

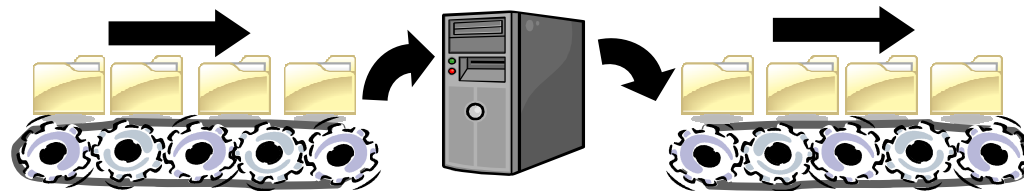


Agenda

- What is Managed File Transfer?
 - The shortcomings of traditional file transfer solutions
- Introducing WebSphere MQ File Transfer Edition
- Key Components
- How File Transfer Edition uses MQ
 - Different roles for queue managers
 - Key message exchanges
- Walkthrough of Key File Transfer Edition Function
- What's new in 7.0.1

How Are Most Organizations Moving Files Today?

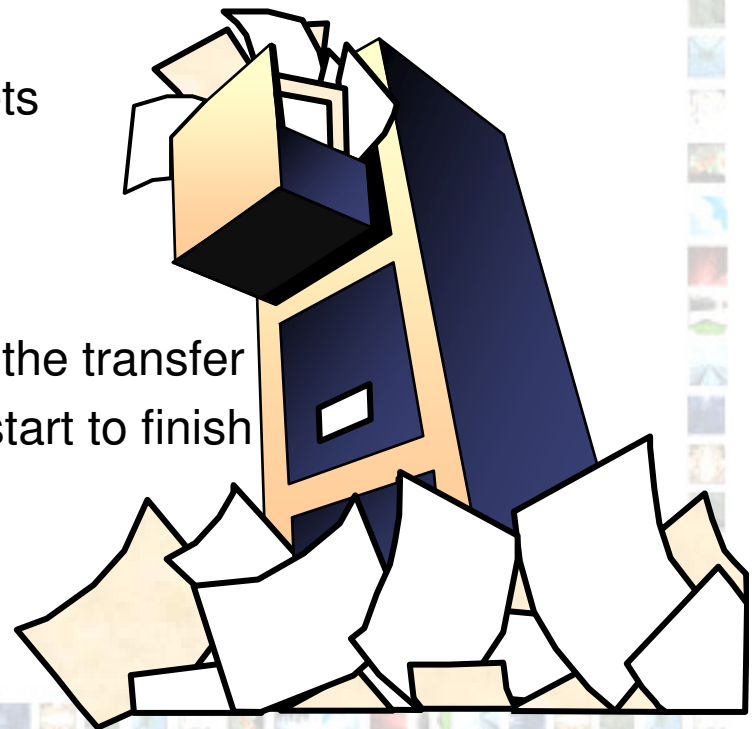
- Currently, many business critical applications connect by exchanging files
 - Most organizations have *several* products, and different techniques for doing file transfer
 - Typically there is a mix of FTP, homegrown, and other file transfer products





Shortcomings of Basic FTP

- Limited Reliability
 - Not every implementation supports “resuming” failed transfers
 - Recipients can mistakenly process partially transferred files
- Limited Visibility
 - Often no monitoring facilities
 - No facility to centralize control over what gets transferred
- Limited Traceability
 - Logs often held on the machine performing the transfer
 - Difficult to track a file’s entire journey from start to finish
 - Difficult to audit!





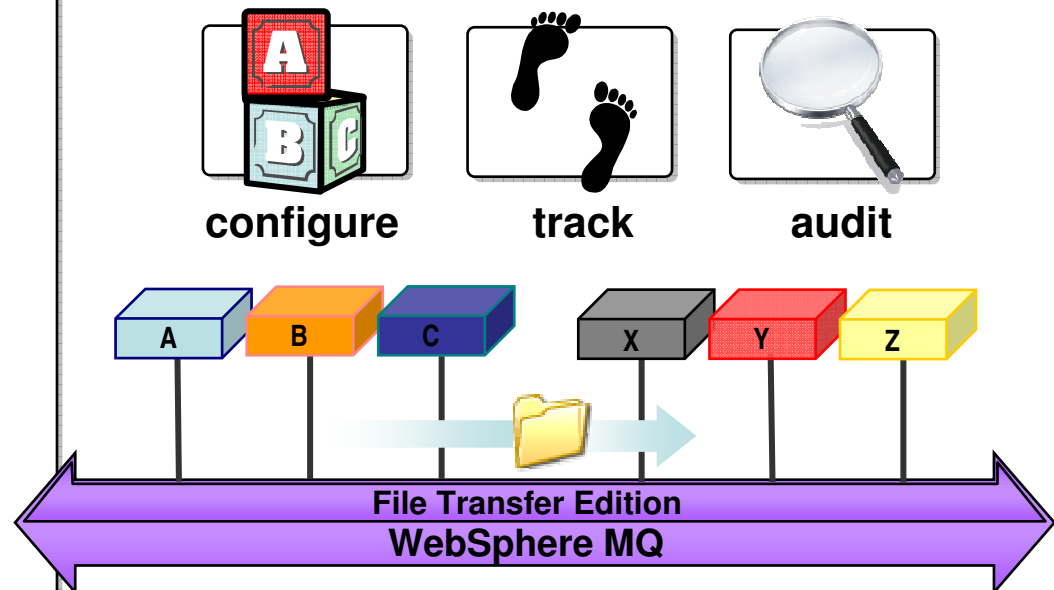
What is Managed File Transfer?

- There is no standard that dictates what Managed File Transfer is and isn't
- Software that overcomes the problems inherent with traditional methods of transferring files
- WebSphere MQ File Transfer Edition is a Managed File Transfer Solution

Introducing WebSphere MQ File Transfer Edition V7

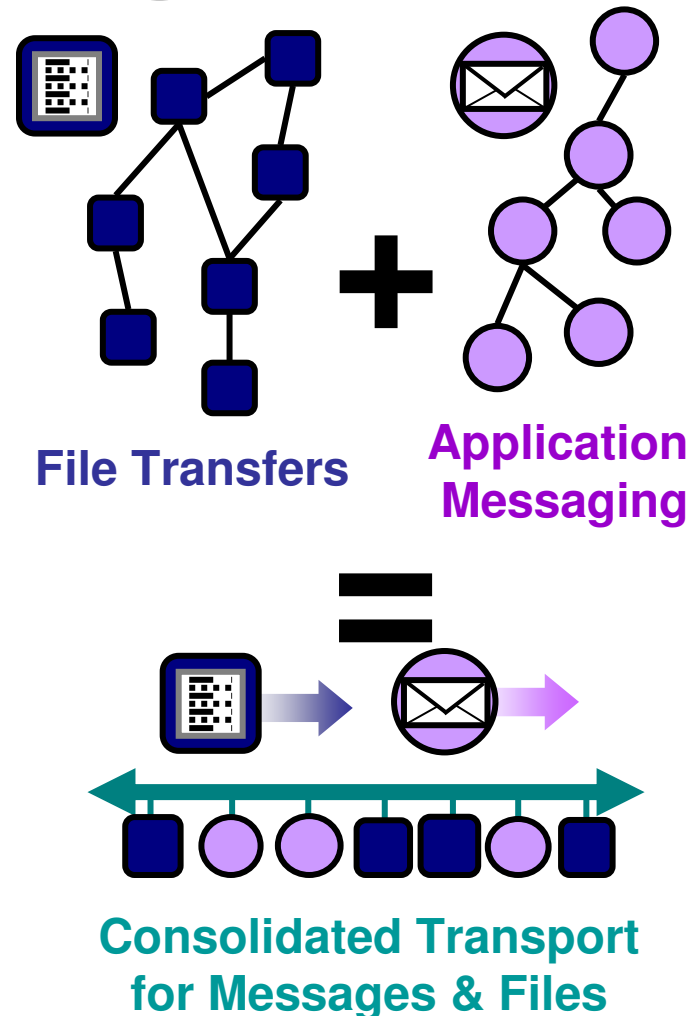
- Adds file transfer to WebSphere MQ to enable movement of files – regardless of size – in a managed way (reliable, auditable, secure)
- Multi-purpose infrastructure – for both files and messages

