

## An SOA Approach to Parcel Shipping

By Adrian Gonzalez

### Keywords

Parcel Shipping, Service Oriented Architecture, Sonova, Agile Network

### Summary

Keeping Parcel Shipping solutions compliant with ever-changing carrier rates, label formats, and other requirements can be time consuming and challenging. A new approach, which leverages Web services and composite applications, simplifies this task and promises greater flexibility.

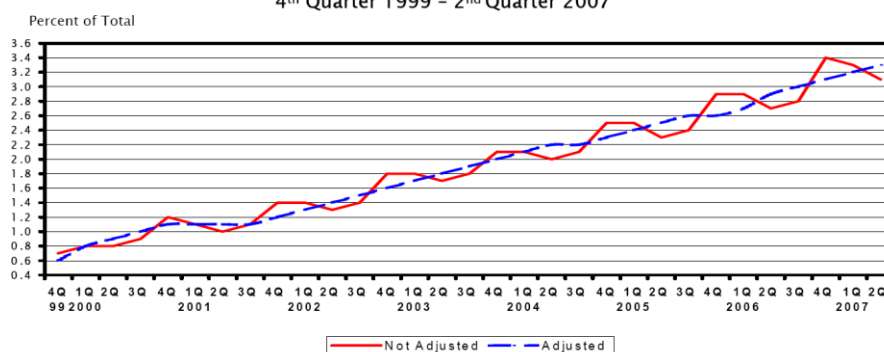
Many companies have poor visibility and control of their Parcel Shipping spend and operations. They often manage this process manually or use several stand-alone shipping systems provided by carriers. In contrast, best-in-class companies use Parcel Shipping software solutions from third-party vendors that provide multi-carrier support and functionality via a single platform. But keeping these solutions compliant with ever-changing carrier rates, label formats, and other requirements can be time consuming and challenging. A new approach, which leverages Web services and composite applications, simplifies this task and promises greater flexibility, as exemplified by Sonova and its implementation of a Web services solution.

### Analysis

For many companies, especially in industries such as Automotive, High Tech, Healthcare, and Retail, parcel shipping is a critical and growing component of their transportation operations. The worldwide Courier, Express, and Parcel (CEP) market is approaching \$200 billion, driven by shrinking order-to-delivery cycle times, e-commerce, global trade, and other factors. In the United States, for example, e-commerce retail sales are growing over four times faster than the overall retail market, according to data from the US Commerce Department. As an indicator of global trade activity, international package shipments for UPS, FedEx, and DHL are growing much faster than domestic shipments.



Estimated Quarterly U.S. Retail E-commerce Sales as a Percent of Total Quarterly Retail Sales:  
4<sup>th</sup> Quarter 1999 – 2<sup>nd</sup> Quarter 2007



### Strong Growth in E-Commerce Expected to Continue

This growth in shipping activity is leading to increased demand for Parcel Shipping solutions. According to ARC's Transportation Management Systems (TMS) Worldwide Market Outlook study, parcel shipping solutions accounted for almost \$198 million of the TMS market in 2006, and this segment is forecasted to grow in the coming years. The reason is simple: companies are realizing that cost increases and service level failures are inevitable unless they gain greater visibility and control of their shipping operations.

Many companies, for example, do not know their actual total shipping costs, which can vary greatly from planned costs, because this information is often stored in various systems and formats. As a result, companies are unable to leverage their total shipping spend to negotiate lower rates with carriers, and they can't allocate accurate shipping costs to specific products, customers, or departments. This problem is particularly troublesome for companies that must comply with Sarbanes-Oxley, where any financial reporting inaccuracies can have significant consequences. Other cost inefficiencies also exist because:

- Companies are using expensive express services to ship orders when using a less costly ground service would be more appropriate;
- Companies are not enforcing routing guide compliance--i.e. negotiating favorable rates with carriers is meaningless if preferred carriers and services are not used consistently across all shipping locations;
- Companies are incurring unnecessary surcharges. Together, the three leading parcel carriers have over 60 different surcharges including fuel

surcharges, rural delivery, residential delivery, excess tracking, and address correction fees. These surcharges can increase shipping costs by at least 15 percent.

