



WHITE PAPER:

The New Universe of Managed File Transfer

Why your existing solution may not be enough

Abstract: As the sheer volumes of corporate information increase exponentially, companies have struggled to secure, control, and manage enterprise data. With the backing of major analyst groups, managed file transfer (MFT) is seen as a re-emerging technology and a must-have for most businesses. But what exactly should you look for in an MFT solution? And what are the major driving forces? This white paper provides a focused articulation of the MFT space and explains some key benefits companies can expect from implementing an advanced MFT solution.

Table of Contents

1	INTRODUCTION: THE CHALLENGE	3
2	THE EVOLUTION OF FILE TRANSFER	4
2.1	MORE THAN JUST MOVING FILES	4
2.2	FILE TRANSFER – LEGACY ISSUES	5
2.3	DRIVING FORCES FOR ADVANCED MANAGED FILE TRANSFER.....	8
3	ADVANCED MANAGED FILE TRANSFER	12
3.1	WHAT TO LOOK FOR IN ADVANCED MFT.....	12
3.2	CONCLUSION.....	14
4	ABOUT TIBCO	15

1 Introduction: The Challenge

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

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

The document's intent is to help executives and senior managers better understand major MFT issues, and to obtain insight into how to address the data protection, control and integration requirements of today's complex world. Managed file transfer is examined with regard to its increasing role in the corporate enterprise as a way to achieve data integration – a critical component of any corporate integration strategy. It assesses older, less-sophisticated technologies such as FTP, which fails to meet the demands of today's complex business landscape.

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Finally the document explains how, through the use of *advanced* managed file transfer (MFT), companies can address the most serious security and privacy concerns – including those raised by Congress (U.S.) with the introduction of the Specter-Leahy sponsored Personal Data Privacy and Security Act. Senator Leahy states that "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." He goes on to say that "Reforms... are long overdue."

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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 will prosper in this new world.

2 The Evolution of File Transfer

2.1 More Than Just Moving Files

The term "file" when used in this document refers to an electronic file, the concept of which has been around since computers were first 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 capable of being manipulated as an entity (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 the movement of data (frequently, but not limited to, 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 managed file transfer solutions must offer total control of all data transfers, including complete auditability, total security, full automation, and end-to-end processing.*

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. Its capabilities are fundamentally inadequate. Regulatory issues and evolving corporate requirements place demands that the technology cannot satisfy.

The truth 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 complex and challenging business environment.

Over the last decade, managed file transfer (MFT) solutions have evolved to address some of the security, integration, and control challenges. However, today's enterprises require more advanced MFT technologies – technologies that

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.

2.2 File Transfer – Legacy Issues

Most companies recognize the increased importance MFT technology plays in their enterprise. But, the ability of companies to adopt more advanced MFT solutions, and to address their myriad file transfer challenges, has been severely hampered by legacy issues. Three technologies, in particular, have been pervasive, and have led to hesitation and/or inaction when it comes to implementing new MFT technologies.

These technologies are:

File Transfer Protocol (FTP)

In spite of being free and widely available, FTP imposes significant operational deficiencies, as follows:

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

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

Legacy File Transfer Applications

These older file-transfer applications were developed in the early- and mid-1980's. These applications 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. Specific weaknesses include:

1. Offer limited support for concurrent transfers (limit estimated to be <100 concurrent transfers).
2. Do not support Internet file transfers.
3. Lack centralized management and configuration.
4. Lack automation features.
5. Don't generally support more efficient encryption algorithms.
6. Encryption and other security features are often add-ons that are charged for separately.
7. These security and encryption features are usually not integrated with the main application and can be complex to deploy.
8. Fragmented architectures require unsafe store and forward approaches – resulting in file-transfer processes that are not end-to-end.
9. Lack features often required for public network use, such as open protocols like HTTPS and FTPS.

Outlook: 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.

Message-based Transfer

There are a number of products on the market that use transaction-based approaches for data transport. These solutions work well when deployed in the situations for which they were originally designed to fit. For example, for guaranteed message delivery (i.e., 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. Specific areas where these types of products have difficulty are as follows:

1. To move one file, a combination of three read write operations are required. This operation is essentially moving the file in and out of various queues. This approach is extremely inefficient for large files.
2. To use message-based systems for file transfer, 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.
3. These implementations often suffer from poor performance throughput compared to other applications. The multiple read and write processes slow down throughput and add to CPU utilization.

Outlook: Message-based technologies were not built to move gigabytes and terabytes of data within and outside an enterprise and across platforms. However, this is a key requirement of today's B2B environment. These

technologies will continue in place but advanced systems for managed file transfer will continue to be adopted.

Conclusion

These legacy file-transfer technologies do not deliver the functionality required to be categorized as advanced managed file transfer. Principal failings include a fundamental lack of security, auditability, hands-off automation, and centralized management and control. A high percentage of organizations that depend on any of 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 managed file transfer. In fact, managed file transfer has become the linchpin of data integration and application integration for many major enterprises.

Simply put, effective MFT is an imperative for any organization with information at its core. With internal and external mandates demanding that business processes be documented, auditable, and accountable, companies are clamoring to wrestle back 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 healthcare, its adoption has now spread across all vertical industries.

2.3 Driving Forces for Advanced Managed File Transfer

The enterprise need for more advanced managed file transfer capabilities is compelling and driven by many factors. The most significant drivers include:

- B2B Integration Requirements
- Regulatory Compliance Mandates
- Control & Management
- Security
- Open Standards
- Efficiency

Each of these drivers is important in its own right, but taken in aggregate, they escalate the importance of advanced MFT to the level of *corporate imperative*.