- ✓ Flexible backbone for transfers – move files from anywhere to anywhere in your network
- ✓ Multi-purpose use – for both files and messages
- ✓ Auditable with logging subsystem that tracks transfer at source and at destination for audit purposes
- ✓ Centralized control and configuration
- ✓ Integration with MQ-enabled apps and ESBs
- ✓ No need to program – no need to use APIs
- ✓ Automatic file conversion and compression
- ✓ Security – of file payload using SSL



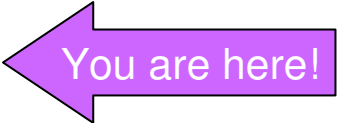
A Consolidated Transport for Files and Messages

- Traditional approaches to file transfer result in parallel infrastructures
 - One for files – typically built on FTP
 - One for application messaging – based on WebSphere MQ, or similar
- High degree of duplication in creating and maintaining the two infrastructures
- Consolidating messaging and file transports yields:
 - Operational savings and simplification
 - Reduced administration effort
 - Reduced skills requirements and maintenance





Agenda

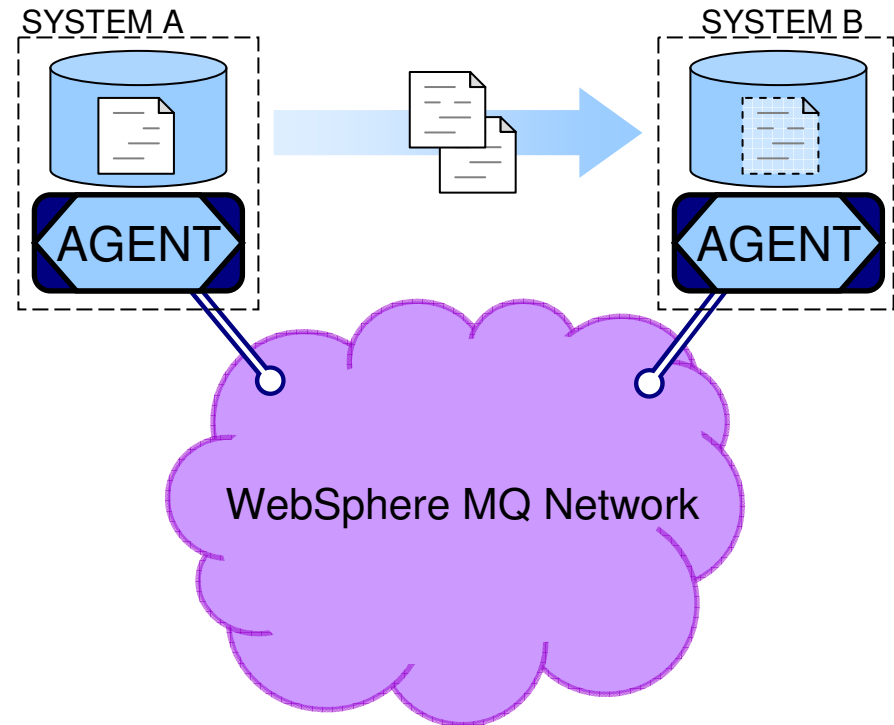
- What is Managed File Transfer?
 - The shortcomings of traditional file transfer solutions
- Introducing WebSphere MQ File Transfer Edition
- Key Components  You are here!
- How File Transfer Edition uses MQ
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- Walkthrough of Key File Transfer Edition Function
- What's new in 7.0.1?

The Three Key Components of FTE:

1. Agents

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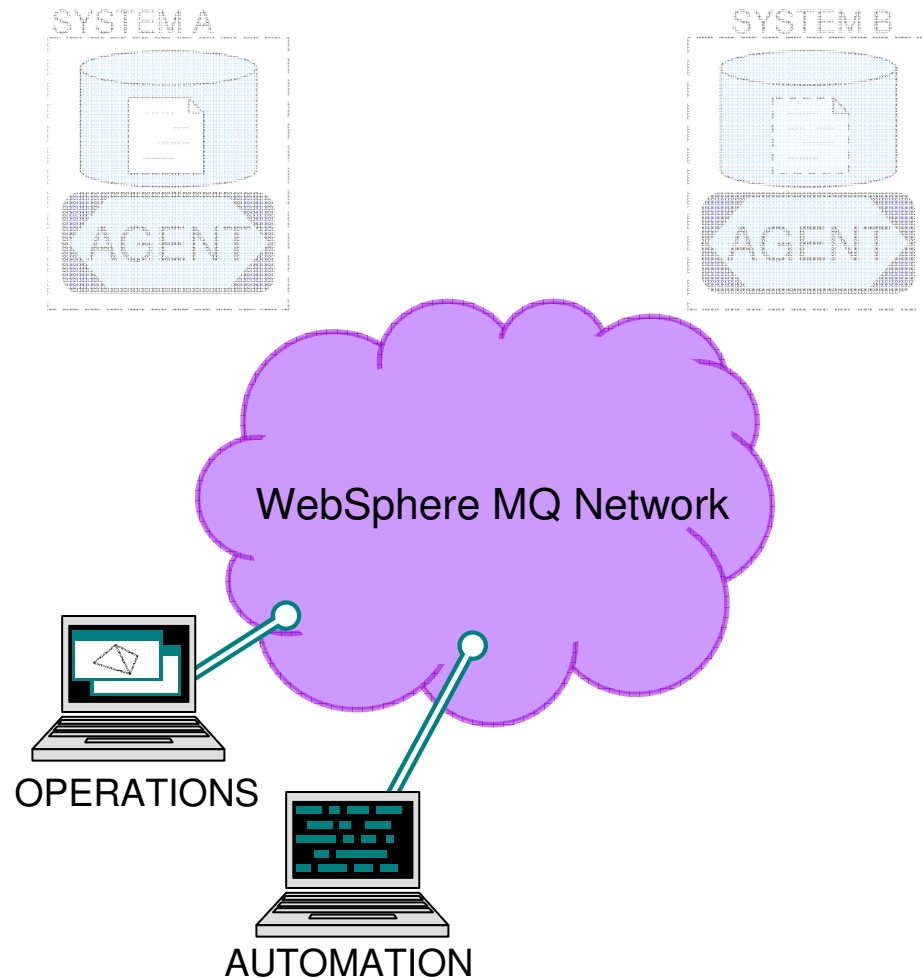
- Long running MQ application
- Transfers files using MQ
- Run on system where files are to be transferred from / to
- Multi-threaded file transfers
 - Can both send and receive multiple files at the same time
- Agent always associated with exactly one queue manager
 - ... but one queue manager can host several agents
 - The queue manager an agent attaches is performing the agent queue manager role
- Each agent monitors its own *command queue* for work