### **The Road to Services Oriented Architecture (SOA)**

Parcel Shipping solutions have been available for many years. Most carriers, for example, provide their own applications for clients to use. These

The scope and capabilities of Parcel Shipping solutions have expanded over the years. The next wave of innovation is now upon us, enabled by advancements in software architecture, specifically the development and widespread use of Web services.

standalone applications work well for companies that concentrate all of their shipping spend with one carrier. However, most companies prefer to compare rates and services across multiple carriers, selecting the carrier with the best rate and service option/level for a given shipment. As a result, many companies were forced to use multiple shipping systems, one for each carrier. This

fragmented approach created process inefficiencies that diminished or negated the benefits of working with multiple carriers. This problem ultimately led to the development of multi-carrier shipping systems, which is the route taken by most companies today.

The scope and capabilities of Parcel Shipping solutions have expanded over the years. For example, in addition to facilitating outbound domestic shipments, leading solutions also manage the inbound receipt process and provide export shipping functionality. The next wave of innovation is now upon us, enabled by advancements in software architecture, specifically the development and widespread use of Web services.

For example, Web services are redefining the way parcel shipping solutions stay compliant with carrier requirements. The traditional approach is for software vendors to update and test their "compliance module" whenever a carrier changes its routes, rates, label formats, and other rules and requirements. Customers then have to upload the new version of the module to their systems; any miscoding or delay along the way can jeopardize a customer's shipping operations. Simply put, this approach is time-consuming and complex, for both the software vendor and its clients.

Fortunately, most of the leading carriers now use Web services as an integration platform. Therefore, a parcel shipping solution with a Services Oriented Architecture (SOA) can "subscribe" directly to these carrier-developed Web services and incorporate them as part of the shipping

workflow. In other words, vendors don't have to "reinvent the wheel" by replicating the functionality of these Web services into software modules of their own.

More significantly, the value proposition of parcel shipping is extending beyond the shipping department to other groups within the enterprise, as well as to customers and other external trading partners. In the past, access to a parcel shipping solution was typically limited to a handful of people

Key Benefits of SOA-based  
Parcel Shipping Solutions

- Enhanced visibility and control of shipping costs (planned vs. actual)
- Reconfigure shipping processes more quickly and effectively in response to changing business conditions or customer requirements
- Faster, less-complex way to update carrier rates, label formats, and other requirements
- Improved Security and Scalability

within a company. Today, with continued outsourcing and globalization, hundreds or even thousands of users can execute shipping processes or access information, depending on their role and access privileges. SOA enables this trend by transforming the way parcel shipping solutions integrate with other business applications, such as Enterprise Resource Management (ERP) and Warehouse Management Systems (WMS). The traditional "bolt on" approach generally results in a collection of point-to-point links, where the primary focus is on how to move data from one application to another. Stitching these disparate

links together to enable an end-to-end business process is often time-consuming and costly, and the effort has to be repeated whenever processes change or new ones are introduced.

SOA-based solutions, on the other hand, allow companies to assemble application components, such as data models, business rules, user interfaces, and workflows, to meet their specific business requirements. The flexibility of these "composite applications" allows companies to reconfigure their shipping processes more quickly and effectively in response to changing business conditions or customer requirements. SOA-based solutions also make it easier for companies to have a more detailed and unified view of their shipping costs by integrating cost-related information from various applications and data sources onto a single platform.

In summary, parcel shipping solutions are migrating away from being standalone, monolithic applications to a platform where users across the value chain can execute role-specific, shipping-related business processes via configurable user interfaces, workflows, and Web services.

## Case Study: Sonova/Phonak

Sonova, a leading provider of innovative hearing healthcare solutions, is known for its excellent customer service, a cornerstone for success in their industry. And when you operate a high-volume shipping operation, there is very little room for error, which is why the company sought to improve its shipping processes and technology.

