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

Name

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IBM's Vision – SOA Messaging Backbone

- **Addressing the full spectrum of transport requirements**

SOA Messaging Backbone

Skills

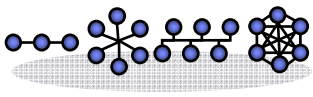
- Languages
  - *COBOL, C/C++, RPC*
  - *Java, JEE, JMS*
  - *.NET, C#, VB, WCF*
  - *AJAX, Perl, Python…*
- Orientations
  - *Service*
  - *Batch*
  - *File*
  - *Message*
  - *Resource…*
- Mindsets
  - *WSDL, XML, WS-**
  - *REST, MEST, KISS*

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

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 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 Flexibility**
  - All resources usually have to be available concurrently
  - Often only one FTP-based transfer can run at a time
  - Typically transfers cannot be prioritized
- **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

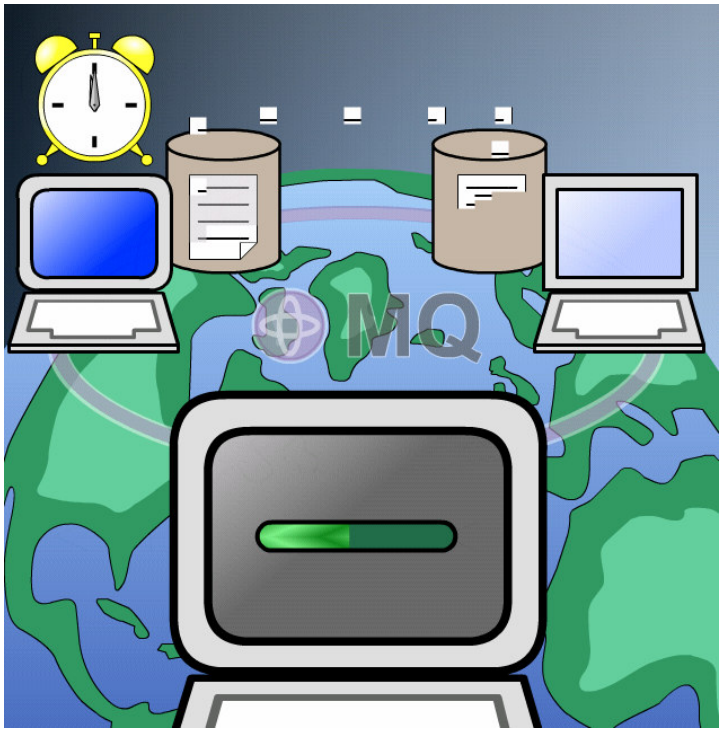
What is Managed File Transfer?

- **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 is a strategic part of an organization's IT infrastructure**
  - Should be aligned with other transport mechanisms e.g. messaging
  - Managed File Transfer should work with and re-enforce SOA initiatives
    - Including applying ESB capabilities to files

Introducing WebSphere MQ File Transfer Edition for z/OS V7.0

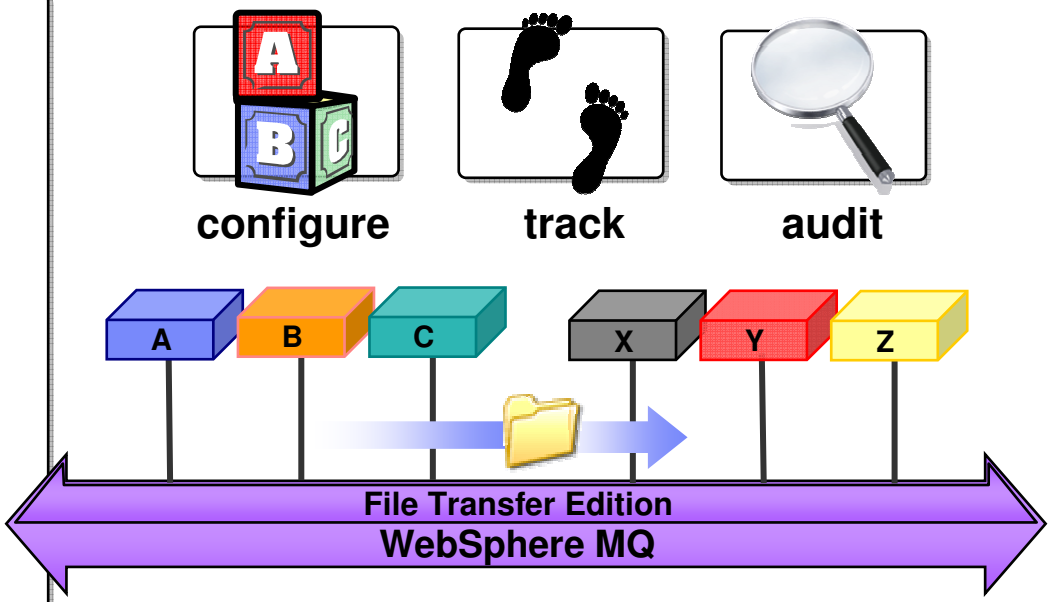
- **The newest member of the WebSphere MQ family**
  - Builds upon WebSphere MQ's proven transport backbone
  - Licensed as a trade-up from WebSphere MQ on distributed platforms
- **Will deliver robust solution for Managed File Transfer**
  - Enable control of all aspects of file movement between IT 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 File Processing



