



Secure Mobile Point of Sale Payments

Presented by the CUPay Team

The Opportunity

Checks, travelers checks, credit cards, debit cards, gift cards... The concept of cash substitutes is certainly not new, but the pace of development and acceptance of new payment systems has increased exponentially. Consider VisaBucks, PayPal, Disney Dollars, decoupled debit cards, Amazon Payments, Ginko Financial, WoW Gold, Gpay, and AceBucks. We are quickly approaching a revolution in the way we pay for things.

As a society, our trust in paper currency has been replaced with a willingness to put our trust in different stores of value. As that willingness has increased, so has the ire of retailers who believe they are paying too much in interchange fees to the traditional credit card

If there were ever a time for credit unions to rally around and deliver a completely new value proposition to our members, the payments arena promises to be that opportunity.

network systems such as Visa and MasterCard. In fact, the retail lobby has been so effective to this end that legislation to regulate and cap interchange fees, among other changes to the credit system, is currently under consideration. Not only are retailers lobbying for change, but many companies are investing significant research resources into developing their own solution that would bypass Visa and MasterCard in the payment exchange process altogether.

Couple that movement with serious concerns about the security of the credit and debit systems. Identity theft and plastics fraud are rampant, costing both consumers and financial

institutions millions of dollars each year.

The combination of a legacy payment system controlled by only a few players and security which is compromised on a daily basis is a time bomb waiting to explode. And, while credit unions earn significant income from credit and debit interchange, what better opportunity to be on the forefront of change than to help develop and control the next major step in payment alternatives? If there were ever a time for credit unions to rally around and deliver a completely new value proposition to our members, the payments arena promises to be that opportunity.

Imagine going to the register to purchase something at a retailer. Instead of pulling out your wallet, you grab your smartphone (Blackberry or similar device), within an application on your phone you enter the retailer ID number posted above the register and the amount of your purchase, and instantly a barcode is displayed on your phone, which is then scanned by the retailer to complete your purchase. Amazingly, your personal information would never be shared with the retailer, and there is no credit or debit card number to be compromised.

The wow factor of such a transaction is evident. However, what is even more compelling is the economic value that can be built between retailers, consumers, and credit unions in this transaction. Retailers seek lower transaction costs. Consumers seek security, convenience and more rewards. And credit unions seek meaningful financial relationships with both businesses and consumers. CUPay proposes a new payment model designed to drive membership and ultimately replace the current credit card model.

Struggling with the revolutionary aspect of this type of payment model?

Consider the fact that cell phone carriers are looking to acquire bank charters and are already processing direct payments for things such as ring tones, completely eliminating the need to pay with a credit union credit or debit card.

New solutions are being developed and implemented every day by non-financial companies. Consider how decoupled debit cards (cards in which the credit union account is not tied to the card issuer and payments are processed via ACH) threaten every credit union's interchange income. If we don't act now, we risk being cut out of the payment equation altogether.

Seventy-five percent of consumers surveyed say they would consider using mobile banking services if offered. That's a dramatic increase from the 49% who said so in March 2006, says a new study commissioned by Fiserv Inc. Additionally, Tower Group estimated that more than 40 million U.S. consumers will adopt mobile banking by 2012. Growth in the usage of mobile devices for financial purposes is coming at lightning speed, whether we're ready or not.

Think about how quickly the alternative modes of payment currently available have come into existence. A year ago, AceBucks didn't exist. Now millions of individuals are comfortable storing their money there. This is but one example of how rapidly the payments world is changing. The money people are already depositing in cash substitutes, and even in virtual worlds, has to come from somewhere. Is it already moving out of our credit unions?

