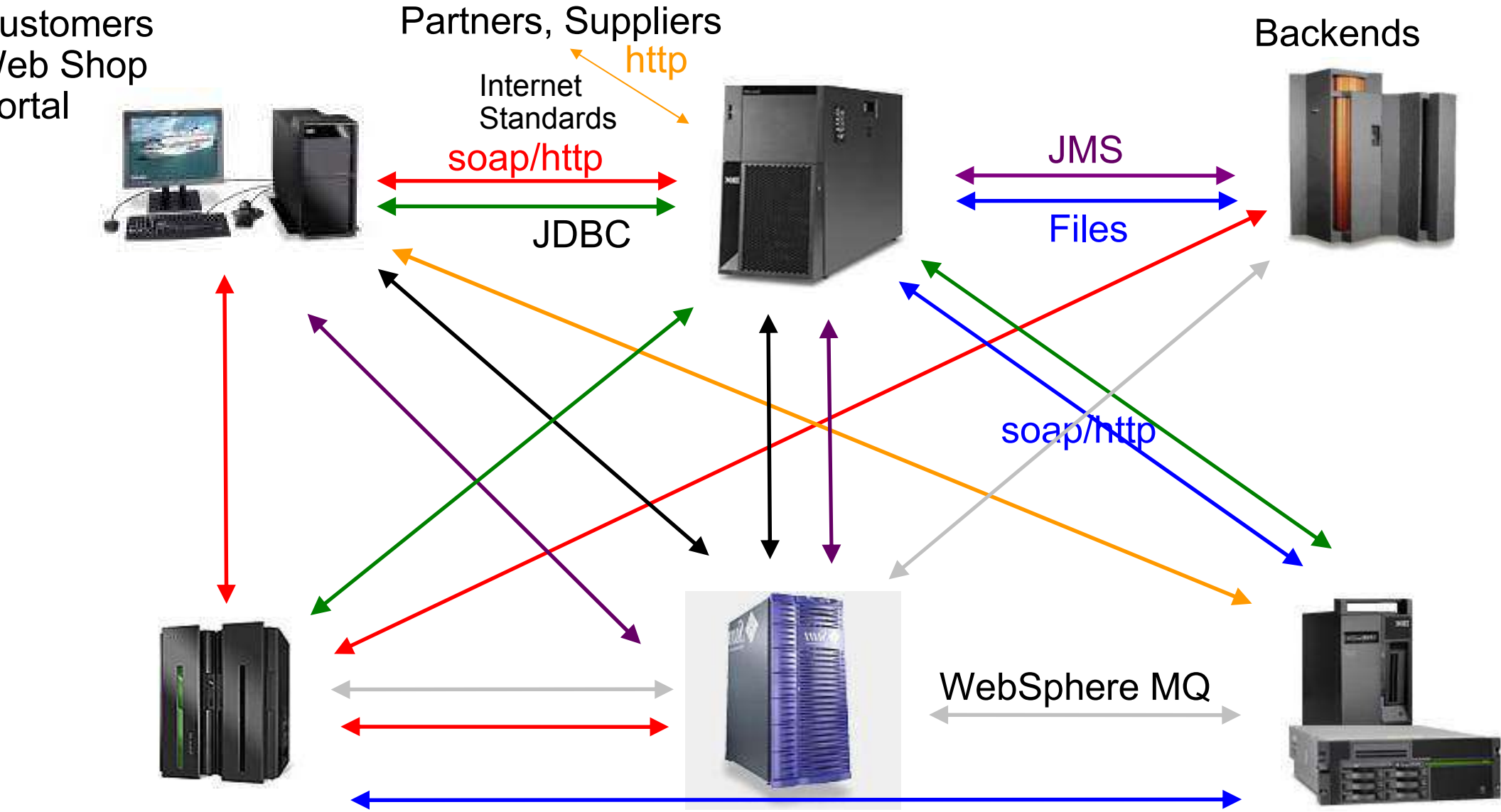


IDENTIFIES & DISTRIBUTES business events



Shape = Transport protoc
Color = Data format

Application Complexity without an ESB



An ESB Simplifies Connectivity

ustomers
/eb Shop
ortal

Partners, Suppliers

http

Backends

Enterprise Service Bus

Registry/Repository

What is WebSphere Message Broker

Built for universal connectivity and transformation in heterogeneous IT environments

