

Key Factors to Consider When Selecting an Enterprise Package Tracking System

A Vendor Selection Primer for Mail Room, Central Receiving and IT Managers

White Paper

Introduction

Today's cost-conscious managers must continually assess non-core facility support processes to identify areas that can achieve significant cost savings through automation. The receiving and internal delivery of corporate and inter-campus mail and packages continues to surface as a strong candidate for optimization through the application of new mobility technologies. This process is often associated with high-levels of manual processing, limited tracking visibility and poor customer service (at least perceived). As accountable mail and package volume, value and urgency increases, an efficient chain-of-custody proof-of-delivery (POD) solution becomes more and more important to day-to-day operations. Corporations, government agencies and universities alike are discovering that implementing a mobile enterprise mail and package tracking solution can realize operational benefits exceeding 300% return on investment over the first two years.

Business Need

On premises package tracking is one of the most requested facilities management applications today. Shipping companies such as FedEx and UPS continue to drive acceptance of signature-assured POD for all package delivery service levels. Demand has increased for mobile computing based systems which extend the secure POD visibility into the "last mile" of the in-building delivery chain, ensuring that packages reach the final recipient in a timely, secure and measurable manner.

Corporations, universities, nonprofits, and governmental agencies face daunting campus/facilities logistical management challenges. Mail room and central receiving managers must not only manage deliveries down the hall and between floors, but among distant facilities and regional, national and international office locations. In this global economy, a single shipment of documents or parcels between an enterprise's facilities may involve many delivery agents including mail center staff, other employees, messengers, courier services and domestic and foreign carriers. In such a system, opportunities abound for packages to be misplaced or delayed once they enter a facility, and for costs to skyrocket.

Research shows that depending on organization size and correspondence volume, at least 2% to 2.5% of all mail is either misplaced or subjected to an in-house delivery delay. This increases to 3% for any operation that has more than one site. These percentages may sound small; however, in terms of lost potential information or business they highlight a serious problem. For an entity receiving up to 100 pieces of mail per day, about 600 are either delayed or misplaced annually. If just 10% of these mail pieces are customer-related, an organization will miss 60 opportunities for potential revenue, contracts, payments, customer inquiries and/or satisfaction.

Over the course of a year, a typical receiving department or mail room devotes substantial person-hours searching for lost parcels, fielding frantic phone calls, and managing stacks of receiving logs. Besides wasting time, these and other inefficient activities represent a significant drain on your organization's resources. Internal customers, those who depend on the timely, accurate delivery of critical information, payments and supplies are also affected. Dealing with lost, misdirected, or delayed packages, diverts them from their primary responsibilities.

Organizations simply must be able to track the delivery of packages, parcels, mail, and valuable documents, and electronically capture a proof-of-delivery signature; however, global expansion, new security initiatives, new carriers, and expectations of immediate access to information have set new standards. Fortunately, the new generation of enterprise mail management solutions provides the tools that managers need to optimize efficiency and provide exceptional service to their internal and external customers.

Key Considerations for Enterprise Package Tracking Solutions:

Given there are many solution providers leveraging differing technologies, it is important to measure specific operational requirements and align each with a solution providing flexibility and true scalability to meet current and future needs.

Technology

First, it is critical to assess the underlying technology of the software solution. There are many technologies that offer software engineers and developers the tools to build business solutions. Today the leaders in this area are Microsoft .NET and Sun Microsystems Java. Both provide similar development capabilities; however, the .NET development environment has a higher adoption rate within the technology industry. This is a key consideration in the context of future product support and viability.

Since early 2000, Microsoft's Mobile Information Server, has provided a means of wirelessly enabling applications for access from mobile devices. It consists of middleware that enables presentation of corporate applications compatible with mobile device displays and serves as a development platform for new wireless applications. Microsoft introduced the .NET platform to make software available over the Internet from any computing platform, including mobile devices, thereby increasing the significance of the mobile information server.

