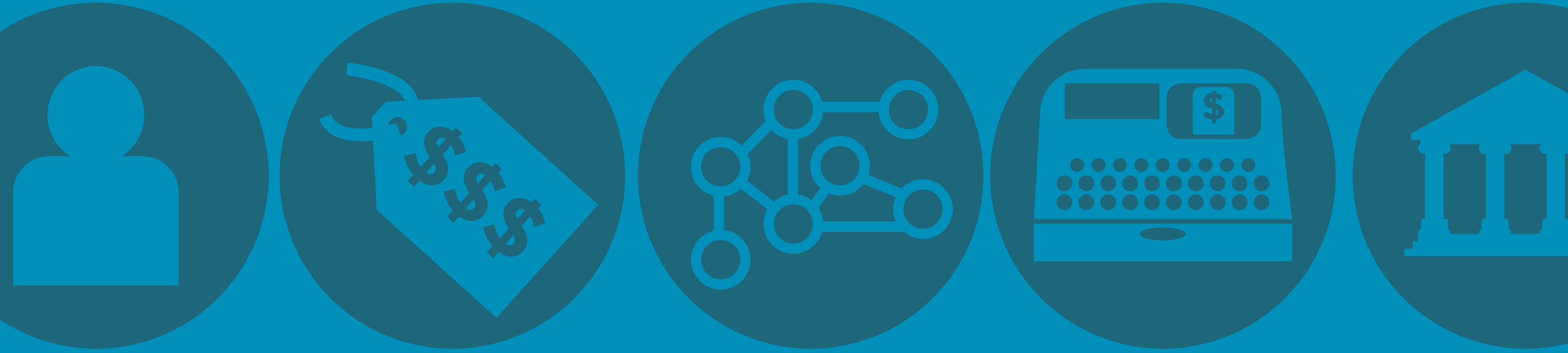


The Life of a Transaction: How Credit Card Processing Works – Part 1

The Evolution of the Payment System

© 2013 2Checkout.com, Inc.

The Life of a Transaction: How Credit Card Processing Works – Part 1

The Evolution of the Payment System

Author : : Thomas Kossler

This is the first of a two-part white paper on the evolution of the payment system and the life of a transaction. This articles analyzes why payment systems started and how they are structured, as well as recognizes the key participants and the roles they play in this complex framework.

© 2013 2Checkout.com, Inc.

Table of Contents

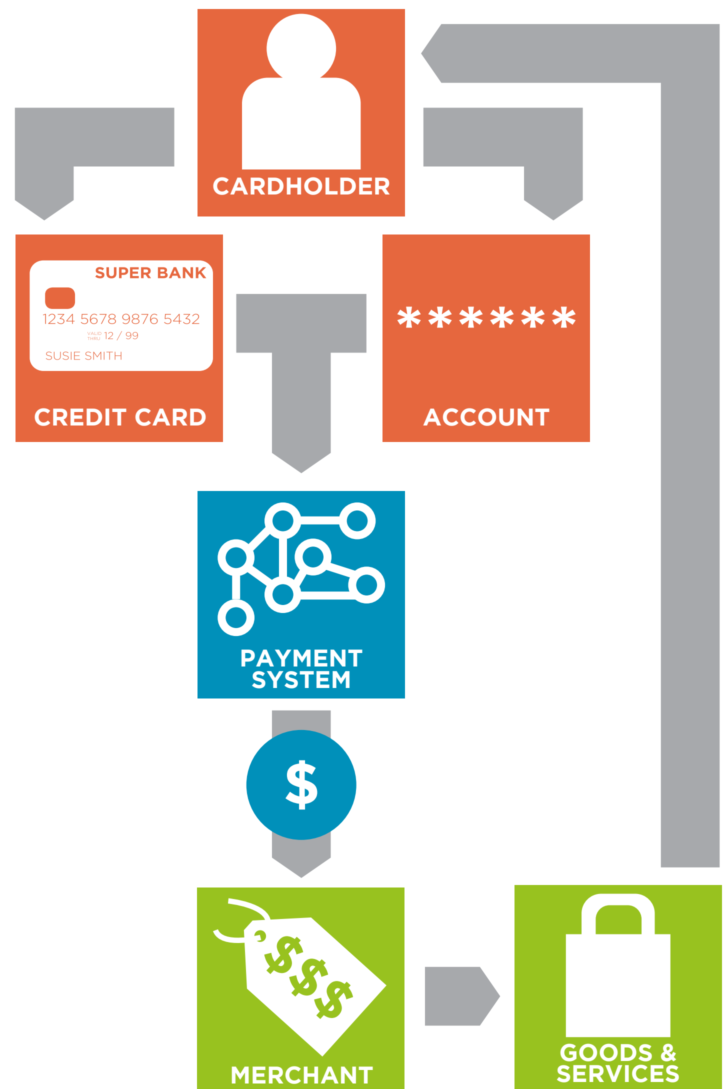
Introduction 1
The Early Days 2
Bank Associations 4
Service Bureaus 6
A Better Way To Authorize 7
Conclusion 11
About 12

