

AN ACCELLION WHITE PAPER

# Designing a Global Multi-Office Architecture for Secure File Transfer

COMPLIANT, EASY TO USE, AND EASY TO MANAGE



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## Executive Summary

Today's business environment requires instantaneous sharing of information. Driven by new applications that create massive amounts of data as well as globalization, systems for sending large files have not kept up with the business need.

Existing solutions for sending large files fall short in several regards: E-mail does not handle large files (even just 10MB) efficiently and FTP is too difficult to manage, administer and use. End users often resort to time-consuming workarounds such as burning CDs and sending them via overnight mail.

More seriously, FTP and CD sending do not meet the stringent tracking and audibility requirements of businesses processes that must comply with government and industry mandates such as Sarbanes-Oxley Section 404, FDA 21 CFR Part 11, and HIPAA.

This whitepaper discusses the issues important in designing an architectural framework for multi-office user-to-user secure file transfer. The secure file transfer architecture discussed in this whitepaper is based on Accellion's secure file transfer solution which is currently deployed in over 20 countries, supporting secure file transfer between internal and external users. The largest Accellion installation to date supports over 70 offices around the world..

## Six Key Factors for a Secure File Transfer Architectural Framework

In a typical multi-office deployment, there are six key architecture design considerations for a multi-office secure file transfer framework. Depending on the industry and the specific enterprise requirements the weight given to each of these factors will vary.

Actual statistics on existing multi-office file transfer deployment using Accellion secure file transfer:

- 13,000 users
- 60% external users
- 1TB/mo files transferred .

1. **Access Control:** How to ensure and automate the process in which only authorized users can access the correct file/data.
2. **Security:** How to ensure file/data transfer security using encryption techniques and also business process security through file access control, and recipient authentication.
3. **High Availability:** How to ensure constant availability in light of potential hardware, location, and connectivity failures.
4. **Storage Management:** How to ensure efficient file storage to maximize system-wide capacity.
5. **Right speed for the users:** How to ensure timely file/data delivery without significant capital investment.
6. **Ease of Enterprise Integration:** How to integrate the secure file transfer process into existing enterprise infrastructure.

This whitepaper discusses each factor in turn and provides information on how Accellion Secure File Transfer helps the IT architect address each concern.

### Access Control

Access control at its most basic level deals with the issue of how to ensure that only authorized users can access the file/data via the system. However, in an enterprise setting, it is also important to automate the process since time and resources are limited in the typical IT department. The need to automate the process becomes even more pressing in the multi-office setting because a manual process is subject to human error and, with a sophisticated multi-office deployment, tracking down an accidentally incorrect setting is an extremely poor use of IT resources.

Accordingly, the best solution for access control is piggybacking on an existing infrastructure. It eliminates the need for end users to keep multiple system access information and it also allows the IT administrator to update information from one location and propagate the change into all related systems.

In this context, LDAP (Lightweight Directory Access Protocol) and AD (Active Directory) have been two of the most oft-used directory infrastructures for the multi-office architectural design.

In a typical Accellion deployment users are authenticated with the company's LDAP infrastructure via LDAPS (LDAP over SSL/TLS) queries. In other cases, Accellion can also be customized to access this authentication and address book lookup services via HTTPS (HTTP over SSL/TLS) SOAP calls to Web Services servers.

## Security

There are two aspects to security in the enterprise setting. One is the technical consideration of securing the file transfer in transmission and storage. This is usually addressed via encryption and there are a number of enterprise level encryption protocols available in the market place.

The other security consideration centers on securing the business process without compromising the flexibility and friendliness of the process. This is usually viewed in the context of regulations and compliance – for example, a typical requirement is to ensure that only the intended recipients can access the file and the file exposure is limited by sunset rules.

And, of course, all these must be achieved in a manner that is transparent to the end user and easy for the IT to manage.

Accellion addresses the technical and business process requirements in the following methods.

### Securing the File/Data

#### SECURE LINKS

Access to files is provided via embedded links in notification emails which is generated by a double 128-bit MD5 token.

#### SECURE TRANSMISSION

Secure Socket Layer/Transport Layer Security (SSL/TLS) encrypts both uploading and downloading the files using HTTPS.