WebSphere MQ File Transfer Edition

- Adds file transfer services to WebSphere MQ to enable movement of files – regardless of size – in a managed way (reliable, auditable, secure)
- Multi-purpose infrastructure – for both files and messages

- Flexible backbone for transfers – not a single-hop solution like FTP
- Multi-purpose – use for messages and files
- Auditable with logging subsystem that tracks transfer at source and at destination for audit purposes
- Massive files – larger than MQ messages
- Reliability leveraging the MQ transport
- Integration with MQ-enabled apps and ESBs
- No need to program – no need to use APIs
- Simple graphical tooling enabling remote configuration
- Automatic file conversion and compression
- Security - of file payload using SSL
- Visual transfer status reporting
- Support for many supported MQ environments



Key Themes for WebSphere MQ File Transfer Edition

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

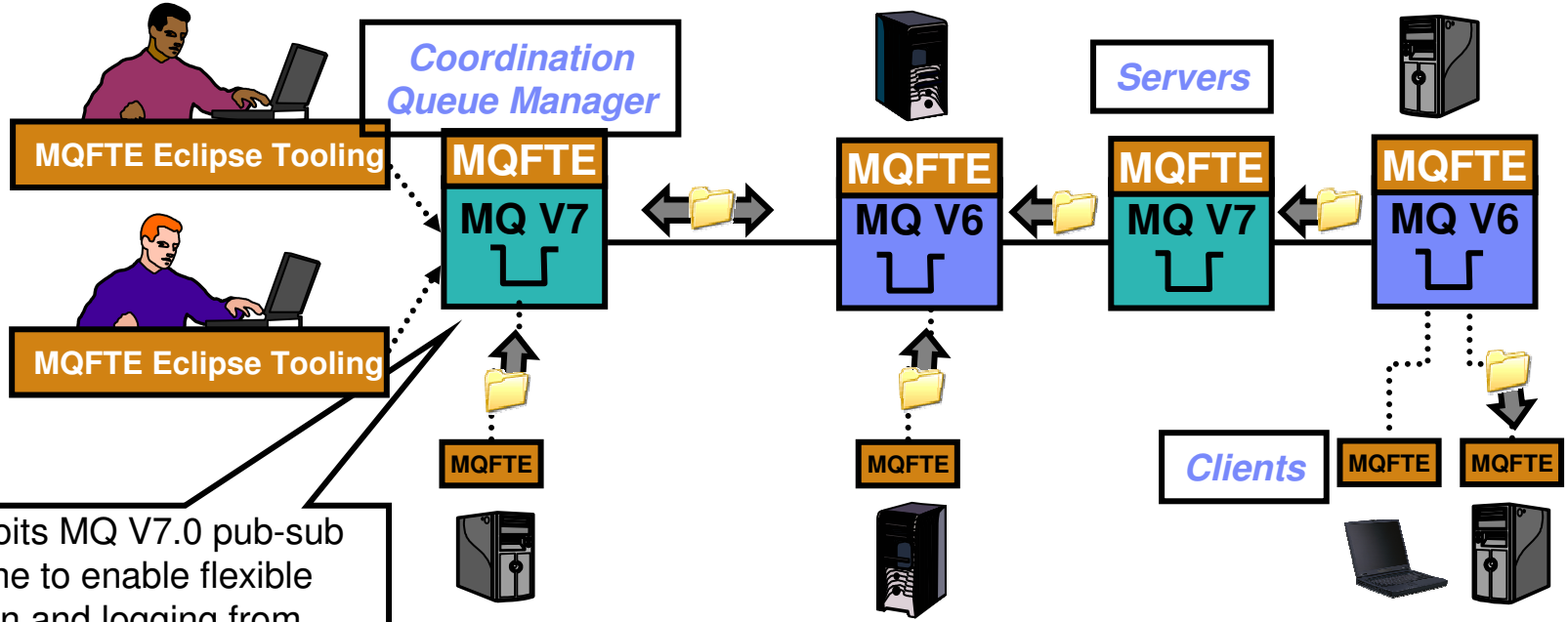
Support WebSphere MQ V6 and V7 for transfers
Core Platform support (Windows, z/OS, Linux (32 Bit), Solaris, AIX, HP)
Good file type support (ASCII/EBCDIC, CR/LF, Flat files, z/OS QSAM, BPAM, VSAM)

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.