Multiple platforms

Built on WebSphere MQ

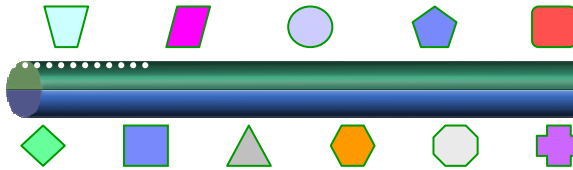
Range of EAI patterns

Standard protocols

High volume processing

Extensive transformations of data formats

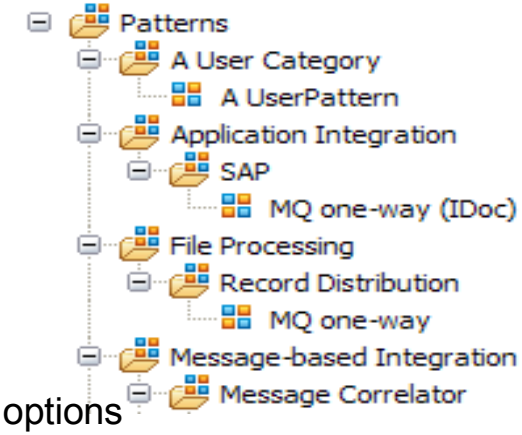
WebSphere Message Broker



- **Universal Connectivity FROM anywhere, TO anywhere**
  - Simplify application connectivity for a flexible & dynamic infrastructure

- **Comprehensive Protocols, Transports, Data Formats & Processing**
  - Connect to applications, services, systems and devices
    - MQ, JMS 1.1, HTTP(S), SOAP, REST, File (incl. FTP, FTE, ConnectDirect), Database, TCP/IP, MQTT, CICS, IMS, SAP, SEBL, .NET, PeopleSoft, JDEdwards, SCA, CORBA, email…
  - Understand the broadest range of data formats
    - Binary (C/COBOL), XML, CSV, JSON, Industry (SWIFT, EDI, HL7…), IDOCs, User Defined
  - Built-in suite of request processors
    - Route, Filter, Transform, Enrich, Monitor, Publish, Decompose, Sequence, Correlate, Detect…

- **Simple Programming with Patterns & Graphical Data Flows**
  - Patterns for top-down, parameterized connectivity of common use cases
    - e.g. Service façades, Message processing, Queue2File…
    - IBM & User defined patterns for development reuse & governance
  - Graphical data flows represent application & service connectivity
    - Custom logic via Graphical mapping, PHP, Java, ESQL, XSL & WTX



- **Extensive Management, Performance & Scalability**
  - Extensive Administration & Systems Management facilities for developed solutions
  - Wide range of operating system &hardware platforms supported, including virtual & cloud options
  - High performance transactional processing, additional vertical & horizontal scalability
  - Deployment options include Trial, Express, Standard and Advanced

- **Connectivity Packs for Industry Specific Content**
  - Connectivity Pack for Healthcare includes HL7 Connectors, Patterns & Tooling

WebSphere Message Broker v8 and WebSphere Message Broker Express v8

Enhanced!

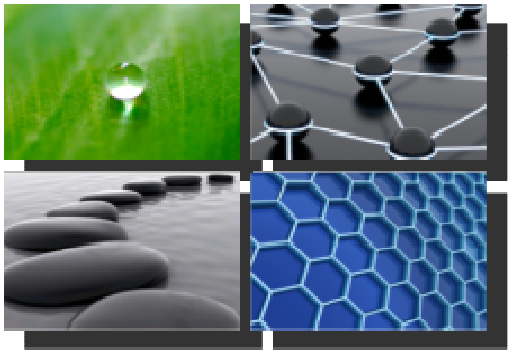
WebSphere Message Broker v8

IBM WebSphere Message Broker (WMB), an Enterprise Service Bus (ESB), provides universal connectivity and transformation in heterogeneous IT environments

Comprehensive support for Microsoft .net environments, including wide Microsoft Common Language Runtime (CLR)

Enhanced diagnostic tooling reduces troubleshooting efforts by enabling the **data from all sources to be viewed, edited, recorded and replayed**

Advanced connectivity capabilities simplifies file to message conversions with **direct connectivity to Connect: Direct (file transfer software)**



New!