#### SECURE REPLICATION

IPSec (Internet Protocol Security) is utilized as files are replicated from appliance to appliance.

### Securing the Process

#### LINK EXPIRATION

Each file link is assigned a limited lifespan with the expiration encoded within. This duration can be set globally using the administrative interface or specified by the sender on a per transmission basis.

#### MULTI-LEVEL RECIPIENT AUTHENTICATION

Access to files can be configured at multiple levels. At the lowest level, files can be opened with no authentication. At the highest level an ID/password is required.

Security considerations for secure file transfer include encryption of data and transmission to secure the files and data and also recipient authentication, access control and recipient tracking to secure the business process. .

Automated File Life Cycle Management and Intelligent File Replication are two essential file storage capabilities required for a robust, efficient, secure file transfer architecture.

Until now, the few alternatives to sharing large files have not been easy to use or deploy, nor suitable for meeting widespread requirements for security, scalability, usability, and maintenance.

#### MULTI-LEVEL RECIPIENT ACCESS CONTROL

A sender can specify the level of file access per transmission. For example, a sender can specify that only the intended recipient has access to the file – in other words, if the link is forwarded to an unauthorized addressee, the validation process will reject the attempted access from third party.

#### RECIPIENT TRACKING

A sender can request a notification for each access of the file recording the recipient's email address, time of access, as well as IP address used for access. This information is also recorded in logs available to IT supporting enterprise needs such as documenting the completion of a project as well as monitoring of suspicious activity.

### High Availability

In an enterprise deployment, the issue of high availability needs to be addressed from the component/hardware, protocol/architectural design, and field support levels.

Accellion achieves these high availability requirements with these standard features.

#### **Component/Hardware High Availability**

Although “basic”, it is important to use proven enterprise hardware including SCSI based RAID storage as well as redundant power supplies, fans and battery-backed caches.

#### **Protocol/Architectural Design High Availability**

In addition to hardware redundancy, the ability to set up two or more hubs to track all activity on a redundant active failover basis is a critical feature.

Accellion concurrency is maintained between the hub sites with a reliable, low latency MPIPE protocol based on UDP (User Data Protocol). MPIPE is particularly reliable to guarantee delivery because it enables traffic re-routing if communication between one pair of locations experiences problems.

#### **Field Support for High Availability**

Beyond sturdy hardware and good architectural design, allowing active failover redundancy, it is also important to have ready access to robust field support when the unthinkable happens.

Hardware incorporating a remote lights out management (LOM) port makes on-demand remote servicing as easy as one phone call away. For issues requiring on-site servicing, it is important to have 24x7 global service supports.

Accellion offers a LOM port as a standard appliance configuration as well as on-site hardware service on a global basis.

## File/Data Storage Management Efficiency

The traditional file transfer methods of FTP and email suffer from several file/data management issues. For FTP, file clean-up in the server directory is usually haphazard at best. This has security ramifications when unauthorized users access the file exposed in the directory. This also causes problems and confusion when users access the wrong file or delete the wrong file on the directory.

In the case of email, regular file transfer via email will result in poor email performance for the server impacting all users. Furthermore, as the email box becomes large, it forces the users to constantly purge the inbox as the email quota is reached.

Therefore, a robust secure file transfer architecture will need to have these two file storage efficiency capabilities:

### **Automated Life Cycle Management**

The system reclaims storage space after the file has expired. The expiration can be set at a system default level as well as per users to ensure maximum flexibility.

### **Intelligent Replication**

In the multi-office configuration, ability to automatically detect and replicate to the most proximate appliance to the recipient instead of propagating the file to all appliances allows for maximum system-wide effective storage availability.

Accellion provides both capabilities above to allow for a thoughtful and automated enterprise level solution that is easy to maintain by the IT team and transparent to the users.

## Transfer the Right File to the Right User at the Right Time

Many enterprises have been discouraged by the costs and complexity of optimizing file transfer through WAN optimization using proprietary protocols. At the same time, many of the enterprises are discovering Accellion is a solution that tackles the same issue with an intelligent and scalable design.

Instead of approaching the issue of file transfer as a purely technical solution, Accellion considers the framework from the view point of how to transfer the right file/data to the right user at the right time.