The Three Key Components of FTE:

2. Commands

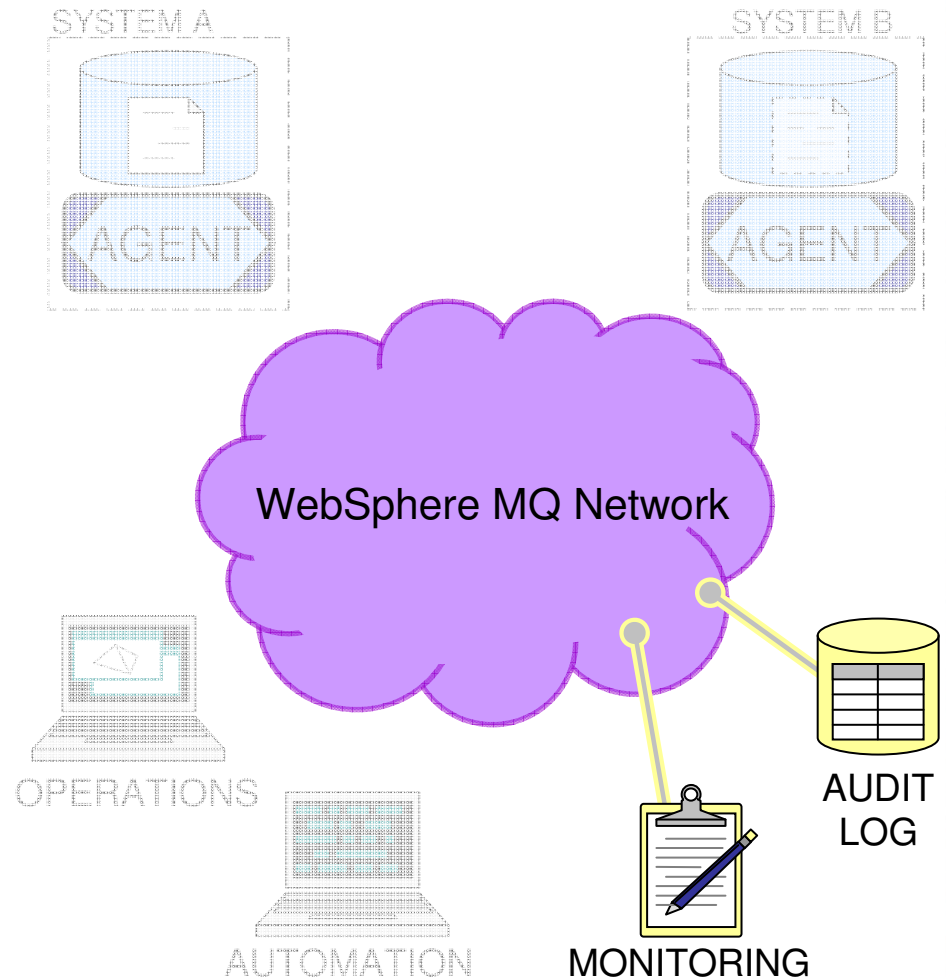
1. Agents
2. **Commands**
 - Instruct agents. For example, to start or cancel a transfer
 - Use MQ messaging to relay the instructions
 - A queue manager that the commands connect to is playing the command queue manager role
 - GUI or command line



The Three Key Components of FTE:

3. Logging / Monitoring

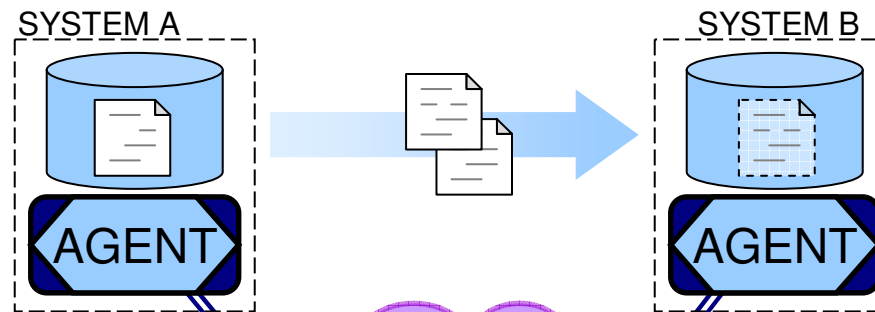
1. Agents
2. Commands
3. **Logging / Monitoring**
 - Acts as a collection point for monitoring and logging data
 - How are my transfers progressing?
 - What files were transferred?
 - The queue manager that the logging / monitoring tools connect to is performing the coordination queue manager role
 - The coordination queue manager must be MQ V7
 - Uses publish-subscribe capabilities
 - An MQ V7 license comes with distributed File Transfer Edition Server
 - File data does not flow through coordination queue manager!



Recap: 3 Main Components of FTE

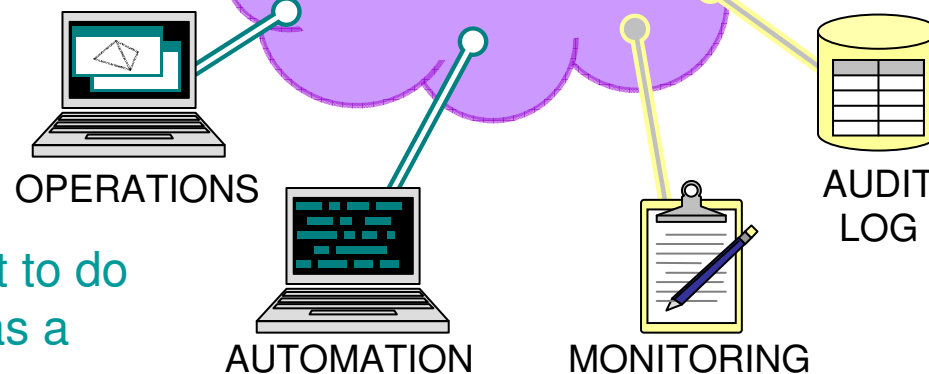
Agents:

- MQ applications
- End-points for file transfers
- Transfer files using MQ
- Multi-threaded
- Capable of simultaneous bi-directional file transfer



