

# **The Virtual Company Store:**

*Enabling the Transition from Magnetic Stripe  
to Chip Cards in the United States*

*A White Paper*

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The United States continues to lag the rest of the world in the issuance and acceptance of chip cards. While there are many specific reasons for this, generally the cause for such reticence has been the lack of any solid business case for adopting the technology that targets US-specific business concerns. In other countries, expensive telecommunications infrastructure, lack of extensive magnetic-stripe systems, unique approaches to fraud reduction, or security concerns have provided strong impetus for the adoption of chip card-based solutions. In the United States, none of these business rationales apply. As yet, the card industry has yet to create alternatives that appeal to the pragmatic, bottom-line-oriented concerns of chief executives in various industries who would need to make a significant investment in systems in order to issue chip cards.

So the question that remains for our industry is can we create business cases for chip-cards that will appeal to the specific concerns of US executives? I believe the answer is yes, and the purpose of this article is to lay out one approach, called the Virtual Company Store, which provides clear business justifications for a major corporation to issue chip cards and chip-card based services to its employees.

### Requirements for Transitional Smart Card Systems

What is needed are approaches that create a clear, cost-justified transition path from existing magnetic stripe-based systems to chip-card based systems. There are 5 criteria that should be used to gauge the viability of various proposed transitional solutions:

1. **Combination Cards.** A transitional card program will need cards that can be used both with new infrastructure and with existing magnetic-stripe readers. Thus, a transitional approach to the US market will require the issuance of combination cards that have both a chip and a magnetic stripe.

The reason I believe this is the case has to do with how new monetary instruments become widely accepted. People always pose the chicken-and-egg question about chip cards: which will come first, chip cards in the hands of consumers or chip card readers at merchants? Looking at history, the clear answer is cards must come first. The history of all new monetary instruments is that they must first be widely available and easily fungible *before* individuals consider them an acceptable as a medium of exchange.

The best example of this is the *thaler*, the coin that originated in Czechoslovakia in the 1700s, and which ultimately became known as the *dollar*. The thaler was created by Count \_\_\_\_\_, as a medium of exchange for his duchy. However, the thaler was such a pretty coin that it became a collectors item and became widely distributed among the population of the Austro-Hungarian empire. As a result, it quickly became an accepted monetary instrument through the Empire.

Thus, chip cards must be in consumers hands at the point-of-sale or service (e.g. an ATM or kiosk) before they can become an acceptable medium of exchange – and worthy of an investment in card readers by merchants. To make them something that individuals want to put in their wallets, the card will have to be useful immediately in existing point-of-sale or ATM environments, and thus will have to contain a magnetic stripe as well as a chip.

2. **Closed Environments That Extend Outward.** Chip-based functions will require chipcard readers at every point of sale or service to be useful. This can only occur cost effectively in closed environments, like college or corporate campuses. The chip-based functionality will be used on the campus to provide technically advanced services to consumers working in the closed environment. The magnetic stripe provides the link to the existing public infrastructure for cards in the United States. The card can thus provide both the basic and advanced services desired by a cardholder, with universal acceptance – a critical factor to ensure the card will be used.
3. **Cost Subsidization of Chip Card Costs.** Generally, retailers and other corporations have been reticent to underwrite the cost of large-scale chip-card deployment, which can cost 10 – 50 times more per card than magnetic stripe cards, when a very cost-effective magnetic-stripe infrastructure exists. In order to overcome this reticence, purveyors of chip cards and chip card systems will need to find creative approaches to issuing that provide cost savings in some business function that can pay for the cost of issuing chip cards.

4. **Assumptions Testable at Minimal Expense.** Given the lack of extensive production chip card systems in the United States, it will be only the most courageous of executives who will push into projects that require large up-front investments before delivering the promised returns. Thus, early programs should allow implementation on a small scale, that will allow testing of key assumptions regarding cost savings and return on investment.
5. **Reproducibility.** Since the goal of the smart card industry is to create a critical mass of chip cards in the hands of US consumers, it is critical that whatever programs we develop be reproducible beyond a single closed environment. The objective is to create numerous nucleation points for the germination of smart cards that ultimately blossom and merge to create a single national market based on chip cards.