Architecture

- Enables remote GUI configuration and admin using same tooling as MQ
- Tooling publishes transfer requests to Backbone
- “Agents” running alongside Queues managers publish audit trail to Coordination Center
- “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 MQ V7.0
- Multiple Coordination Queue manager could control transfers, capture audit log and publish status



Features & Benefits

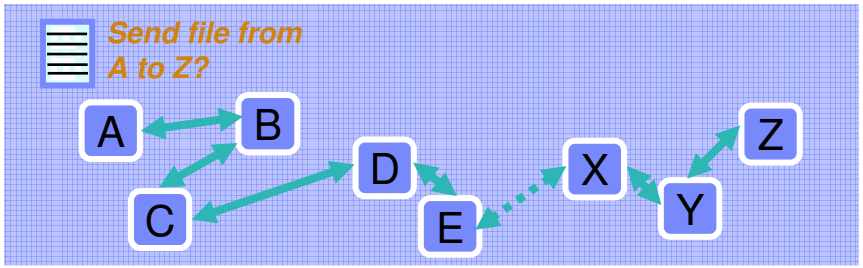
File Transfer Backbone	**Simplifies configuration, administration & auditing**
Time-Independent File Transfer	**Improves productivity of applications**
Reliable File Transfer	**Reduces business disruption by helping preserve integrity of file data**
Event-Driven File Transfer	**Enables flexible distribution 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**

File Transfer Backbone

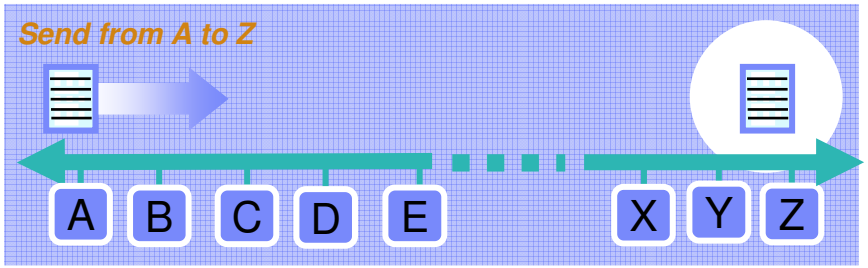
- **WebSphere MQ File Transfer Edition for z/OS will provide a file transfer *backbone***
  - Source and target systems do not need to be directly connected
  - Backbone determines path across network between Source and Target
  - Utilizes this built-in characteristic of WebSphere MQ transport

- **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



Managed File Transfer Backbone



Time-Independent File Transfer

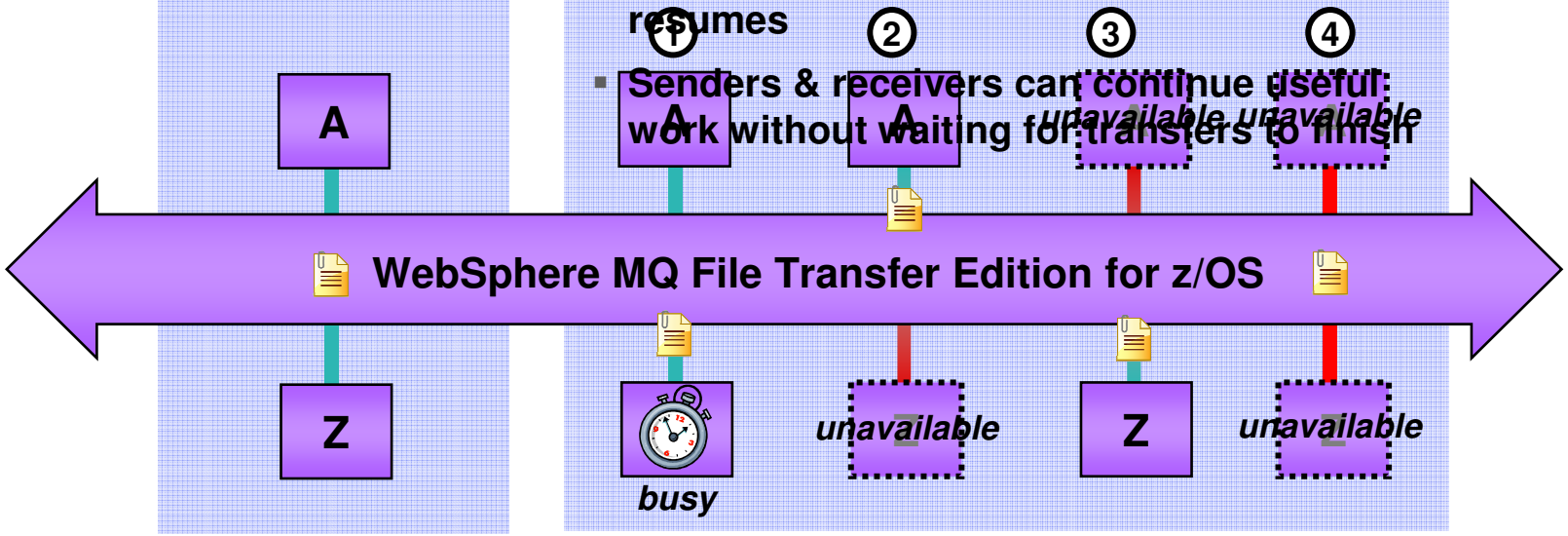
- **Transfer files regardless of when solution components are free or available**