The Solution

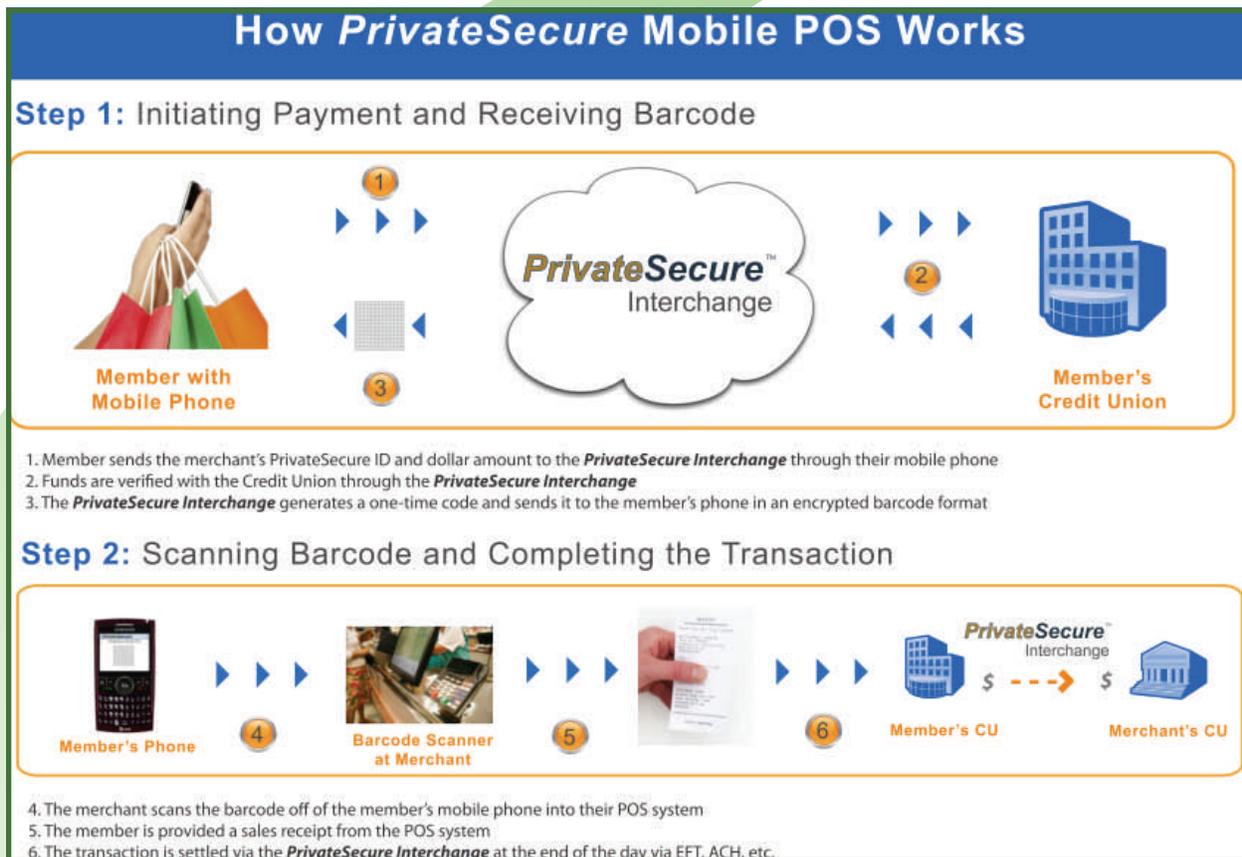
CUPay offers a secure, low cost alternative to the standard MasterCard and Visa POS transaction. Because this technology uses the ACH infrastructure to settle payments, transactions can be processed for a lower cost than the variable "percent of the purchase" model used by the current debit card system. Best of all, the payment can act as either a debit or credit solution depending on the account type that is chosen by the members.

CUPay combines existing retail payment technology with the promise of emerging mobile technology. According to Reuters reports on July 18, 2008, Apple Inc. sold one million new iPhones during its launch weekend. Not surprising, considering North American sales of

PC-like “smartphones” have increased 106.2% over first quarter 2007¹. These staggering statistics signal growing demand for mobile-driven technology. MShift, the largest provider of mobile banking within the credit union space, lists 35 credit unions as current clients² with more launching every quarter; mobile payments are the next logical step. With CUPay, members can complete point-of-sale (POS) transactions easily and securely using their mobile phone.

The CUPay team worked with a company called Metafos to provide a demonstration of how this technology works using their solution, PrivateSecure. Metafos was introduced to Filene i3 in April 2008 and expressed an eagerness to work with credit unions because of the perceived member affinity and loyalty. We are grateful to Metafos for the generosity shown to our team, but we caution that we offer their solution as one of many possible approaches to making this payment method a reality. A number of companies are developing the capacity to provide a platform for a system like CUPay.

