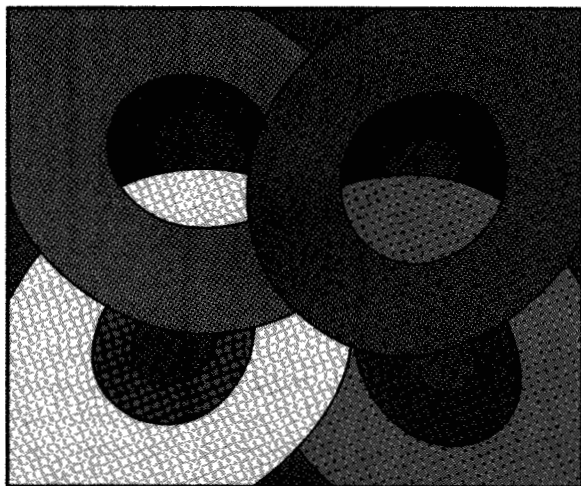


Technical forum



IBM's electronic commerce solution: CommercePOINT

When businesses first began to adopt the Internet as a communication tool, using it as a direct sales channel was the idea that held the most allure for them. Unfortunately, the very features—that made the Internet so attractive to businesses—its openness, global reach, and ease of use—were also its greatest impediments to exchanging money, intellectual property, and products securely and reliably over such a channel. Simply put, the Internet was not designed to address the unique needs of a marketplace.

But demand too is the mother of invention, so IBM set to work on developing a suite of products and services that would combine the proven practices of remote financial transactions and computer-driven commercial catalogs with the flexibility and worldwide, 24-hour-a-day reach of the Internet. The result of that work is evident in the CommercePOINT* family of offerings from IBM.

Today, selling products on the Internet has already arrived for a handful of vanguard merchants, but most businesses are still shopping for the tools they will need to put their products on line. Given the intense focus that electronic commerce is receiving from competitors and customers, businesses can expect to encounter a short runway for implementing electronic commerce applications.

IBM's electronic commerce strategy is centered on helping businesses large and small, Internet-savvy and otherwise, build electronic commerce solutions that can "take off" on the same short runway. CommercePOINT, the first complete solution of products and services in the industry, exemplifies the foundation of IBM's "universal" electronic commerce strategy. With CommercePOINT, businesses can build state-of-the-art electronic commerce sites as a service that IBM provides (those offerings preceded by the word "World") or as a series of stand-alone products (preceded by "Net.").

The building blocks of CommercePOINT are the industry's most accepted Internet technologies: Hypertext Markup Language (HTML) and Virtual Reality Markup Language (VRML), Transmission Control Protocol/Internet Protocol (TCP/IP) communications, X509 Version 3 identification and authentication, Electronic Data Interchange (EDI) and Secure Electronic Transactions (SET) payment protocols, and distribution of Java** applets and CORBA (Common Object Request Broker Architecture) object request brokers (ORBs). Adherence to industry standards ensures that CommercePOINT will be compatible with a wide range of applications and users, now and in the future.

A complete solution to electronic commerce

CommercePOINT is IBM's first electronic Commerce family of products and services designed to provide

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end-to-end electronic commerce transactions on the World Wide Web. CommercePOINT addresses three areas of electronic commerce: business-to-business, business-to-consumer, and secure electronic commerce infrastructures.

The business-to-business components of CommercePOINT are: IBM World Distributor*, which provides a low-cost, low-risk commerce service designed to help small- and medium-sized businesses sell their products over the Internet, and IBM World Purchasing*, which provides large enterprises with real-time, transactional connections to suppliers and buyers of nonproduction products and services and to other essential business partners through a Web browser or Lotus Notes**.

The focal point of the business-to-consumer offerings of CommercePOINT is Net.Commerce*. Net.Commerce provides the tools to build a virtual storefront or an electronic mall on the Internet, allowing customers to browse items from interactive, dynamically created product catalogs. Catalog owners gain two important advantages with this electronic catalog: they can change the catalog offerings quickly and frequently from a remote site, and they can use the built-in customer tracking software of CommercePOINT to reveal and act upon individual consumer preferences and buying patterns. The same functionality found in Net.Commerce is also available in two distinct services from IBM: World Avenue* and World Commerce*.

The final component of CommercePOINT, secure Internet infrastructures, allows businesses to implement a secure system for financial and informational transactions over the Internet (and intranets) through digital certificates and secure payment protocols. To create digital certificates, businesses can opt to use an IBM-hosted service, IBM World Registry*, or implement the tools themselves as a stand-alone product, IBM Net.Registry*. IBM Net.Commerce Payment* is based on the SET protocol, which is the industry's standard for Internet-based financial transactions. Net.Commerce Payment is a product that provides complete security for credit or debit card transactions from consumer to merchant to bank, or from purchase to payment to reconciliation.

