Internet e-commerce:
Reinventing EDI for the Web

**EDI
Services**

Introduction

*"About 2 million companies with 10 or more
employees are prime candidates to join those
companies already using some form of EDI."*

— *Forrester Research*[1]

What started as a burgeoning wave not so very long ago has
rapidly evolved into a full-scale business revolution: Internet
e-commerce. Market research company International Data
Corporation predicts that the total amount of business trans-
acted across the Internet will top US$1 trillion by 2003[2]—a
figure that other analysts say is underestimated.

With the stunning growth of Internet-based buying and selling,
some industry watchers have begun predicting the demise
of electronic data interchange (EDI). However, reports of this
20-year-old e-commerce technology's pending demise
are greatly exaggerated. Today, service providers are melding
traditional EDI with Internet technologies to bring a new
generation of standards-based e-commerce solutions to
the marketplace.

e-business

Trends and directions

EDI evolved more than two decades ago from the efforts of the automotive, transportation and grocery industries, whose members pioneered the use of standard data formats to streamline communications up and down the supply chain. Long before the Internet appeared, EDI was delivering significant e-commerce benefits by reducing the time, costs and inefficiencies inherent in manual, paper-based business transactions.

Traditional EDI today

Although its application has been generally limited to mission-critical supply chain processes, EDI has been embraced by large companies across a wide range of industries. Today, these companies typically exchange EDI-formatted data via store-and-retrieve messaging systems (electronic mailboxes) and private, secure communications networks operated by value-added services providers.

For the foreseeable future, traditional EDI may be the optimum solution for keeping fully automated end-to-end transactions flowing seamlessly between trading partners' computers—for example, high-volume, repetitive transactions such as materials and parts orders for just-in-time manufacturing, insurance claims processing, and merchandise restocking. In fact, 49 percent of the respondents to a recent *InfoWorld* magazine survey reported that traditional EDI still plays an important role in their overall strategy—along with significant investments in Internet e-commerce.[3]

At the same time, the complexities and costs of this technology have kept it out of the mainstream. According to studies by Connecticut-based consulting company GartnerGroup, Inc., companies that invested in EDI are discovering that it is difficult to get more than 20 percent of their trading partners to participate in established programs.[4]

Even though those 20 percent of trading partners typically represent 80 percent of the sponsor's transaction volumes, most companies are interested in achieving 100 percent participation. That is because full EDI integration—which can reduce the need for clerical staff, fax machines, toll-free numbers and manual processes necessary to handle the "last 20 percent" of translation volumes—can translate into significantly greater return on EDI investment.

The challenge, then, is finding ways to reach a broader range of trading partners easily and affordably, while continuing to realize returns on investments in traditional EDI systems.

The Internet: Driving change in EDI

The Internet is fundamentally altering commerce as we know it, including EDI. Rapid advances in software and communications technologies have enabled the implementation of Web-centric e-commerce platforms that are more flexible, more scalable and less expensive than traditional approaches. As a result, using the Internet to transport mission-critical, time-sensitive and confidential intercompany commerce is now an accepted way of doing business for a growing number of companies.

Some organizations are building Internet technology-based extranets that allow business partners to access and exchange information without employing data standards. Others are using a variety of hybrid approaches to reach smaller trading partners, in parallel with their traditional EDI systems. These Web EDI hybrids merge the strengths of both technologies to open the world of e-commerce to a much broader set of participants.

Web EDI solutions come in a wide range of shapes, sizes and tactics—from "do-it-yourself" software combined with data transport over the Internet to Web-based offerings from the major EDI service providers. Companies that use WebSphere™ Commerce Suite software for Web storefronts—both consumer and business-to-business—can take advantage of built-in facilities for back-end EDI integration. With this approach, orders entered by customers on the Web can flow directly through to existing EDI systems without additional handling.

What these very different approaches all have in common is the use of established EDI data standards, which allow integration with existing company EDI systems. Current Web EDI approaches include:

■ Employing messaging gateways or gateway services that transfer EDI data from an IP-based network, including the Internet, to a traditional value-added network (VAN)

■ Building Web sites for forms-based EDI, where trading partners can enter data, which is then converted into an EDI document and transmitted to the sponsor company's EDI system

■ Using the Internet solely as a data transport medium, but keeping the existing EDI infrastructure in place—whether the data traffic is flowing between a company host and service provider mailbox or directly between two trading partner applications

■ Deploying an extranet or FTP server that trading partners can use to exchange information and files

■ Developing new data standards based on and incorporating backward compatibility.

