



The New Universe of Managed File Transfer

Why your existing solution may not be adequate

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Information management is a serious corporate challenge, and even the most efficient organizations can struggle with it. To meet the demands of today's business landscape, organizations must do everything possible to secure and integrate their information assets, while satisfying compliance mandates and optimizing corporate efficiency.

This white paper provides a focused articulation of the managed file transfer (MFT) environment. It explains the issues, challenges, and approaches that should be considered to address corporate information and data management requirements.

The document is intended to help executives and senior managers better understand the data protection, control, and integration issues associated with modern file transfer. We examine MFT with regard to its increasing role in achieving data integration—a critical component of any corporate integration strategy. We also assess older, less-sophisticated technologies such as FTP, which fails to meet the demands of today's complex business landscape.

In addition, you'll learn how, through the use of *advanced* MFT, companies can address the most serious security and privacy concerns, including those raised by the U.S. Congress with the introduction of the Specter-Leahy-sponsored Personal Data Privacy and Security Act. "It is time for Congress to catch up with the data market and to show the American people that we are aware of these threats and will protect the privacy and security of their personal information," said Senator Leahy. "Reforms ... are long overdue."

From an IT and compliance perspective, reforms are also long overdue. The world of business has changed radically over the last decade. Organizations that proactively reform their data management infrastructures can prosper in this new world.

Useful Definitions

The term "file" refers in this document to an electronic file, a concept that has been in use since computers were invented. It is helpful therefore to start with some basic definitions:

- **File:** an organized structure of similar data that can be made available to system users (including the system itself and its application programs) and be manipulated as a unit (for example, moved from one file directory to another).
- **File transfer:** the movement of one or more electronic files from one location or machine to another.
- **Managed file transfer:** a technology that helps companies monitor, control, and secure all aspects of data movement (including large bulk data) between any two entities.
- **Advanced managed file transfer:** the integration and management of all file transfers inside and outside an enterprise to satisfy security, regulatory, and business-process requirements as they exist today, and as they are projected to evolve in the future. Advanced MFT solutions must offer total control of all data transfers, including complete auditability, security, automation, and end-to-end processing.

The Evolution of File Transfer

Ever since it became practical to connect computers together with some sort of communication facilities, file transfer has been one of the most commonly used software technologies across the world. Organizations of all types and sizes have come to rely on this technology for the exchange of file-based information between different IT systems.

But basic file transfer technology is inherently limiting and its capabilities are fundamentally inadequate. Regulatory issues and changing corporate requirements make demands that the technology cannot satisfy.

The fact is, many file transfer applications were designed as simple utilities, not as enterprise solutions. As a result, they lack the management, control, and integration capabilities needed to support today's challenging business environment.

Over the last decade, MFT solutions have evolved to address some of those challenges. However, modern business organizations require more advanced MFT technologies to deliver enterprise-level automation

and integration functionalities—while ensuring the security and integrity of all transferred data. These technologies must offer strong audit and reporting capabilities so that organizations can track and control all aspects of data movement within and across the extended enterprise—and externally with customers and business partners.

Legacy Issues

Most companies recognize the importance MFT technology plays in their enterprise. But the adoption of more advanced MFT solutions to address myriad file transfer challenges is sometimes hampered by legacy issues. Hesitation—and even inaction—often result from the pervasiveness of three existing technologies:

1. File Transfer Protocol (FTP). In spite of being free and widely available, FTP imposes significant operational deficiencies:

- FTP security is weak and all passwords and data are sent in clear text format.
- The FTP protocol lacks mechanisms to determine if a transfer has succeeded, and in most cases cannot restart failed data transfers.
- FTP lacks automation features and provides only a manual interface.
- FTP does not compress data and requires a significant amount of network bandwidth and transmission time.
- FTP does not integrate easily with applications. There is only a manual interface that requires programming in a scripting language.
- FTP controls are weak. It does not allow operations to be tracked and falls desperately short with respect to audit and compliance.

Forecast: FTP is inappropriate for enterprise file-transfer management and has, effectively, had its day. Its use in the enterprise will diminish greatly.

2. Older file-transfer applications. Older file-transfer applications developed in the 1980s are installed and entrenched in major organizations around the world. The applications are based on very old technologies and the architectures are inadequate for today's complex business environment. Here are some specific weaknesses:

- Concurrent-transfer support is limited (estimated to be < 100 concurrent transfers).
- Internet file transfers are not supported.