### **A Transitional Program for Corporations: The Virtual Company Store**

One of the concepts we have developed at Sun that we believe meets these five criteria is the Virtual Company Store. The Virtual Company Store leverages a combination of company-issued smart cards and Internet-based systems to substantially reduce company overhead associated with travel and expense reporting while also providing a unique set of benefits to employees. There are four elements to a Virtual Company Store program:

- a. A smart card element for on-campus security and services
- b. Loyalty program tie-ins with local vendors that provide discounts to employees
- c. A magnetic-stripe credit card that is used for employee travel and expense purposes
- d. A secure Internet interface that allows direct input of cash expenses into the reporting system from anywhere in the world.

### **What Is the Virtual Company Store?**

The concept of the Virtual Company Store comes from the concept of the original “company store” or “company town” that originated in the United States in the late nineteenth century. As part of their attempts to create a nurturing environment for their employees, several US corporations of the time provided convenience services to employees working in remote locations. The most common of these was the company store, which is very similar to the military PX of today. The company store allowed employees to purchase needed food, clothing, and other staples, either for cash or credit, which would not otherwise be available through normal delivery channels due to the relative remoteness of a particular workplace. In the most extreme cases of nineteenth-century corporate paternalism, of which Hersheytown, Pennsylvania is the most famous example, the corporation provided all services needed by its employees, including housing and education, by building a company town.

The company store and company town concepts fell into disfavor in the early twentieth century for many reasons. One was the perceived conflict-of-interest when a company which provided paychecks to its employees took this money back in the form of surcharges on goods and services. Moreover, in most cases the corporation was not in the business of selling groceries or providing housing. It was therefore less efficient at delivering these services, with the result that costs of goods were higher than what employees could find through normal channels. This fed into the perception of a conflict of interest, since the corporation was perceived as charging excessive prices in order to recoup some of its labor charges. As a result of these pressures, company stores fell into disfavor and ultimately vanished from the US corporate landscape.

The Virtual Company Store uses today’s state-of-the-art payments technologies to provide the convenience inherent in the original company store concept, while at the same time delivering substantial price savings to employees at vendors which have a relationship to the corporation. The price reductions, plus the fact that vendors are arms-length third parties, removes any perception of conflict-of-interest on the part of the employer. Thus, the Virtual Company Store concept allows a company to provide a mix of discounts that is uniquely targeted to provide the highest utility to its employees. The benefit to the

corporation is higher employee loyalty/retention, plus cost savings that come from more efficient processing of travel and expense reports.

Vendors come in three forms. The first are vendors who have a location in the company's facilities, such as the cafeteria, office supply store, concierge services, photo finishing, and suppliers of vending machines. The second are vendors where employees make the bulk of the purchases on a basis independent of the corporation, for example, a nationwide grocery store chain. The third are vendors with whom the corporation has a major volume discount for its own purchases. An example might be a supplier of PCs. In this case, employees can now easily take advantage of their company's volume purchases to receive substantial cost reductions on personal purchases.

### **.The First Step: Issuing a Single Card with Multiple Functions**

Today, many major corporations use card-based systems to provide secure access to their buildings. These systems are costly, and require specialized equipment to read the cards that has no benefit to any other card-based application or system that the corporation may wish to deploy. Thus, corporations regularly issue both a security-access card for their facilities, while also issuing to various employees credit cards for incurring business-related charges.

The first potential benefit offered by the Virtual Company Store concept are the savings that result when these cards are combined into a single card system supporting multiple functions. We are suggesting a "combo-card" for this purpose – meaning a card that contains both a chip (a "smart card") and a magnetic stripe. The smart card element would be used for secure building access and for interfaces with on-campus vendors. The magnetic stripe element would be used to interface with traditional point-of-sale systems currently in place worldwide.

Thus, under the Virtual Company Store concept, *the corporation becomes a card issuer*, with its name and brand prominently displayed on the card. Having its brand displayed prominently on a card used by its employees provides another mechanism for increasing the company's brand awareness worldwide. The card becomes a very effective advertising vehicle for the corporation.

Most likely, the physical issuer of the card would be the corporation's bank or third-party card processor (e.g. American Express, Citicorp, FDC, GE Capital). This financial institution might also wish to have its brand displayed somewhere on the card, along with the American Express/VISA/Mastercard logo (as required, depending on which credit and debit functions would reside on the card). A major loyalty affiliation would also probably need to reside on the card. Most likely this would be a frequent-flyer program tied to the company's preferred airline – otherwise employees would opt to use a personal credit card that provided such frequent-flyer points.