Monitoring / Logging

- Collect data about file transfers



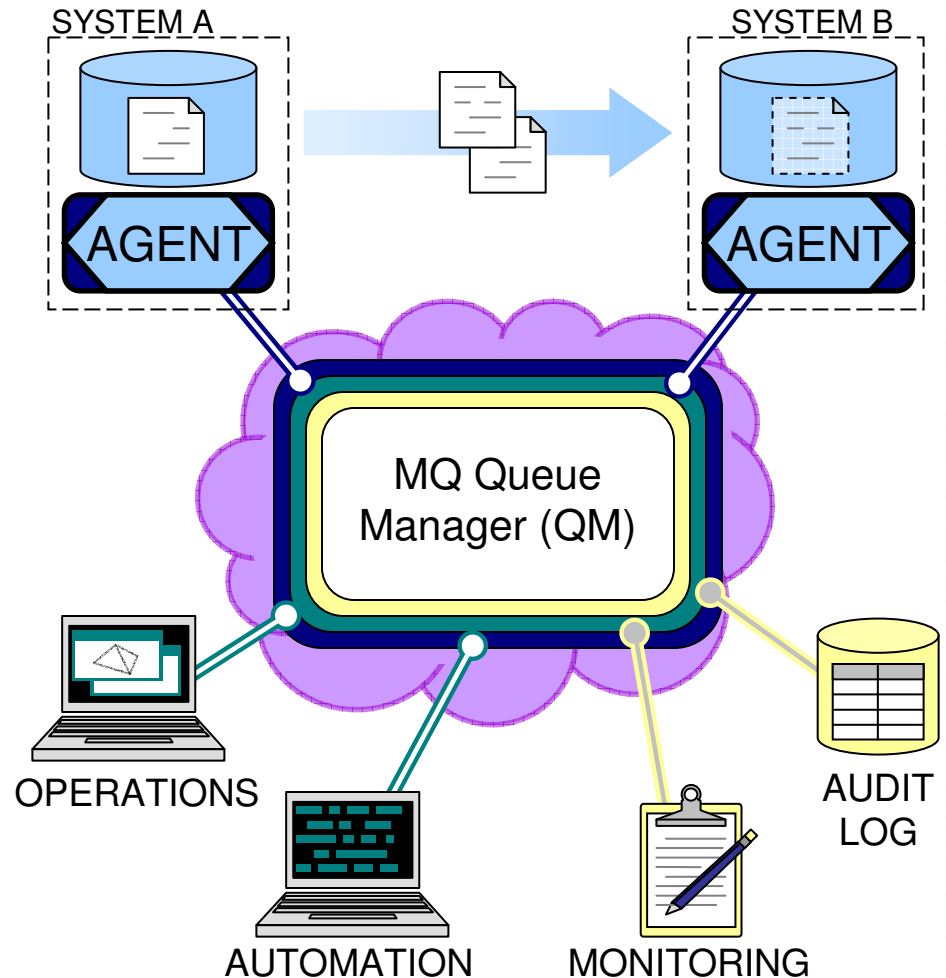
Commands:

- Instruct agents what to do
- Encode command as a message

Integration with MQ Networks

A Single Queue Manager

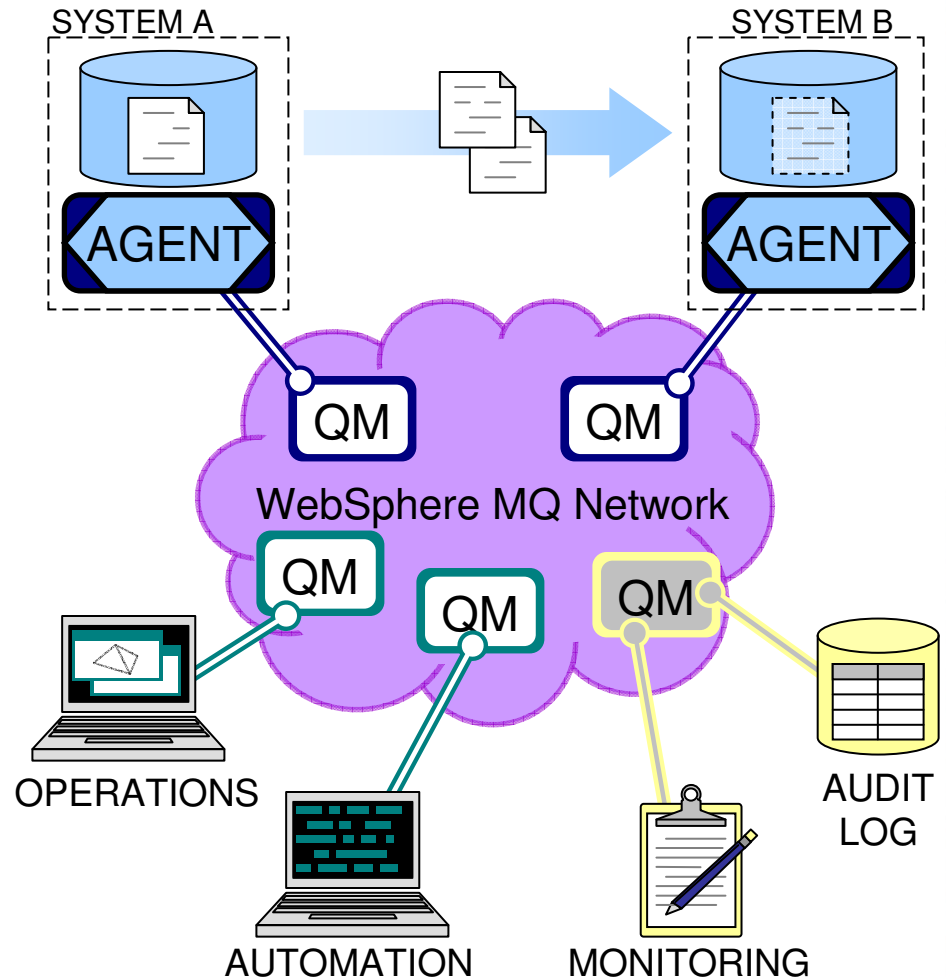
- At one extreme, you can connect everything to a single queue manager...
 - Most useful for prototyping or test systems
- Here one queue manager is playing the following roles:
 - Agent queue manager (for the two agents)
 - Command queue manager (for the operation and automation commands)
 - Coordination queue manager (for the audit and monitoring processes)