.NET is a software technology that is available with several Microsoft Windows operating systems. It includes a large library of pre-written solutions to common programming problems, a runtime or virtual machine that manages the execution of programs written specifically for the framework, and a set of tools for configuring and building applications. The .NET Framework is a key Microsoft offering and has experienced strong adoption in the software development industry since its inception.

The .Net framework is widely accepted in the development industry due to ease of implementation, robust yet efficient tool sets, and the abundance of experienced .Net developers. For these reasons, along with the ability to rapidly design MS SQL database structures, .Net makes a very attractive and productive platform. As a result, the .Net framework and associated technologies are widely used by industry leading POD software vendors.

Production of business applications using the Java development environment is on the rise. Although Java has been available for many years, the emphasis on an open platform has increased usage. A key consideration when assessing a Java-based solution is whether your organization has any usage limitations on potentially open source technologies or development tools. This is not to say open source technologies are inferior or should not be considered, but intellectual property rights should be closely assessed and a "comfort check" by corporate legal should be considered far in advance of system selection and testing. A Java and/or open source system will also demand that the supporting IT organization be versed in deploying and supporting this development framework. On the other hand the Microsoft .NET framework is nearly universally accepted and supported by IT departments worldwide.

Security

Security is a constant focus due to corporate information residing on numerous mobile devices effectively extending the boundaries of the enterprise, introducing an avenue for unauthorized access. A robust mobile solution must provide for end-to-end security encompassing all handheld devices, and IT administrators must have the tools required to prevent unauthorized access to the applications and use of devices.

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SSL or Secure Sockets Layer is a security protocol created by Netscape that has become an international standard for exchanging sensitive information between a website and the computer communicating with it, referred to as the client.

SSL technology is embedded in all popular browsers and engages automatically when the user connects to a web server that is SSL-enabled. When your browser connects to an SSL server, it automatically asks the server for a digital Certificate of Authority (CA). This digital certificate positively authenticates the server's identity to ensure you will not be sending sensitive data to an unauthorized web site. The browser also ensures the domain name matches the name on the CA, and that the CA has been generated by a trusted authority and bears a valid digital signature.

SSL Virtual Private Networks (VPNs) use proxy technology in combination with industry-standard authentication methods and SSL encryption to secure access to sensitive resources: websites, client/server applications, file shares, etc. Proxies allow access to back-office applications and services without users actually connecting directly to the resource.

Session layer security and access policies can be easily implemented on the SSL VPN server for each application based on user/group and access device. It easily traverses firewalls, gateways, and routers. It supports multiple authentication methods (username/password, digital certificates via LDAP, or Active Directory®, or tokens via Radius or LDAP); integrates well with existing corporate security standards and commonly deployed applications and network infrastructure solutions. Implementing an enterprise tracking system must incorporate these security capabilities to ensure corporate information and resources are safeguarded.

Scalability

An important aspect to consider when assessing a mail and package tracking system is the platform's ability to scale as business demands increase. Not only must the core system components (web services, wireless capabilities and the database) scale, but also the ease and speed with which additional devices such as wireless handhelds can be introduced. The above considerations together with the ability to scale with minimum technology investment must not be overlooked.

Typically, systems scale either vertically or horizontally from an infrastructure hardware perspective. If the package tracking system only scales vertically, this will likely require upgrading the current infrastructure technology by adding more memory, processing capability or a combination of both. In extreme cases the entire technology platform must be replaced resulting in potential service disruption during the upgrade process.

If the system scales horizontally, the upgrade process to support new business demand is less complicated and the risk to business disruption is greatly reduced. In this cost-efficient model, rather than replacing the existing infrastructure technology, additional devices (web, application or database servers) are introduced and the application processing is shared or distributed across the multiple devices.

Mobile Hardware & Infrastructure Considerations

Organizations need increased 'reachability' and 'visibility' for their mobile team with a solution that benefits from any existing infrastructure on campus, and is an extension of their IP environment. In the receiving area, warehouse, storerooms, mail room, or similar locations, staff can use mobile devices to capture, receive and transmit data. With today's technology, flexibility to upload this data in a fully wireless, partially wireless, or cradle-based environment is readily available.