Metafos’ PrivateSecure Mobile POS is a new paradigm in authorization and settlement. PrivateSecure provides the ability to authorize at the POS without sending a Credit Union’s member account information through the network to the merchant’s POS. PrivateSecure verifies funds by providing the purchase dollar amount to the Credit Union for verification and authorization. PrivateSecure ties the merchant ID information to the transaction detail and transmits this for settlement at the merchant’s bank or credit union.



From economic and security standpoints, Metaphos' PrivateSecure Mobile POS provided an ideal platform for the CUPay team to illustrate the valuable opportunity that exists for credit unions, retailers and members in the POS process.

Credit Unions

Control of CUPay interchange fees and reward program

With the threat of legislation that could reduce interchange income and the continuing trend toward the increase of lower interchange income earning debit purchases, it is imperative that credit unions carve out a niche to maintain a portion of these interchange fees.

Credit unions can determine appropriate interchange fees charged to merchants for processing transactions using CUPay. Since transactions processed using the ACH system cost significantly less than traditional network transactions, there is an opportunity to use a larger portion of interchange income for more robust member reward program.

Nationwide standards for interchange fees to retailers would be set to ensure cooperation and fair competition among credit unions.

Limited start-up and maintenance costs

CUPay relies on existing technology: ACH, a member's mobile phone, the retailer's existing POS equipment, etc. Credit unions will not have to purchase additional equipment, issue expensive payment devices or maintain costly reissue programs.

Lower fraud risk and cost

CUPay's unique transaction barcode process provides the ultimate data security. The unique barcode provides the credit union with the merchant information it needs in order to settle the payment via ACH. There are no cards to issue or replace.

Retailers

Lower per-transaction cost

Because CUPay transactions use the existing ACH infrastructure for settlement, credit unions can charge lower transaction processing fees giving retailers the opportunity to reduce their transaction costs. The only equipment requirement (outside of the existing barcode scanner) is a low cost piece of software, which enables the retailer to accept these barcodes for payment.

Lower fraud risk and cost

Each time a member uses CUPay to make a purchase, a new unique transaction barcode is created. No account, member, or card information is transmitted within the network to or through the merchant. Therefore, a

member's account information could not be compromised within the merchant customer database or any other place outside of the financial institution.

Consumers

Improved reward program

According to Andrew Ching of the University of Toronto and Fumiko Hayashi of the Federal Reserve Bank of Kansas City³, consumer payment choice is correlated with reward programs on payment cards. Basically, cards that offer a reward program get used more often than cards that don't. Because transactions are done at a lower cost than with a traditional debit card, CUPay offers credit unions the opportunity to provide an enhanced reward program to members.

Fraud-resistant payment

CUPay does not share personal information during the transaction process; therefore, the opportunity for fraud is virtually eliminated.

Member Benefits

More Secure POS Transactions

As breaches of security and member data continue to be compromised in the financial arena, fears about identity theft and financial fraud are top global concerns for consumers, according to the latest results of the [Unisys Security Index](#)⁴. In addition, fraud losses cost institutions multi-millions every year. It's a problem that is escalating fast as criminals employ increasingly sophisticated techniques to launch attacks across the enterprise and evade detection. Yet the same survey found an apparent lack of concern about using the Internet to shop, bank and e-mail. The data indicate that concern about Internet security has taken a back seat to other areas, such as issues related to protection against bank card and paper check fraud.

Most financial institutions have sophisticated technologies in place to prevent as much fraud as possible, but these processes are even more effective when used in conjunction with barcode technology. Most people are familiar with the types of barcodes used to identify and price retail merchandise. These simple barcodes generally provide high-capacity codes that can capture vast amounts of data in a small amount of space. Current barcode technology can capture text, binary code instructions, and digitized signatures, all in a space about the size of a postage stamp. When combined with technology which creates a one-time, single use authentication code, these barcodes provide significantly enhanced security.

