Managed file transfer with
IBM WebSphere MQ File Transfer Edition for z/OS

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Product Line Manager

WebSphere MQ family

WebSphere software

What's Driving Your Business Today?

| Business Demands	IT Challenges
Support up-to-the-minute 24/7 decision making & forecasting	Reduce "batch window" or enable continuous stream of updates
Reduce disruption, cost & time wasted resolving errors in partner & customer transactions	Improve reliability of data exchange between IT systems & eliminate sources of error
Meet Regulatory Compliance or other audit obligations by demonstrating integrity of financial or sensitive data to avoid penalties	Preserve integrity of data and secure it – especially when moving it between IT systems
Reduce cost & time to market of new business offerings	Accelerate new development by avoiding duplication of function
Streamline unnecessary investments	Consolidate & reuse IT infrastructure across enterprise
Make changes & absorb surprises without impacting ability to continue executing	Leverage SOA capabilities across the entire IT Infrastructure
Exploit best practices, processes & tools across organization	Enable widespread use of IT infrastructure & reduce dependency on IT specialists
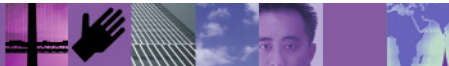
How Do You Move Information?

IT Challenges

Reduce "batch window" or enable continuous stream of updates

Improve reliability of data exchange between IT systems & eliminate sources of error

Preserve integrity of data and secure it – especially when moving it between IT systems

Accelerate new development by avoiding duplication of function
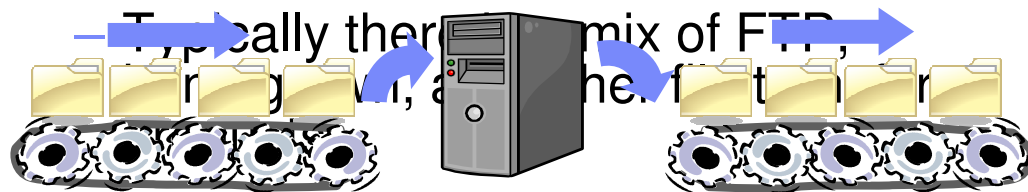
Consolidate & reuse IT infrastructure across enterprise

Leverage SOA capabilities across the entire IT Infrastructure

Enable widespread use of IT infrastructure & reduce dependency on IT specialists

how do you move your information?
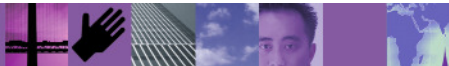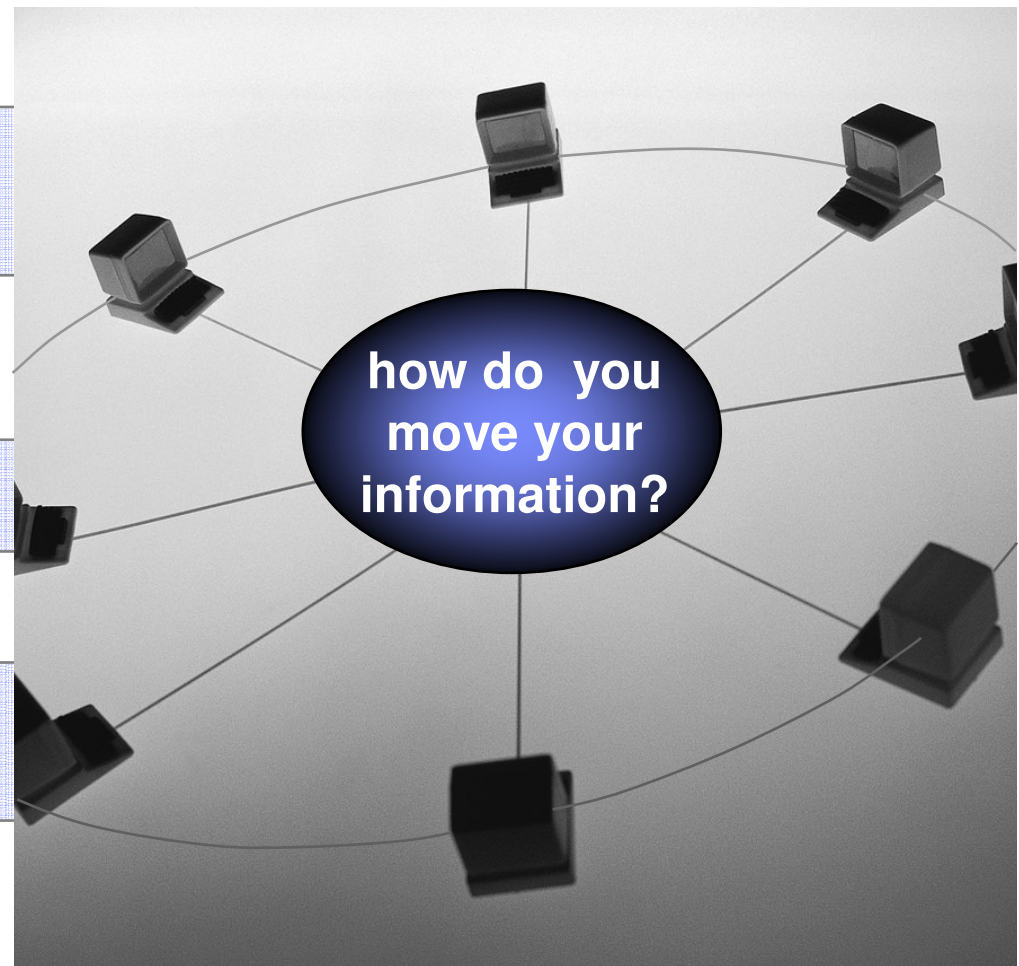
How Are Most Organizations Moving Files Today?

- Currently, many business critical applications connect by exchanging files

  – Most organizations have *several* products, and different techniques for doing file transfer

  – Typically there is a mix of FTP, proprietary, and other file transfer

- Stop and think

  – How much of your data is transferred using unreliable, un-secure FTP-based mechanisms?

  – How much development time and effort are you diverting to write and maintain code?
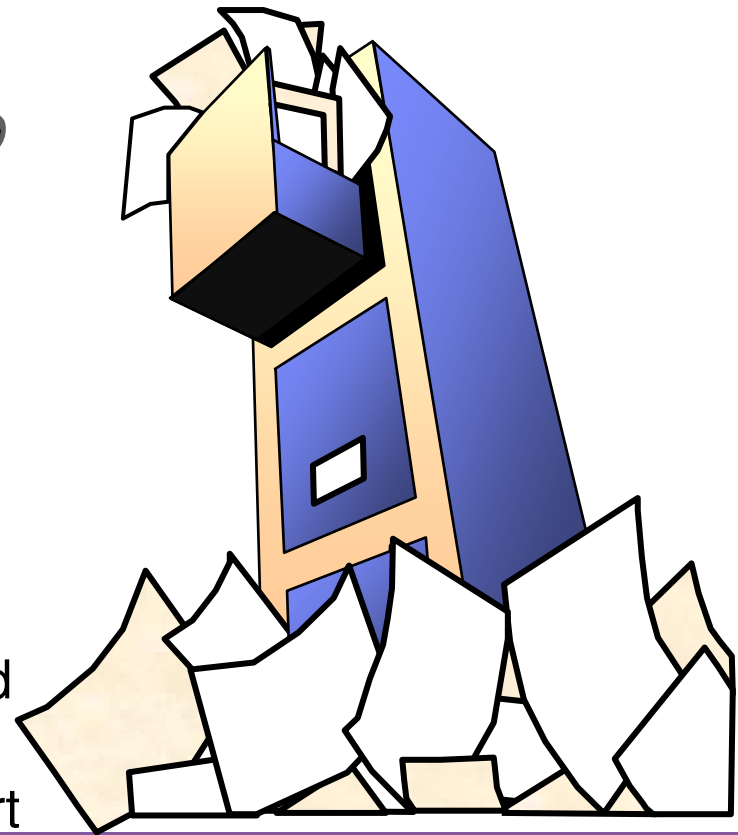
How Do You Move Files?