- Centralized management and configuration are not included.
- Automation features are not included.
- More efficient encryption algorithms are generally not supported.
- Encryption and other security features are often add-ons that are not included in the purchase price.
- Encryption and security features are usually not integrated with the main application and can be complex to deploy.
- Fragmented architectures require unsafe store and forward approaches, resulting in file-transfer processes that are not end-to-end.
- Features often required for public network use (such as open protocols like HTTPS and FTPS) are not included.

Forecast: Legacy applications were not engineered to meet today's more exacting business requirements. Automation, B2B integration, security, and compliance will drive companies to adopt more advanced solutions.

3. Message-based transfer. A number of products on the market use transaction-based approaches for data transport. These solutions work well in the situations they were originally designed to fit (e.g., for guaranteed delivery of messages containing small amounts of data between systems). However, these transaction systems were not developed to move terabytes of data and large numbers of transfers across various platforms. Message-based transfer technologies typically encounter difficulties in these specific areas:

- To move one file, a combination of three read/write operations is required. This approach essentially moves the file in and out of various queues. It is extremely inefficient for large files.
- When using message-based systems, the application is required on both ends of the file-transfer process. In addition, the file-transfer software must be purchased and configured. This approach can be cost-prohibitive.
- These implementations often suffer from poor performance compared to other applications. The multiple read and write processes slow down throughput and add to CPU usage.

Forecast: These technologies will continue in place but advanced systems for MFT will continue to be adopted.

The MFT Imperative

Principal failings of the above technologies include a fundamental lack of security, auditability, hands-off automation, and centralized management and control. That's why a high percentage of organizations that depend on these legacy technologies are now giving serious consideration to advanced MFT.

Accelerating market globalization, major advances in technology, and increased levels of security risk have dramatically increased the importance of MFT. In fact, MFT has become the linchpin of data integration and application integration for many major enterprises.

The bottom line: Effective MFT is an imperative for any organization with information at its core. With internal and external mandates for business processes to be documented, auditable, and accountable, companies need to seize control of information-based business activity. MFT software empowers organizations to achieve this fundamental goal. While MFT deployments have been most prevalent in industries like banking, insurance, and health care, its adoption has now spread across all vertical industries.

Driving Forces for Advanced MFT

The enterprise need for more advanced MFT capabilities is compelling. Among the many driving factors are these:

- B2B integration requirements.
- Regulatory compliance mandates.
- Management and control.
- Security.
- Open standards.
- Performance and efficiency.

Each of these drivers is important in its own right, but taken in aggregate, they escalate the importance of advanced MFT. Let's look at each driver individually.

B2B integration requirements

Over the last decade, the IT industry has placed enormous focus on the subject of integration, developing a range of new technologies to improve the levels of integration across all aspects of the business process. Some companies have adopted strategies that incorporate MFT as a key component of their B2B integration strategy (but many have not). Leading industry analysts predict that a high

proportion of companies with home-grown file transfer solutions will replace them with MFT suites. B2B integration requirements alone dictate that the pace of adoption must accelerate.

Effective data integration requires the access, aggregation, and synchronization of data across multiple systems or databases. It is, for the most part, directly focused on the data itself. Therefore, data integration involves concern for the location and structure (syntax) of the data, as well as requirements for transformation of the data to suit the needs of the target database or application.

Data integration is being pursued by using a wide variety of technologies, from simplistic adapters for data access, to batch-oriented file transfer mechanisms, to more sophisticated extraction, transformation, and loading (ETL) or replication tools. That's because effective data integration is not reliant on one solution. It takes many different tools and technologies to satisfy the integration needs of an organization. All data integration scenarios include these key components:

- Connectivity and access—reaching the data of interest.
- Transformation—which may include joining or merging of data, as well as aggregation.
- Delivery/consumption—the mechanisms by which the data will be addressed by tools, applications, or users.
- Metadata management—for design and control of the integration process.
- Standardization—emerging standards that facilitate integration, including web services for the Internet, open APIs for systems integration, and data-formatting standards for system compatibility.

Effective B2B integration requires a comprehensive technology architecture and strategy. An advanced MFT solution will play a critical role in this regard.

Regulatory compliance mandates

Regulatory compliance is one of the most significant challenges facing businesses today. The issue is pervasive for everyone from the CEO and CFO through IT management and staff.

Compliance mandates, including Sarbanes-Oxley, HIPAA, and GLBA, call for every process to be documented, auditable, and accountable. As a result, companies must examine how they secure, manage, and control file transfers, and they must address all weaknesses. File-

transfer management must be considered strategically rather than tactically because it is integral to the success of the overall corporate mission.