With business today moving at Internet speed, many companies now need technologies that allow for realtime, seamless application-to-application, Web-to-application and Web-to-Web document flow and integration. eXtensible Markup Language (XML)—a "next-generation" language that takes an Internet-centric approach to defining how data is structured and exchanged—is emerging as a flexible, extensible and cost-effective way to fulfill these requirements.

This new technology offers the strengths of both EDI and HyperText Markup Language (HTML), the language of the Internet. XML provides both a common structure that allows applications to process data, plus it allows people to read that data via a Web browser. A number of industry organizations and vendors, including IBM, are creating XML-based standards that are backward compatible to existing EDI standards.

By deploying XML-based EDI solutions that trading partners can access over the Web, companies have another way of increasing penetration of their EDI and e-commerce initiatives. Many enterprise resource planning (ERP) vendors are making their software ready for e-commerce by incorporating XML and browser-based interfaces. And value-added service providers are enabling existing offerings to support both EDI and emerging Internet Protocol (IP)-centric technologies such as XML. As the Web, EDI, ERP and XML converge, companies will be able to move beyond exchanging data and begin realtime integration of business processes—both within the enterprise and across trading partner communities.

Do it yourself, or get help?

Although Internet technologies are touted as being less complex and less costly than traditional EDI, building and running a Web-based EDI trading network in-house requires time, money and skills that continue to be in high demand and short supply. What's more, implementing your own EDI software on the Web requires addressing a wide range of management issues, from application availability and help desks to security, tracking, problem resolution and more. Fall short on any one of these tasks, and your supply chain can come to a halt.

Employing a Web EDI solution from an established services provider offers companies the best of both worlds—the lower cost and faster time-to-market of the Internet, and managed support for your time- and business-critical transactions. In particular, mature EDI service providers, such as IBM Global Services, can offer:

■ Extensive EDI experience and implementation support that can get programs up and running successfully

■ Measurable, predictable service quality, including high levels of availability, performance, reliability and scalability

■ Advanced-function mailbox services for the receipt, storage, retrieval and even realtime delivery of transactions

■ Interconnections with other services, allowing customers to use EDI communications pathways for exchanging free-format text messages, e-mail and IBM MQSeries® messages

■ Tracking and control to assure delivery of messages

■ Proven facilities that help assure the security and integrity of business data.

■ Customer support for all phases of the EDI solution — from software to data transport — especially important for trading partners

■ Accounting and billing support that lets trading partners share costs

■ Value-added services and programs — from trading partner implementation and rollouts to consulting, education, Web hosting, back-end integration services and outsourcing of EDI data translation and mapping.

EDI service providers will continue to play the traditional role of valued intermediary in the open environment of Internet e-commerce. Acting as a neutral third party, service providers are uniquely positioned to assume responsibility for the shared infrastructure that supports EDI, address critical issues such as scalability and compatibility, and coordinate relationships between trading partners.

What to look for in an EDI services provider

With the rapidly growing demand for Internet EDI and e-commerce solutions, the marketplace today includes new entrants as well as established IT companies. Service providers can range from EDI value-added networks (VANs) and Internet Service Providers (ISPs) to telecommunications enterprises, software companies and Web developers.

Whether you are looking for Web-based solutions that extend your EDI program to more trading partners, Internet alternatives for EDI data communications, or comprehensive e-commerce solutions that include a catalog Web site and back-end integration, the service provider you choose should be a good fit for your organization.

As you evaluate service providers that offer solutions scaled to your requirements, here are some questions to consider:

■ EDI capabilities and background

What is the scope of the vendor's EDI-specific services? What EDI hardware and software platforms does the vendor support? How long has the vendor been in the EDI business? Does the vendor participate in EDI standards organizations and industry associations? What value-added network services are available, and how are they provided?

■ Internet EDI and e-commerce capabilities

Does the vendor have Internet-based EDI offerings and documented strategies for future development? Is the vendor committed to supporting the evolution of Internet e-commerce and traditional EDI? Are the vendor's capabilities limited to EDI, or is EDI a component of an integrated e-commerce services strategy?

■ Expertise and skills

What breadth of professional services does the vendor offer? Can the vendor help me determine the best e-commerce strategies for my business? How diverse are the vendor's employees' skills? How knowledgeable are the vendor's employees about EDI? How extensive is the vendor's knowledge of my industry?