Business-to-business solutions of CommercePOINT

CommercePOINT has been designed to meet the needs of business-to-business commerce at both ends

of the supply chain—seller and buyer—with two services that create open distribution channels over the Internet: World Distributor and World Purchasing. Displacing the private networks and proprietary mechanisms found in many existing business-to-business electronic commerce structures, CommercePOINT provides the same level of security as those private channels while opening up the communication channel to new partners through open standards and an Internetwide audience.

World Distributor is a network-based service provided by IBM that enables small and medium enterprises to sell their products and services easily and securely to other businesses through an electronic storefront located at the IBM World Distributor Web site. World Distributor combines the fundamental features of the electronic catalogs of CommercePOINT—secure SET-based transactions, custom-designed catalogs with real-time pricing and product updates, individual customer tracking—with support for standard industry procedures such as creating account codes, purchase orders, payments, and reconciliation.

World Distributor includes a host of features specifically designed to enhance existing markets, reduce sales costs, and improve order processing time. For example, this service includes proven Internet security technology designed to ensure safe transaction processing; periodic reports on usage and customer browsing patterns, transaction volume, and revenues generated from their electronic catalog site; and support for three levels of electronic approval.

Designed for large enterprises, World Purchasing is an IBM service that electronically links large buyers and suppliers of nonproduction products and services through an on-line catalog and ordering system. World Purchasing allows buyers with a Lotus Notes Release 4 or Web browser interface to browse catalogs and order products and services over the Internet. The net result of World Purchasing is a reduction of prices and a reduction in procurement cost for buyers, along with reduced costs for merchandise and sales and enhanced market access for buyers, plus the added advantage of building more meaningful relationships with buyers by capturing detailed, enterprisewide purchasing data.

World Purchasing also simplifies pre- and post-order management and reduces ordering errors, and it can be tailored to specific purchasing processes with various automated features, including electronic

requests for approval when required. World Purchasing allows businesses to create their own customized catalogs, while IBM is responsible for hosting the service, providing catalog maintenance and customization where required, and facilitating transactions between buyers and suppliers.

Business-to-consumer solutions of CommercePOINT

The business-to-consumer solutions of CommercePOINT are available in three different implementations based on the level of involvement that a business seeks:

- World Avenue is where IBM handles all the details of building a merchant's store within IBM's on-line mall on the World Wide Web.
- IBM World Commerce, a private label version of World Avenue, is designed for merchants who want to put high-function storefronts on their own, branded Internet site, but need IBM's help to do it.
- IBM Net.Commerce, for merchants who have the skills to assume the implementation on their own, is a complete set of the underlying products found in IBM's service-based offerings.

Regardless of which path the merchant elects to take, all three versions of the business-to-consumer offerings of CommercePOINT provide broad functionality and autonomy with regard to catalog content.

Merchants who want the freedom to design their own on-line store via electronic catalog, but do not want to manage the hardware, software, and staff necessary to manage it, would look to World Avenue. World Avenue is an on-line service provided by IBM that enables merchants to quickly reach millions of potential customers through IBM's World Avenue cybermall site (found on the Internet at <http://shop.ibm.com>).

Merchants have full flexibility in creating the content and "feel" of their store through easy-to-use tools, an important feature as it allows merchants to preserve their own identity within the context of the cybermall. Most important, World Avenue provides merchants with a quick and seamless entry into the electronic marketplace for a monthly fee, with no additional hardware or software resources and very low start-up costs.

Once the catalog goes "live" on the World Avenue mall, merchants will have access to sophisticated search and navigation tools, advanced security features, intelligent agents, and data mining tools. Intelligent agents, "personal assistants," and shoppers' profiles will be based on shoppers' past purchases and other key information, such as demographics and shopping preferences that they have provided for a particular purchase. These robust data mining features analyze market and purchasing trends from catalog traffic, enabling merchants to make live changes to pricing and selection based on customer response.

The technology of CommercePOINT, in every business-to-consumer offering, is also designed to improve the shopping experience for the consumer. Each is open for business 24 hours a day and delivers full-color photos, descriptive product information, and (depending on available bandwidth) animation sequences with the click of a button. Shoppers not only enjoy the benefit of having a "virtual" sales assistant by their side to show them what they are looking for, but this same "assistant" may also suggest a gift idea that the shopper would not have thought of.

Finally, the purchasing process is also consumer-friendly: items are placed in an on-line shopping basket and appear together when the shopper is ready to "check out." With use of an accepted credit card or bank card, card information is kept confidential from the merchant (who receives confirmation of the transaction from the bank or credit card company directly), and orders can be confirmed and prepared for shipping in moments.