WebSphere Message Broker Express

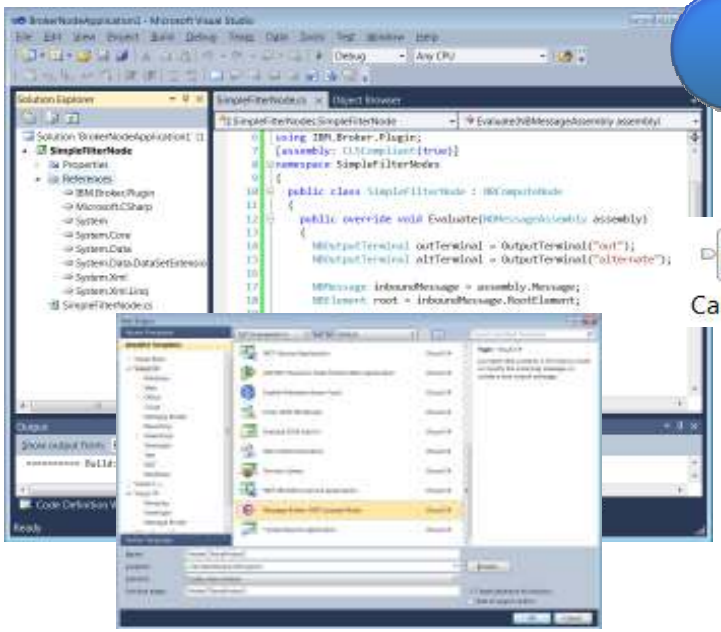
- **The only advanced ESB solution** purpose-built and priced for small and midsize companies
- **Easy to install**. Ten minutes to install tooling and runtim No database required.
- **Easy to use**. Multiple programming language options available, including C#, VB .NET & COM (via .NET).
- **Easy to Implement**. Growing range of integration patter available to accelerate the creation of common flows in just minutes.

Enhanced integration, increased audit and recording capabilities

Fully Integrated Support for Microsoft Applications

IBM WebSphere Message Broker v8.0

New!

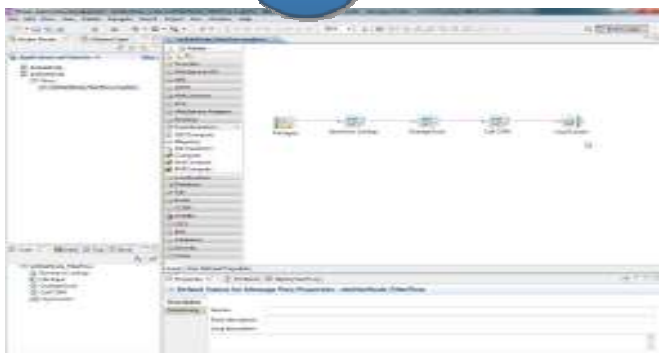


1 Create .NET nodes in MS Visual Studio

- *Develop in your familiar MS Visual Studio* in C#, VB, F#, C++/CLI etc
- *Use included Visual Studio templates or reuse your existing code*
- *Generates .NET Compute node for Message Broker run-time*

2 Develop your WMB flow

-Graphical tooling and patterns to get you started



3 Deploy !

- ***Connect to Microsoft applications*** *such as Word, Dynamics and SharePoint in 3 easy steps*
- ***Directly integrate new or existing .NET applications***
- ***Tightly integrated development experience***
- ***WMB can now truly provide the Enterprise Grade ESB for MS shops***