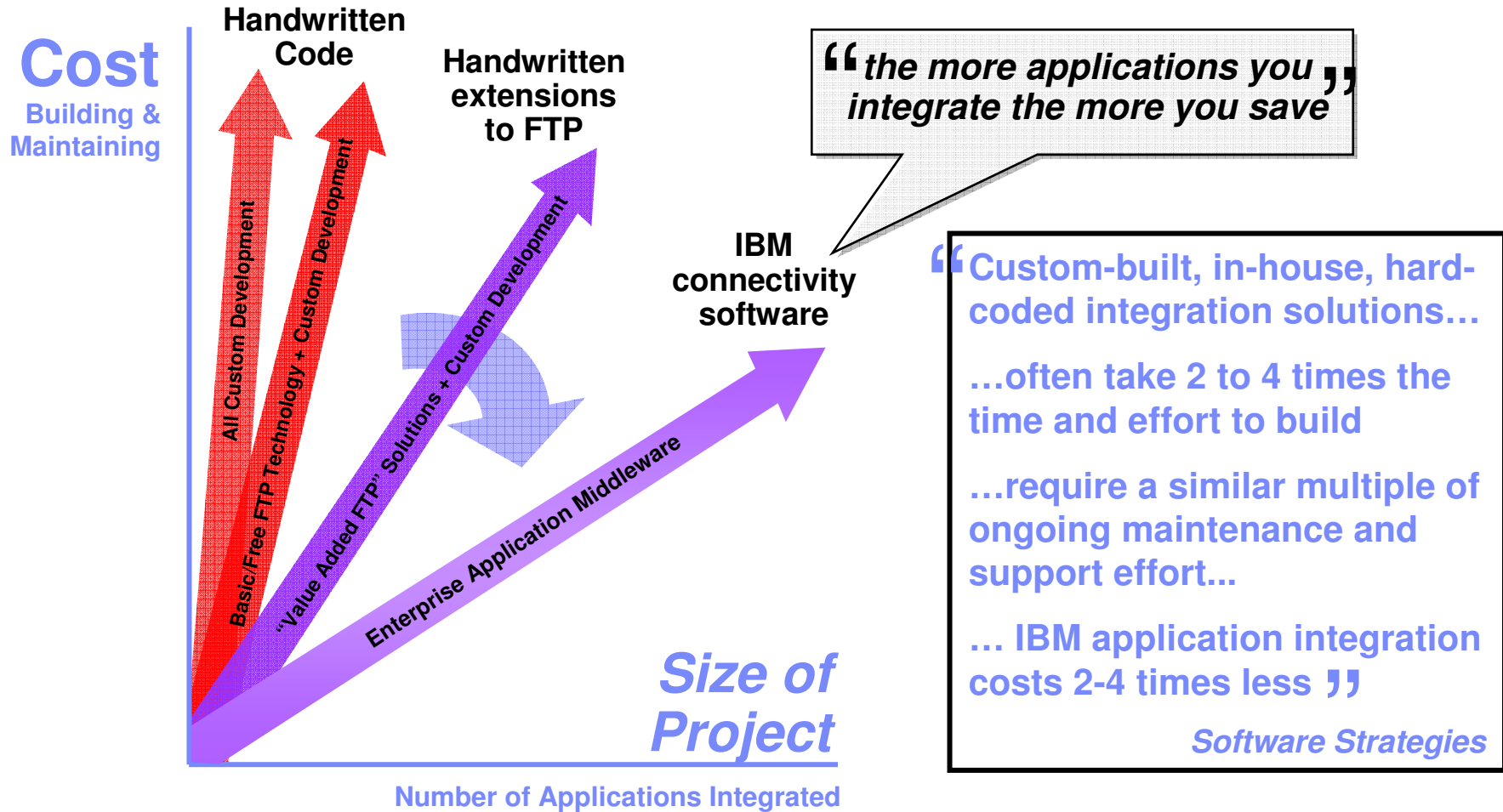| IT Challenges	How do you transfer files?
Reduce "batch window" or enable continuous stream of updates	▪ Can you finish ever larger batches of file transfers overnight? ▪ Can you transfer updates continuously throughout the day?
Improve reliability of data exchange between IT systems & eliminate sources of error	▪ Can you move files reliably across your distributed IT systems? ▪ Can you restart file transfers that haven't completed properly? ▪ Can you automate & schedule transfers to avoid human-errors?
Preserve integrity of data and secure it – especially when moving it between IT systems	▪ Can you prove that files only went where were supposed to? ▪ Can you detect & recover whenever files are partially sent? ▪ Can you prevent unauthorized access to files?
Accelerate new development by avoiding duplication of function	▪ Can you avoid developing code to improve file transfers? ▪ Can you avoid duplicating file transfer logic across apps?
Consolidate & reuse IT infrastructure across enterprise	▪ Can you use a single infrastructure for all traffic including files? ▪ Can you reduce your administration & maintenance costs?
Leverage SOA capabilities across the entire IT Infrastructure	▪ Can you apply ESB capabilities to files e.g. transformation? ▪ Can you involve files as part of your business processes? ▪ Can you include file-oriented applications in your SOA?
Enable widespread use of IT infrastructure & reduce dependency on IT specialists	▪ Can you enable more IT staff to use a common infrastructure? ▪ Can you enable less skilled staff to use your IT infrastructure? ▪ Can you bring service-oriented & batch/file systems together?
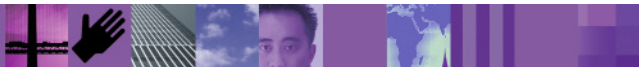
Shortcomings of basic FTP

- **Limited Reliability**

  – Checkpoint restart facilities not always available – files might be lost

    • Not transactional in nature

  – Transfers or batches of transfers may terminate without notification

    • Partial files or incomplete batches could be used in subsequent business processes causing issues with integrity of applications and data downstream

  – Files data could be unusable after transfer (ASCII/Binary transfer)

- **Limited security**

  – In some cases usernames/passwords are sent with data – as plain text!

  – Non-repudiation often lacking

  – Privacy, authentication and encryption may not be available

- **Limited visibility and traceability**

  – Typically transfers cannot be monitored and managed centrally or remotely

  – Logging capabilities may be limited and may only record transfers between directly connected systems