Seems like this…

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

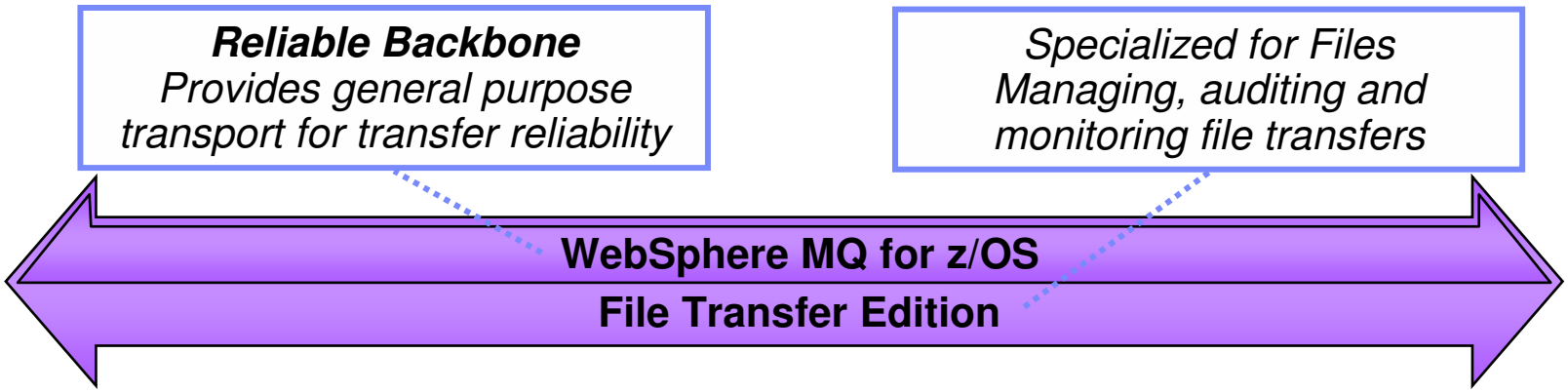
…Even when this might be happening!