Integration with MQ Networks

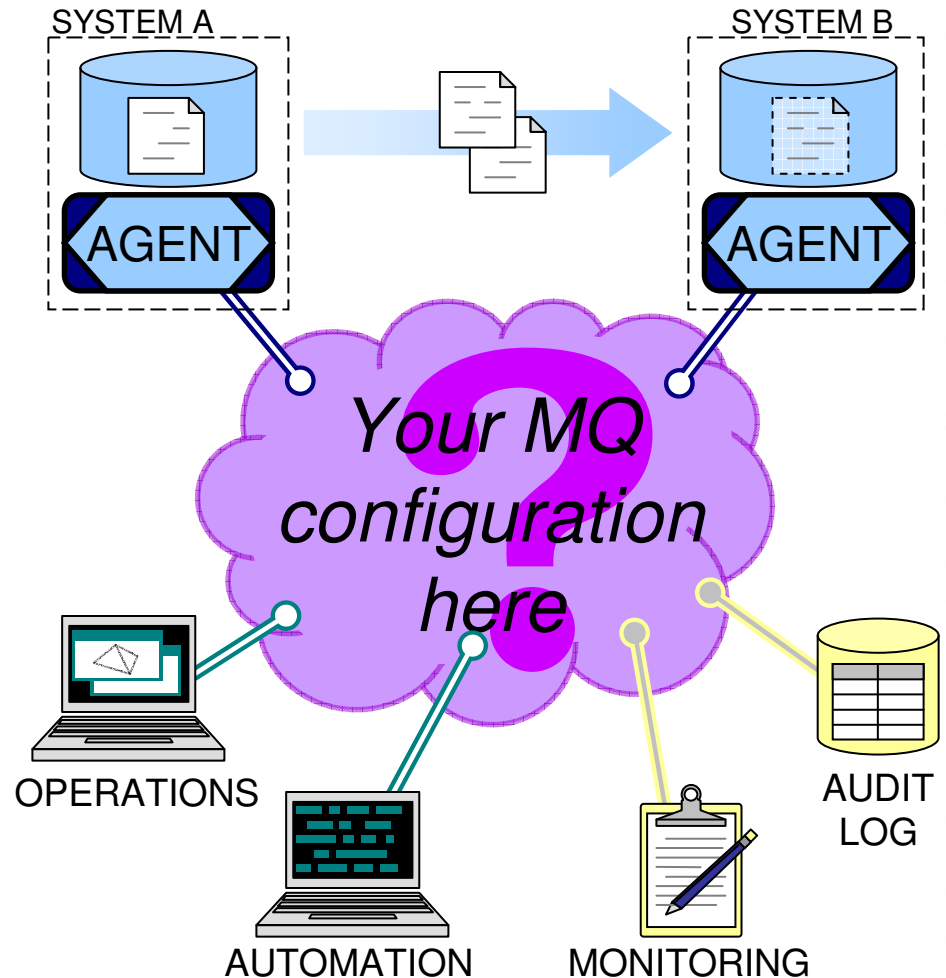
Complex Configurations

- At the other extreme, you can have one or more queue managers dedicated to each role...
- Many agent queue managers
 - Each agent is associated with exactly one queue manager
 - One queue manager can host many agents
- Many command queue managers
 - Each instance of the commands is associated with exactly one queue manager
 - One queue manager can be used by many instances of the commands
- One coordination queue manager
 - Many monitoring / audit applications can use the coordination queue manager

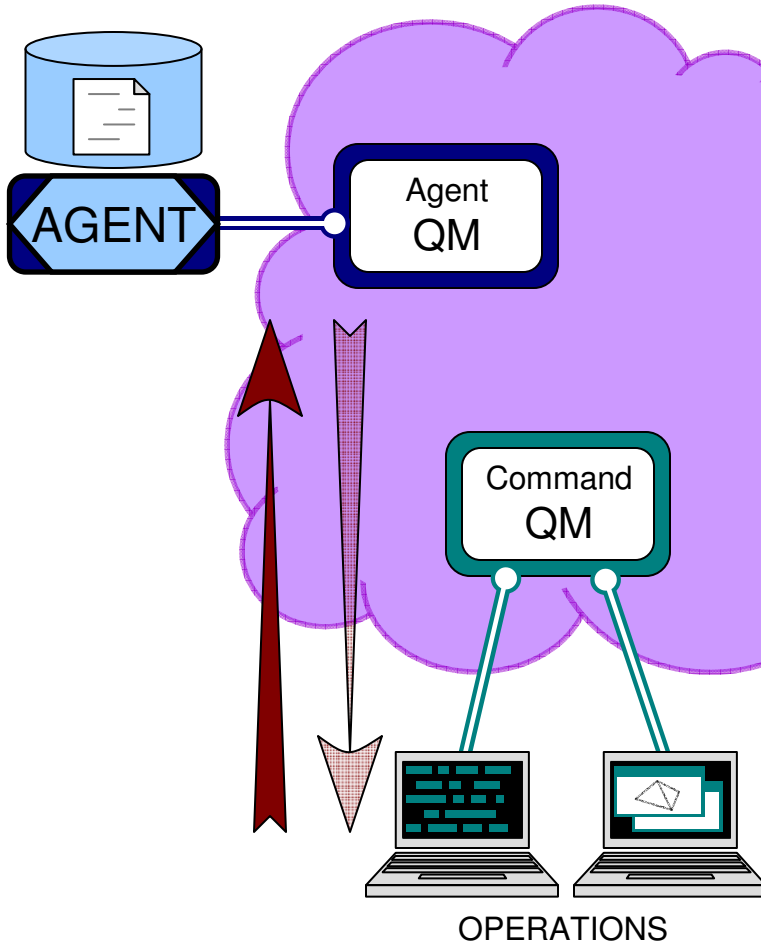


Integration with MQ Networks And My Current Network?

- File Transfer Edition integrates with existing MQ networks
- May need to add a coordination queue manager
 - MQ V7 license comes as part of distributed File Transfer Edition Server product
- Protocols designed to minimize impact on existing messaging networks



Message Flows: Initiating a Transfer

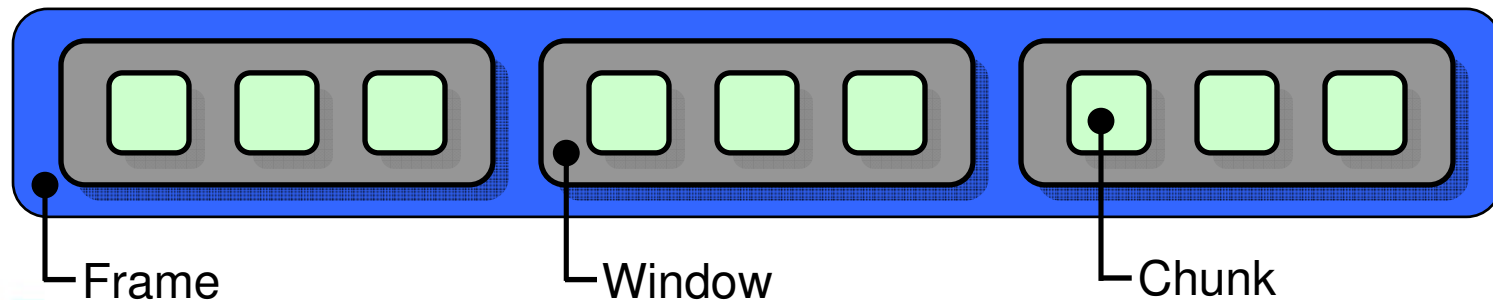


- A new transfer is started by sending an MQ message to an agent
 - The message may be routed via a *command queue manager*
- The MQ message:
 - Describes which files to transfer
 - Specifies the agent to which the files will be transferred
- The agent responds by starting to transfer files, as instructed in the MQ message
- The agent can, optionally, reply

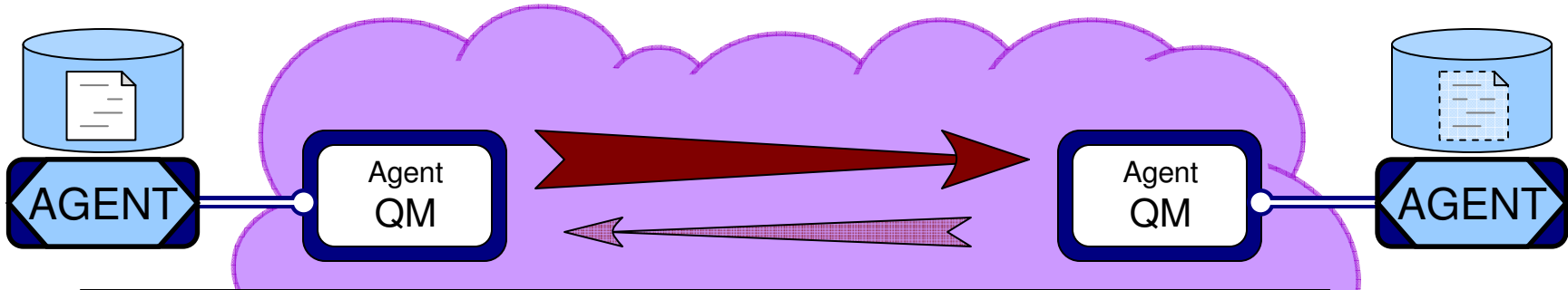
Message Flows:

File Breakdown And Transfer

- The transfer protocol can be tuned by specifying agent properties:
 - Size of messages transmitted (chunks)
 - Frequency of acknowledgements and thus the amount of queued data (windows)
 - Point at which transmission is blocked until an acknowledgment is received (frames)
 - Frequency at which agent saves state (in frames)

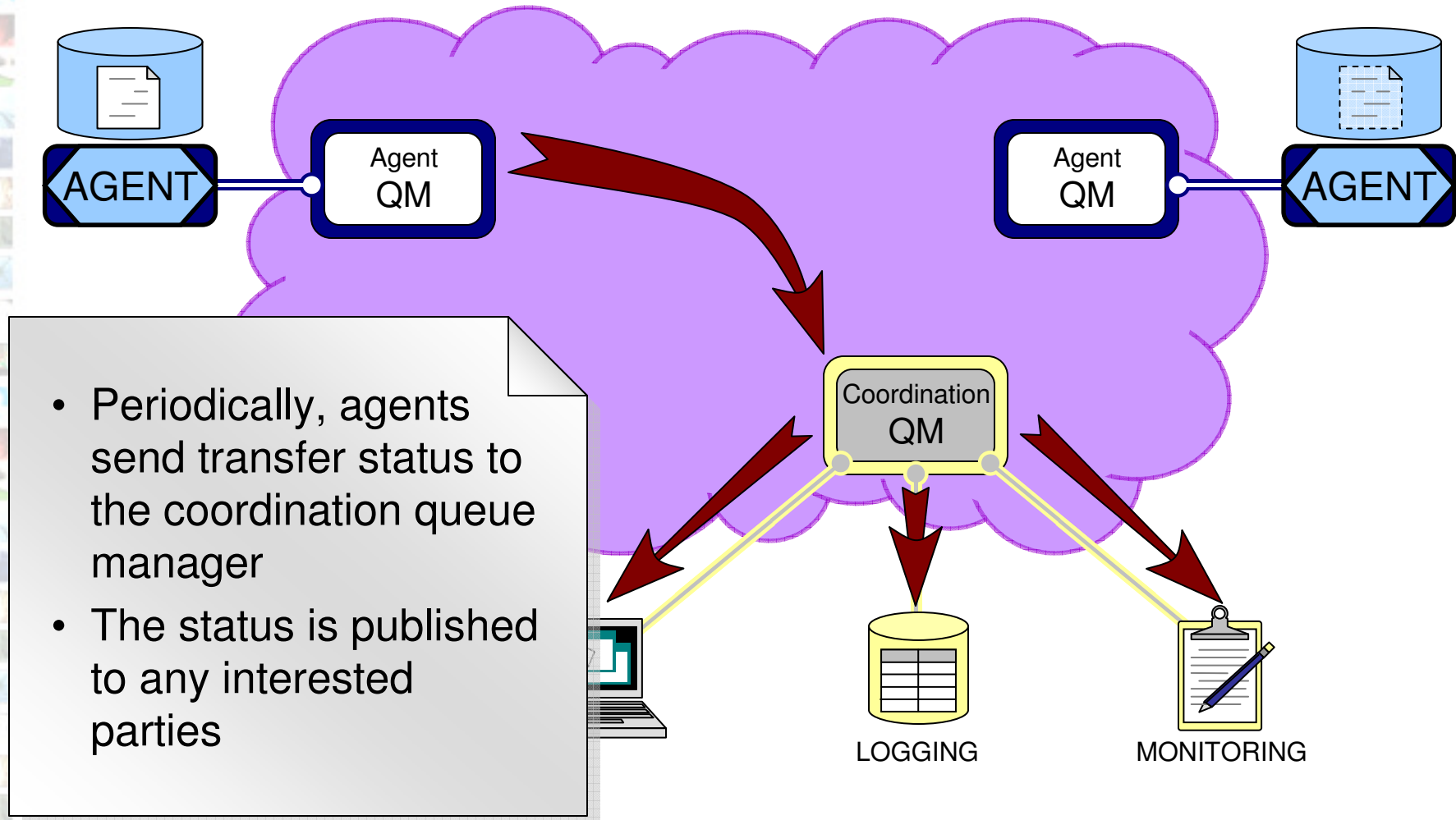


Message Flows: Transferring File Data

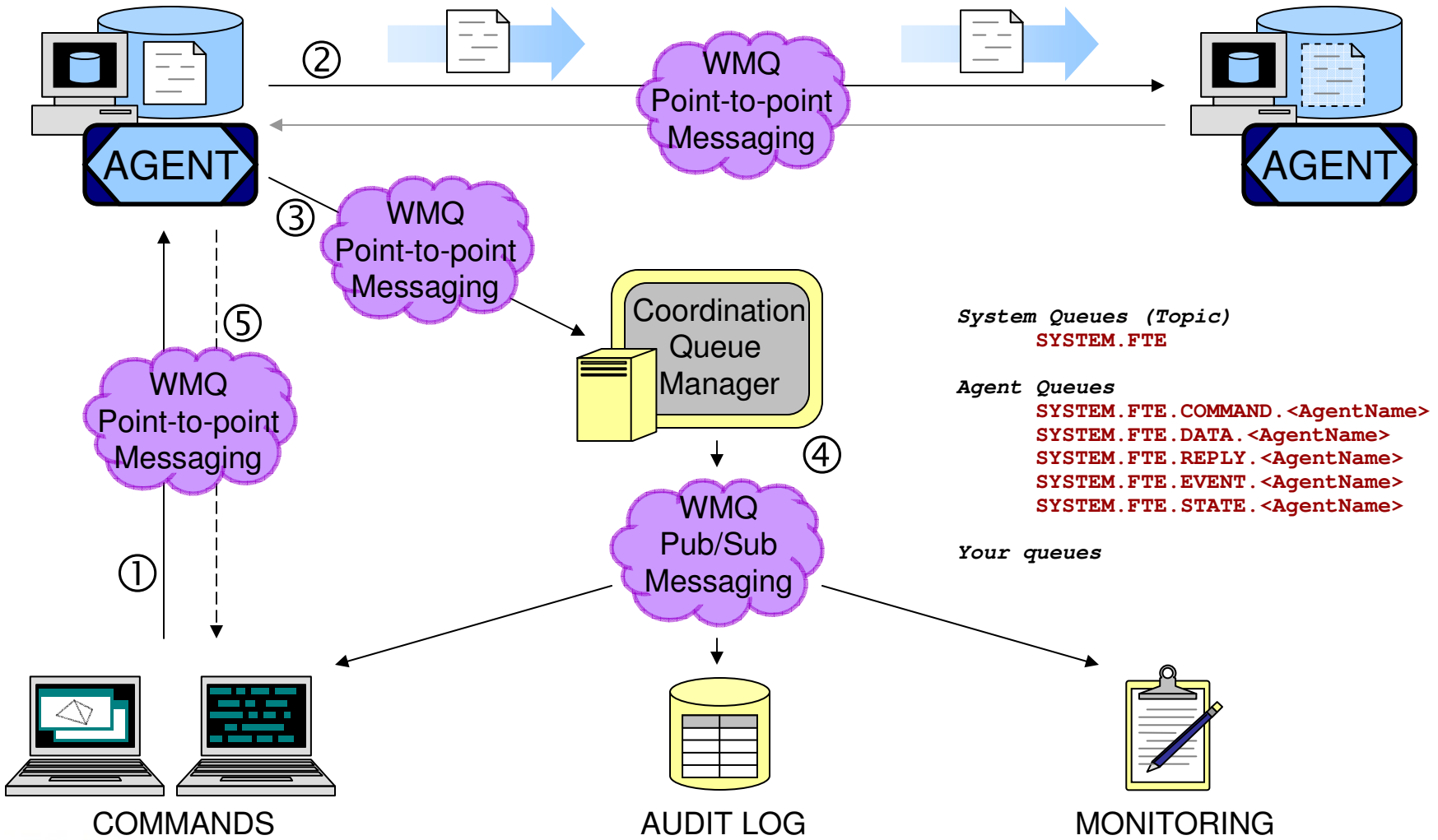


- Agents transfer file data as MQ messages
 - File data sent as MQ non-persistent messages
 - Allows prioritization with existing messaging workloads
 - Protocol used accounts for non-delivery and re-ordering
- Transfers are paced
 - This avoids a backlog of messages building up
- Transfers automatically check-point:
 - If any part of the infrastructure suffers an outage, transfers automatically re-start from the last check-point

Message Flows: Log and Progress Data



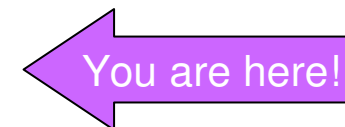
Message Flows: Transfer Paths And Sequence






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New to
7.0.1

z/OS Enhancements



New to
7.0.1

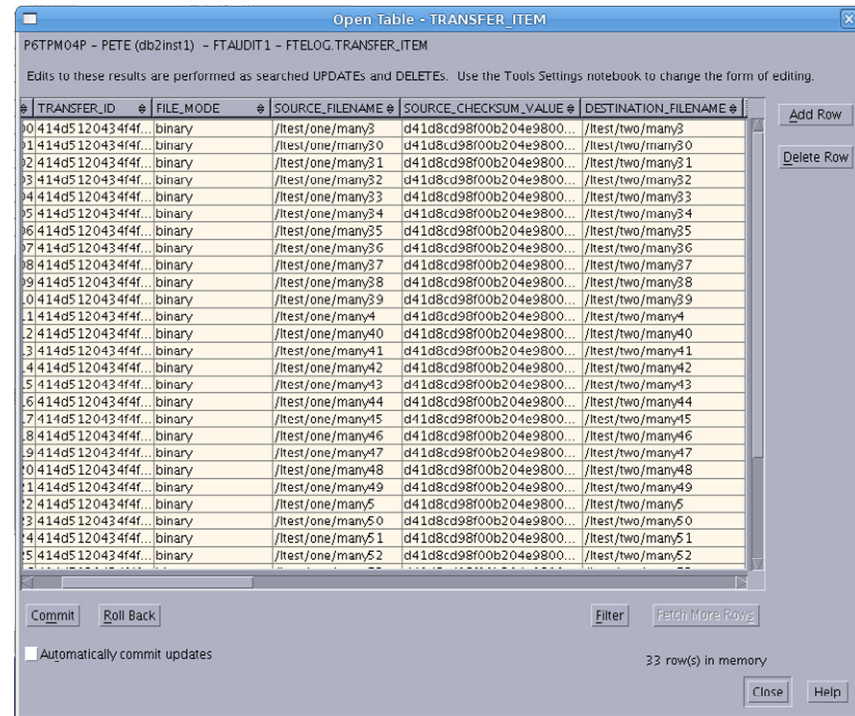
- File Transfer Edition 7.0.1 contains the following enhancements for z/OS
 - Performance enhancements
 - Variable block datasets
 - Small fixed block datasets
- } Also in the 7.0.0.1 fix-pack!
- Support for generation data groups (GDG)
 - Support for tape media

New to
7.0.1

Archiving to Database

New to
7.0.1

- File Transfer Edition 7.0.1 includes:
 - Tool for archiving audit information to a database
 - Supported on platforms where MQ supports XA 2PC with databases



Open Table - TRANSFER_ITEM

P6TPM04P - PETE (db2inst1) - FTAUDIT1 - FTELOG.TRANSFER_ITEM

Edits to these results are performed as searched UPDATES and DELETES. Use the Tools Settings notebook to change the form of editing.

#	TRANSFER_ID	FILE_MODE	SOURCE_FILENAME	SOURCE_CHECKSUM_VALUE	DESTINATION_FILENAME
0	414d5120434f4f...	binary	/f/test/one/many3	d41d8cd98f00b204e9800...	/f/test/two/many3
1	414d5120434f4f...	binary	/f/test/one/many30	d41d8cd98f00b204e9800...	/f/test/two/many30