Cut IT integration cost and maintenance 2-4 times

Cost
**Building &
Maintaining**

**Handwritten
Code**

**Handwritten
extensions
to FTP**

All Custom Development

Basic/Free FTP Technology + Custom Development

"Value Added FTP' Solutions + Custom Development

Enterprise Application Middleware

**IBM
connectivity
software**

"*the more applications you
integrate the more you save***"**

**"Custom-built, in-house, hard-
coded integration solutions…**

**…often take 2 to 4 times the
time and effort to build**

**…require a similar multiple of
ongoing maintenance and
support effort...**

**… IBM application integration
costs 2-4 times less "**

Software Strategies

**Size of
Project**

Number of Applications Integrated

Source: "Enterprise Integration Challenge," Software Strategies, 2006
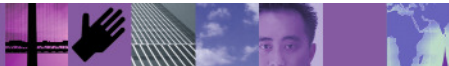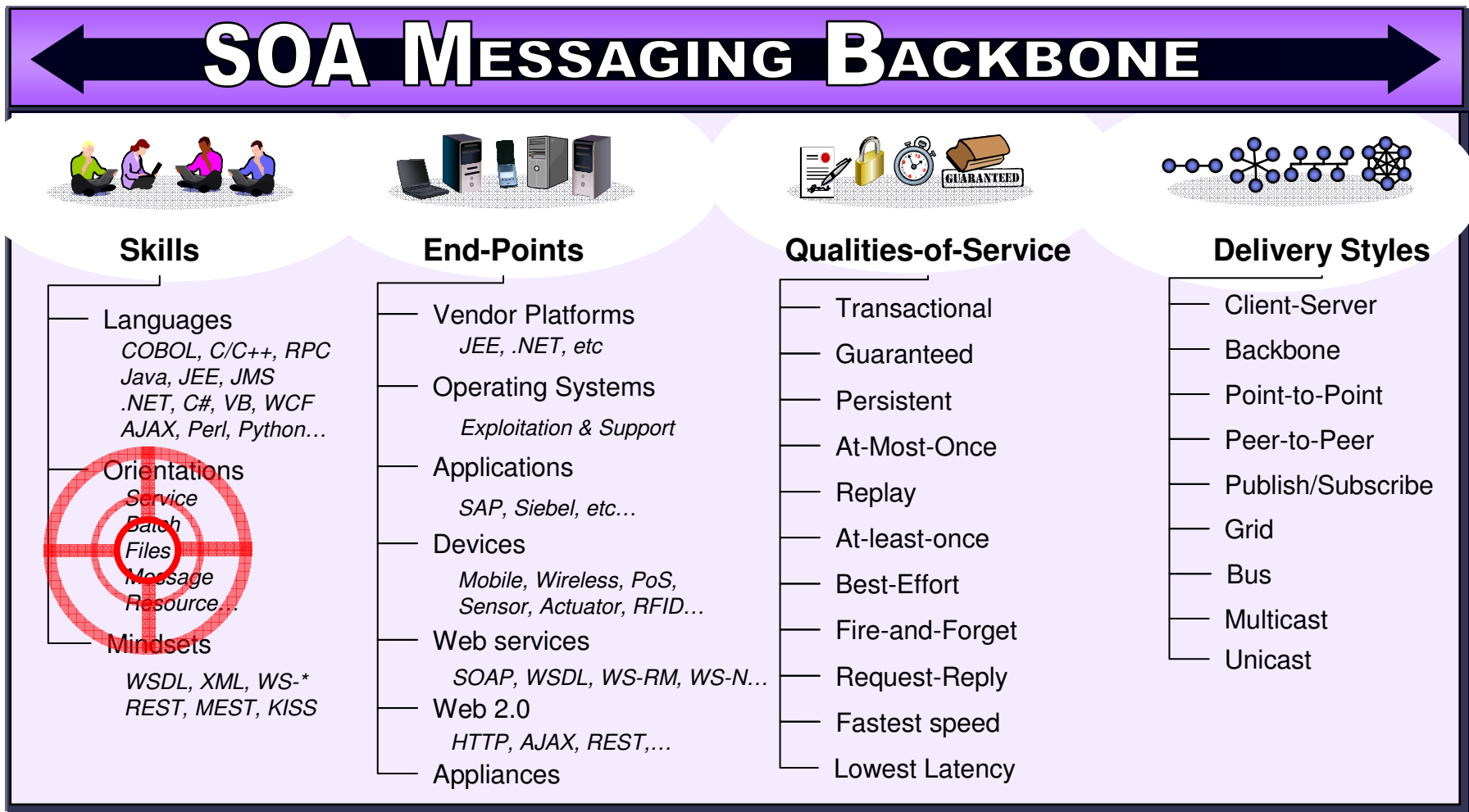
What is Managed File Transfer?

- Enables *managed* movement of files and documents between IT systems
  - Auditable
  - Reliable
  - Secure
  - Any size file
  - Automated
    - Eliminating need to manually detect transfer problems and restart transfers
  - Backbone
    - Across distributed IT systems that need not be directly connected
  - Time-independent
    - Without requiring IT systems and network to be constantly available
  - Centralized control
    - Enabling remote management and monitoring of all aspects of transfer

- Managed File Transfer must be strategic part of an organization's IT infrastructure
  - Aligned with other transport mechanisms e.g. messaging
  - MFT should work with and re-enforce SOA
    - Including applying ESB capabilities to files

IBM's Vision – SOA Messaging Backbone

- Addressing full spectrum of universal transport requirements

SOA MESSAGING BACKBONE

Skills
- Languages
  COBOL, C/C++, RPC
  Java, JEE, JMS
  .NET, C#, VB, WCF
  AJAX, Perl, Python…
- Orientations
  Service
  Batch
  Files
  Message
  Resource…
- Mindsets
  *WSDL, XML, WS-**
  REST, MEST, KISS

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, WS-RM, WS-N…
- Web 2.0
  HTTP, AJAX, REST,...
- Appliances

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

Delivery Styles
- Client-Server
- Backbone
- Point-to-Point
- Peer-to-Peer
- Publish/Subscribe
- Grid
- Bus
- Multicast
- Unicast

Managed File Transfer from IBM

A backbone for managing the movement of files and documents

- **Cut cost and time of IT development and maintenance**

  – Eliminate need to write code

  – Configure – Don't Re-create; Extend – Don't Re-engineer

  – Consolidate IT Admin and Operations efforts

- **Preserve integrity of data – Support your compliance efforts**

  – Auditability

  – Reliability

  – Resilience

  – Security

- **Get on the Road to SOA – Re-use a shared IT infrastructure**

  – Flexibility

  – Integration
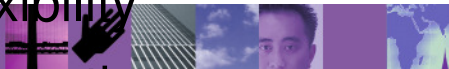
Regulatory Compliance Audits of Transfers

- **Pain points**

  - File transfers impossible to audit – exposing risks of non-compliance with regulations e.g. Sarbanes-Oxley, MiFID, HIPAA etc

  - Unreliable nature of FTP means transfer failures need to be detected (by writing application code) and re-sent (consuming network bandwidth) increasing the batch-window needed to transfer files

  - Inflexible nature of FTP means that development and maintenance costs resulting from application changes are spiraling so that each additional change is more costly, takes longer and carries greater risk of disruption

- **Solution provides ability to track movement of files end-to-end as these move around organization**

  - Improving ability to meet regulatory compliance obligations in demonstrating the integrity of data in motion and of business data used to compile financial reports

  - Improving the reliability of file transfers so that applications no longer need to detect transfer failures, corrupted or partially transmitted files and avoiding need to always re-transfer entire batches of files when failures occur

  - Increasing flexibility of infrastructure so changes to hardware, O/S, applications and networks do not require re-working of complex distributed transfer code

Where has the file come from?

Where has it been before it got here?

Has it been changed? By Who? When?

How can I quickly make changes?

Is the file complete?
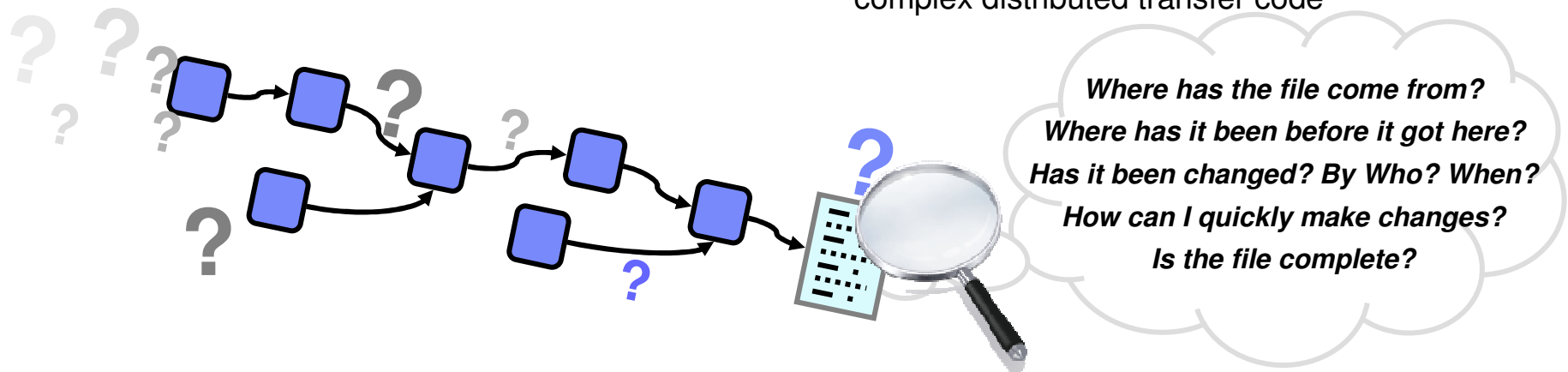
Redundant Infrastructure consuming IT resources

- **Developing and maintaining entire parallel infrastructures**

  - One for files – typically built on FTP – and one for application messaging – based on WebSphere MQ or similar

- **Pain points**

  - Duplicate maintenance burden is sucking time and resources from IT team and inhibiting progress with other initiatives e.g. SOA

  - Operations teams are duplicating administration of both infrastructures with poor traceability for file transfers and for data passing between these infrastructures

