IBM

"la Caixa" proves IBM Payment Suite is money in the bank.

Application	Online shopping mall, online box office
Business Benefits	Proof of concept for large-scale trusted e-commerce; significant reduction in cost of providing ticketing service
Software	IBM® Payment Suite™ IBM Payment Gateway™ IBM Payment Server™ IBM Consumer Wallet™ IBM DB2® Universal Database™ on AIX® IBM Net.Commerce IBM Net.Data® IBM HTTP Server IBM eNetwork™ Firewall IBM VisualAge® for Smalltalk
Hardware	IBM RS/6000® IBM S/390®
Services	IBM Global Services

Merchants seeking to tap into the anytime, anywhere Internet market aren't the only ones with a vested interest in the expansion of electronic commerce. Every time an online cash register rings, some bank, credit card company or other financial service provider will likely earn a fee for mediating or authorizing the transaction.

Two years ago, the enormous potential of this business was already clear to "la Caixa", a major savings bank based in Catalunya, Spain with assets of 66,000 million euros (U.S.$75 billion) and a network of more than 4,000 offices. One of the major sources of revenue for

"la Caixa" is the mediation of credit card transactions for retailers. It has leased 75,000 point-of-sale (POS) terminals to merchants, who generate more than 50 million transactions per year.

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– Juan Sole, Internet Projects Manager, "la Caixa"

IBM Payment Suite has made online shopping more secure for "la Caixa" customers.

It's about business, not just technology.

"la Caixa" counts on e-commerce to power its online shopping mall and electronic box office.

However, while "la Caixa" has much to gain as an intermediary for online transactions, retailing on the Internet is still a nascent concept in Spain. That's why "la Caixa" has embarked on an aggressive program to promote electronic commerce. Juan Sole, Internet projects manager at "la Caixa", explains, "To convince the market to adopt e-commerce, we must demonstrate that it's a viable solution, and moreover, that it's possible to establish a highly trusted, convenient payment system through the Internet. Nationwide acceptance of e-commerce may take two to four years, but once it takes hold, this could be a significant part of the multimillion dollar market for us."

"la Caixa's" proof of concept has materialized in the form of an online shopping mall. With the help of IBM Global Services, "la Caixa" has created the online mall using IBM Net.Commerce and IBM Net.Data, with IBM DB2 Universal Database serving as the data repository. Providing a security-rich payment mechanism for online transactions is a virtual POS terminal, based on IBM Payment Suite applications — IBM Consumer Wallet, IBM Payment Gateway and IBM Payment Server (now part of IBM WebSphere™ Payment Manager) all of which make use of the SET Secure Electronic Transaction™ protocol. SET™ is an encryption technology that helps protect the transfer of payment information over open networks, such as the Internet.

"IBM has provided us a complete, security-rich e-business solution," Sole claims. "It's a well-integrated set of products that also interoperates with the rest of our architecture and with external systems."

SET and IBM Payment Suite are also playing an important role in another application at the bank: the ServiCaixa ticketing service, an electronic box office that sells tickets for most major events across Spain. Previously delivered through the bank's ATM machines and call center, the box office is now open on the bank's Web site. Says Sole, "This e-business solution has greatly expanded the geographical reach of the ticketing service and significantly lowered the cost of delivering it."

Virtual POS ensures online shopping security

The shopping mall features five shops that showcase all the functions expected in an electronic commerce environment: searchable online catalogs and shopping baskets, as well as payment, order tracking and customer service. Most of the storefronts were created using Net.Commerce, with some of the functions of the mall developed in IBM VisualAge for Smalltalk.

The mall resides on a pair of IBM RS/6000 F40 servers, with IBM HTTP Server linking the mall to the Internet. IBM eNetwork Firewall, running on another pair of RS/6000 servers, protects the data on the bank's network from unauthorized access through the mall.

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To shop at the "la Caixa" online mall, customers need credit cards bearing digital signatures or SET certificates. The credit card for "la Caixa", for example, supports digital signatures — essentially personal identification numbers (PINs) assigned by the bank — which cardholders use to gain authorization for online purchases. In addition, customers can request SET certificates that can be used not only at the "la Caixa" online mall, but also at any store worldwide that accepts SET payments.

Before their first online SET payment at the "la Caixa" online mall, customers also need to download a copy of IBM Consumer Wallet, available at no charge on the "la Caixa" Web site. IBM Consumer Wallet is a Web browser helper application that provides the interface to the payment mechanism in the merchant's online store. It prompts the customer for a PIN and password before authorizing the transaction.