© 2013 2Checkout.com, Inc.

INTRODUCTION

In its simplest form, a payment system permits both physical and online sellers to accept cards — and the card-based accounts of buyers — as a form of payment for goods and services. But what might appear to be a simple transaction on the surface is, in fact, a complex process that has continued to evolve over its roughly 50-year history. To best understand why card transactions work the way they do, it's helpful to take a quick look at how card systems came about.

PAYMENT SYSTEMS SIMPLIFIED



The Early Days ▶

© 2013 2Checkout.com, Inc.

THE EARLY DAYS

Back in the late '50s and early '60s, if a buyer wanted to make a purchase at a retailer or through a catalog, the payment choices generally consisted of cash, money order, or a personal check. Both cash and checks came with built-in disadvantages for buyers and sellers. For buyers, their purchase was limited to cash on hand or in their checking account — sometimes restraining their ability to afford their ideal purchase. Nor could personal checks be used outside the city or area where their bank was located (which incidentally gave birth to the "traveler's check" business). But it wasn't just buyers. Retailers also struggled with cash and checks. Cash has security and handling costs, and naturally limits the amount of the buyer's purchase to cash on-hand. Accepting personal checks imposed considerable overdraft risk for the retailer. For some low-margin businesses like grocery stores, losses on checks could almost equal their narrow profit margin. Most retailers resorted to the use of the then-developing check guarantee services, which, of course, imposed fees on the merchant (but were typically preferable to bad check losses as the bank would still process the check). Still, retailers desired a payment alternative that would allow for purchase beyond a buyer's available cash. One solution was the department store lay-away programs. But more important to the purpose of this article was the creation of department store private label credit accounts, such as Sears, Montgomery Ward, JCPenney, and other department store installment and revolving accounts.

© 2013 2Checkout.com, Inc.

As these store credit accounts became both popular and accessible to the masses, retailers found not only did these accounts permit the purchase of higher ticket (and higher margin) appliances, furniture, and electronics, but they also facilitated "impulse purchases" — spur-of-the-moment sales that would not have taken place if it had meant paying for the purchase in full that moment. As a further benefit, a buyer's store card could now be used not only at their local location, but across the state or across the country at other locations of the chain.

Buying became much more easy and convenient. However, while the store credit accounts improved sales at retailers and department stores, one drawback of these accounts still remained: they could only be used at the store offering the account. Buyers' wallets became filled with multiple plastic cards for use at individual stores or chains. A better solution was needed. The banking industry stepped up to the plate.

BANK ASSOCIATIONS ▶

© 2013 2Checkout.com, Inc.

BANK ASSOCIATIONS

While retailers were discovering the attraction of credit accounts, banks came to realize that this business spoke to their core competencies of credit evaluation and lending. Several large regional banks formed business associations to offer their "general purpose card" solutions.

The two largest bankcard associations, Visa and MasterCard, both started on the West Coast of the United States. Bank of America was the founder of Visa. Wells Fargo, UCB, First Interstate, and others created MasterCard. Both groups followed somewhat similar business models.

The associations facilitated the interchange of purchase transactions between cardholders of a card issuing bank (Issuers) and merchants accepting that card for payment. Acquiring banks (banks that acquired "transactions" for interchange) signed merchants to accept the card of their association. Normally, banks chose to be either issuing banks or acquiring banks depending upon whether their normal banking business was focused on consumer or commercial services.

