

Pay By Touch: Revolutionizing retail through biometrics

Overview

■ **Business Challenge**

Pay By Touch had put together two existing capabilities—biometric recognition and electronic financial transactions—to create a groundbreaking new retail payment service. The company needed a highly scalable, secure and easy-to-integrate platform to support its rapidly growing operations.

■ **Solution**

Pay By Touch implemented a service-oriented architecture that helps the company integrate the diverse systems of companies that it acquires while remaining highly scalable to accommodate strong customer growth. The company is also collaborating with IBM to build Pay By Touch capabilities into IBM's leading point-of-sale software solution, making it easier for stores to take advantage of the service.

■ **Key Benefits**

- *25 percent reduction in the cost of integrating acquired companies*
- *30 percent increase in the productivity of IT staff*
- *15 percent reduction in total cost of ownership*



Good ideas, combined to make a great one

Most of history's greatest inventions are really the result of combining existing ideas in a new way. The result is often a deceptively simple concept that is far greater than the sum of its parts. The best of these dramatically change our daily lives in unexpected ways.

Pay By Touch, a San Francisco-based service provider, is a company that has done exactly that: taken two existing technologies and combined them to create a new service that has the potential to fundamentally change the way consumers think about paying for goods and services.

“The retail use is the initial foray, but think about it...once this technology gets to a certain penetration point, consumers will want to see it being used everywhere, and the technology lends itself to all sorts of different environments.”

— Ryan Ross, vice president of business development, Pay By Touch

Business Benefits

- 25 percent reduction cost of integrating acquired companies
- 30 percent increase in the productivity of IT staff
- 15 percent reduction in total cost of ownership
- Provides secure, positive identification of shoppers, based on their fingerprints
- Eliminates the possibility of credit/debit card fraud due to theft
- SOA platform enables rapid scalability and ease of integration to accommodate strong growth
- Flexible technology is applicable to many applications outside of the retail environment
- Integration of Pay By Touch capability into IBM SurePOS™ ACE simplifies enablement of the service for retailers
- Ties both financial accounts and loyalty reward program access to a single identifying transaction

“IBM is very much a partner for everything that we’ve got. It’s the technology that enables our business strategy.”

– Ryan Ross

“Pay By Touch offers several different services, all designed to help retailers and shoppers improve their lives and reduce identity theft,” says John Morris, president and COO of Pay By Touch. The key service is a biometric authentication service that lets shoppers pay with a swipe of their finger. “Innovation is at our core. Nobody’s done anything like this to begin with. But then we continue to innovate on top of it.”

A retail payment system that provides total security

Most existing non-cash retail payment methods involve a combination of two things: a credit or debit card and something only that person knows—either a personal identification number (PIN) or a signature. In theory, this makes credit or debit cards resistant to fraud or theft.

But the real-world security of this scheme leaves much to be desired. Most merchants never bother to check the customer’s signature against the card, and PINs can be stolen. Recently, devices using embedded radio frequency chips have been used to make payments, usually in the form of a keyfob that is waved at a sensor at the point of purchase: these offer no front-line security measures at all, and are as good as cash...any control of fraud has to come from the account being shut down after the fact.

The Pay By Touch capability eliminates these weak links entirely by tying payment information to the person making the purchase in such a way that cannot be stolen, copied or forged—through biometrics, in this case reading a fingerprint. “Being able to truly identify the person associated with a financial transaction is the capability that really resonated with us,” says Ryan Ross, vice president of business development at Pay By Touch. “It’s got all sorts of benefits associated with it.”

“For customers, it offers ease and security that just doesn’t exist elsewhere—they don’t have to carry cash or even a card that could be stolen. Literally, they can walk into a store empty-handed and make a purchase. And they only have to sign up once to use service anywhere Pay By Touch is accepted. For merchants, it gives them the protection of knowing that the person is truly who they claim to be. And for banks, it adds yet another layer of protection against identity theft.”

Rapid growth and high security demands a robust platform

Since the company was founded in 2002 it has grown rapidly and has earned the trust of over 3.5 million customers. Pay By Touch is also in use at nearly 10,000 retail lanes; some 2,400 retailers make use of the service. “Four years ago we were only six people,” Ross notes. “Now we’re almost 800.”