Management and control

With data driving global business, effective data management and control can be integral to growth and success. Industry analysts predict that all companies (small, medium, and large) will discontinue their current methods of sending and sharing data. Gartner in particular is clear in its position, stating, "In the immediate future, most companies, regardless of industry, need to consider how they are securing and managing their file transfers. They must discontinue using the older, unsecured, and uncontrolled methods of sending and receiving information. Homegrown solutions are commonly used, although many users acknowledge the limitations of these tools when applied in an integration context. Internal and external security, management, and integration requirements will force companies to scrutinize and consider replacements to their homegrown solutions."

Scalability will be key as companies adopt new solutions. An advanced, highly-scalable MFT solution delivers better data management and control in the following ways:

- **Management:** The right MFT solution will support secure, centralized management of all transfer servers regardless of platform or location. It must give organizations the ability to manage users across and beyond the enterprise, to log all file transfer activity, and to produce detailed audit and activity reports in real time. All of this functionality will typically be accessed from a single, unified interface. Alerts and event-driven notifications should also be part of the core solution.
- **Control:** An important capability of MFT in the extended enterprise is the ability to control users both inside and outside the enterprise and to assign the appropriate privileges to users, with the knowledge that access will conform with corporate and regulatory compliance mandates. Permissions can be granted or changed based on pre-assigned roles and can be revoked in an instant, if necessary.

Security

The World Wide Web has given businesses a powerful, inexpensive way to conduct business and the use of the Internet for B2B transactions is projected to grow five-fold over the next three years. The reasons are simple: The cost of a transmission over the Internet is 1/100th the cost of a transmission over a dedicated

network. In addition, ease of use and universal access offer tremendous opportunity to connect to even the smallest of business partners. In effect, the Internet is the largest network in the world and will continue to move more data than any other network.

However, as a completely public and open forum, the Internet is inherently nonsecure. And when it comes to the transmission of sensitive or confidential business information, it doesn't always measure up. This has deep consequences for organizations with information movement at the core of their activities. Any enterprise seeking the benefits of the Internet must take extensive measures to protect all data being sent.

Beyond the Internet, security requirements placed on IT systems and infrastructure have undergone the highest levels of change. Corporate data breaches, post-9/11 issues, and public wariness of identity theft are only the tip of the iceberg. Consequently, new security capabilities with multi-level authentication, firewall-restricted access, and advanced encryption algorithms have become integral to improving security systems.

But in the world of MFT, no improved security measure is adequate unless the full process—from end to end—is managed and controlled. Manual or disjointed MFT processes cannot satisfy today's complex compliance mandates and business requirements.

Open standards

One of the most significant issues in IT strategy for the past decade is the advancement of industry standards. These new standards facilitate integration and include web services for the Internet, open APIs for systems integration, and data formatting standards for system compatibility. XML, SOAP, UDDI, WSDL, and STRUTS are typical web standards, as are encryption standards like AES (Rijndael) and Blowfish. When it comes to enterprise integration, open standards will be key drivers.

Organizations should deploy information and integration control systems that adhere to open standards and support a wide variety of operating environments and platforms. Proprietary solutions are not acceptable for today's enterprise; any new systems architecture must be based on open standards or it should not be deployed.

Performance and efficiency

Today's complex global relationships require constant B2B interactions, where one organization can integrate tightly with dozens or even hundreds of others (such as partners, vendors, and suppliers). A breakdown in these integrated processes can be crippling, and often costly (due to service-level agreements, for example).

An advanced MFT solution will automate many fundamental business systems, enabling seamless integration with enterprise applications in support of mission-critical business processes. With a full complement of tools and functions to support unattended “lights out” operation, file transfer activity will be structured and easily scheduled, resulting in significantly fewer manual (i.e., error-prone) processes.

The above capabilities make an organization easier to do business with. They also enable the organization to redeploy resources toward more high-level or strategic activity, while day-to-day business processes run efficiently in the background. The result is maximized overall efficiency and true end-to-end processing. For all these reasons, the use of an advanced MFT solution can dramatically improve the ability of an enterprise to be agile and responsive in an increasingly demanding marketplace.

What to Look For in an Advanced MFT Solution

While we’ve seen that there are many compelling reasons for moving to advanced MFT technology, not all solutions are created equal. An advanced MFT solution’s value is underpinned by the following fundamental concepts:

- Single point of control.
- Total security.
- Total auditability.
- Guaranteed delivery.
- End-to-end automation.
- “Inside and outside extended enterprise” capability.