2	414d5120434f4f...	binary	/f/test/one/many31	d41d8cd98f00b204e9800...	/f/test/two/many31
3	414d5120434f4f...	binary	/f/test/one/many32	d41d8cd98f00b204e9800...	/f/test/two/many32
4	414d5120434f4f...	binary	/f/test/one/many33	d41d8cd98f00b204e9800...	/f/test/two/many33
5	414d5120434f4f...	binary	/f/test/one/many34	d41d8cd98f00b204e9800...	/f/test/two/many34
6	414d5120434f4f...	binary	/f/test/one/many35	d41d8cd98f00b204e9800...	/f/test/two/many35
7	414d5120434f4f...	binary	/f/test/one/many36	d41d8cd98f00b204e9800...	/f/test/two/many36
8	414d5120434f4f...	binary	/f/test/one/many37	d41d8cd98f00b204e9800...	/f/test/two/many37
9	414d5120434f4f...	binary	/f/test/one/many38	d41d8cd98f00b204e9800...	/f/test/two/many38
0	414d5120434f4f...	binary	/f/test/one/many39	d41d8cd98f00b204e9800...	/f/test/two/many39
1	414d5120434f4f...	binary	/f/test/one/many4	d41d8cd98f00b204e9800...	/f/test/two/many4
2	414d5120434f4f...	binary	/f/test/one/many40	d41d8cd98f00b204e9800...	/f/test/two/many40
3	414d5120434f4f...	binary	/f/test/one/many41	d41d8cd98f00b204e9800...	/f/test/two/many41
4	414d5120434f4f...	binary	/f/test/one/many42	d41d8cd98f00b204e9800...	/f/test/two/many42
5	414d5120434f4f...	binary	/f/test/one/many43	d41d8cd98f00b204e9800...	/f/test/two/many43
6	414d5120434f4f...	binary	/f/test/one/many44	d41d8cd98f00b204e9800...	/f/test/two/many44
7	414d5120434f4f...	binary	/f/test/one/many45	d41d8cd98f00b204e9800...	/f/test/two/many45
8	414d5120434f4f...	binary	/f/test/one/many46	d41d8cd98f00b204e9800...	/f/test/two/many46
9	414d5120434f4f...	binary	/f/test/one/many47	d41d8cd98f00b204e9800...	/f/test/two/many47
0	414d5120434f4f...	binary	/f/test/one/many48	d41d8cd98f00b204e9800...	/f/test/two/many48
1	414d5120434f4f...	binary	/f/test/one/many49	d41d8cd98f00b204e9800...	/f/test/two/many49
2	414d5120434f4f...	binary	/f/test/one/many5	d41d8cd98f00b204e9800...	/f/test/two/many5
3	414d5120434f4f...	binary	/f/test/one/many50	d41d8cd98f00b204e9800...	/f/test/two/many50
4	414d5120434f4f...	binary	/f/test/one/many51	d41d8cd98f00b204e9800...	/f/test/two/many51
5	414d5120434f4f...	binary	/f/test/one/many52	d41d8cd98f00b204e9800...	/f/test/two/many52