Wireless scanners on a truck or in a mail room can gather information about package status, but eventually, the scanned information must be transferred into the tracking software. Most package

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tracking systems currently in use require docking the scanner in a cradle to perform the data transfer. However, scanned information can now traverse wireless or cellular networks, linked directly to the central database immediately creating a “real-time” business transaction.

A new white paper on choosing a mobile device will be completed in the first quarter of 2009.

In-house vs. Vendor Developed Solution

When considering a business solution, it's important to assess whether it is more viable from a support and cost perspective to internally develop a product rather than purchasing a proven solution from an experienced industry vendor.

Historically, companies used internal expertise to assemble an application that met very specific and limited business requirements. This approach worked initially as the implementation time and resource requirement is considered minimal. The challenge arises when the business requirements evolve, users increase across multiple locations and integration with other corporate systems is required. This demands further technology resources to continue development, testing and on-going support.

In order to focus internal technology resources on core business services, often CIO's look to expert vendors to implement a business solution. Enterprise package tracking software is similar to financial, human resource, document management and other business process systems in that it is critical to running the business, yet shares enough commonality that a vendor solution will deliver the required functionality.

Point vs. Enterprise Solutions

Managers need to determine if other business units within the organization will require either direct or query-only access to the system. As the business unit drives for improved productivity and cost efficiencies, sharing information with corporate financial and human resource systems is very common. This capability provides greater transparency into how other business units are utilizing mail room services and can lead to the development of service adoption, utilization rates and charge-back processing.

These and other business capabilities are only enabled when the package tracking software is based on an enterprise architecture and implementation strategy. When considering point or enterprise solutions, it is important to review not only current needs, but also other business unit requirements along with strategic plans for the next three to five years.

Hosted vs. On-Premise Implementation

Due to the advances in communication capabilities combined with improved security technologies, many organizations are considering a managed services model. As new business capabilities and services demand IT resources, IT support for business support systems often can take a back seat. This is not to say the business support systems are not important and required to run the day-to-day operations, but often they are not considered a core service. This situation may favor an enterprise package tracking system in a hosted or managed service model.

The following table highlights some of the advantages a managed service offers, delivering increased productivity and cost efficiencies in a dramatically reduced time frame.

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	Vendor Hosted	Vendor On-Premise
Time to Market	3 to 6 weeks Full system functionality and operational monitoring	3 to 6 months Dependent on procurement cycles and internal technology resource availability
Application Deployment	Extensive and repetitive experience deploying and verifying application readiness	Initial learning curve for internal technology resources and when updates are required
Scalability	Hosting vendor continually monitors system utilization introducing additional technology as required	Internal technology organization must monitor, often not a priority if the systems is not considered a core or critical business service
Support	24x7x365 proactive monitoring and support	Best effort
Obsolescence	Service includes ongoing and timely upgrades (planning, testing, installation and repairs)	Internal technology organization must procure, test and implement every 12 to 18 months

On-Premise Software: Historically, organizations often preferred installing business software systems in an internal secure data center because of the importance of the business solution, the required service levels and/or stringent security requirements. Due to recent advances specifically in the area of information security, many IT departments are re-evaluating the risk/value proposition to managing business support systems within their internal data centers.

On-Premise Key Factors:

Does your data center have physical space for the equipment required to implement the business solution? Today many technology organizations are challenged for space, power, and cooling within the primary data center. In addition, similar requirements should be considered when implementing a disaster recovery (DR) environment.

The initial technology investment should be assessed in addition to the product development or vendor purchase. Servers and supporting capabilities will be required. Network and backup equipment, operating system, database, and monitoring licenses may be needed.

Operational costs for your internal technology organization are often overlooked when implementing a new business service. This traverses the entire technology support model from the Help Desk agent through in-demand software and infrastructure engineers. When assessing the total cost of ownership, think of it as owning an automobile. The total cost is not how much you initially paid at purchase, but what it costs to drive and maintain on an annual basis.