■ Responsiveness

How does the vendor propose to address my requirements? Will I have a single point of contact and accountability? What is the approach to project management? Does the vendor show the flexibility to respond to technology changes and to changes in my business requirements? Is the vendor willing to share risk?

Critical success factors

Some of the critical factors that can impact the success of an Internet EDI program are presented below.

■ **A seamless interface to a full range of EDI services and support**
– Professional/consulting services for process reengineering, back-end integration, custom software development, and mapping and EDI standards migration support
– Selective outsourcing of discrete EDI functions, such as map development and data translation
– EDI outsourcing to acquire and manage hardware, software and people resources; and assume responsibility for staffing, running and maintaining EDI operations
– Trading partner support services and problem-solving
– Interconnections between EDI, e-mail and other EDI VANs worldwide
– Integration between EDI and other e-commerce initiatives, such as communications with MQSeries trading partners and back-end integration with Web commerce applications
– Vertical solutions for specific industries.

■ **A stable infrastructure underlying the services provided, such as an EDI mailbox and Web site hosting**
– Access via the Internet and managed network connections
– Hardened data center facilities with power fault tolerance and physical security

– Vendor-owned and managed resources
– Ample capacity for current customers; a process for expanding capacity in advance
– Current, industry-standard technology platforms with proven operating systems and Web server applications.

■ **Security for critical business data**
– Appropriate security infrastructure
– Experienced security professionals
– Industry-leading firewall hardware and software, with processes for updating as new technologies become available
– Limitation of services to contain intranet users
– Monitoring, detecting and notifying, and ongoing maintenance.

■ **An infrastructure to address problem, change and capacity management— as well as day-to-day operations and administration**
– Experience with mission-critical applications
– Skills and resources to manage a complex, rapidly changing environment
– Tools and disciplines for effective, efficient management.

■ **Global help desk to support users around the clock**

About IBM Global Services

IBM Global Services has the knowledge, skills, experience and unsurpassed breadth of capabilities to help you transact business online, increase trading partner participation in your EDI program and integrate EDI into your Internet commerce strategy.

The source of our strength is our people who come from diverse backgrounds: EDI and e-commerce experts; e-business and industry consultants, and technology specialists in both EDI and the Internet.

Case study: IBM National Accounts Payable takes EDI to the Web

IBM National Accounts Payable, one of the largest accounts payable organizations in the world, uses the forms exchange component of EDI Services to help enable EDI on the Web for non-EDI trading partners. Authorized trading partners can use any standard Internet connection and Web browser to access the EDI Web site, complete and submit invoices, or receive purchase orders.

Forms data is translated as needed from the Web format into the appropriate EDI document and sent directly to the National Accounts Payable EDI systems. The customized Web forms include all the data fields required by SAP R/3 financial applications, making data from this set of suppliers available to the enterprise-wide accounting system.

Today, suppliers can convert a purchase order from IBM into an invoice form once the order has been fulfilled. An online tracking system allows suppliers to check the status of any invoice and see if payment funds have been transferred. A Java™-based enhancement will allow suppliers to send invoice files from programs such as Quicken and Peachtree Accounting directly to forms exchange.

The IBM Global Services EDI focus account team took the lead on rolling out the program to the thousands of small suppliers that represent 50 percent of IBM accounts payable transaction volumes. The enabling team contacted trading partners, activated each new account and walked the trading partners through sending the first transaction. With this Web solution, 70 percent of purchase order-driven invoicing is now electronically generated; IBM intends to eliminate hard copy invoice processing almost entirely by the end of 2000.

Summary

As e-commerce technologies and the Internet itself mature and stabilize, the volumes of EDI transactions flowing over the Web will continue to grow. Likewise, EDI service providers will continue to have a place in the e-commerce marketplace. Most industry watchers project an evolutionary process, with service providers combining traditional EDI services with the Web and emerging technologies to meet the full range of customer requirements.

As one of the world's leading providers of e-commerce solutions, IBM Global Services is committed to helping you take the fullest advantage of the opportunities afforded by the Internet and EDI. We are continuing to incorporate Internet strategies and solutions into our family of EDI Services offerings.

For example, today we help support full IP access to our EDI mailbox service, via the Internet or a value-added network service. We also offer an easy, cost-effective, forms-based solution for EDI on the Web, in-network data translation services, Internet file transfer support — in addition to our market-leading traditional EDI and trading partner enabling solutions.

To learn more about how your company can benefit from putting the people of IBM Global Services on *your* team, visit *www.ibm.com/services* or contact your local sales representative.

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References

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