http://www-01.ibm.com/software/integration/wbimessagebroker

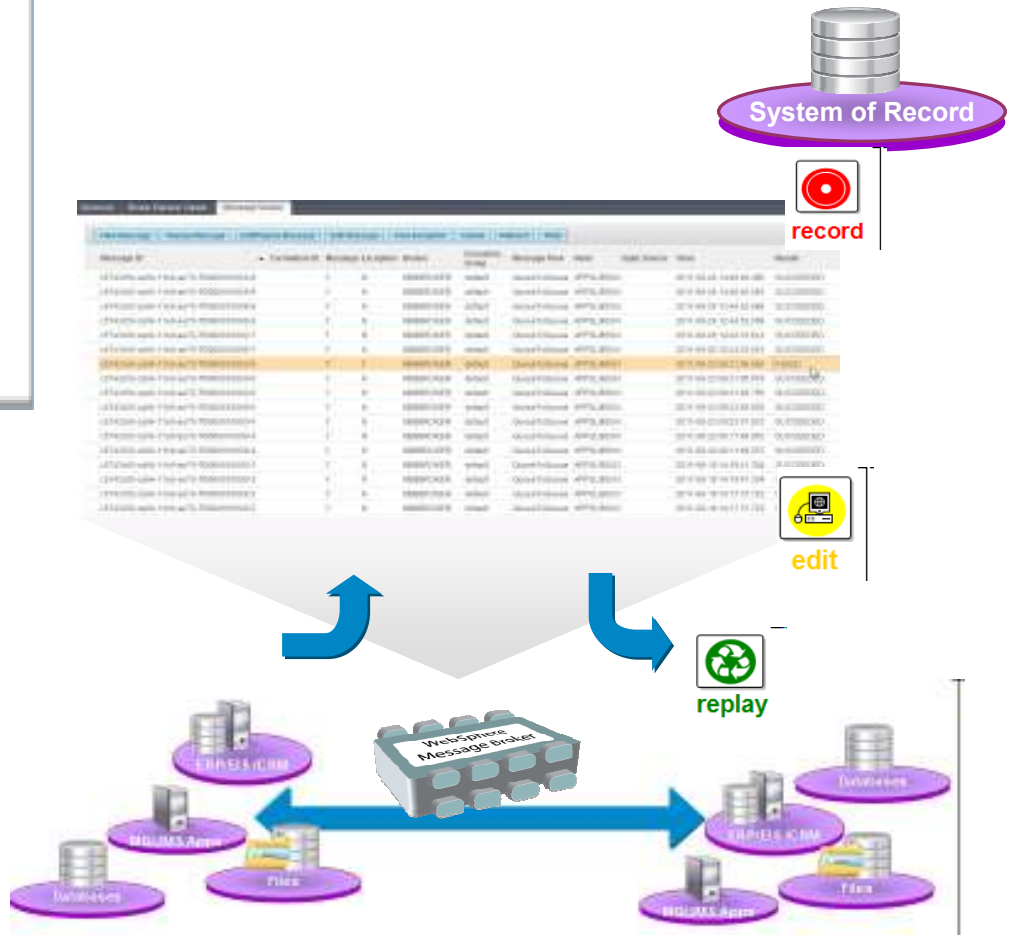
Record & Replay for audit of in-flight data

IBM WebSphere Message Broker v8.0

New!

- ***Monitoring data*** *flowing across corporate networks is becoming an* ***imperative for many large organizations***

- ***View, record and replay*** *data flowing through the broker from all sources, including Messaging, Web Services and ERP systems*



Monitor - Browser based graphical tooling with predefined filters to view data, based on message, transaction ID or payload