A few large regional banks chose to be both issuers and acquirers. Issuers received an interchange fee on each transaction representing their costs to acquire cardholders, issue cards, and manage point-of-sale (POS) risk. Acquiring banks settled (paid) their merchants for the goods and services provided, less the amount of the interchange. Merchants received less than the full amount of the purchase, recognizing that the issuing banks were providing them with a large consumer base that carried a purchase instrument. This gave the merchant a guarantee of payment if POS procedures were followed (thereby avoiding much of their bad check expense).

© 2013 2Checkout.com, Inc.

More importantly, issuers provided merchants with customers who had approved lines of credit, eliminating the need for the merchant to offer credit accounts. Other fees in the system recognized the activities of other system participants: both issuing banks and acquiring banks paid assessment fees to the associations to reimburse them for the payment system network infrastructure (computer facilities, network data communications, data architecture, system policies, enforcement mechanisms, research, and marketing) that was involved in routing transactions to and from thousands of issuing and acquiring banks. Finally, in addition to interchange, acquiring banks assessed fees to merchants to cover the costs of acquiring, servicing, settling, and supporting the merchants in the bank's acquirer portfolio.

Early transactions were largely paper-based. At the merchant's point-of-sale, the cardholder presented his or her card to the clerk; a carbonized sales draft was completed summarizing the items purchased and their total; the clerk checked the card account number against a paper brochure listing accounts not in good standing (known as a Warning Bulletin) or phoned a "voice authorization" number and provided the transaction information to an operator (later into a voice response unit); received the authorization response, and then released the merchandise.

The original signed sales draft was batched together with other sales and deposited in the merchant's bank. A few days later, the merchant would be paid for the batch, minus the interchange and fees. This payment originated from the bank scanning or keying the merchant's drafts and sending them to the association network to be "introduced into interchange."

© 2013 2Checkout.com, Inc.

SERVICE BUREAUS

Initially, merchants looked to their local bank for merchant services. But not all banks had the size or the desire to provide a full suite of merchant bankcard acceptance services: providing POS signage, distributing warning bulletins, keying and batching sales drafts, handling ticket retrieval and chargeback requests, mailing merchant statements, reconciling settlement amounts with merchants, and all the ancillary activities that came with supporting a portfolio of merchants. This was especially true for smaller banks. This gave rise to companies — known as processors — that provided these services as a "service bureau" to a bank. Some of the early entrants in this market were National Processing Company (NPC) and First Data Resources (FDR). In fact, FDR not only offered merchant services to smaller (and some larger) acquirers, but also provided issuer services to smaller card issuers.

The acquiring banks that used service bureaus still remained the acquirer of record for their merchants — in fact, issuing and acquiring members of the associations were required to be banks, and were ultimately liable to association members for any losses incurred by their merchants. But for all practical purposes, the processor handled all the daily interaction with the bank's merchants.

Over time, these acquiring banks that used processors were sometimes referred to as "sponsoring acquirers" or "sponsoring banks." While the processor performed all of the functions of an acquirer (and was even sometimes called an acquirer colloquially), the processor needed an association member bank to sponsor the transactions into interchange. Of course, the acquirer's merchants were required to maintain their deposit accounts at the acquiring bank.

© 2013 2Checkout.com, Inc.

A BETTER WAY TO AUTHORIZE

As the number of cardholders rapidly grew into the tens of millions, the use of paper warning bulletins or voice/ARU phone calls as a method of authorization became increasingly expensive and ineffective. Over time, credit cards carried magnetic strips on their backs and embossing identification information on the front. The use of magnetic strips complemented the manufacture of electronic point-of-sale devices — POS terminals — that could read the card number from the magnetic strip and transmit both card and sale information via phone lines to a network that would route this authorization data to the association's network. The association network would in turn route the transaction to the issuing bank (or its processor) to query if the account was in good standing and held an amount within the cardholder's line of credit. The result of the query — approved or declined — would make its way back to the merchant's POS terminal in a matter of seconds, and the sale would be completed.