Better Reward Program

Reward points programs are an increasingly valuable commodity for great escapes, fine dining, frequent flier miles, cash back, and more. According to The Nilson Report, only 35 million of the 300 million active credit and debit cardholders in the U.S. participate in a reward program. Today, customers have more choices, and information than ever before. Because

customer reward programs are serious business, if credit unions want to grow their membership base and reap the benefits of true loyalty, an outstanding reward strategy is vital. In order to drive loyalty, credit unions must offer a reward program that is meaningful and highly valued.

The extensive options for loyalty reward strategies using the CUPay program will enable credit unions to offer a more substantial reward program for members who choose to adopt this technology. A credit union-owned loyalty and reward program would help members focus on a tangible goal, something personally meaningful that they can vividly picture and look forward to achieving, whether through redemption for merchandise, services or travel opportunities. The reward program they attain through CUPay will reinforce their loyalty to the credit union brand.

Convenient Payment Method

As security concerns related to financial transactions rise, the use of ACH, online and other forms of electronic payments continue to become more mainstream. The acceptance of these channels increases every day with a degree of expectation that the fraud and security controls are already tested and in place. CUPay becomes a more appealing solution to the general public due to a familiarity and comfort level with the existing technology and inherent acceptance of its assumed security. While current adoption of mobile banking remains fairly low, a few signs have emerged that the use of this technology will increase as customers have begun using mobile devices in conjunction with online banking. CUPay will continue to build on this success and broaden the ways in which customers use their phones to interact and transact.

Credit Union Benefits

Meet the Technology Needs of Gen Y

The benefits to members using CUPay are endless and significant in today's competitive marketplace. CUPay provides an exciting attraction to the target demographic – the elusive Generation Y, which is more likely than other generations to switch their preferred financial institution and migrate to new technologies and innovations. Providing this demographic with a new technology that is convenient, yet secure, is an opportunity for credit unions to transform their image. Credit unions can now appeal to those who truly appreciate and are eager to experiment with lifestyle changing technology and solutions, uninhibited by tradition, or more importantly, “the status quo.”

Credit Unions as Technology Leaders

Taking advantage of such a trend, credit unions can effectively distinguish themselves as iconic leaders, even beyond the financial arena, by advancing the way we live. Such was the case with a worn-out brand that had been lost and buried by other competitors. When Apple introduced the iPod, not only was their brand refreshed, but it ultimately changed how we live today. Who could have imagined the hunger for new technology recently demonstrated by the lines outside retailers' doors as the public waited overnight for the new release of the iPhone?

Recent trends in technology have, in some cases, achieved the “Rock Star” status that our credit union industry desires.

Marketing this innovative breakthrough could catapult the credit union brand from an apathetic alternative to banks into a “have to have” product. CUPay stimulates excitement in business owners and members alike. It has the potential to expose the public to the credit union message, as well as draw them to their local credit union’s services, products and locations. A draw such as this may be necessary to reverse the downward trend of membership growth within the industry.

Increased Member Loyalty

Through the use of CUPay, credit unions would gain increased member loyalty through the enhanced reward program that will be offered in conjunction with the program, as well as through members’ perception of their credit union as a market leader.

Not only does this innovation attract potential members, but CUPay also provides the opportunity and stimulus to expand business relationships, capture market share and present a truly unique product in the marketplace.

Target Market

There are three distinct target markets for CUPay: Credit Unions, Retailers and Consumers. Ultimately, CUPay could serve the majority of each of these very broad categories. In order to enter the market, we have narrowed the target markets significantly.

Credit Unions

For the launch of CUPay, we will be looking for credit unions that:

Target the youth market

Generation Y and frequent users of new technology such as iPhones and text messaging are the most likely group to quickly adopt a new payment method. Credit unions that are interested in targeting this market will likely be interested in being a leader in services of interest to Gen Y.

An April study for Fiserv by MQA Research indicates that Gen Y is already actively seeking mobile banking solutions. Among those 21 to 34 years old, 83% indicated they’d consider using mobile banking services if available. Mobile payments are the next logical step.

Target the business market

The most obvious pain point around payment systems lies with the retailer. Retailers give up a significant percent of their gross revenue in transaction or interchange fees when they accept a Visa or MasterCard payment. They are also exposed to significant liability as they handle and transmit sensitive data. A

solution that provides the ability to process payments more securely and at a lower cost would be welcome.