So not only is the card already multi-function (secure access, credit and/or debit card, loyalty), but it also would be co-branded with the corporation's name being the major brand. Co-branding on a card makes explicit partnership relationships between companies that were historically implicit. It is interesting to consider what potential implications this shift to explicit partnering has on the business, and whether it can provide even stronger competitive advantages to the corporation.

### **Using a Smart Card for On-Campus Security and Convenience**

The chip on the card would contain a digital certificate that would provide a secure identity for the employee and provide secure access to company facilities around the world. Just as with today's security systems, the digital certificate could be tied to an access control list that would provide selective access to various company facilities. Different employees would have varying levels of access depending on the permissions tied to their digital certificate.

The card can be much more than a security tool, however.

- It could be used to track usage of shared facilities like copy machines and allow charge-back to the appropriate departments. This is much more convenient than current systems, that depend either on having the correct department code or specialised counter key for a machine.
- It could be used in company vending machines, to improve employee convenience to these machines when change is not easily available.
- It could be used in place of cash at the company cafeteria for food purchases or at other vendors located in my building. A credit, debit, or stored-value function could be loaded on the card (leveraging either the chip or the mag stripe) to be used in place of cash.

One creative use would be to have a system which allows charges to different accounts. When buying lunch for myself, I charge my personal account. But when taking a visitor to lunch, I charge my department account and put in all the critical data at the point-of-sale. This saves me, and the company, from having to later submit (and incur the cost of processing) a separate expense report for such a visit.

On-campus vendors could also use the card to create unique loyalty programs beneficial to the company, the employee, or both.

### **Loyalty Programs with Community Vendors**

Now that every employee has a Company Card with a magnetic stripe, it is now possible for either the company employee club, human resources, or other appropriate groups to approach a mix of vendors in the community about providing volume discounts to employees that use the Company Card. This mix of vendors can be developed in such a way as to provide the maximum utility and perceived benefit to employees in that part of the world working in that industry. For example, employees who work in the construction industry might value discounts on building materials less than employees who work in other industries, but might value discounts on work clothing more. As a result, the package of discounts provided would be highly valued by employees, would be a relatively cost-free way of improving employee loyalty, and hopefully (although this is an unproven hypothesis) contribute to retaining good employees.

What is interesting about the discounts under this approach is that they are not based on the purchases of the individual, but are based rather on the total volume of purchases by all employees. The more employees buy overall, the bigger the discount provided by the vendor. Thus, employees have an incentive not only to shop at preferred vendors, but to encourage their peers to do so as well. This is an especially important element for getting grocery stores to create company-specific loyalty programs. Grocery stores operate on such thin margins that they cannot afford to provide further discounts unless a group can deliver a substantial volume increases over the current sales levels.

### **Loyalty Programs with Preferred Corporate Vendors**

A parallel program could also be developed with preferred corporate vendors. Under this program, these vendors would now provide the corporations discount to any employee who uses the Company Card. This is a tremendous benefit to employees, especially for durable goods purchases like office furniture and computers. It may also feed back into the company's preferred customer discount. If, for example, enough employees bought computers from a preferred vendor, it might be possible for the corporation to achieve an increased discount based on this higher overall volume of company related purchases.

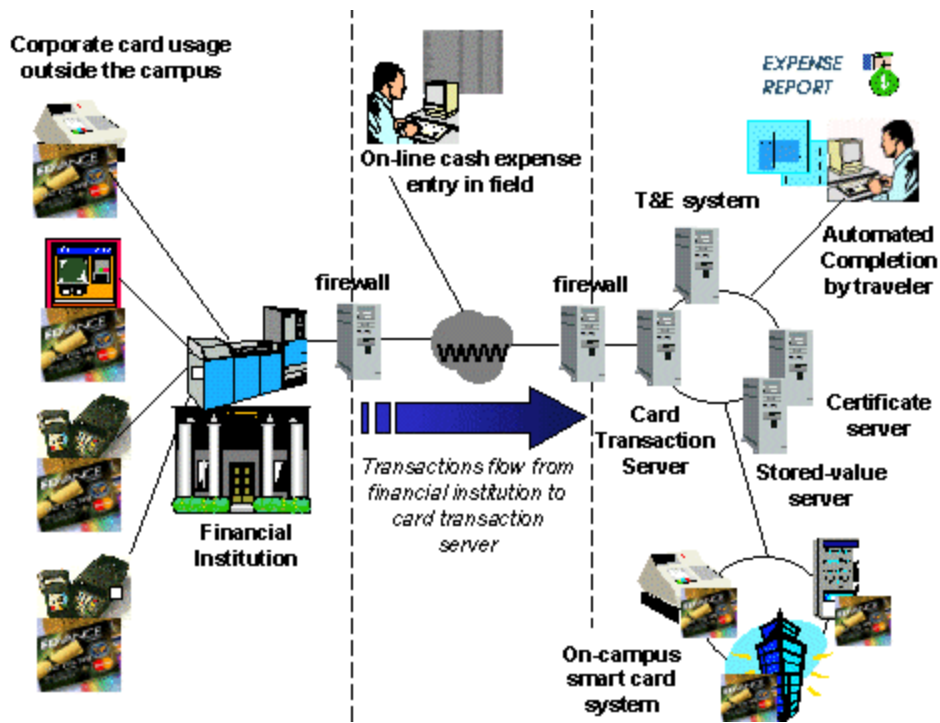
### **Savings Through More Efficient T&E Processing**