### **Replication Engine**

Instead of using a centralized model which runs the risk of saturating the WAN infrastructure when multiple users access the same file at the same time, the file/data are replicated to the proximate appliance for the intended recipient. Accordingly, the recipient can retrieve the files at LAN speeds from a local appliance which ensures very high performance for the end user. Furthermore,

Many enterprises have been discouraged by the cost and complexity of optimizing file transfer through WAN optimization using proprietary protocols.

Accellion enables tuning for quality of service based on file size to ensure that a single multi-gigabyte file does not block smaller megabyte files for a long period

### **Industry Standards**

Accellion leverages proven industry standard protocols to ensure high performance without the limitations of proprietary protocols in terms of support and on going enhancement

## **Ease of Enterprise Integration and Deployment**

For IT there is only limited time and resources available for managing a new infrastructure. Similarly, at the business level, integration affects the degree and speed in which end users accept a new system. With the recent advent of secure file transfer as a key enterprise business process, both the IT and end-user considerations have only magnified.

### **End User Integration**

The easiest way to allow users to adopt a new tool is to make it transparent and very similar to a current and well-understood process. For secure file transfer, the obvious solution is to integrate with the email client as well as provide a webmail interface both of which are well accepted and with which end users already have a high comfort level.

Moreover, this is a major advantage for IT management since this change does not require extensive end user preparation and training as part of the deployment.

Accellion has been uniquely designed to integrate seamlessly into Microsoft Outlook and Lotus Notes as an icon on the email client similar to the standard “paper clip” icon for attaching files. As a result, for end users, the new secure file transfer framework becomes transparent from the familiar process of “attach a file” using Outlook or Notes.

In addition to the ability to integrate with email clients like Outlook and Notes, Accellion also provides a web-based interface that looks very similar to most popular free webmails in the market today. Since most users are familiar with the various free webmail solutions, the adoption and training required is also practically nil. Furthermore, with the benefit of directory integration through LDAP or AD, the web-based interface offers the benefit of single ID/password login and integrated address book look-up capability important for enterprise users.

### **IT Management Integration**

Because Accellion arrives as a self-contained appliance with pre-configured hardware, software, and operating system, Accellion can be treated as “drop-in” installation solutions that only take minutes to deploy.

For on-going administration, the Web-based administrative console allows centralized, policy-based automation and management of the enterprise-wide secure file transfer process. Furthermore, Accellion provides a high level of IT administration flexibility allowing for centralized or hierarchical and distributed approaches.

For easy deployment and low IT support, Accellion secure file transfer integrates as an icon on the toolbar of MS Outlook and Lotus Notes email clients.

Finally, ability to cluster appliances provides an easy way for an enterprise to roll out an Accellion secure file transfer infrastructure in a controlled manner. Similarly, as additional usage demand comes online, it is easy to add new appliances into the infrastructure to balance the load. Finally, the ability to cluster and scale provides an easy and low cost entry point for enterprises looking for ways to try out Accellion capabilities at low risk.

## Sending and Receiving Files with External and Internal Users – An Example Work Flow

One of the pressing reasons that enterprises are deploying dedicated secure file transfer infrastructures is to allow internal users to exchange information with external users securely and easily. This new usage paradigm requires that external users be able to receive and send files with internal users regardless of the external user's IT infrastructure.

Accellion provides bi-directional sending and receiving ability for internal and external users and provides a highly flexible architectural framework for a secure file transfer solution.

A typical deployment of a global multi-office secure file transfer deployment is illustrated in Figure 1.