If a business wants the autonomy of having an independent Internet site, but is not yet prepared for the costs and resources needed to do this alone, IBM World Commerce is the right mixture of IBM services. World Commerce is a turnkey solution backed by the same features found in each business-to-consumer CommercePOINT offering, such as dynamic catalogs, SET-based payments, and intensive data mining capacity.

IBM Net.Commerce is the underlying technology behind both of IBM's service-based business-to-consumer offerings. Designed for merchants who are looking for stand-alone products with which to build their own electronic storefront or virtual mall on the Internet, Net.Commerce consists of three components:

- Net.Commerce Merchant Server* manages the interface to customers and creates the dynamic catalog pages.
- Net.Commerce Store Manager* creates the interactive product catalog and item templates, while also tracking marketing statistics.
- Net.Commerce Secure Payments* provides a three-way, secure system for credit card authorization based on industry-standard protocols.

Net.Commerce provides merchants with the tools they need to maintain their own electronic commerce site; create dynamic, interactive catalog pages; track customer buying patterns; sell products; and complete financial transactions over the Internet. Included in the Net.Commerce package are templates for order entry, search, and shopping basket functions; IBM's DB2* (DATABASE 2*) relational database for transaction processing; instant Web page update tools; full SET implementation; support for the AVP TAXWARE system used to calculate U.S. and Canadian tax rates—in short, a complete set of the same tools behind both of IBM's business-to-consumer CommercePOINT service offerings.

Secure infrastructure solutions of CommercePOINT

At the core of every CommercePOINT transaction is an infrastructure built for secure electronic commerce. Businesses can establish the foundation for secure electronic commerce using World Registry or Net.Registry and Net.Commerce Payment. Each CommercePOINT service or application also includes the industry's leading implementation of SET-based payment and certification.

VISA, MasterCard, and companies that include IBM developed the SET protocol in order to create an open, vendor-neutral, and license-free standard for secure electronic transactions. SET technology is the basis for the private, secure exchange of credit card and order information between businesses, customers, and their representative financial institutions. It also allows businesses to authenticate individuals and organizations through the creation of digital certificates.

IBM World Registry is a service that provides companies with everything they need to design and create their own digital certificates, which can be thought of as digital IDs, and implement secure public key infrastructure (PKI) technologies into their businesses. Using a secure World Registry site hosted

by IBM, businesses can issue, revoke, publish, and validate digital certificates from a remote location. With the global presence of World Registry, customers are able to register through their employer or organization once, and that registration can then be trusted all over the world.

IBM Net.Registry is the same digital certificate solution found in World Registry, available as a single, packaged product. Net.Registry provides a non-Web infrastructure for public key applications, including a system of certificate authority, local registration authorities, and repositories that manage certificate issuance, verification, registration, encryption, digital signatures, and standard identities. It also provides the structure for secure authentication of the buyer, merchant, and bank over unsecured public data networks (Internet and intranet). The digital certificate technology of Net.Registry can also be used to create electronically signed proposals and bids, as well as electronic versions of more traditional certification vehicles such as diplomas and licenses. Digital certification of cardholders, merchants, banks, and others by certificate authorities enables a user to verify that a merchant is bona fide.

IBM Net.Commerce Payment is a group of applications based on the Secure Electronic Transactions (SET) standard that offers credit card protection for merchants and buyers using the Internet. It offers PIN (personal identification number) protection for access to credit cards and certificates, and maintains purchase records for personal account management. Net.Commerce Payment is the first solution in the industry designed to ensure secure credit card transactions at three levels: the consumer, the merchant, and the bank. Net.Commerce Payment includes three separate components:

- IBM Net.Commerce Payment Manager*, a C++ tool that allows software developers to make their transaction applications SET-compliant at all three interface levels: consumer, merchant, and bank
- IBM Net.Commerce Payment Consumer*, a browser plug-in for consumers that features an easy-to-use, wallet-like interface
- IBM Net.Commerce Payment Acquirer*, a gateway that accepts SET transactions from the merchant server and routes them to the credit card processing system of the bank

CommercePOINT technology has already been implemented by more than 80 customers, from wholesalers and retailers to government organiza-

tions. As the electronic market grows, new features will be added to CommercePOINT to expand its functionality and set it apart from the competitive products that will inevitably arrive on the scene from other technology providers. Currently, new features for CommercePOINT are already under construction in the areas of personal agents, digital certificates, digital wallets for storing digital ID cards, data mining capabilities, and Java applets. To keep abreast of the latest CommercePOINT news, readers are invited to visit the CommercePOINT Web site at <http://www.internet.ibm.com/CommercePoint>.

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