Audit - Store selected data to a database for records

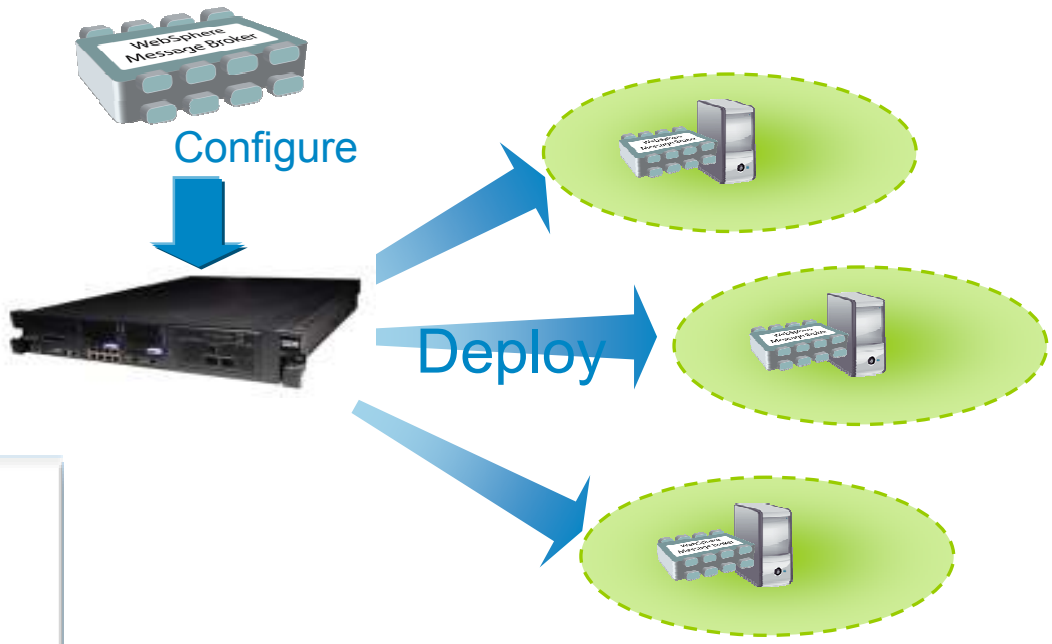
Manage - Replay the data through standard flows or to end point applications for downstream processing

http://www-01.ibm.com/software/integration/wbimessagebroker

Hypervisor Editions for IBM AIX and Red Hat

IBM WebSphere Message Broker v8.0

- *Supports the creation of private cloud deployments*
  - *Bring new Brokers on line as business workload increases**
- Hypervisor editions for both IBM AIX and Red Hat Enterprise Linux 5.5
- Supports IBM Workload Deployer and 3rd party hypervisors including VMWare & Xen



- ***Enables better utilization of hardware*** *and faster response to demands for newly deployed systems*
- ***Reduce*** *the costs of both hardware and software operation and maintenance costs*
- ***Connect*** multiple virtual machines within a Private Cloud

*Subject to purchased entitlement

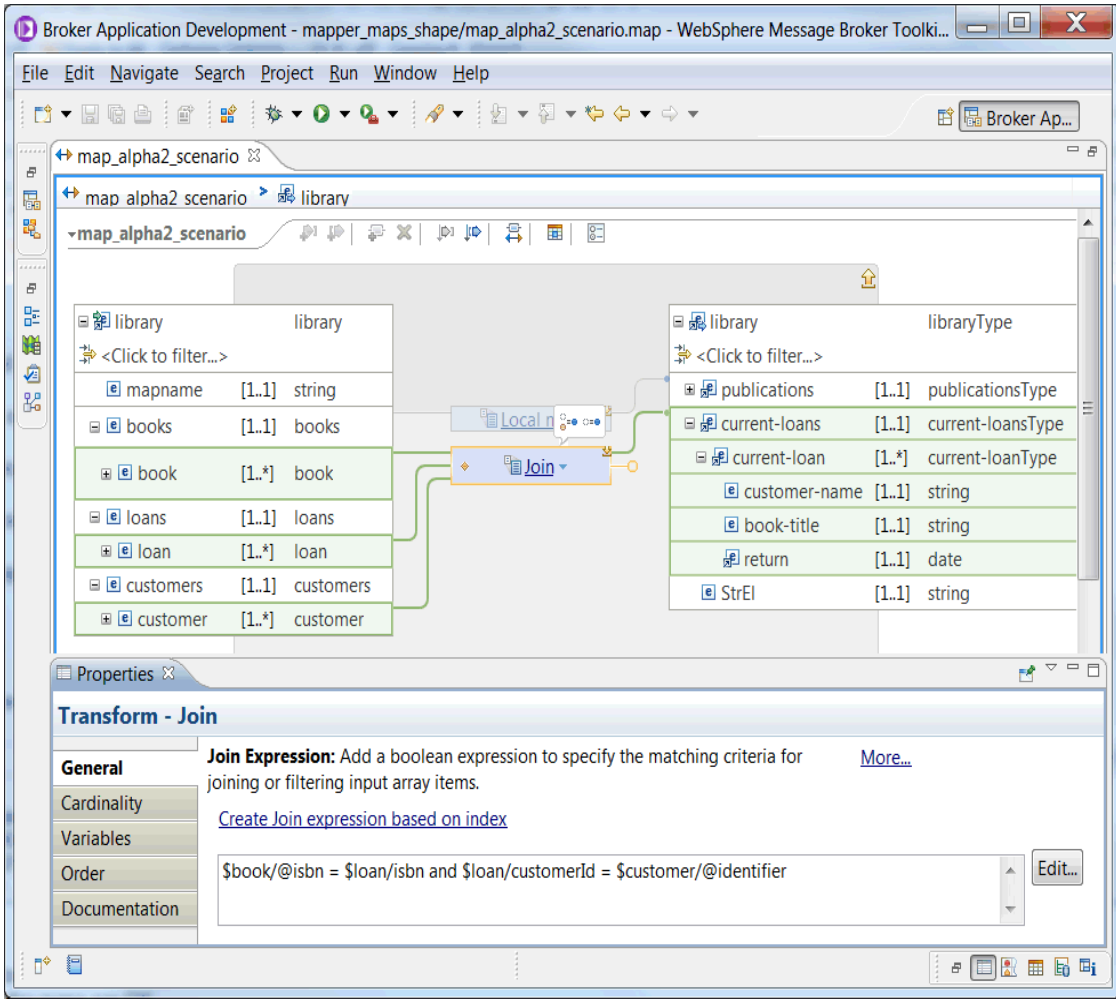
http://www-01.ibm.com/software/integration/wbimessagebroker

