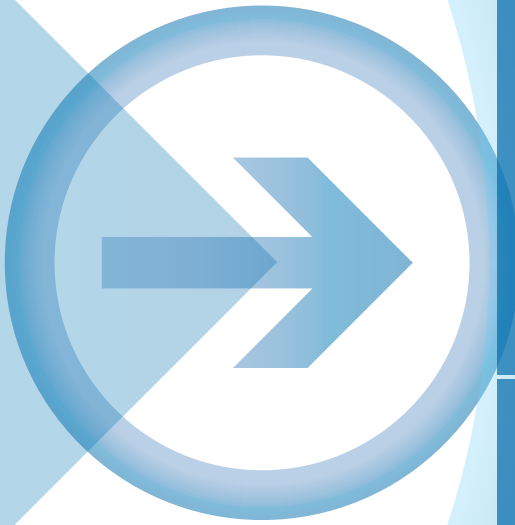




# Service-Oriented Integration: Managed File Transfer within an SOA (Service- Oriented Architecture)



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**Abstract:** *Service-Oriented Architectures (SOAs) offer tremendous advantage for organizations looking to pursue an enterprise integration strategy. But integration strategies can fall unacceptably short when they focus solely on message-based approaches. These can include:*

- *Enterprise Service Buses (ESBs)*
- *Integration Brokers*
- *Message-Oriented Middleware*

*Integration within an SOA will be most successful if it includes both message and file-based functionality. This paper looks at some common scenarios and identifies important issues organizations should be aware of.*

Gone are the days when a business can operate autonomously, without concern for industry standards or legislation related to the use or management of corporate data. In today's technology-driven, information-centric corporate environments, regulatory compliance, corporate governance and business process improvements have become the principal factors influencing enterprise integration projects undertaken by many modern organizations. These projects typically revolve around the organization adopting a Service-Oriented Architecture (SOA) strategy.

In an SOA environment, resources on a network are made available as independent services that can be accessed without knowledge of their underlying platform implementation. SOAs are typically based on Web services standards that have gained broad industry acceptance. Web services provide much greater interoperability than using proprietary service-based technology.

## 1. Increased Demand for Integration: The Driving Forces

There are a number of different factors that drive the demand for integration within today's enterprise.

These include:

- Linking different business operations together by integrating various applications with systems such as ERP, CRM & SCM
- The need to conduct business over the Web and to tie these business lines in to backend legacy applications
- Regulatory compliance & corporate governance mandates
- Mergers and acquisitions and the need to bring diverse operations together

## 2. How Organizations Have Addressed the Need for Integration

By all accounts, the most widely-used integration methods deployed today are based on FTP. FTP is a standards-based method of transferring files, and was developed in the mid 1980s. For many years, organizations (or business units within organizations) have built custom integration solutions using FTP as the data transport mechanism. This creates serious problems: FTP offers little or no security and is seriously lacking in automation, management, and control functionality. The result is an integration solution that is inflexible, weak and risky from a security perspective, and expensive to develop and maintain.

Over the last decade, many organizations have recognized these limitations within FTP and have adopted one of two approaches: Managed File Transfer (MFT) or Enterprise Application Integration (EAI). MFT solutions offer secure guaranteed delivery and better management of the overall file-transfer process. These solutions are typically used in batch environments where large files are exchanged between systems. EAI solutions, on the other hand, were designed to exchange messages between applications – either synchronously or asynchronously in near real time. Very often, both MFT and EAI solutions leverage proprietary protocols and API's to facilitate integration into business applications. While both of these approaches offer real advantages over custom integration solutions leveraging FTP, they are still not the ideal approach.

Today, organizations are realizing the benefits of a service-oriented architecture (SOA). Service-oriented architectures typically comprise any number of components that communicate with each other – promoting and enabling interaction of distributed resources in support of the overall business process. These services are, by their nature, self-contained and do not depend on the availability or state of each other.

Much of the attention of SOA strategies today is focused on message-based systems; this means, unfortunately, that file transfer requirements are too often overlooked.