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. But while there is some momentum, the level of activity is inadequate. Leading industry analysts predict that a high proportion of companies with 'homegrown' 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. Enterprises must understand that effective data integration is not reliant on one solution. It takes many different tools and technologies to satisfy the integration needs of an organization. Key components common to all data integration scenarios include:

- Connectivity & 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 – new standards have emerged that facilitate integration, including Web services for the Internet, open API's 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 down to IT Management and staff. These issues and challenges will only escalate over the next several years.

🔥 **File transfer management must be considered strategically rather than tactically.** 🔥

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; it is integral to the success of the overall corporate mission.

The bottom line? Regulatory compliance is much more than a best practice – it's a requirement.

Control & Management:

With data driving global business, effective data management and control is an integral driver of business 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 that: "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. The use of an advanced, highly-scalable MFT solution will deliver better data management and control in the following ways:

Management: secure, centralized management of all transfer servers regardless of platform or location. This must include an organization's ability to manage users across and beyond the enterprise, the ability to log all file transfer activity, and the ability 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: a very 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 comply 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 vast public network we refer to as the World Wide Web has given businesses a powerful, inexpensive network on which to connect and do business. But as a completely public and open forum, the Internet is inherently insecure. 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 that wishes to use the "free" network of the Internet must take extensive measures to protect any and all data being sent.

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 1/100 the cost of a transmission over a dedicated network. Ease of use and universal access to the Internet 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. Businesses must take advantage of this incredible tool, but also ensure security and control as they do so.

Beyond the Internet, security concerns and the requirements they place on IT systems and infrastructure have undergone the highest levels of change. The demands placed on businesses have increased dramatically over the last several years. Corporate data breaches, post 9/11 issues, and a growing public paranoia regarding 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. In the world of managed file transfer, none of the improved security measures are adequate unless the full process – from end-to-end – is managed and controlled. Manual and/or disjointed MFT processes cannot satisfy the more complex compliance mandates and business requirements faced today.

Open Standards:

One of the most significant issues regarding IT strategy in the past decade or so is the advancement of industry standards in all aspects of IT. These new standards facilitate integration, and including Web services for the Internet, open API's for systems integration, and data formatting standards for system compatibility. XML, SOAP, UDDI, WSDL, and STRUTS are key standards as are encryption standards like AES (Rijndael) and Blowfish. Open standards will be key drivers when it comes to enterprise integration.

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 & Efficiency:

Today's complex global relationships require tight B2B integration – where one organization can integrate tightly with dozens or even hundreds of others (such as partners, vendors, and other suppliers). A breakdown in these integrated processes can be crippling – and often costly (service-level agreements, etc.). An advanced MFT solution will automate many of the fundamental business processes across the enterprise – enabling seamless integration with other applications in the enterprise 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 less manual (and error prone) processes. This will make an organization easier to do business with. It will 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. This delivers *true* end-to-end processing to the organization and maximizes overall efficiency.

The use of an advanced MFT solution will dramatically improve the overall strength of an enterprise and its ability to be agile and responsive in an increasingly demanding marketplace.

3 Advanced Managed File Transfer

3.1 What to Look For in Advanced MFT

We've seen that there are many compelling reasons for moving to an advanced managed file transfer solution. But not all MFT solutions are created equal. An advanced managed file transfer solution's value proposition is underpinned by the following fundamental concepts:

- Single Point of Control
- Total Security
- Total Auditability
- Guaranteed Delivery
- End-to-End Automation
- Inside and Outside the Extended Enterprise

What is Single Point of Control?

A single point of control means you can impose absolute control over 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 means security that 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 that access can be restricted at a very granular detail. 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 will ensure 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 that are spread across a broad geographic area. Your MFT system should log each and every transfer-related event at the local and central level, and produce detailed reports of every aspect of all transfers. In addition to a comprehensive set of detailed audit reports, it

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 personnel instantaneously as circumstances warrant. Having information about every aspect of every file transfer available enables an organization to 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 the data to be transferred 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 only possible 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%.

What is End-to-End Automation?

End-to-end is the uninterrupted transfer of data from an outside partner to deep inside the enterprise. End-to-end transmission 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 will eliminate 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 the Extended Enterprise?

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, counties, or continents.

Extended enterprises need to operate on an integrated infrastructure, and need to integrate efficiently with both internal and external organizations (outside of the enterprise). These 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 to do so across all platforms (Windows to Mainframe), as well as over the Internet.

3.2 Conclusion

All of 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 that the data is secure at every step along the way.

But what are the key benefits of advanced MFT?

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

- **Security:** complete data security and support for the world's most stringent encryption standards.
- **Compliance:** extensive auditing capabilities and compliance with current and evolving regulatory mandates (Sarbanes-Oxley, HIPAA, PCI DSS, Gramm-Leach-Bliley, etc.).
- **Integration:** an open architecture and API support that allow seamless integration with enterprise applications and support of business process automation.
- **Automation:** the end-to-end automation of many important steps and processes. For example, 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:** flexibility so that your organization can 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 people-intensive operations.

The bottom line? More and more businesses are deploying managed file transfer to solve their data movement and B2B integration challenges. But not all solutions are created equal. 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. Finally, look closely at the vendors. The biggest vendor is not always the best vendor. Talk to the major analyst firms such as Gartner; they've got a good pulse on the market and can generally point you toward the best solution based on your needs.

4 About TIBCO

[TIBCO Software Inc.](#) (NASDAQ: TIBX) is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's efficient claims or trade processing, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage™ – the ability to capture the right information, at the right time, and act on it preemptively for a competitive advantage. More than 4,000 customers worldwide rely on TIBCO to manage information, decisions, processes, and applications in real time. Learn more at www.tibco.com.

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