

A First Data Case Study

Mobile Commerce Goes Live

First Data NFC Trial Demonstrates the Power of Mobile Commerce as BART Riders Use Their Phones to Pay for Fares and Food

A New Day for Selected Bay-Area Consumers

With the help of First Data and its partners, riders of the San Francisco Bay Area Rapid Transit (BART) system recently discovered the exciting, new world of mobile commerce.

As participants in an innovative trial, selected BART riders were provided mobile phones to use during the trial, which allowed them to effortlessly pay for BART fares and to purchase meals at local Jack in the Box® restaurants. In addition, using their mobile phones they were able to view and manage the balances in their food and transit accounts.

During this groundbreaking mobile commerce trial, participants paid for train rides simply by tapping their specially equipped Sprint® mobile phones to contactless readers built into turnstiles in BART stations.



These lucky commuters could also tap their phones on “smart advertisement” posters displayed in BART stations and receive directions to nearby Jack in the Box restaurants. Once in the restaurant, the phones acted as JackCa\$h® prepaid accounts, enabling trial participants to pay for their meals by tapping the phones on contactless readers at the checkout.

By integrating mobile payments, mobile account management and mobile marketing into one device, this pioneering trial proved the viability of mobile commerce and demonstrated that the technology and infrastructure necessary to support mobile commerce exists today.

NFC Technology Put to the Test

This trial represented an advanced demonstration of Near-Field Communications (NFC)—a short-range, high-frequency wireless communication technology that enables the exchange of data between devices. When in close proximity (typically 1 to 2 inches), NFC-equipped devices—like the phones used in this trial—can communicate with anything containing an NFC chip, whether that’s a contactless reader, a product label or a smart advertisement.

Many points of sale are already equipped with NFC contactless readers, particularly in the quick-service restaurant (QSR) and transit industries. One reason San Francisco’s BART system was such a great place for this mobile commerce trial was that all BART turnstiles are already equipped with contactless readers.

However, this trial went even further than transit fare payment in demonstrating the value and potential of mobile commerce. It showed that NFC-equipped mobile

phones can serve as a powerful platform for multiple applications, including integrated mobile account management, mobile payments and mobile marketing. In this trial:

- Mobile account management enabled trial participants to check and reload their transit fare and JackCa\$h accounts
- Mobile payments enabled participants to make transit and food purchases with their mobile phones
- Mobile marketing provided an innovative mechanism for product promotion to participants through smart advertisements and direct text messages

"We're very excited that our trial was successful," says James Fang, BART's longest-serving board member. "NFC devices are all the rage in Asia, and—if all goes well—millions of Americans will have access to NFC-enabled phones. The NFC-enabled phone simplifies their lives, because they never need to dig for a BART ticket again. They can bypass that fumbling for change at the ticket machine and instead go directly through the fare gates, knowing they will always have the correct fare in their phones."

Proof of Concept: The Technology Works

Many mobile commerce trials around the world have shown that mobile phones equipped with NFC chips and account management software offer a convenient and secure way of making payments. What was unusual about the First Data NFC trial was that the phones were equipped with a single NFC chip that could initiate payments through *multiple* accounts. The phones used in this trial included accounts both for fare purchases and food purchases—a key aspect of the program, since many in the industry believe that an essential prerequisite for widespread consumer adoption of mobile commerce is the payment flexibility that multiple accounts in the phone provide.

Perhaps the most intriguing feature of the First Data NFC trial was the employment of mobile commerce-enabled phones as a medium for marketing. Through text messages and smart advertisements, BART riders were encouraged to use the phones to automatically reload their transit accounts and also to purchase meals at nearby Jack in the Box restaurants. Clearly, one of the most important future drivers of mobile commerce is the ability for merchants to make personalized offers to consumers on the go.

"The success of this trial truly demonstrates the future of mobile commerce—the ability to see account balances, make payments and participate in marketing programs from an NFC-enabled phone," says Barry McCarthy, General Manager of First Data's Mobile Commerce and Point of Sale division. "For the first time in the nation, multiple payment accounts coexisted on the same mobile phone. Mobility will play a big role in the future of commerce."

First Data, a thought leader and champion of mobile payments, views mobile commerce as being at the cusp of explosive growth—much the way the Internet was poised for commerce in the mid 1990s.

The Consumer Response

As the transit and merchant-usage scenarios suggest, the trial helped lay the technical and strategic foundations for an era of mobile commerce solutions that empower consumers with new payment options.