### 3. Issues with Message-Oriented Integration Deployments

Message-oriented technologies cannot effectively solve all business integration scenarios. This section addresses some of the more common issues not addressed by message-based systems:

- **Support for Legacy Applications:** Many organizations still rely on legacy applications that have been in use for many years. These applications were created at a time when Service Oriented Architecture (SOA) and message-oriented middleware simply did not exist. Modifying these applications is either: a) too risky, or b) expensive and excessively complex, because the underlying design is no longer understood.
- **Support for Large Volumes of Data and Batch Oriented Systems:** This is similar to the previously mentioned legacy issue. Many applications were designed to operate in batch mode, which enabled them to deal with a large volume of transactions in one operation. Messaging systems, on the other hand, were by their very nature designed to deal with transactions. While EAI and ESB applications may handle batch processing, this method of operation is not typically the most effective solution.
- **Applications Span Company Boundaries:** When a business application spans company boundaries it is often unrealistic to expect that a business partner will modify the way it conducts business in order to work with another organization. In the real world, most industries have adopted standard practices on how to exchange information; these practices typically involve the exchange of electronic files rather than the tight integration offered by ESBs.

Many integration vendors who leverage message-based systems offer little or no way to incorporate filebased integration into their design. The vendors see batch processing or managed file transfer as outside the scope of their product offerings. Too often, they simply leverage FTP – which offers no added value. Unfortunately, many organizations do not become aware of these limitations until their critical integration projects are well underway. Then, they're left scrambling to seek other alternatives to address these needs.

## 4. Achieving Better Integration within your SOA

Message-based systems do not offer sufficient ways to tie file-based integration into an integration strategy moving forward. This is where an advanced managed file transfer (MFT) solution comes in. An advanced MFT solution can easily be deployed alongside your other SOA technologies, offering a complete solution for any integration project.

Deploying an advanced managed file transfer application as part of your overall SOA strategy allows you to choose the right tool for each specific project. An advanced MFT solution goes far beyond simply solving the security problems of FTP. Advanced MFT offers a centralized management capability for all file transfer and utilizes open standards to make itself available as a service within an SOA environment. An advanced MFT solution also:

- Provides centralized control over the movement of files,
- Ensures secure, guaranteed delivery of files between applications and the subsequent postprocessing of the files once delivered to the target system, and
- Exposes its administrative interfaces as services to allow it to work alongside any message-based system to provide a complete integration solution

Other services offered by an advanced MFT solution are:

**Service Interaction**

- Service Interface Definition (WSDL) [for Management, Admin., Triggering]
- Service Messaging Models required for Integration (SOAP, XML)
- Service Directory and Discovery

**Communication**

- Routing
- Protocols and Standards (HTTP, HTTPS, FTP, FTPS, SFTP and proprietary)
- Checkpoint Restart

**Integration**

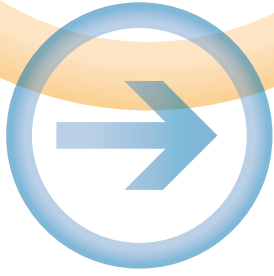
- Automatic Processing of Files Transferred
- Connectivity to Enterprise Application Integration Middleware
- Protocol Transformation
- Data Translation (between platform-dependent character sets)
- Runs within Application Server Environment (i.e. J2EE)
- Language Interfaces for Service Invocation (Java, C/C++/C#, etc.)

**Security**

- Authentication
- Authorization
- Non-repudiation
- Confidentiality
- Security Standards
- Delegated Systems Administration
- Environment Obfuscation

**Management**

- Administration Capability
- Logging
- Monitoring



- Integration to Systems Management and Administration Tooling
- Self-monitoring and Self-management

#### **Service Level**

- Rules-based Alerts
- Reporting
- Server Availability

## 5. Conclusion

Using an Advanced Managed File Transfer application in conjunction with your other integration technology will provide all tools necessary to address the diverse business requirements that arise during integration projects, while also offering improved efficiency and security over solutions that incorporate FTP.

## 6. 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](http://www.tibco.com).

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