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Vendor Hosted Offerings: Hosted or Managed Services continue to experience significant adoption and growth not only within large organizations, but also within small to medium sized organizations. This is largely due to the continued improvements in information security and telecommunication capabilities enabling secure remote access. Although many large enterprises must adhere to stringent compliance regulations, specifically related to securing sensitive customer information, many organizations have successfully deployed critical business support services in a hosted model. It is not uncommon for internal financial, human resource, facilities management, supply chain and other business services to exploit the advantages of a hosted solution.

Vendor Hosted Key Factors:

In a vendor hosted model, your technology organization will not be challenged to manage space, power and cooling within your corporate data centers. This also applies to implementing a disaster recovery (DR) environment.

Depending on the hosted offering, your company will usually be charged on a monthly, quarterly or annual basis for the technology required to host and support your business service. The hosting company must make the initial capital and human resource investment to provide services meeting your service levels.

Operational costs are factored into the hosted offering providing you the support required to run your business unit. Often the service level from a hosted vendor will be an improvement over your internal service level -- as your business services are deemed more critical to the vendor, whereas you may wait longer for internal support if other core business services are experiencing a service disruption.

Within the hosted service offering, two implementation methodologies have evolved due to the improvements in virtualization technology. These are referred to within the industry as single and multi-tenant. A single-tenant delivery model dedicates infrastructure hardware and software specifically to your business services and applications. This approach is similar to installing your own technology as described in the on-premise scenario but the dedicated equipment is located in the hosting service vendor's data center.

Single-Tenant Key Factors:

Performance is more predictable as the hardware and software is not shared with other customers supported by the hosting service provider.

Required software and security updates are scheduled and planned according to your organization's schedule thereby reducing service disruptions. In addition, your applications may only require updates on a quarterly or annual basis. More importantly, organizations can more easily choose not to take upgrades at all. If the current system is functioning well and the vendor continues to support the installed version, clients can avoid "breaking" the installed system and avoid the cost and effort of performing an upgrade.

Implementing a single-tenant model usually does not require a substantial initial investment in hardware and software though the monthly, quarterly or annual service charges are typically more expensive than in the multi-tenant model described below. However, the likelihood your dedicated technology will be inadvertently disabled or shut down without advanced notice is greatly reduced. Also, a dedicated server is often the most secure hosted option since your data is physically segregated from other client's data.

Multi-Tenant Key Factors:

The multi-tenant delivery model shares infrastructure hardware and software to run multiple customer business services and applications. This approach continues to gain acceptance primarily due to the advances in web software development tools and databases that improve isolation between business applications and the reduced cost that comes with sharing resources. Although the technology has improved, it is critical to analyze the transaction volumes your application will generate during the course of any given business day. If you are considering a package tracking system, the vendor can provide your technology organization or hosting vendor with performance requirements and anticipated metrics.

Performance can be less predictable as the hardware and software is shared with other customers supported by the hosting service provider. Service disruptions could increase because software and security updates require close coordination with multiple customers. These disruptions can be significantly reduced if the hosting provider has the ability to logically move your application workload to another shared platform while required updates are performed. Once the updates are verified, your application workload can be returned to the original platform without a business disruption.

The primary advantage of implementing a multi-tenant model is the cost structure. Given the hosted platform and software licenses are shared among multiple customers, the recurring cost is significantly reduced.

While both hosted or on-premise implementations are perfectly viable, selecting a solution provider flexible and knowledgeable enough to support either model will guarantee adaptation to your business processes, current or future.

Recommended Approach

Achieving Accuracy and Accountability

The most effective enterprise package tracking systems incorporate digital and electronic technology such as bar codes, mobile computers, scanners, electronic signatures and web-based software applications. These technologies should be connected with a flexible and scalable design, enabling the functions outlined below:

1. **Extends tracking visibility to internal mail and parcels.** Employees will often use an external carrier to ship items among an organization's facilities so they have the ability to track-and-trace. An internal tracking system can provide the same capabilities without adding the premium fees. It can also eliminate those "Where's my package?" calls that create havoc in an enterprise's central mail center.
2. **Enables employees to prepare shipments from the desktop.** In most organizations, employees who are not members of the mail center staff initiate a significant number of expedited envelopes and package shipments including intra-company shipments. Often these employees do not know of or have access to corporate negotiated rates with carriers, and many use manual paper air bills to initiate shipments which fall outside corporate guidelines.