- **Solution provides the ability to consolidate these duplicate infrastructures into one single universal transport for both messages and files**
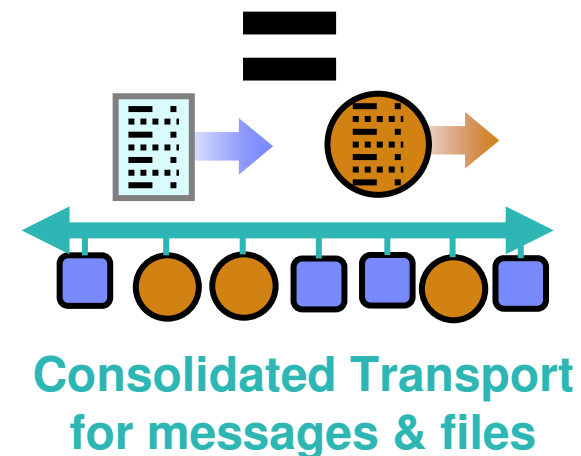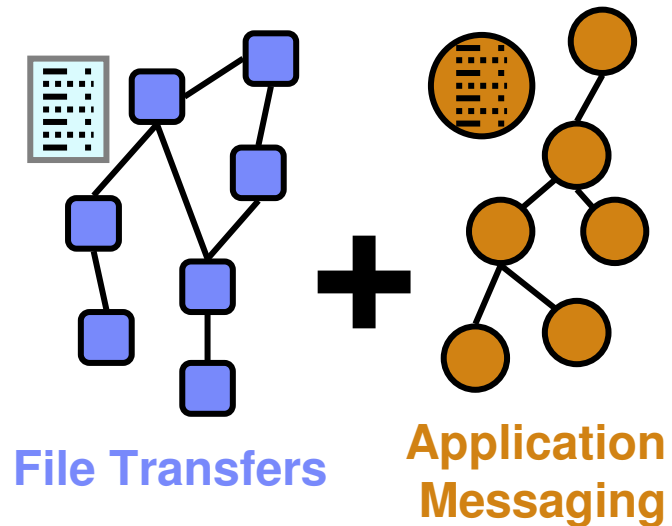
  - Operational savings and simplification

  - Reduced administration effort

File Transfers **Application Messaging**

Consolidated Transport for messages & files

What is WebSphere MQ File Transfer Edition for z/OS?

▪ Newest member of growing WebSphere MQ family

– Builds upon WebSphere MQ's proven transport backbone

– Pre-reqs WebSphere MQ for z/OS

– Complemented by WebSphere MQ File Transfer Edition for distributed platforms

▪ Robust solution for Managed File Transfer for z/OS

– Enable control of all aspects of file movement between IT systems

– Provide file delivery reliability

– Optimized for both small and massive files

– Provides audit trail of transfers

▪ Designed to integrate with IBM's SOA portfolio

– Enables files to be delivered to WebSphere Message Broker for z/OS for File Processing
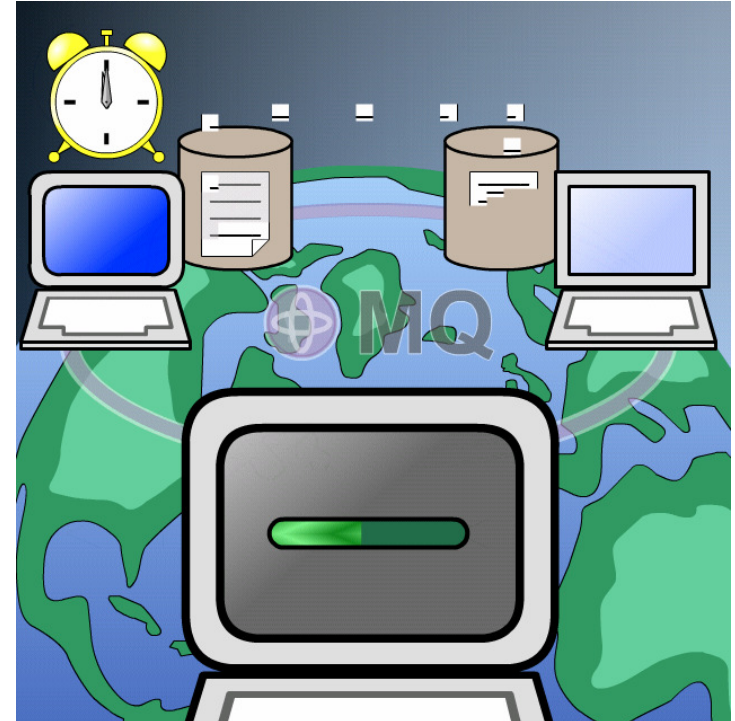
WebSphere MQ File Transfer Edition for z/OS

- Adds file transfer services on top of WebSphere MQ for z/OS to enable movement of files – regardless of size – in a managed way (reliable, auditable, secure)

- Multi-purpose infrastructure – for both files and messages

✔ <u>Flexible backbone</u> for transfers – not a single-hop solution like FTP

✔ <u>Multi-purpose</u> – use for messages and files

✔ <u>Auditable</u> with logging subsystem that tracks transfer at source and at destination for audit purposes

✔ <u>Massive</u> files – larger than MQ messages

✔ <u>Reliability</u> leveraging the MQ transport

✔ <u>Integration</u> with MQ-enabled apps and ESBs

✔ <u>No need to program</u> – no need to use APIs

✔ <u>Simple</u> graphical tooling enabling remote configuration

✔ <u>Automatic</u> file conversion and compression

✔ <u>Security</u> - of file payload using SSL

✔ <u>Visual</u> transfer status reporting

✔ <u>Support</u> for many supported MQ environments
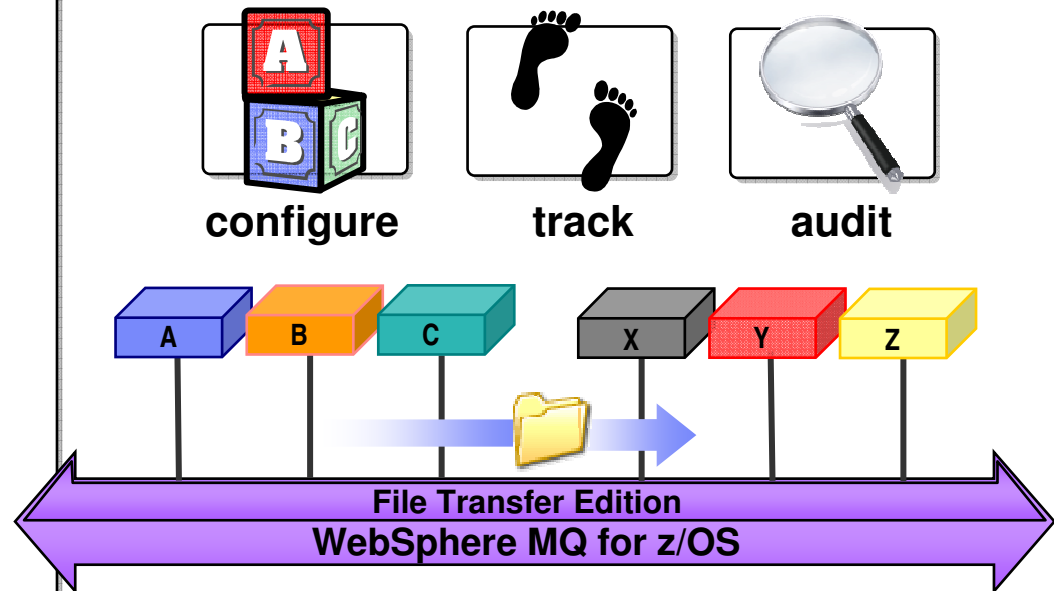
configure   **track**   **audit**

A B C   X Y Z

File Transfer Edition
WebSphere MQ for z/OS

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Key Themes – WebSphere MQ File Transfer Edition for z/OS
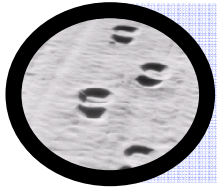
Auditable
Audit logs of transfers at source and target
Audit data persisted to MQ queues and/or relational database.
Captures time-stamped log at source and target

Ease-of-Use
Remote console for transfer initiation, unattended operation, scripting, scheduling, restart policies, status display
Integrated with MQ Explorer configuration tooling
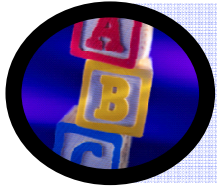
Simplicity
Small footprint, fast install
No need to write code or use API to configure transfers – Enabled via GUI
Leverages WebSphere MQ – no other technology pre-reqs

Security
Access to individual files subject to file system permissions
Link level security (inheriting MQ SSL security)
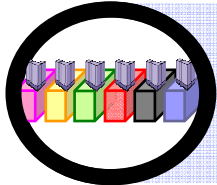
Breadth
Support WebSphere MQ V6 and V7 for transfers
Core Platform support (z/OS, Linux (32 Bit), Solaris, AIX, HP, Windows)
Good file type support (ASCII/EBCDIC, CR/LF, Flat files, z/OS QSAM, BPAM, VSAM)
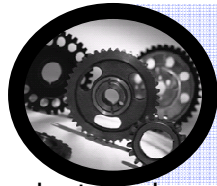
Automated Transfers
Transfers can be scheduled to repeat at predetermined intervals
Transfers can be triggered by range of file system events e.g. new files, updated file, etc.