These real-time authorizations were a huge leap forward for the banks in preventing fraud and account misuse. But the technology came with some unintended consequences for acquirers. For starters, banks needed partners to sell POS terminals to their merchants and provide after-the-sale support. In addition, POS terminals were fairly expensive at the time. Merchants needed an incentive to move to real-time authorizations. Issuers, through the associations, agreed to lower interchange rates on transactions that were real-time authorized. Acquirers also needed "dial-up" networks with which the terminals could communicate. The largest merchant processors sometimes developed their own dial-up networks and staffed sales and support teams to sell and service point-of-service terminals. But this was not common. A dial-up network is an expensive business, and not all acquirers or processors wanted to make this investment.

© 2013 2Checkout.com, Inc.

This led to the creation of companies that specialized in providing dial-up services. Similarly, not all acquirers or processors wanted to staff up to sell and support POS terminals. This also led to the birth of companies — "terminal support providers" — that resold these services to acquirers and processors. In time, many of the acquiring bank functions were taken over by various non-bank participants and servicers. One consequence of this exclusion of banks from the direct support of merchants was that the interests of acquirers and their merchants were represented less on the governing boards of the associations. Some of the balance and healthy tension between issuers and acquirers was lessened. Issuers wanted the highest level of interchange available (understandably so), while acquirers wanted the lowest interchange possible to continue to attract merchants and broaden card acceptance.

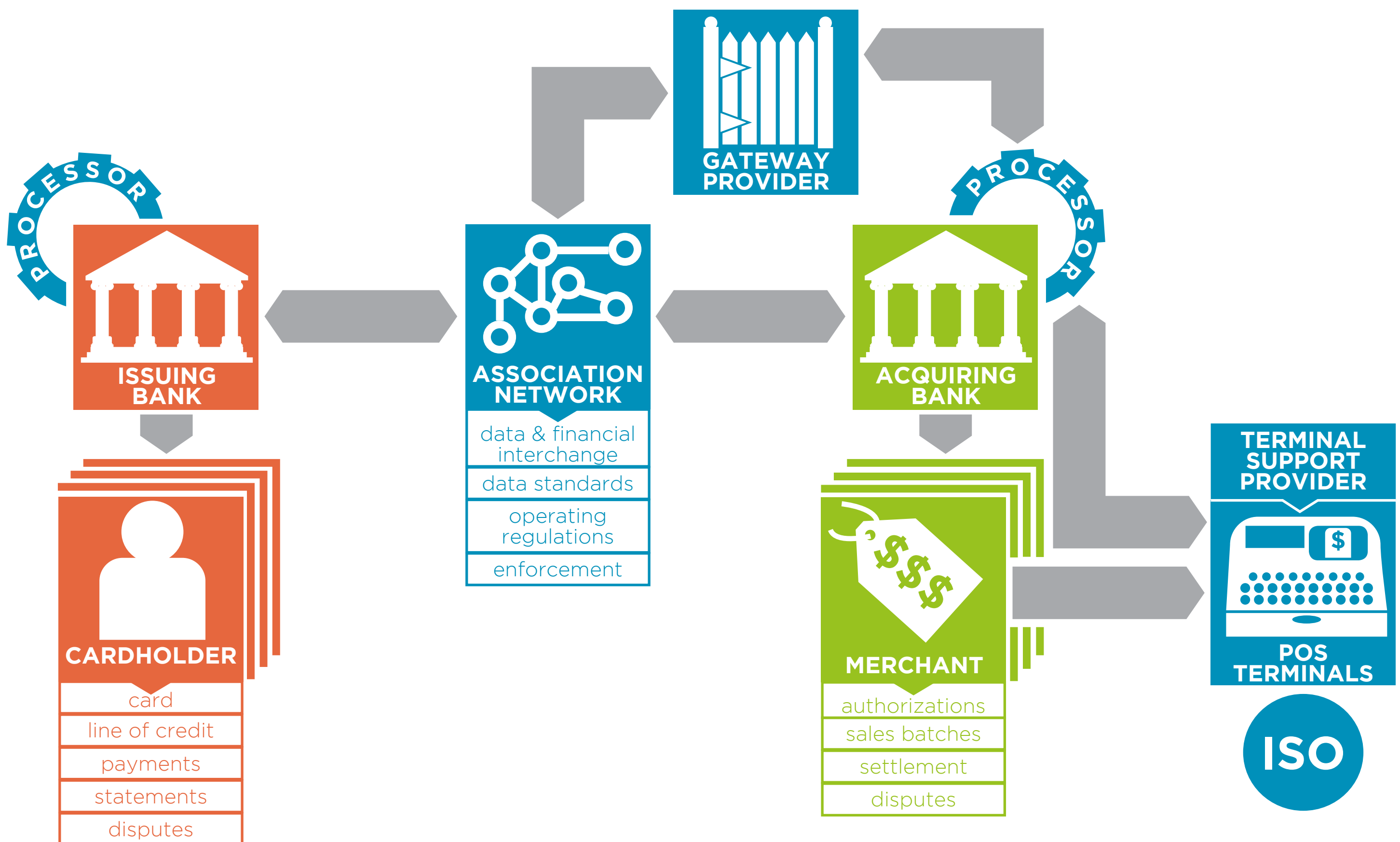
Before shifting from non-bank participants, it should be mentioned that two other players arose to address specific needs at this time: ISOs and gateway providers.