- **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**



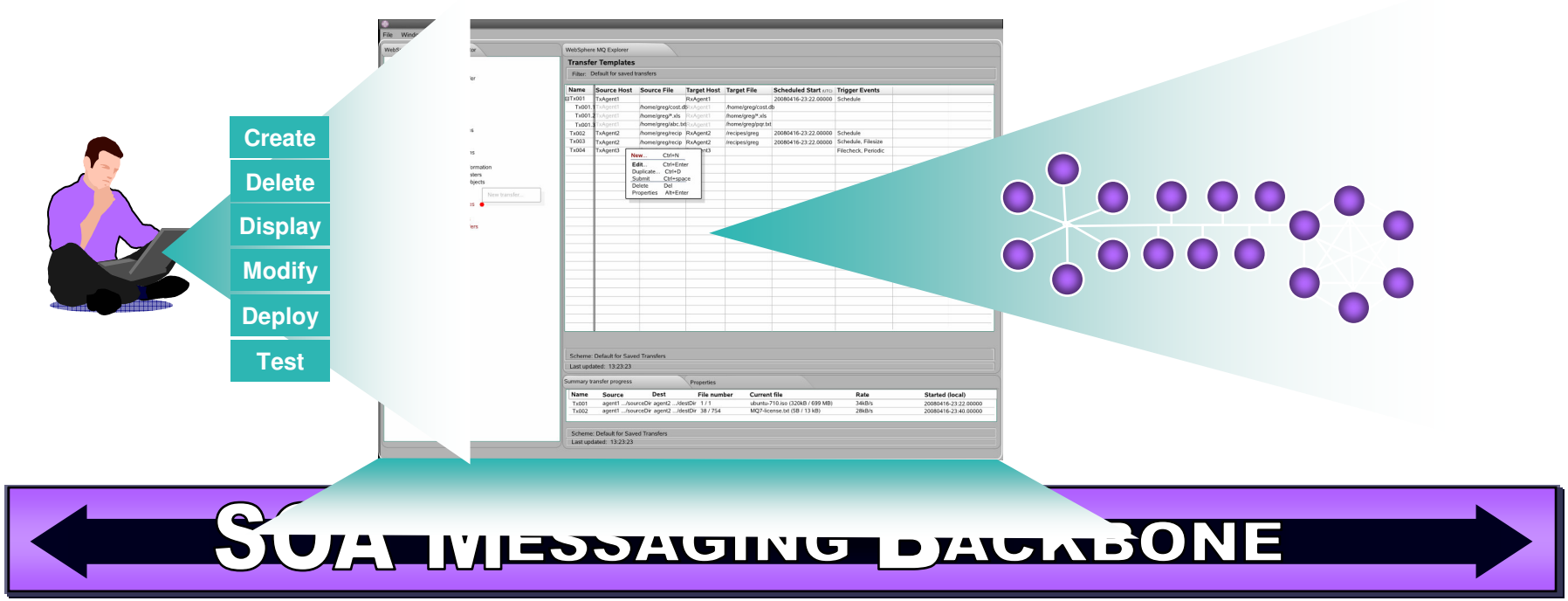
Reliable File Transfer

- **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



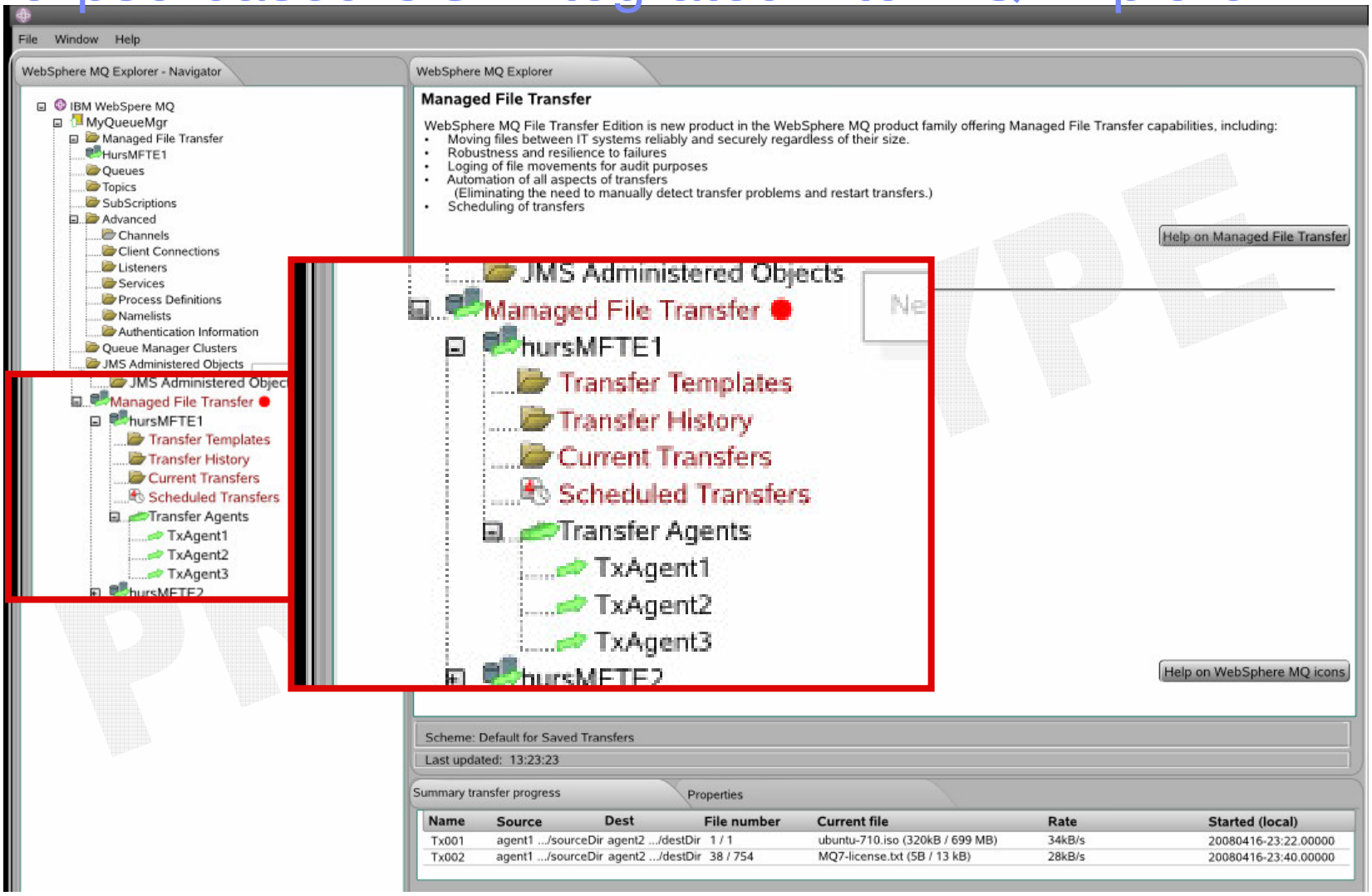
Centralized Configuration & Administration

- **Logically centralized configuration of remote, distributed backbone**
- **Remotely view & configure entire backbone – including on z/OS**