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Apply to Join the Early Access Program

- **What is it?**
  - Opportunity to get early access to pre-GA code
  - Influence product directions and features
  - Build product knowledge and skills

- **When does it start?**
  - You can apply to join anytime after 8 July 2008

- **How can I apply?**
 - Ask your IBM representative to nominate you

- **What is required to join?**
  - A specific Non-Disclosure Agreement (NDA) must be signed
  - Can be signed electronically via the Betaworks Web site

- **What do I receive?**
  - Download regular code drops of the latest pre-GA iterations
  - Opportunity to provide product feedback direct to labs
  - Product roadmap details and materials
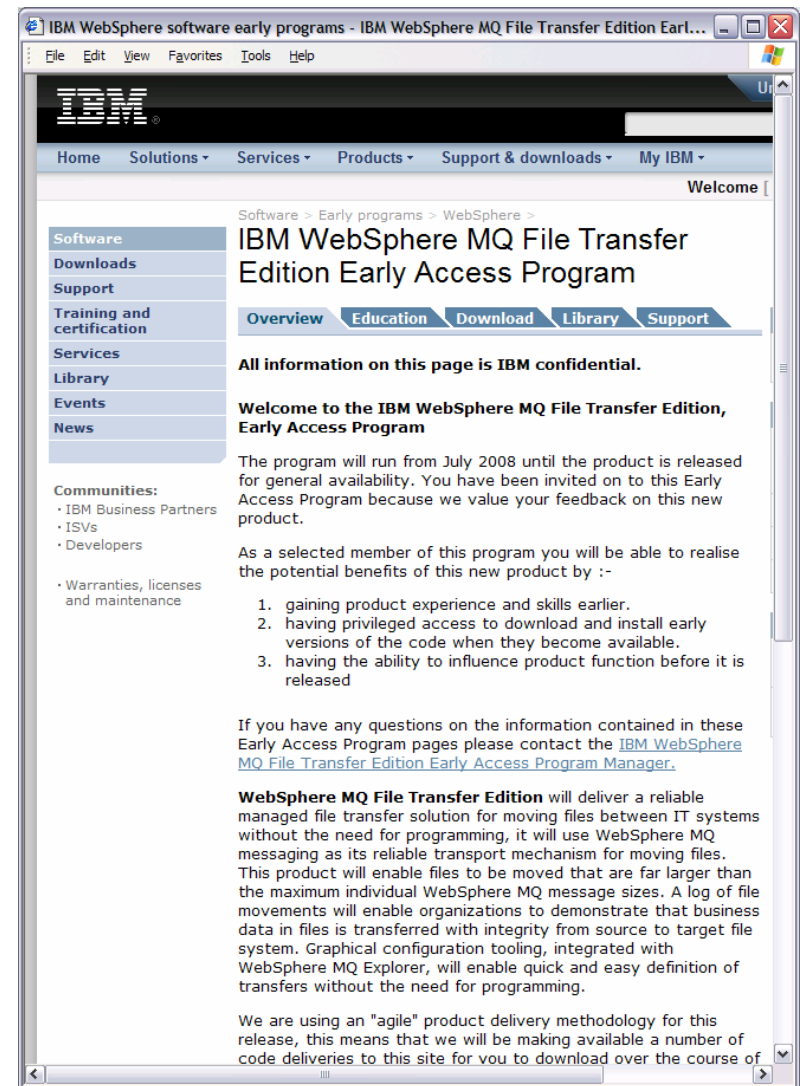
Architecture

- Enables remote GUI configuration and admin using same tooling as WebSphere MQ

- Tooling publishes transfer requests to Backbone

- "Agents" running alongside Queues managers publish audit trail to Coordination Queue Manager

- "Agents" monitor file directories, load/unload files & perform pre- & post-transfer activities

- Coordination Queue manager publishes transfer status, process and audit trail

- Coordination Queue manager requires WebSphere MQ V7.0

- Multiple Coordination Queue managers could control transfers, capture audit log and publish status
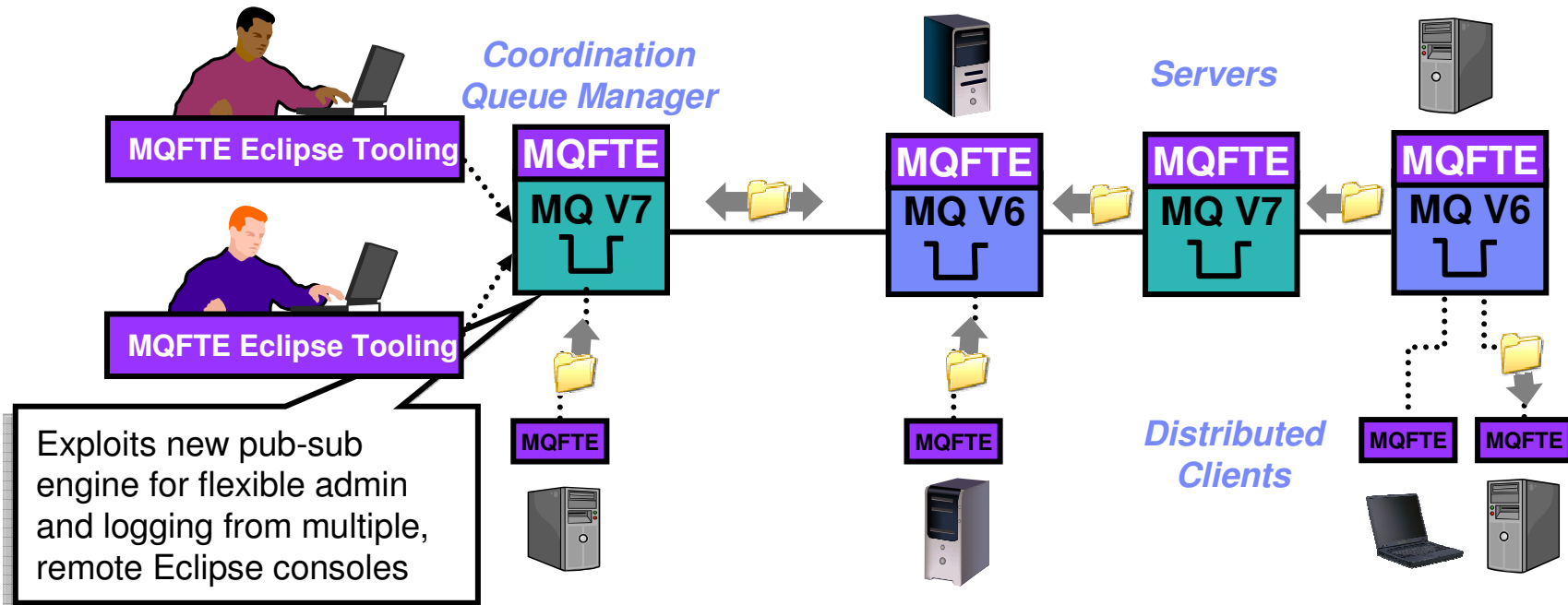
Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Features & Benefits

File Transfer Backbone	Simplifies configuration, administration & auditing
Time-Independent File Transfer	Improves productivity of applications
Reliable File Transfer	Reduces business disruption by helping preserve integrity of file data
Event-Driven File Transfer	Enables flexible distribution of file data and alerting
Centralized Configuration	Remote management of the whole file transfer backbone
Remote status reporting	Enables transfer status to be viewed remotely
Scheduling	Enables transfers to be scheduled at intervals
Automation	Enables transfers to be triggered based on file events
Scripting	Enables programmatic control of transfers
Audit Log	Enables auditing of file movements at source and target
Zero coding	Accelerates solution deployment and reduces skills requirements
Custom Exits	Enables addition user function to be added pre- and post-transfer
ESB Connectivity	Enables mediation, transformation and content-based routing to be applied to files using WebSphere Message Broker

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File Transfer Backbone

- WebSphere MQ File Transfer Edition for z/OS will provide a file transfer *backbone*
  - Source and target systems do not need to be directly connected
  - Backbone determines path across network between Source and Target
  - Utilizes this built-in characteristic of WebSphere MQ transport

- Simplifies transfer configuration, administration & auditing
  - Transfer files from any point on the Backbone to any other point
  - Enables multi-hops across Backbone – as opposed to coordinating a series of single-hops
  - Control, monitor from any point – even via intermediate points
  - Audit log of transfers at actual, logical Source and Target
    - Rather than having to piece audit trail together from a series of disconnected transfers

FTP-based Transfers

Send file from A to Z?