For the transit portion of the trial, BART riders registered for a stored value of \$48 that was loaded into a prepaid account on their phones. By tapping the mobile phones on top of the turnstiles, trial participants' payments were automatically registered and debited from their BART fare accounts. Data from the trial shows that participants took nearly 9,000 trips using the phones—an average of 50 trips per individual over the four-month trial. In addition, participants reloaded their BART accounts more than 800 times using the over-the-air feature in the phone, which equates to an average of five BART fare reloads per trial participant.

Evidence from the trial suggests that BART riders were highly satisfied with their phones. Furthermore, 80 percent of participants indicated that the mobile wallet application was easy to use.

The merchant-account component of the trial highlights other transactional and marketing-oriented implications of mobile commerce. The objective was to test the potential of promoting Jack in the Box meal purchases using smart advertisement posters located in BART terminals, as well as to provide a convenient, new payment choice to customers.

Participants could tap special NFC-equipped smart advertisements, and when they did, directions to the nearest Jack in the Box restaurant would appear on their mobile phones. At the restaurant, participants paid for their meals by touching their phones to the contactless reader at the checkout. The cost of the meal was deducted from their Jack in the Box JackCa\$h stored-value account. Although “transaction time” was not measured in the NFC trial, other industry data has shown that a typical contactless mobile commerce transaction takes one half to one quarter of the time that it takes to make typical cash or card payments at a checkout counter.

The Power of Partnership: Behind the Scenes

A key to the trial’s success was the involvement of multiple partners. Nearly a dozen companies worked with First Data to make the trial a success. One thing all the participants discovered was that it took a lot of work up front to ensure successful execution. Not only did a great deal of work go into project design and organization, but First Data’s partners in the trial also needed to actively cooperate to develop a viable infrastructure. Here are some of the companies that participated in the trial (and the ones that will be important partners in wide-scale rollouts of mobile commerce applications):

- **Transit authorities:** BART worked with its own network of solutions providers, and both Acumen Transit and Cubic Transportation Systems were involved in setting up the BART turnstiles and data collection systems
- **Telecommunications firms:** Sprint provided the NFC-equipped mobile phones for the trial. Carriers have an important role to play in mobile commerce, since all account information and text-based

marketing must pass over the carrier network. This offers carriers a big opportunity to generate new revenue streams associated with mobile commerce

- **Technology firms:** New infrastructure depends on new and advanced technology. In this case, ViVOtech developed NFC software for the mobile phones, NXP Semiconductors provided the NFC chips for the mobile phones, and Samsung Mobile provided the NFC-enabled trial mobile phones
- **Merchants and retailers:** As with Jack in the Box, which agreed to leverage its existing prepaid program for this trial, merchants have an opportunity to benefit from faster and easier payments, target marketing to their best customers, and alternative payment methods that lower their transaction costs by increasing the use of prepaid accounts in their transaction mix
- **Transaction processing:** As a trusted infrastructure provider connecting merchants, card issuers and consumers, First Data demonstrated the importance of secure and reliable transaction processing in making mobile commerce a reality
- **Financial institutions:** Credit card companies, banks and other financial services providers have opportunities to extend their reach and value by supporting mobile consumers; Western Union Payment Services, for instance, enabled participants to register their payment information, facilitating funding of the stored value reload directly over the mobile network
- **Consulting firms:** As the party developing the business case analysis and providing project management support, Booz Allen Hamilton played the key role of strategy and technology consultant, moving these initiatives forward

The challenges associated with such initiatives are complex and require the specialized expertise of various types of companies. This trial suggests that partnerships between mobile commerce stakeholders will continue to be necessary to roll out full-scale solutions. It also shows that everyone involved in the mobile commerce infrastructure stands to gain from the successful deployment of integrated mobile account management, payments and marketing.

NFC Trial Shows a Way to the Future

More important than anything else, the NFC trial demonstrated that a single mobile phone can support multiple payment accounts. This functionality is vitally important if consumers are going to accept mobile phones as a preferred method of payment.

The trial also showed the importance of cooperation and partnership between service providers to make it happen. This suggests that industry players will need to work on the business relationships that will make it worth each others' while to support this potentially enormous channel for consumer spending and marketing.

Finally, the NFC trial showed that many consumers are excited to embrace commerce-enabled mobile phones. With the success of the trial, it is becoming increasingly easy to envision a day when people will leave their wallets behind and step into the world armed only with their commerce-enabled mobile phones.

A Global Leader in Electronic Commerce

First Data powers the global economy by making it easy, fast and secure for people and businesses around the world to buy goods and services using virtually any form of payment. Serving millions of merchant locations and thousands of card issuers, we have the expertise and insight to help you accelerate your business. Put our intelligence to work for you.

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