Commit Roll Back Filter Fetch More Rows

Automatically commit updates


33 row(s) in memory

Close Help



New to
7.0.1

Enhanced Directory Monitoring



New to
7.0.1

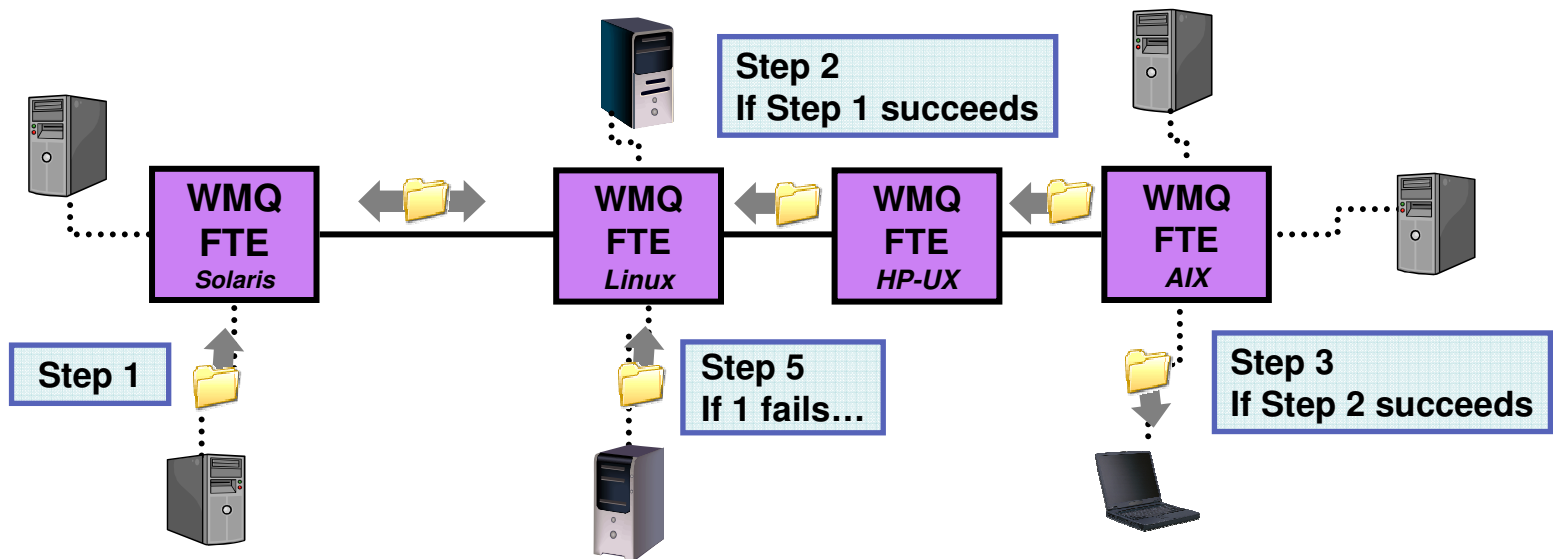
- Monitor file system for presence of “trigger files” and start a file transfer operation
 - Trigger files can be specified using wildcards
 - Recursive searching of directory trees
- Attributes of file transfer can be inferred from trigger file, for example:
 - Transfer all files from same directory as trigger file
 - Select destination agent name from parent directory of trigger file
 - Name destination file with timestamp of trigger file
 - Etc.
- Supports extension via user exit routines

New to
7.0.1

Supports Scripting Multi-step Transfers

New to
7.0.1

- Based on Apache Ant, a Java-based build tool (<http://ant.apache.org>)
- Enables conditional file transfer jobs that span supported platforms
 - e.g. *if step 1 on Linux then step 2 on Windows otherwise step 3 on Solaris*
- Captures standard in/standard out messages from each step in transfer audit log
- Can trigger sending of emails based on job outcomes e.g. *if step 1 fails email administrator*
- Integrated with WebSphere MQ Explorer Eclipse console





New to
7.0.1

Example Multi-Step Transfer Job

```
Java - AntSamples/email.xml - Eclipse SDK
File Edit Navigate Search Project Run Window Help

Outline
project
  init
  step1
  step2 [default]

email.xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns:fte="antlib:com.ibm.wmqfte.ant.taskdefs" de:

  <target name="init">
    <property name="src" value="srcagent@srcqmqm"/>
    <property name="dst" value="dstagent@dstqmqm"/>
    <property name="src.file" value="/home/user/file1.bin",
    <property name="dst.file" value="/home/user/file2.bin"/>
    <fte:uuid property="job.name" length="8" prefix="copyj">
  </target>

  <target name="step1" depends="init">
    <fte:filecopy cmdqmq="cmdqmq" src="${src}" dst="${dst}" :
    <fte:filespec srcfilespec="${src.file}" dstfile="${d:
  </fte:filecopy>

  <condition property="step1.copy.failed">
    <not><equals arg1="${copy.rc}" arg2="0"/></not>
  </condition>
  </target>

  <target name="step2" depends="step1" if="step2.copy.fail:
  <mail mailhost="mailhost.ibm.com" encoding="plain"
    subject="File transfer job:${job.name} failed!">
    <from address="fteant@ibm.com"/>
    <to address="fteadmin@ibm.com"/>
    <message>
      Transfer job ${job.name} from agent ${src} to agent
      ${dst} has failed with return code: ${copy.rc}
    </message>
  </mail>
  </target>
</project>
```

Init Step:
Sets Properties used by task

Step 1:
Invoke a FTE Transfer

Check to see if the transfer worked

Step 2:
If the transfer did not complete, email the admin





New to
7.0.1

Ant Scripting Capabilities

- Copy or move files
 - Synchronously or asynchronously
- Wait for the outcome of asynchronous transfers
- Launch programs or other Ant scripts to:
 - Create the files to be transferred
 - Process the file once it has been transferred
- Access to a wide variety of built-in, 3rd party or homegrown Ant tasks



Thank You



www.ibm.com/webspheremq/filetransfer