Many retailers are also looking for ways to attract Gen Y customers. If a credit union offers solutions that are quickly adopted by this demographic, they open the door to new business accounts.

Have significant penetration with online products

Credit unions with successful online delivery are more likely to have success with a technology-driven service.

Once we have a select group of credit unions on board, the next step is identifying retailers who wish to participate.

Retailers

The pain point CUPay addresses most clearly resides with the retailer, as noted above. For the launch of the product, we would focus on retail outlets that:

Deal in relatively large transactions and low volume

The larger the transaction, the greater the opportunity for savings with CUPay. As a result of the pricing structure, a retailer whose average sale exceeds \$100 may be able to cut their interchange fees by 30% or more.

Target Gen Y

The early adopters for CUPay are likely to be part of Gen Y. By affiliating with a Gen Y-focused business, we increase our likelihood of early success.

Are in close proximity to a credit union branch and/or have an existing relationship with a participating credit union

Existing relationships can prove valuable when implementing new technology.

Transact between \$1 million and \$5 million in VISA or MasterCard transactions per year

The amount of savings could be significant for a business this size, but the sheer volume is low enough to allow a ramp-up and adjustment period.

Utilize a POS system that integrates with the technology

Consumers

The last critical target group is consumers. Once the system is in place, we will need to drive activity and drive it quickly. While there are some pain points for the consumer today, there isn't likely to be enough to move the dial, so to speak. We will need to drive consumer behavior through incentives. Our target will be:

Current Gen Y members who utilize online services

These members are the most likely to adopt the service. Many utilize the delivery system (their cell phone) frequently, and the selected retailers would be a likely destination for this group.

Marketing Plan

Our marketing objectives are two-fold:

To acquire new business and consumer relationships

To deepen existing business and consumer relationships

Credit Unions

The CUPay team will identify a targeted list of credit unions and contact them directly to establish partnerships.

Retailers

We will rely on credit union contacts to identify potential retailers. The retailers will gain recognition and exposure as we promote the new payment system to our members. Reduced fees and increased security will be the primary selling points for the retail stores. Pricing models will be used to demonstrate savings. A credit union representative will be assigned to the retail outlet to serve as a point of contact.

Gen Y

We will be looking for influencers in the Gen Y market. By providing significant incentives to current credit union members, we will drive word of mouth and membership activity. Weekly drawings for iPhones, iPods and similar technology will be advertised. Incentives will revolve around the payment delivery system (the member's phone).

Operational and Other Considerations

There are a number of operational and other factors that must be considered in the CUPay implementation process. These involve technology, regulatory impact, political ramifications, and marketplace competition.

Technology

From a technology perspective, CUPay is a seamless, low cost payment solution that capitalizes on the strengths of existing technology:

Payment Device

Member owned and maintained. CUPay uses existing technology to transmit barcodes to the member during a POS transaction. This type of technology is already used by billions of cell phone users and is available on most smartphones.

Payment Settlement

CUPay utilizes the existing ACH framework. Members' payments are settled with merchants via ACH, much like a member uses a canceled check to allow the utility company to settle a monthly bill.

POS Equipment

CUPay uses existing LED or image based barcode readers, which are currently used by many merchants worldwide. The software needed for CUPay can be integrated into existing hardware at the retail location. There is no need for these retailers to adopt, or pay for, new hardware.

Regulatory Impact

From a regulatory perspective, CUPay must address two important regulations in order to become widely adopted.

Electronic Funds Transfer Act (Regulation E)

Regulation E, which provides protection for consumers regarding dispute resolution, is an important consideration. For CUPay, the application/software that the phone uses to process the transaction is required to be Reg E compliant, not the cellular telephone. The application we used for our pilot, PrivateSecure Mobile POS, is Reg E compliant.

Compare a current cellular phone payment for items such as ring tones or games. These types of payments are currently being processed directly by the cellular company, which is not governed by Reg E guidelines and therefore provides no dispute resolution protections for the consumer. CUPay offers a significant advantage to members, because these protections are built in to the application.