Graphical Mapper & High Performance Parser

IBM WebSphere Message Broker v8.0

New!

- *New **Graphical Data Mapping tool** for Improved **usability** and **performance** when creating models*
- *New **DFDL (Data Format Description Language) parser** optimised for text and Binary data*



- **Visually construct source and target field mappings** using graphical representation of message data
  - Create models by marking up example data
  - Apply advanced transformations
  - Call user defined transformation in Java, SQL and XQuery 1.0
  - Guided authoring wizards
- **Open standards based parser** – create and reuse maps across your other applications
  - provided alongside existing WMB MRM parser
  - Improved WMB transformation performance for text & binary data

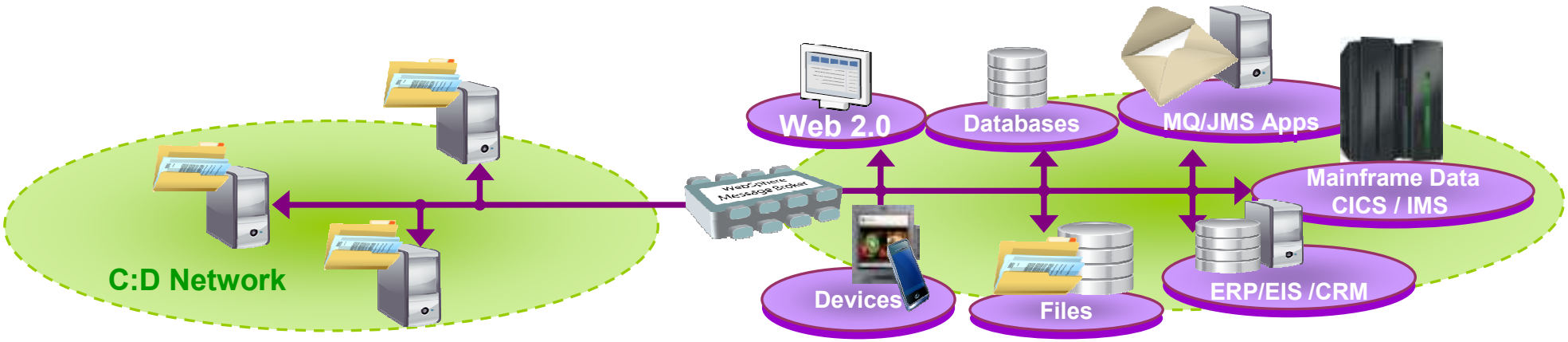
http://www-01.ibm.com/software/integration/wbimessagebroker

Bridge Connect:Direct file & messaging based networks *IBM WebSphere Message Broker v8.0*

New!