As the years progressed, the acquirer side of the payment system became more specialized and concentrated. Two dynamics drove these changes. First, the acquiring business was becoming a scale business; large numbers of merchants and transactions drove very low unit costs. As unit costs decreased, the margins in the business became less attractive. Second, while in early years the banks touted the card systems as a way for merchants to grow their businesses by opening them to new consumers with lines of credit, the argument had now been flipped on its head. For competitive reasons, merchants now had to offer card acceptance to their customers, or lose sales to the store down the street. Consumers insisted on the convenience of their new accounts and would "vote with their feet" if a merchant resisted. Card acceptance had almost become mandatory.

© 2013 2Checkout.com, Inc.

Understanding that acceptance was now a "must have" among merchants eager to grow their portfolios and margins. Acquirers contracted with new payment system participants: independent sales organizations (ISOs). These privately-owned sales forces would roam resorts, neighborhood malls, and the downtown areas of villages to sign — or cross-sell — merchants for card acceptance. They were termed independent sales organizations because they generally carried the contracts of several acquirers, and would sign a merchant for a specific acquirer based on the best fit for the merchant (for example, a riskier merchant might be signed for an acquirer willing to accept a higher level of merchant risk), or signed for the acquirer offering the best sales commission.

MODERN PAYMENT AUTHORIZATIONS



© 2013 2Checkout.com, Inc.

As large, aggressive acquirers began competing for merchants, smaller, typically local, bank acquirers exited the business. Acquirers raced to grow as large as possible, frequently buying up and absorbing smaller acquirer merchant portfolios.

Another non-bank participant that arose at this time was the "gateway provider." The transaction routing business was becoming technically sophisticated. Data communication links between acquirers or their processors and the bankcard payment networks were challenged to route more and more transactions at a faster rate. In addition, security concerns dictated that these links generally be dedicated, highly-encrypted links.

Finally, while the focus had been on bankcards, several large non-bank card issuers, specifically American Express and Discover Financial Services, were signing merchants for acceptance of their card brands, and those links needed to be established. As mentioned earlier with the point-of-sale dial-up networks, data communications businesses can be very costly to build and maintain. Few acquirers wanted to do so. Gateway providers allowed acquirers and their processors to outsource the movement of data from their data centers and hubs to the various network endpoints needed.

CONCLUSION ▶

© 2013 2Checkout.com, Inc.

CONCLUSION

All of these players helped to build and define the modern infrastructure of digital payment services. This overview completes the first section of The Life of a Transaction: How Credit Card Processing Works – Part 1: The Evolution of the Payment System, but return to 2Checkout Resources for the second part of this white paper, The Modern Payment System.

Have questions or tips?
Want to share your experience?
Connect with us on:

ABOUT ▶

© 2013 2Checkout.com, Inc.

ABOUT

Global Payments Made Easy.

A worldwide leader in payment services, 2Checkout maximizes online sales conversions by giving global buyers localized payment options. Trusted by over 50,000 merchants, 2Checkout supports transactions in 196 countries through 8 payment methods, 26 currencies, and 15 languages, forming one of the leading processors of online transactions in the world.

Connect with 2Checkout and learn more about how our services can enable you to implement these principles.

Connect >>

Thomas Kossler

is a 40-year veteran of the credit card industry, having worked with both private-label and general purpose card programs, ATM networks, and with most major acquirers. Mr. Kossler is a former member of the 2Checkout board of advisors.

© 2013 2Checkout.com, Inc.