Multi-factor Authentication

The member has a PIN to log in, which meets the single factor authentication requirement. The second piece of authentication could come from Bluetooth or GPS technology, which verifies that the phone and member are in the geographic location that matches with the retailer code entered at the time of purchase.

Political Ramifications

Given that credit unions derive a great deal of income from Visa and MasterCard interchange income, they may not be so likely to immediately embrace a drastic change in the status quo.

Marketplace Competition

In today's economy, the payments landscape is rapidly changing. Japanese consumers can pay for items from vending machines using their cell phones. The U.S. government is issuing stored value cards to better manage cash flow and reduce cash handling related costs⁵. The emergence of new players and payment systems, such as cell phone companies that allow users to purchase ringtones via their cellular phone, or the developing Wal-Mart Money Centers in Mexico (and soon most likely the U.S.), indicate that a revolution is coming.

But the change will not come easily. Innovators in this industry face highly successful and widely accepted payment giants, such as MasterCard and Visa. However, their size, legacy structure and lack of cooperation among their largest clients – mostly banks – make their system slow to change.

The revolution will likely come from consumers and merchants who are demanding change and more choices. Regulation, such as the Credit Card Fair Fee Act of 2008, has the potential to greatly reduce interchange income to card issuing credit unions. Consumer mobile technology trends indicate that a cellular payment option would gain acceptance. Failing to pursue an alternative payment solution is not an option. This new generation of payment solutions is rapidly approaching. CUPay offers a unique opportunity to stay on the leading edge of innovation in the payments industry.

Pilot

For the purposes of our pilot, we partnered with a company called Metafos (www.metafos.com). Their technology, PrivateSecure Mobile, provided the platform for the pilot. PrivateSecure Mobile is an application for POS transactions. The POS approach requires an application to be loaded onto a smartphone (such as a Blackberry or iPhone) that requires a login.

To perform a POS transaction, the member will select the credit union share draft/checking account from which to make payment. The member will then be prompted for the merchant ID (made available by the merchant), amount of payment, and their transaction PIN number. When transmitted, the response provided by the credit union through Metafos will be a plain text description of the transaction followed by a barcode.

Retailers will scan the bar code, which will then be affixed to the transaction and settled at the end of the day via ACH.

The following diagram illustrates the POS payment model.

1. Select or Enter Merchant ID
 2. Enter Amount
 3. Enter Transaction PIN #
 4. Select "Continue"

- Review payment details
- Select "Continue" to confirm

- Authorization # is provided to the retailer via barcode format
- Retailer scans barcode and provides the customer with a register receipt

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Getting Started

CUPay must be able to provide a proof of concept for the POS version of PrivateSecure Mobile. However, there is considerable evidence that points to short-term success. Once this key step is accomplished, the process of getting started moves from technology to business development. Business development involves a comprehensive merchant program for deployment as well as a strategy for engaging consumers through CUs.

The ultimate vision for the CUPay payment solution is for this technology to be purchased, white labeled and delivered as a single credit union industry solution. Ideally this would happen through a CUSO that is owned and operated on behalf of all credit unions. Critical to the success of this approach is a mutually beneficial relationship where credit unions serve the needs of both their members and business members and develop strategies that incent both groups to retain membership in the credit union. It is easy to see that it all begins with a comprehensive strategy that addresses all types of businesses.

The time is now for credit unions to unite. Consider the evolution of the modern car. When proposed, consumers simply wanted a faster horse and buggy; producers saw them as a fad. In 1902, the first mass-produced cars were introduced in the United States. By 1926, Route 66 was opened, and it was completely paved by 1938. Think of the infrastructure that was needed to create a coast-to-coast road system, which happened in only 24 years. In our own lifetimes, consider the fact that cell phones were introduced commercially in 1980. Cell phones have replaced payphones, and land lines are soon to follow in extinction. On an economic level, consider the impact of international calls on a flat monthly fee. We are well on our way.

Financial institutions may not have gotten it right in thinking that clicks would replace bricks, but cell technology has the potential of replacing the bricks, clicks and economics of being a financial institution. The early potential can be seen overseas Europe and Japan. As credit

unions, let's take the lead in payment technology here in the U.S., to win over the business community and wow our members with better security, more convenient transactions and a more substantial reward program. After all, isn't that what credit unions are all about?

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