A B
C D E X Y Z
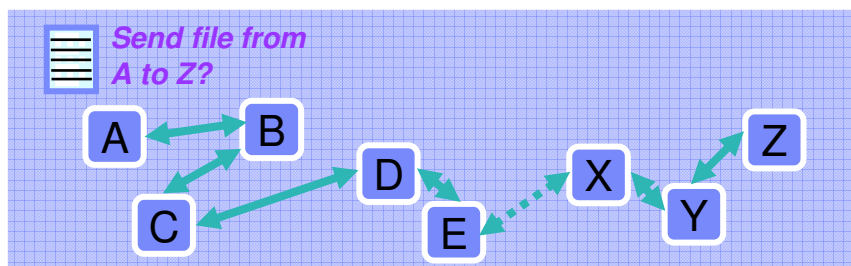
Managed File Transfer Backbone

Send from A to Z

A B C D E   X Y Z
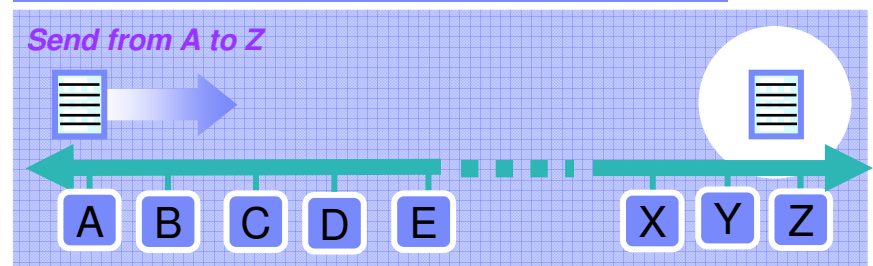
Time-Independent File Transfer

- Transfer files regardless of when solution components are free or available
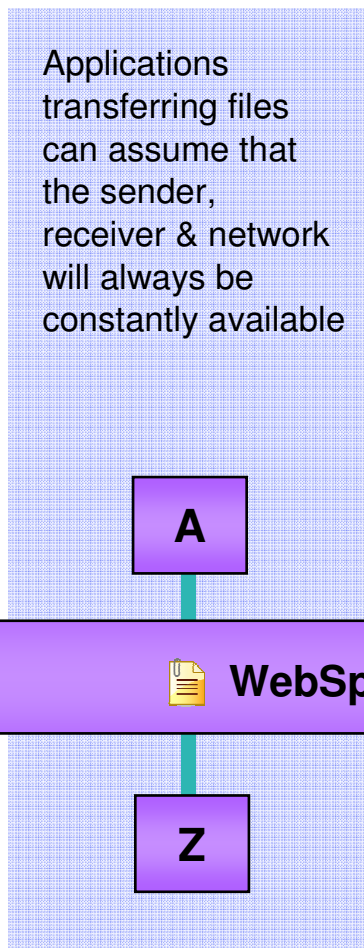
Seems like this…   *…Even when this might be happening!*

Applications transferring files can assume that the sender, receiver & network will always be constantly available

- Sender application does not need receiver to be available in order to send files
- Sender application can continue doing useful work while files are being transferred
- Backbone handles network interruptions & recovers transfer once network resumes
- Senders & receivers can continue useful work without waiting for transfers to finish

① ② ③ ④

A   A   A   *unavailable* *unavailable*

WebSphere MQ File Transfer Edition for z/OS

Z   *busy*   *unavailable*   Z   *unavailable*

Reliable File Transfer

- IBM Managed File Transfer starts with industry's leading connectivity backbone
  - *Reliability* – Patented technology & well-grounded two-phase commit techniques
  - *Trusted* – 10,000 client sites worldwide moving $trillions worth of data every day
  - *Proven* – Leader in messaging connectivity for over 15 years
  - *Integrated* – with IBM's SOA portfolio including ESB and BPM software and can connect to other commercial IT systems

Reliable Backbone
Provides general purpose transport for transfer reliability

*Specialized for Files
Managing, auditing and
monitoring file transfers*

WebSphere MQ for z/OS

File Transfer Edition
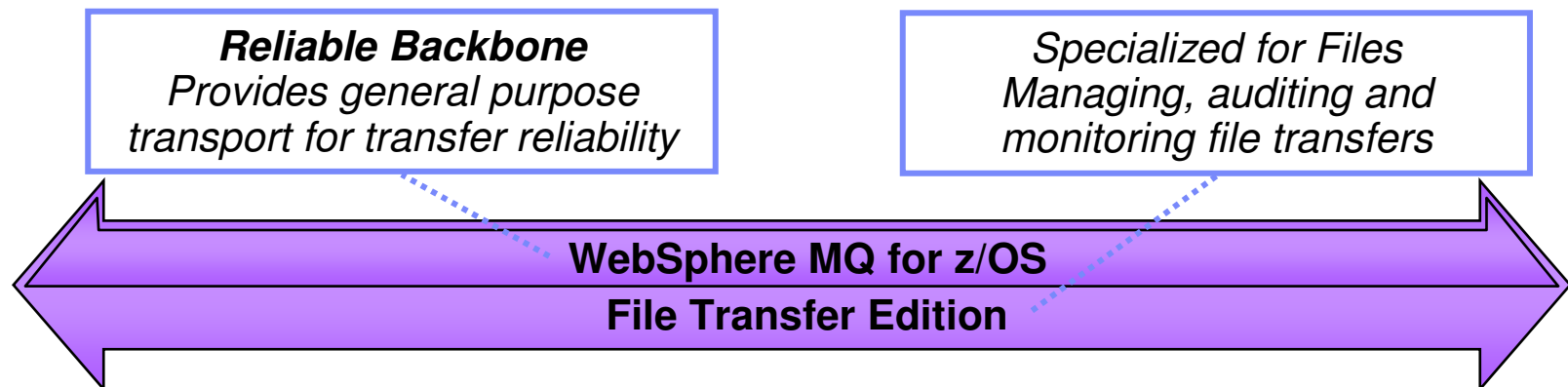
Centralized Configuration & Administration