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The most cost-effective internal mail management systems will include desktop software that permits employees in carpeted areas of the building to initiate shipments and make informed shipping decisions. Such a system should:

- Enforce the organization's business rules for internal and external shipments.
 - Ensure accurate accounting information is associated with the shipment so charge-backs can be tracked and managed effectively.
 - Enable addresses to be validated before shipping, which ensures packages arrive on time and reduces carrier charges for incorrect addresses (up to \$15 per address). Newer systems also offer point-to-point internal tracking.
3. **Identifies who's accountable regardless of delivery agent.** Once mail and parcels are in the hands of mail center staff, route drivers, messengers and couriers, their whereabouts and time in transit should be logged. Using mobile computers, signatures can be input electronically at each package transfer point to validate who has had custody of the package throughout its journey to the final recipient. The enterprise database is updated as each step of the delivery occurs, providing a master view of delivery history.
 4. **Tracks multiple items in a single shipment.** If the right internal tracking system is in place, items going to the same intra-company site can be grouped into a pouch, master carton or bag and still be tracked individually. This feature reduces the amount of data entry required, lowers shipping costs and provides more security since pouches can be "locked" for special items.
 - For external carrier deliveries made to other campus sites, the parcel's tracking number can be linked to the individual pieces it contains. For intra-company shipments made by an internal delivery agent, individual items in the pouch can be tracked as a group, which reduces the need to scan each item during handoffs while ensuring visibility. Capturing a Proof-of-Delivery signature for the pouch eliminates a popular reason cited by employees for using more expensive carrier services.
 - Supports internal hub and inter-facility routing. A company's internal mail and parcel distribution system should provide alerts and routing labels that identify hub locations at interim stops along the preferred route. If a package is addressed to someone at a different site, that person's location can be identified and a label produced that indicates the next hub on the route. This feature will eliminate guesswork regarding where an item goes next, and will ensure items destined for less-traveled routes aren't delayed.
 5. **Easy-to-Deploy.** Mobile solutions that are easy to deploy generally realize greater success compared to more complex options. Deploying a mobile solution across multiple devices comes at a cost, as does routine management such as upgrades and installations. Organizations should be aware of all aspects of managing and implementing mobile devices within their unique corporate IT framework. Security items that are easy to manage on desktop PCs can become more complex when the "PC" now walks around (and possibly out of) the organization. End of shift procedures, software update methods and data security should all be discussed with the software provider prior to selection. An optimal solution allows IT administrators to manage and upgrade software on mobile devices simply and with minimal manual intervention.

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6. **Easy-to-Use and Manage.** An enterprise tracking system should be simple for the users and administrators alike to manage. At a minimum — it should provide users with data-driven, configurable web pages that allow them to add, edit and update items, view reports or administer the system using a browser. It should also permit multiple users/locations to remotely sync mobile computing devices, simultaneously. It should have an intuitive interface that allows the user to view current locations, historical information and electronically captured signatures when items are received, delivered, installed, or returned.
- **Ease-of-use** – An intuitive interface affords users the ability to access, store, and reuse information quickly. Organizations that invest in such mobile solutions realize greater productivity from their workforces.
 - **Personalization** – Mobile enterprise tracking solutions should be versatile enough to accommodate a range of work preferences and styles configurable for each user.

About SCLogic

Established in 1996, SCLogic is a market-leading software company with a focused mission: provide the very best mobile enterprise mail and package tracking solution. We design, develop, deploy and support our own software. With prompt, live technical support, we are responsive people you will enjoy working with now and in the future. SCLogic is a Motorola PartnerSelect premier business partner. SCLIntra™ Enterprise Package Tracking Solutions are available for purchase or lease; on-premise or hosted; you decide, we deliver. Contact us for a demo at 1.888.776.5918.

Reference website

<http://www.scllogic.com>