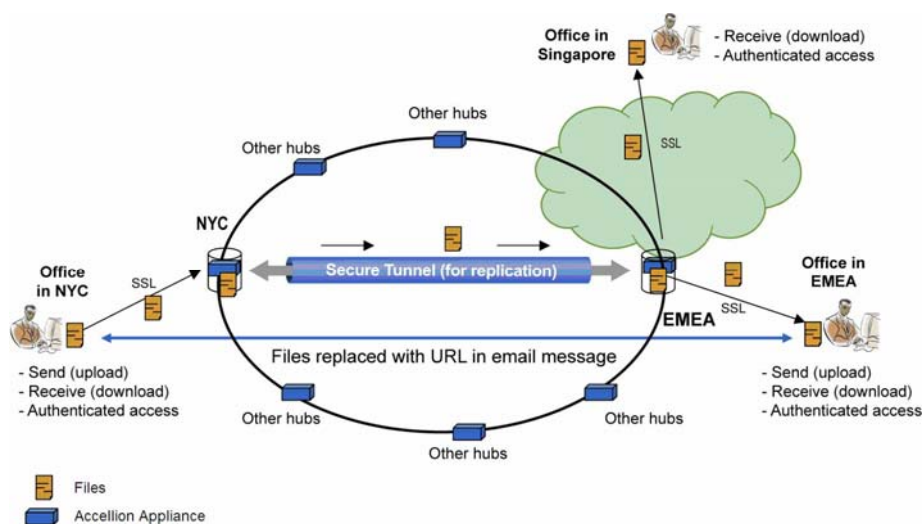


Figure 1. A typical global multi-office secure file transfer deployment using Accellion

1. **Log-in via a web browser:** a user logs on to the Accellion Appliance via a web browser, applying his/her email ID and password. The system authenticates the user using the LDAP infrastructure.
2. **Log-in via email client:** a user starts his/her email client (Outlook or Lotus Notes) which will automatically log-on the user with the Accellion Appliance. This only applies to internal users since the IT team cannot control external user's email client.
3. **User Privileges:** Once authenticated, Accellion offers file transfer privileges based on the individual's profile. For example, external partners are restricted senders and can send files only to internal users.
4. **Send file:** The sender composes a notification message, selects the recipient with address book look-up via directory integration, and uploads the files to be transferred. If desired, the sender can request delivery notification.
5. **File upload & replication:** Once uploaded each file is replaced with a secure link in the notification message. The file itself is replicated from the source appliance to the Accellion Appliance closest to the recipient based on the recipient's profile. This is determined by attributes in the LDAP structure accessed over SSL/TLS or by the end user during the self-registration process.
6. **Receipt of file:** The recipient receives an email with the secure link. The recipient clicks on the link and downloads the selected file via an HTTPS tunnel from the Accellion Appliance.
7. **Return receipt:** If this option is enabled, the sender receives a notification on who accesses the document and when.

Accellion provides a web-based interface that looks very similar to most popular free webmails on the market today.

Accellion offers the logical building blocks for a global multi-office secure file transfer infrastructure.

Wouldn't it be convenient, practical, and cost-effective if there was a faster, budget-minded method to transfer your increasingly large files without clogging email systems with large attachments or dealing with time consuming management of FTP servers?

Accellion delivers just that – an intuitive way to exchange large files of any size with internal and external recipients. And while it easily integrates into Microsoft Outlook and Lotus Notes, it actually speeds up server bandwidth by decoupling file transfer from e-mail but still providing transparent, uncompromising security.

Used by people from 25 person boutique design shops to Fortune 500 firms with global reach, Accellion secure file transfer can be deployed seamlessly and comes in different sizes and feature sets to meet your current and future secure file transfer needs. In addition to its multiple layers of security, Accellion has been engineered to provide high availability, offer efficient data storage management, fast file transfers, and enterprise integration. These scalable appliances can also be clustered so you can add more capability as your need expands.

## About Accellion

Founded in 1999, Accellion, Inc. is the premier provider of on-demand secure file transfer solutions with an extensive customer base covering industries such as advertising/media production, legal, manufacturing, healthcare, consumer goods, higher education, and more.

Accellion provides an enterprise file transfer solution that is secure, economical and easy to use for both end users and IT management. Unlike email and FTP that can no longer meet the evolving security and business requirements, Accellion enables enterprises to eliminate FTP servers, create Sarbanes Oxley compliant business processes, improve e-mail infrastructure performance, and reduce IT management footprint requirements.

The Accellion secure file transfer solution allows internal and external users to send and receive files bi-directionally on the same platform without adding administrative overhead or infrastructure burden. Accellion offers an intuitive web interface with end-to-end file security and policy-based file lifecycle management. Accellion also supports plug-in integration with Outlook and Lotus Notes email clients. For multi-site enterprises, Accellion offers clustering for multi-site load balancing, intelligent replication and failover.

Accellion is a privately held company headquartered in Palo Alto, California with offices in North America, Asia and Europe..

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