- Logically centralized configuration of remote, distributed backbone

- Remotely view & configure entire backbone – including on z/OS

Create

Delete

Display

Modify

Deploy

Test

SOA MESSAGING BACKBONE
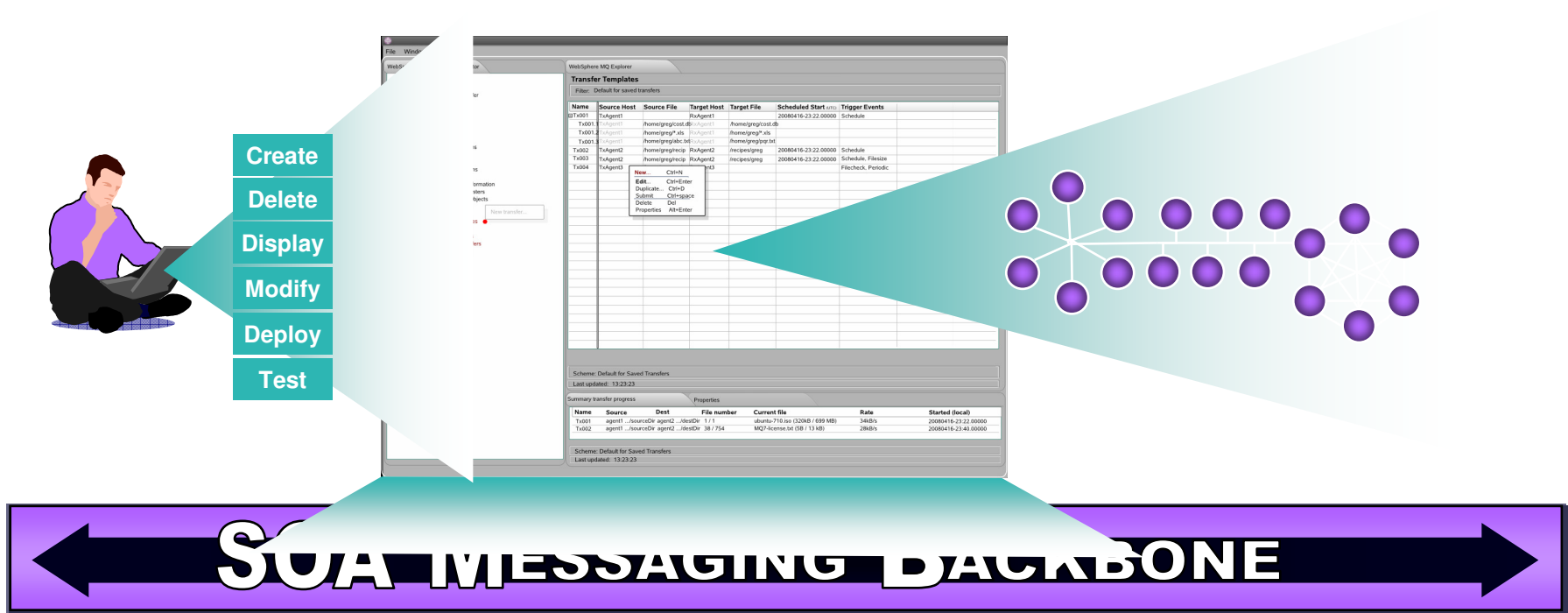
- Visual display at a glance

- Eclipse-based environment

- Extensible and customizable

- Remote connection from Linux x86 and Windows

- SSL secured connections

Eclipse-based GUI integrated into MQ Explorer

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Creating File Transfers
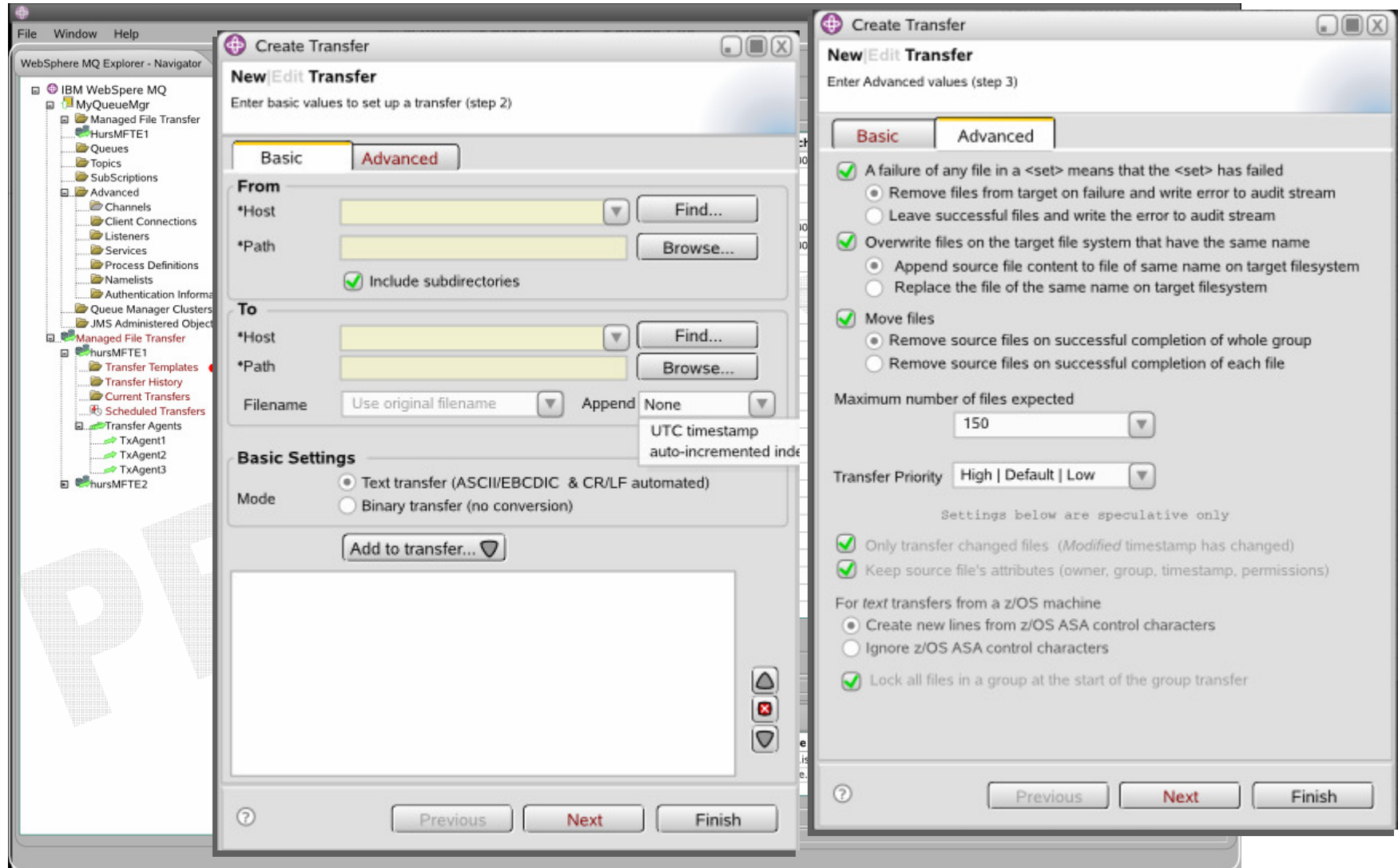
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Auditing File Transfers

WebSphere MQ Explorer	

Transfer History

Filter: Default for transfer history

Name	Source Agent	Source File	Target Agent	Target File	Started (UTC)	Completion State	State recorded (UTC)	Owner
Tx001	TxAgent1	/home/greg/recip	RxAgent1	/recipes/greg	20080416-23:22.00000	✓ Completed	20080822-23:59.00000	Bob Builder
Tx002	TxAgent2	/home/greg/recip	RxAgent2	/recipes/greg	20080416-23:22.00000	✗ Failed	20080822-23:59.00000	Bob Builder
Tx003	TxAgent2	/home/greg/recip	RxAgent2	recipes/greg	20080416-23:22.00000	■ Partial - in progress	20080822-23:59.00000	Bob Builder
Tx004	TxAgent3	/home/greg/recip	RxAgent3	/recipes/greg		⊘ Not yet started	20080822-23:59.00000	Bob Builder

Delete   Del
Archive selected...
Archive all...

- Captures log at Source and Target

- Can be viewed remotely using MQ Explorer

- Applications can subscribe to audit information (or portions of it)