- Simple, Powerful bridge between Sterling File Based and WebSphere MQ messaging based networks
  - *Eliminate the need for application re-engineering*
  - *Provides connectivity to new endpoints not available to C:D users - including Web2 technologies*
  - *Handle file to message mappings including batch of records within a file → Set of messages and vice versa*

- *New **Nodes** provide direct connectivity between WMB and Connect:Direct*
- *New **Patterns** provided in the WMB toolkit for rapid development*
  - File to message, message to file



http://www-01.ibm.com/software/integration/wbimessagebroker

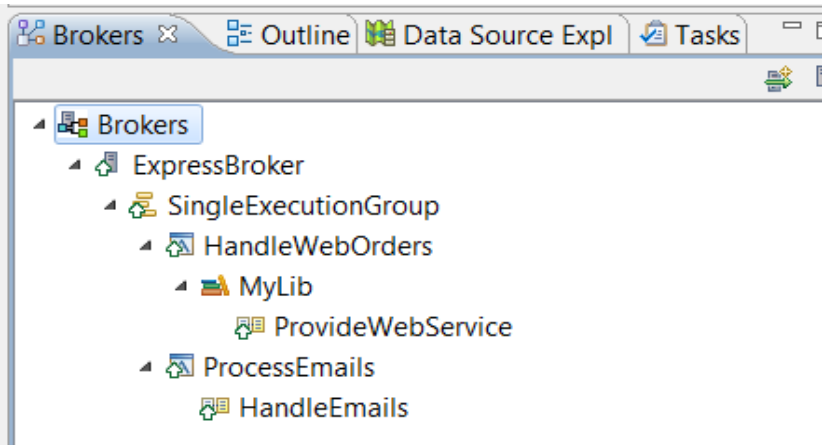
WebSphere Message Broker Express v8

Express Edition for Initial Deployment and Future Growth

- **Adopt Message Broker in intuitive increments**
  - A starting point for new users with department level capacity, functionality and price needs
  - Single package allows movement between modes
    - e.g. Trial->Express->Standard->Advanced
  - Same toolkit for all modes of operation, same service package for simple maintenance

- **New Mode of Operation**
  - **Express:** Initial deployment with 1 execution group, no explicit flow limit, and limited node set
    `–mqsimode BROKER1 –o express`
  - Node set includes many transports & protocols, graphical transformation, scripting & programming
    - e.g. SOAP, MQ, HTTP, JMS, File, Email, Graphical maps, PHP, Java, .NET

- **Development & Deployment**
  - All toolkit facilities available, including unit test environment
  - Packaging of solution via BAR file as with other modes
  - Deployment to unlicensed mode fails gracefully with reason
    - Change to unsupported mode also reports reason



- **Operational Management**
  - Flows & applications provide basic isolation & control
  - Single execution group collocates resources in OS process
    - Multiple threads can be assigned to message flow

- **Licensed & Visible**
  - Separate ITLM file for each mode enables compliance check
  - MBX and Browser administration report & start-up messages for operational clarity

WebSphere Message Broker helps your business gain a competitive advantage over your competitors

Advantage	Value
Decouple applications	Reduce application dependency on each other and increase flexibility. Replace components of your architecture with minimal impact to applications
Reliable transfer of data	Better data for better decision making
Improve security	Meet industry security requirements
Reduce number of interfaces	Less maintenance costs
Reduce complexity of interfaces	Reduce need for specialized skills
Choose best of breed applications	Avoid vendor lock-in
Unify applications while accommodating different data formats	Reduce coding efforts as data formats change or evolve
Exchange data in real-time	Make business decisions based on current data, not stale data
Invoke functionality in other systems	Reuse existing assets
Consistent transformations across the enterprise	Reduce errors and discrepancies

Becoming an interconnected enterprise

requires a comprehensive approach and a partner with deep expertise

A comprehensive approach

- Reduces the costs and operational complexities associated with using multiple vendors
- Improves the consistency and reliability of the integration infrastructure

Deep expertise

- Speeds development and deployment of your solution using best practices to ensure success

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

Start building your connectivity & integration foundation today

For greater agility, innovation, and collaboration

- Visit our website to learn more about IBM integration capabilities
- Try out IBM connectivity solutions in the SOA sandbox
- Contact your IBM representative to learn about QuickStart offerings that and accelerate your implementation