When a customer submits a purchase request, the encrypted credit card information is routed to the "la Caixa" virtual POS. The virtual POS comprises IBM Payment Server and IBM Payment Gateway, running on a third pair of RS/6000 servers, which reside behind the firewall at "la Caixa". IBM Payment Server authenticates the identification offered by IBM Consumer Wallet, submits the card information to the card issuer's bank for approval and relays a receipt back to the merchant server if the transaction is approved. IBM Payment Gateway handles digital certificate management, routing, decryption and encryption. It also supports and manages SET processes and messages.

Even merchants not affiliated with the "la Caixa" online mall can take advantage of its virtual POS to simplify the payment part of their e-businesses. They simply connect their merchant servers to the virtual POS through a secure Internet link, and "la Caixa" manages the transactions for them as it would for stores in the mall. "We generate significant revenue by offering physical POS terminals to retailers and managing their transactions, and we hope to do the same with the virtual POS," Sole notes.

Web-enabled box office reaches farther for less

Unlike the online shopping mall project, the effort to Web-enable the "la Caixa" electronic box office had definite bottom-line objectives. After maintaining the box office for more than three years at 2,000 "la Caixa" ATM machines, the bank looked to the Internet as a means of reducing the costs of delivering the service and increasing its reach.

"We like to work with IBM because IBM understands our business and our need for well-integrated applications."

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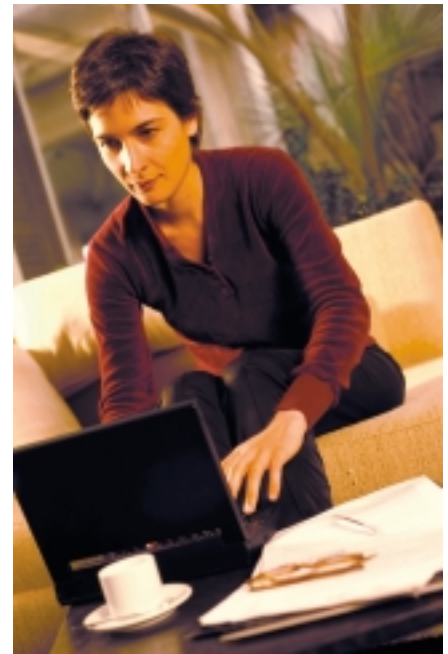
The credit cards of "la Caixa" support SET and digital signatures, which cardholders use to gain authorization for online purchases.

"We earn a very low percentage on every ticket sale, so we want to keep our costs as low as possible," Sole explains. "ATM machines are expensive to maintain. We pay rent, taxes, electricity and communication costs on every machine, and they are available only in certain locations. The Internet can reach customers anywhere, and we don't incur any of those costs. Of course, we still need the ATMs for banking services that can't be provided over the Web yet, such as dispensing cash and accepting checks. But for the ticketing application, it doesn't make sense."

The ticketing application runs on an IBM S/390 server at "la Caixa", which connects to the ticketing databases at all the offices managing the events. Data exchange between the "la Caixa" application and those at the ticket offices is currently facilitated through a file transfer program, but the company is now looking to IBM MQSeries® to manage this.

IBM Global Services created the Web interface for the application on the bank's RS/6000 application servers. They used Net.Data scripts to present content from the application's DB2 databases on HTML pages. The box office pages are published on the "la Caixa" Web site by the merchant server software component of IBM Payment Suite. "The beauty of this solution is that we retained our core application," Sole emphasizes. "So, with a minimal investment, we were able to extend our application from two thousand terminals to several hundred thousand—the Web browsers located in people's homes."

Expanding e-business

As "la Caixa" refines its e-business infrastructure and attracts more online business, it plans to make use of additional IBM solutions based on Java™—such as IBM WebSphere Studio and IBM WebSphere Performance Pack—to create and manage high-performance, functionally rich Web applications. Sole also notes that the bank will migrate to VisualAge for Java for its object-oriented programming needs, replacing the Smalltalk version it has been using for the past two years.

IBM Global Services will continue to play a key role in the bank's e-business initiatives, which include an intranet to improve workflow between the bank's branches, as well as an online mortgage notarization application. "We like to work with IBM because IBM understands our business and our need for well-integrated applications," Sole concludes. "And IBM is one of the few companies that is able to provide a complete solution that meets our service level requirements and user expectations."

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