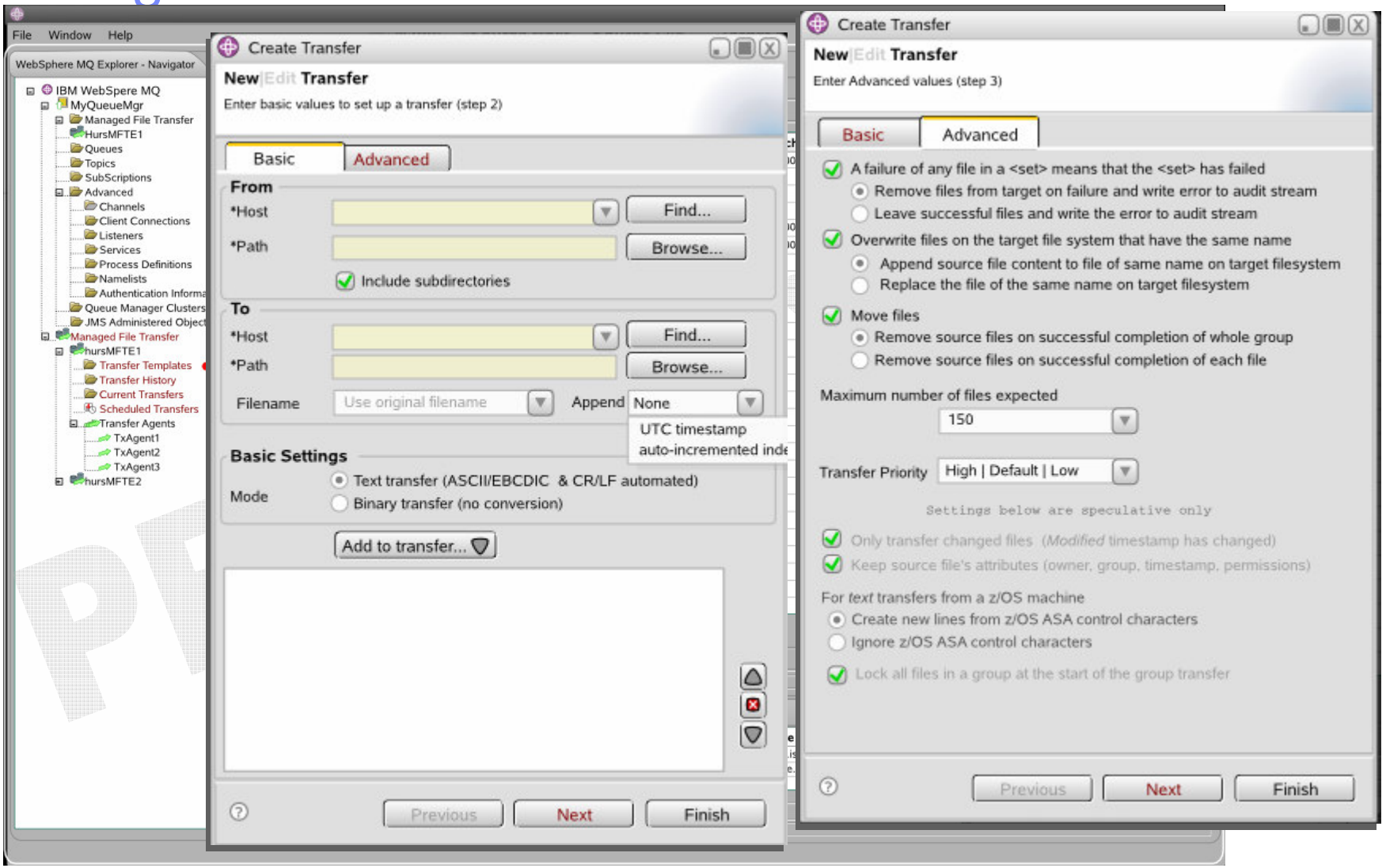


- Visual display at a glance
- Eclipse-based environment
- Extensible and customizable
- Remote connection from Linux x86 and Windows
- SSL secured connections

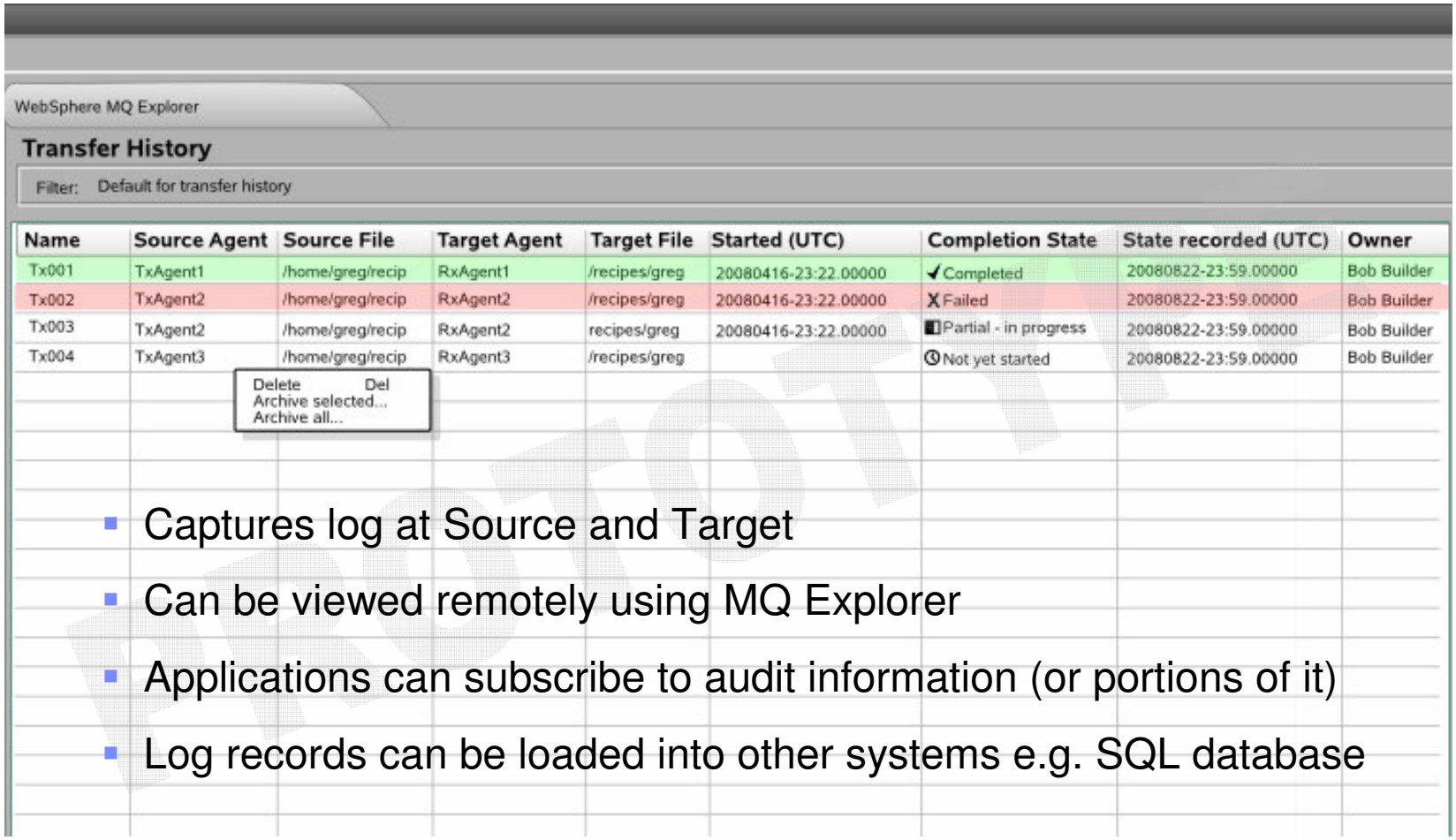
Eclipse-based GUI integrated into MQ Explorer