How does the corporation pay for the extra costs associated with issuing combo cards, replacing existing readers at all facilities, installing new readers in various company facilities, and managing the loyalty programs with the appropriate vendors? The answer is by tying the Company card into an efficient

electronic travel and expense processing system that minimises paperwork associated with expense reimbursement for both the employee and the accounting department.

Today, most companies still have employees submit paper expense reports for processing. Filling these out is very time consuming, and the processing is very labor intensive. Some more proactive corporations, including Sun, have their travel and expense systems on-line. Expense reports are filled out on-line and submitted electronically, with physical supporting documents (e.g. receipts) submitted through a parallel mechanism. The electronic submission and paper backup are then reconciled in the accounting department. This saves substantial money, but is still inefficient because employees must constantly rekey credit card charges into the system, when such rekeying is really not necessary. Moreover, cash expenses continue to pose problems. They are painful to track and, in the case of individuals who travel extensively, can be hard to recreate when much time has elapsed between the incurring of the expense and submission of the expense report.

**FIGURE 1**  
**Proposed Architecture for Virtual Company Store System**



There is a better way, which rough calculations show can save approximately \$25 in processing per expense report. Since a large company may process on the order of 6 expense reports per employee per year, the savings can be quite substantial. For example, a 10,000 person company can save on the order of \$1.5 mm per year by using the Virtual Company Store concept and applying it to travel and expense reporting.

How might such a system work? As shown in Figure 1, employees use the Company Card each day as needed for business-related reimbursable expenses. At the end of the day, the company's financial institution downloads all transactions on the Company Card to a server at the company. This database ties in to the company's expense reporting application.

When an employee opens an expense report for a specific time period, the software brings up a list of all charges on his or her Company Card. At this point, the employee can categorise each item (or in the

case of hotel bills, for example, split the expense into multiple categories), delete personal items, and then import the remaining transactions directly into the expense report.

At the same time, the employee has been able to log in regularly via the web (either from home or on the road) and on a daily basis, enter their cash expenses for the day, with all the requisite categorisations. The expense reporting system then brings up those cash expenses for the specific time period and allows the employee to import those into the specific expense report.

*Voila.* The expense report is completed in much less time, with much less effort, and can be processed more efficiently in the accounting department.

### **Conclusion**

The Virtual Company Store concept takes some of today's latest technologies – smart cards and the Internet, and uses them to create a single integrated system that provides substantial benefits to employees while saving a company substantial money and raising its brand awareness in the marketplace. It is a program which provides a transition path for US corporations to subsidize the cost of issuing chip cards via savings generated on travel and expense systems. The Virtual Company Store concept meets the five criteria for a successful transitional program: it applies combination cards in a closed environment (with links to existing public infrastructure), and provides a clear cost benefit and financial justification for issuing chip cards. The concept can be rolled out in a small scale first, thus allowing key assumptions regarding costs and savings to be tested.

Most importantly, it is a concept that can be used quite effectively at a wide range of organisations – from corporations, to schools, to government facilities. Since the Fortune 2000 employ something like 60% of all US workers, a successful rollout of the Virtual Company Store concept would create the critical mass of chip cards in the hands of consumers needed to convince retailers and others to make the investment in next generation chip card readers.