### Company Profile

- ◆ Sonova is a leading provider of innovative hearing healthcare solutions based in Switzerland, with brands such as Phonak and Unitron Hearing.
- ◆ With over 1 billion CHF in sales, Sonova is present in more than 90 countries and employs over 4,000 people.
- ◆ Phonak processes about 30,000 shipments per month across four sites in North America; uses multiple parcel and LTL carriers, including UPS, FedEx, DHL, and Purolator.
- ◆ Phonak replaced legacy ERP system in North America with SAP.

### Challenges Prior to Implementation

- ◆ Fragmented shipping capabilities, including multiple carrier-supplied systems, third-party applications, and manual processing.
- ◆ Limited visibility and control of shipping operations and spend.
- ◆ Poor integration with legacy ERP system.

### Benefits of Implementing an SOA-based Solution (AgileElite)

- ◆ Improved productivity and accuracy of shipping operations by eliminating manual processing and standardizing shipping activities on a single platform.
- ◆ Enhanced visibility and control of shipping operations; ability to track by customer name, order number, and other fields, down to line item details.
- ◆ Able to initiate shipping activities within SAP workflows, thus creating a more seamless and transparent process for users.



### Sonova Benefits from Implementing SOA-based Solution

"We needed a shipping solution that worked well with SAP," explained Thomas Goebel, Corporate SAP Project Manager for Phonak AG, one of Sonova's brand companies. Prior to implementing SAP in their North American sites, the company had a legacy AS/400 ERP system that didn't integrate well with their third-party parcel shipping solution. Phonak also used several carrier-supplied shipping systems and relied on manual processes, particularly for export shipments. "A lot of manual work was involved," said Goebel, "with our people logging onto various carrier Web sites to execute processes and access information." In short, Phonak's shipping capabilities were highly fragmented, which limited their ability to streamline their end-to-end order fulfillment process.

The timing for finding and implementing a solution was aggressive. "We only had four weeks to make a decision," said Goebel, so the company focused on solutions that aligned well with several key requirements, including cer-

tified interfaces to all of their carriers, track and trace down to the SKU level, proof of delivery, and the ability to automate and comply with international export requirements. Phonak also wanted to manage their shipping activities within the SAP system, thus creating a more seamless and transparent process for users. But since not all of their shipments were associated with orders in SAP, they also wanted the ability to execute "offline" shipments.

In light of these requirements, Phonak selected AgileElite, a SOA-based solution from Agile-Network ([www.agile-network.com](http://www.agile-network.com)), a knowledge network of logistics systems integrators who specialize in multi-carrier shipping and global trade solutions. *"This was not a 'plug and play' situation,"* said Goebel, commenting on the implementation process. *"Every customer order has different [shipping constraints and business rules] associated with it."* Configuring the system to accommodate these unique rules and workflows was an important part of the implementation process, which AgileElite's SOA architecture facilitated.

Today, by eliminating manual processing and standardizing their shipping activities on a single platform, Phonak's shipping operations are more productive and accurate. They also have greater visibility and control of their shipping operations, with access to real-time tracking and proof of delivery information. *"We've strengthened our ability to meet our customers' delivery requirements,"* is the way Goebel summarizes the net benefit of their Agile-Net implementation. And in an industry where customer service is a competitive differentiator, this benefit has lasting value.

## Conclusions

- For many companies, parcel shipping is a critical and growing component of their transportation operations. Cost increases and service level failures are inevitable unless companies achieve greater visibility and control of their shipping operations.
- The scope and capabilities of Parcel Shipping solutions have expanded over the years. The next wave of innovation is now upon us, enabled by advancements in software architecture, specifically the development and widespread use of Web services.

- SOA-based parcel shipping solutions allow companies to assemble application components, such as data models, business rules, user interfaces, and workflows, to meet their specific business requirements. The flexibility of these "composite applications" allows companies to re-configure their shipping processes more quickly and effectively in response to changing business conditions or customer requirements.
- SOA-based solutions make it easier for companies to have a more detailed and unified view of their shipping costs by integrating cost-related information from various applications and data sources onto a single platform.

*This paper was written by ARC Advisory Group on behalf of Agile Network. The opinions and observations stated in the paper are ARC's. For further information or to provide feedback on this paper, please contact the author at [adriang@arcweb.com](mailto:adriang@arcweb.com).*