Creating File Transfers

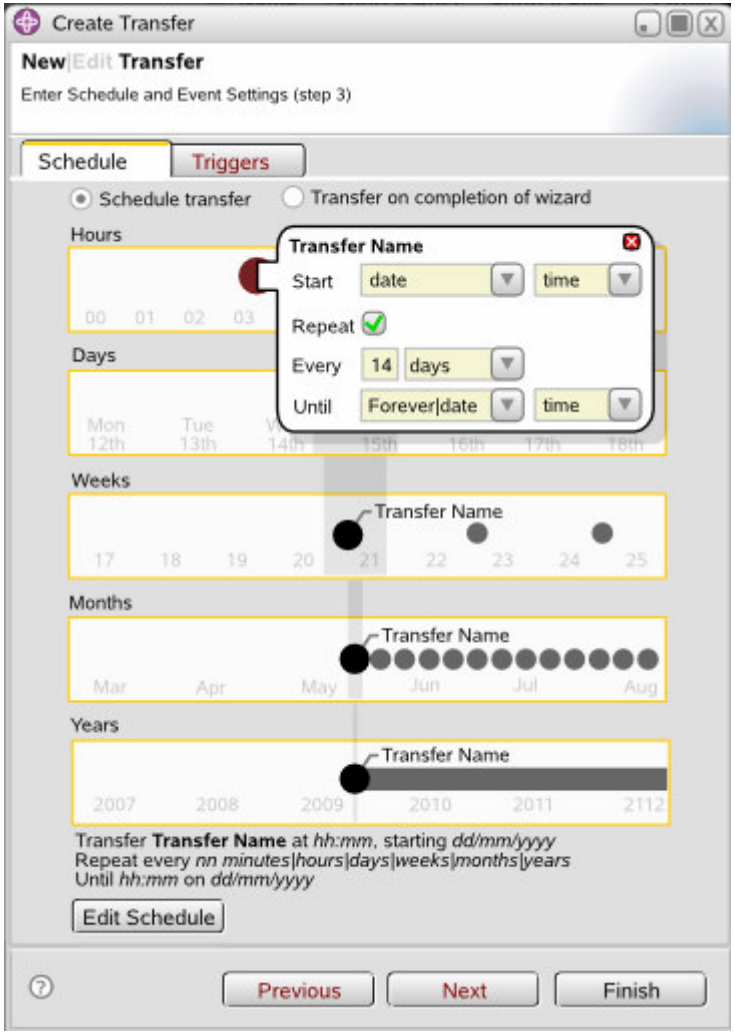


Auditing File Transfers



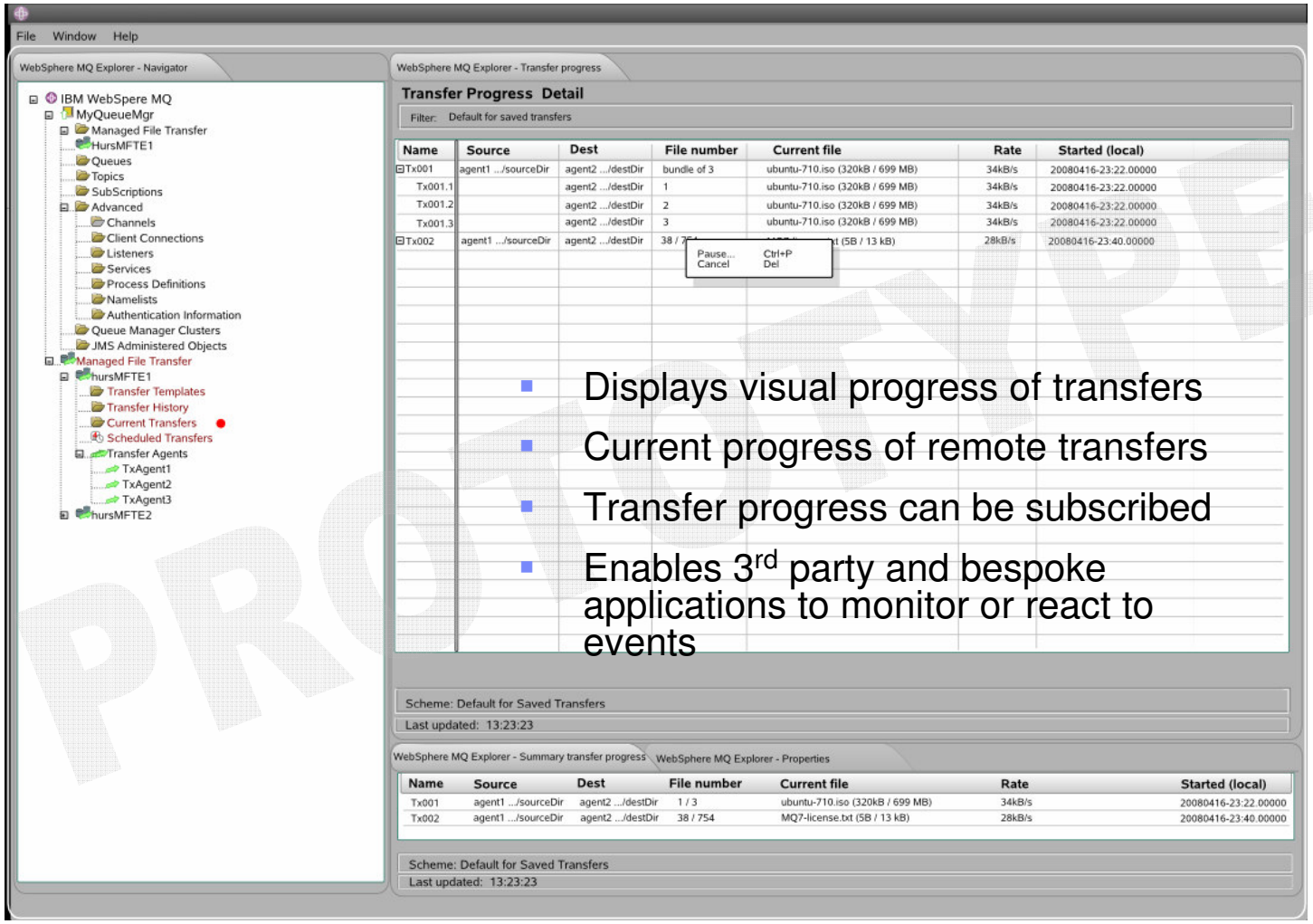
- Captures log at Source and Target
- Can be viewed remotely using MQ Explorer
- Applications can subscribe to audit information (or portions of it)
- Log records can be loaded into other systems e.g. SQL database

Scheduling File Transfers



Triggering File Transfers

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

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

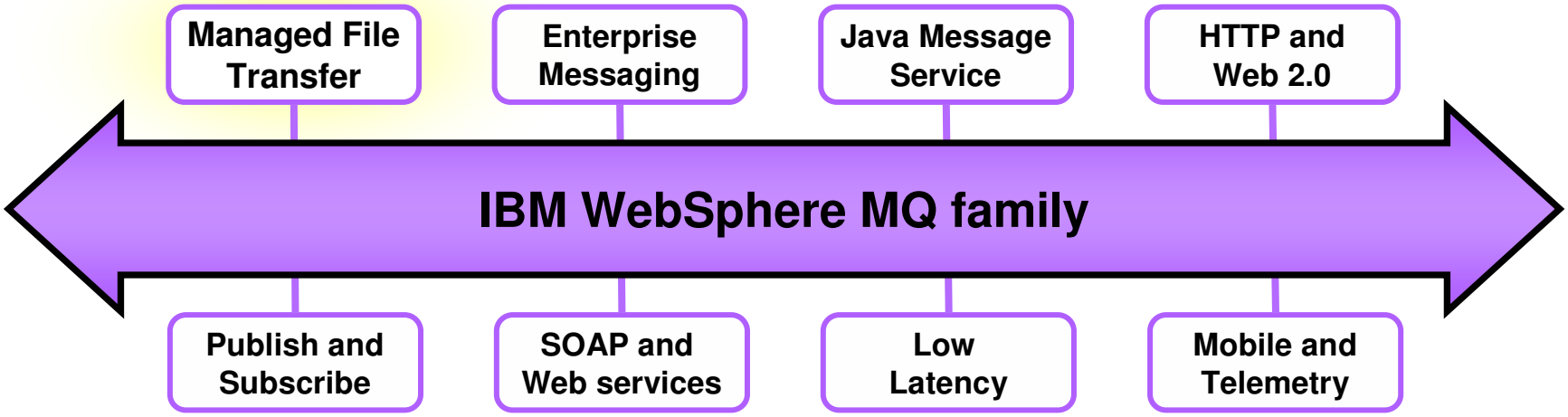
Planned initial platform coverage

- **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

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



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

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**

- **Additional materials**
  - WebSphere MQ File Transfer Edition web site http://www-306.ibm.com/software/integration/wmq/filetransfer/
  - Teleconference: Introducing reliable, Managed File Transfer for z/OS http://www.ibm.com/software/os/systemz/telecon/27aug/index.html