- Log records can be loaded into other systems e.g. SQL database

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments
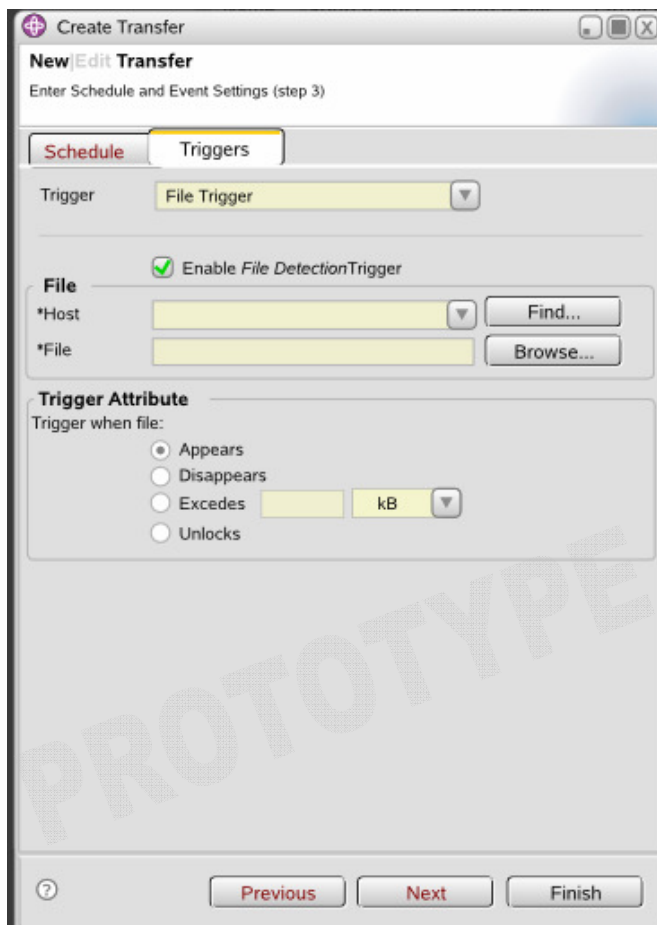
Scheduling File Transfers
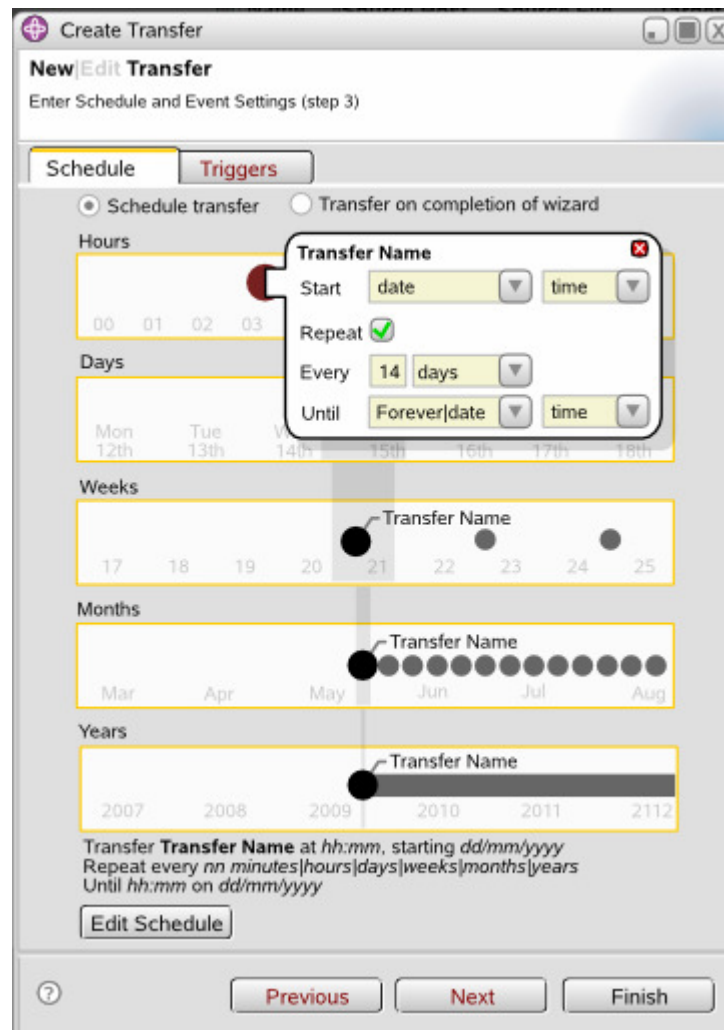
Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Triggering File Transfers

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Monitoring File Transfer Progress

- Displays visual progress of transfers

- Current progress of remote transfers

- Transfer progress can be subscribed

- Enables 3rd party and bespoke applications to monitor or react to events

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Scripting

- Scripting language will provide automated, programmatic control of transfers

- Transfer commands can be invoked from the supported Operating Systems shell environment

- Developers can use any native scripting language on the OS that can invoke these commands

- Examples:
  - fteCreateTransfer   Starts a new file transfer from the command line
  - fteStartAgent   Starts a File Transfer agent from the command line
  - fteShowAgentDetails   Displays the details of a particular File Transfer agent
  - fteStopAgent   Stops a File Transfer agent in a controlled way

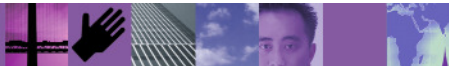Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Planned initial platform coverage

- Core platforms targeted for initial release:
  - WebSphere MQ File Transfer Edition for z/OS
    - z/OS
  - WebSphere MQ File Transfer Edition (Distributed)
    - AIX
    - Linux x86
    - Sun Solaris
    - HP-UX
    - Microsoft Windows
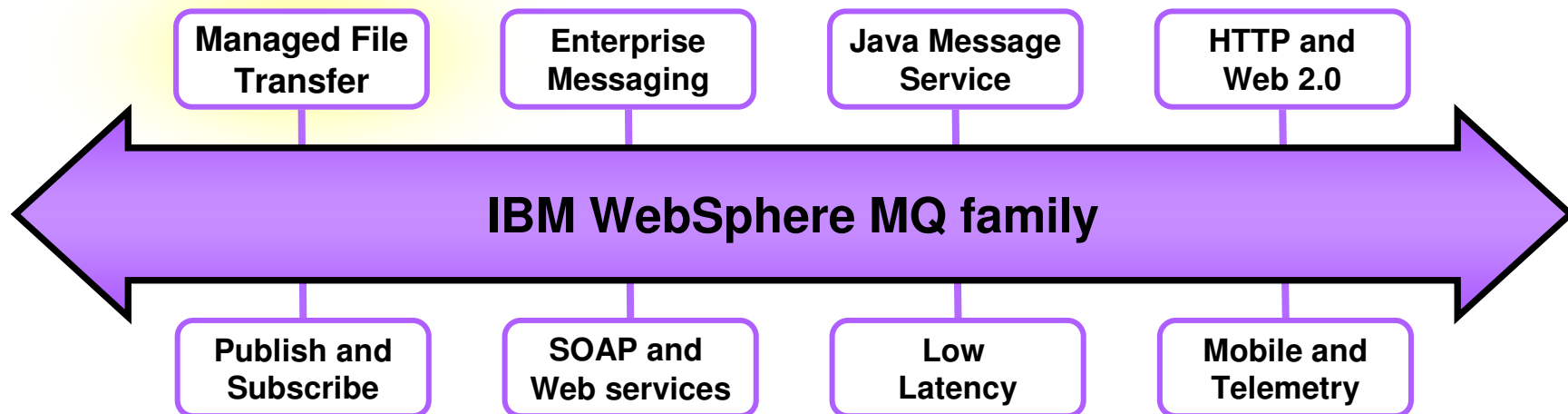
- WebSphere MQ Versions supported:
  - V6.0
  - V7.0

Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments

Consolidated Transport Backbone

- Combined solution for transferring messages and files via a single consolidated infrastructure
  - Reducing operational costs through synergies and lowering skills requirements

- A Managed File Transfer solution that can be leveraged in SOA
  - A one-two punch – Solve today's file problem while building a foundation for the future
  - Single Universal Connectivity solution bringing together file- message- service- and event-oriented applications and Web 2.0 traffic
  - Apply ESB capabilities to file data – transformation, mediation, content-based routing

| Managed File Transfer | Enterprise Messaging | Java Message Service | HTTP and Web 2.0 |

IBM WebSphere MQ family

| Publish and Subscribe | SOAP and Web services | Low Latency | Mobile and Telemetry |

Why IBM?

◄ SOA MESSAGING BACKBONE ►

Over 15 years of proven experience

Over 15 years leadership 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 the messaging and ESB space
New WebSphere MQ family products
Regular enhancements, updates and new releases

Next Steps

- Think about how you move files and documents around

  – Could you show in an audit where the last 10 transferred files and documents came from?

  – What advantages could you gain from a consolidated transport backbone?

  – Do you know what kinds of files might be moving unsecured around your organization?

  – Could you get even more value from your MQ infrastructure by enabling file transfers?

  – What benefits can you get from applying ESB capabilities to files and documents?

- Why not?

  – Ask your IBM representative about WebSphere MQ File Transfer Edition for z/OS

  – Apply to join the Early Access Program – Ask your IBM rep to nominate you

  – Get an analyst's view at

  www.ibm.com/software/info1/websphere/index.jsp?tab=integration/hiddenrisk
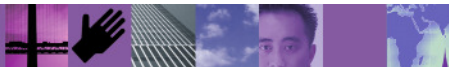
Thank You

www.ibm.com/webspheremq/filetransfer