What is single point of control?

A single point of control means you have absolute command of all data movement inside and outside the enterprise. Look for a centralized interface that serves as the single point of control for all files transferred, whether it be internally (across the extended enterprise) or externally (with customers, suppliers, and business partners).

What is total security?

Total security is architected and engineered into every aspect of the solution. There should be comprehensive authentication and authorization for all users, servers, clients, and databases in the MFT network. In addition, each server should contain its own authentication and authorization schematics so access can be restricted

at a very granular level. Encryption technologies are extensively used for internal system communications as well as for all file transfers. Delegated administration is another core function to look for; this ensures that system administrators have powers consistent with their organizational role and security status.

What is total auditability?

In a typical organization, file transfer activity is happening 24x7, frequently at high volumes, and usually between parties spread across a broad geographic area. Total auditability calls for the logging of every transfer-related event at the local and central level, as well as detailed reports of every aspect of all transfers.

In addition to a comprehensive set of detailed audit reports, your MFT system should provide an extensive set of online inquiry tools to support ongoing operational and management needs. Also look for a full set of real-time alerts that can notify staff instantaneously as circumstances warrant. The availability of data on every aspect of every file transfer lets you achieve total auditability of enterprise file transfer, thereby satisfying regulatory compliance mandates in addition to helping guide corporate decision making.

What is guaranteed delivery?

Guaranteed delivery means that data is absolutely, positively transferred to its intended destination, and that the file arrives on time. This becomes critical in B2B relationships, especially those contingent upon service-level agreements. Guaranteed delivery is possible only in advanced MFT systems, through the use of automated restarts, exception alerts, queuing, production-workflow balancing, and software reliability rates of greater than 99.999 percent.

What is end-to-end automation?

End-to-end transmission is the uninterrupted transfer of data from an outside partner to deep inside the enterprise. End-to-end automation facilitates integration with other applications (through rule-based processing) whereby files can be set up to automatically process upon receipt. To be truly end-to-end, the solution should not use a store-and-forward approach. This functionality eliminates the risk of having intermediate systems in unsecured networks such as the DMZ.

End-to-end processing is a key requirement as it permits an organization to automate and streamline many of the fundamental business processes built around file transfer.

What is “inside and outside extended enterprise” capability?

The word enterprise can encompass corporations, small businesses, non-profit organizations, government bodies, and other kinds of institutions. Larger organizations are often referred to as extended enterprises, whereby the organization has a global presence with locations in multiple cities or continents.

Extended enterprises need to operate on an integrated infrastructure, and need to mesh efficiently with both internal and external organizations, which can include key suppliers, manufacturers, business partners, and end customers. An advanced MFT solution will provide the secure connectivity required to transfer files inside and outside the enterprise—and do so across all platforms (Windows® to mainframe), as well as over the Internet.

Benefits of Advanced MFT

The experts agree: MFT must be part of an organization’s information strategy. Getting the data to the right place, at the right time, in the right format is critical—as is ensuring the data is secure at every step along the way.

But what are the key benefits of advanced MFT? You should expect that your solution, deployed as part of an overall business integration strategy, delivers the following key benefits:

- **Security:** complete data safeguards and support for the world’s most stringent encryption standards.
- **Compliance:** extensive auditing capabilities and adherence to current and evolving regulatory mandates (Sarbanes-Oxley, HIPAA, PCI DSS, Gramm-Leach-Bliley, etc.)
- **Integration:** an open architecture and API that allow seamless integration with enterprise applications and support of business-process automation.
- **Automation:** the end-to-end triggering of many important steps and processes (e.g., event-driven transfers that support real-time initiation of data movement across platforms; this is critical to support the fully unattended, “lights out” requirements at many data centers).

- **Flexibility:** ability to adapt to constantly evolving business requirements, thereby improving service delivery and trading partner relationships.
- **Cost savings:** process automation and efficiency gains throughout the enterprise, thereby reducing errors, manual effort, operating expenses, and staff-intensive operations.

More and more businesses are deploying MFT to solve their data movement and B2B integration challenges. But due diligence requires that you look for an advanced MFT solution that can handle internal and external file transfer requirements, both over the Internet and across all platforms. Make sure the solution can scale to support your business. Also, look closely at the vendors. The biggest vendor is not always the best. Finally, talk to major analyst firms such as Gartner; they’ve got a good pulse on the market and can generally point you toward the best solution to fit your needs.

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