This strong growth has been aided by the deployment of a robust integration architecture based on IBM technology; Pay By Touch has acquired several smaller companies, and needed to integrate their IT assets and business processes with its existing infrastructure. “Our existing integration framework lacked some key capabilities, such as end-to-end business process management functionality, that we were going to need to fully leverage our new IT assets,” Ross states.

Pay By Touch turned to IBM and IBM Business Partner Silicon Valley Systech for help. It was recognized early on that a service-oriented architecture (SOA) approach to its IT architecture would give Pay By Touch the ability to integrate IT assets and capabilities while remaining rapidly scalable as well as secure. The company implemented a platform built on IBM WebSphere and IBM Tivoli software for process choreography, integration and high availability. “IBM is very much a partner for everything that we’ve got,” says Ross. “It’s the technology that enables our business strategy.” The adoption of WebSphere and SOA has resulted in a 30 percent increase in IT staff productivity at Pay By Touch, and there has been a 25 percent reduction in the cost of integration.

Working with IBM for the future

“We chose IBM for a number of reasons,” Ross says. “In particular, IBM has an excellent track record in terms of being able to deliver end-to-end, highly reliable and secure solutions. We also wanted our SOA platform to be able to grow with us, and we liked the idea that we’d be able to migrate from an IBM eServer xSeries/Linux hardware platform up to a mainframe while being able to leverage our SOA work. We’re going to an IBM System z™ mainframe in the near future because of our mission-critical requirements—primarily security and uptime.” Total cost of ownership (TCO) was also cited as an advantage of IBM technology. The company reports a 15 percent reduction in TCO over three years.

Key Components

Hardware

- IBM eServer™ xSeries®

Software

- IBM WebSphere® Process Server
- IBM WebSphere Enterprise Service Bus
- IBM WebSphere Application Server Network Deployment
- IBM Tivoli® Monitoring
- IBM SurePOS ACE
- Linux®

Business Partner

- Silicon Valley Systech

Why it matters

Pay By Touch integrated two existing capabilities—biometric recognition and electronic financial transactions—to create a new retail payment service that allows consumers to pay with the swipe of their finger. This first-of-a-kind innovation sets a new standard for ease-of-use while maintaining a highly secure process. Teaming with IBM and IBM Business Partner Silicon Valley Systech, Pay By Touch is poised not only for rapid growth in the retail space, but for revolutionizing the way back-end information is integrated with biometrics.

IBM is also a key technology collaborator for the future. "We've worked with IBM to make Pay By Touch capability a built-in option in the SurePOS ACE point-of-sale product starting with version 4.0," Ross says. "This makes it simple for retailers to make use of our service. After purchasing the finger sensor hardware, all they need to do is set the connection to the server and plug the reader into the PIN pad device. The software support is already built into the system, so there's no integration work needed at all."

Generalization is the powerful idea

Individual devices such as laptop computers, vending machines and other secure-access mechanisms have had finger sensors for some time. But these are single-purpose, single-point applications. The Pay By Touch innovation is to link existing biometric technology to information systems, thereby generalizing it. Any retailer that has enabled the service has the ability to accept payments from any customer subscriber.

It's this generalization that results in the power, and great potential, of the idea. The obvious use is to link a bank account to a merchant's point-of-sale (POS) systems, and that's what the basic Pay By Touch service offers. But there's no reason the technology has to be limited to this specific application.

For example, in recent years loyalty programs have become very popular with retail chains such as supermarkets and other retailers: a customer is given a card that gets scanned at the register and is rewarded with discounts. The retailer is able to gain valuable purchase pattern and inventory data in the process. This has, of course, resulted in an annoying proliferation of wallet-sized cards and keychain tags. The Pay By Touch technology bypasses this: it can easily link a customer's fingerprint to both financial accounts and multiple stores' loyalty programs at the same time, eliminating the need to carry anything at all into the store.

The technology can go still farther. A doctor's office could install the system and access a patient's insurance and ID information with the simple touch of a finger, avoiding the need to fill out the same form every time the patient visits the doctor. "These additional uses are the real future, and where we see the company going," says Ross. "The retail use is the initial foray, but think about it...once this technology gets to a certain penetration point, consumers will want to see it being used everywhere, and the technology lends itself to all sorts of different environments. Anything you can think of where you need to identify yourself is a potential application. It's all about the back-end linkage to information; the biometrics part is just the key that unlocks the door."

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