the future of payment systems

Exploiting new technologies in the payment systems arena

Customers have high expectations of what can be achieved with technology. They seem both incredulous and dissatisfied when their bank is slow to adopt new capabilities, interpreting this approach as inflexible and outdated.

This article explores the real reasons why many retail banking organizations have been slow to exploit new technologies in the payment systems arena, and highlights the opportunities that are now available.

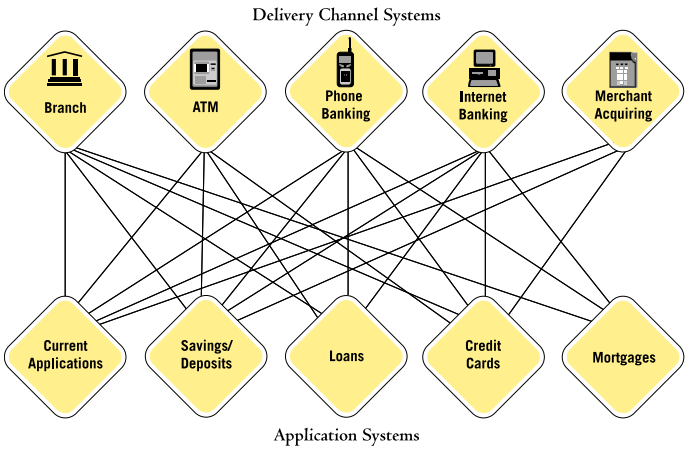
The Current Situation

Most banking systems have grown up over many years, often bit by bit. The result is often far from perfect, but very few banks can afford the luxury of discarding their legacy computing systems and replacing them with a new, purpose-built solution.

Every time there's a major new development – the launch of a delivery channel, for example – many organizations struggle to make this fit with existing systems and structures, or they create a parallel environment.

The simple "branch model" of banking is based on the assumption that a human would always be present. This, of course, is not the case with key delivery channels that have been added in recent years: ATMs, merchant acquiring, phone banking, call centers, Internet banking and e-commerce. The response of many organizations has been to create separate systems for most or all of these channels. Often these separate systems work on independent copies of account information. This means that a complete view of transactions on any particular customer account may only be available at the end of the day in the overnight batch consolidation process.

Typical systems architecture.



Banks have been forced to add on systems to support new delivery channels. They now struggle to provide adequate customer service levels because of batch (instead of real time) information delivery from the application systems.

The simple current or savings account, essentially unchanged in the past 30 years, has recently transformed into a complex range of products highly tuned to the age and lifestyle of each customer. At the same time, banks have had to diversify, offering a far wider range of products and services from term deposits to insurance. By increasing the number of products held by each customer (the customer/product ratio), banks are effectively defending their customer base from defection to competitors.

New Pressures

However, as customers acquire more products with the same organization, they want to access them all…any way they choose. So if, for example, a customer uses an ATM to check their current account balance, they will also want to use this ATM to check their loan account balance and repayment mortgage balance. Also, having drawn cash from the ATM, when they go online at home they expect their Internet banking site to prevent subsequent transactions that take their account into overdraft.

Customers also want to buy new products through the channels of their choice. It goes without saying that it's essential for banks to seize this sales opportunity, but of course not every delivery channel is suitable for selling every product. Nevertheless, the trend has been towards the simplification of banking products, making many better suited to sale through automated channels. House insurance, for example, was traditionally purchased only at a branch; today it is also available through call centers and at Internet sites. Some organizations now offer mortgages through call centers and online.

At the same time, retail banking organizations such as your own are under enormous business pressures to:

- Recognize the customer, no matter which channel they use
- Know the range of products that a customer has already purchased
- Provide consistent branding and service levels through every channel
- Get the very most from every contact with a customer – whether they visit a branch, ATM or Internet banking site
- Secure the greatest return from current assets – staff, branches, IT infrastructure, etc. – to increase business margins
- Encourage customers to purchase multiple products, as this reduces the chance of defection
- Deliver products focused on smaller segments of the customer base rather than generic products intended for everyone
- Make a more refined assessment of transaction risks, to reduce the likelihood and cost of a customer defaulting

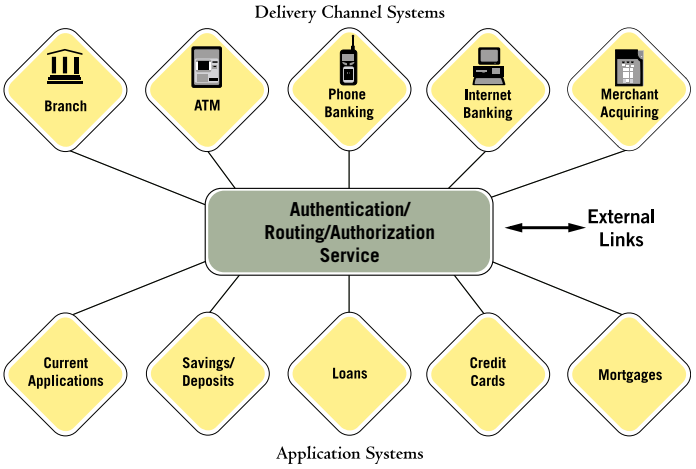
Many of these pressures arise from changes in the competitive landscape. However, changing customer patterns, often created by changes in technology, are also responsible.

Recommendations

So how can banks exceed customer expectations and grow business margins when they cannot afford to discard legacy systems? We suggest an answer with three layers:

1. Develop a new infrastructure that has a single point for authorizing transactions for all channels
2. Apply segmentation to authorization decisions
3. Use modern techniques – rules engines and neural technology – to create a payment engine responsive to business needs.

Layer 1 - Developing a New Infrastructure



New infrastructure.

By developing a centralized authentication/authorization process, banks can end the isolation of delivery channel systems from application systems, cutting costs and facilitating realtime information delivery.

ACI Worldwide recognizes that there is no need to discard existing systems. Instead, banks can add a centralized authorization process to improve their return on these legacy investments. This process would take two parts: authentication, which involves validating the customer to the system (using different techniques for different delivery channels), and authorization, the process of considering the risk of allowing the requested transaction.

Whether a transaction starts in a branch, a call center or on the Internet, the steps to determine whether to approve or deny the transaction are virtually the same. It's therefore relatively easy to centralize this process. As our illustration shows, the service

delivery channels all link directly to this central point, and route through to any back office application system. This new infrastructure also enables a bank to be more aware of all the interactions the customer is having with their organization.

Layer 2 - Applying Segmentation

In addition, today's technology allows the authorization process to be far more responsive to a bank's business pressures. Rather than "hard coding" a basic set of rules into the centralized authorization system, banks can use pseudo English-style rules definitions. These allow more complex decision-making to be implemented and adapted to suit changing business needs. Without any implicit limitation on the items of data that can be used or how this data must be applied, banks can become much more flexible.

Imagine your organization wants to give special treatment to a particular segment of your customer base (for example, sell more life assurance to men aged 30-40 years, or reject mortgage applications in certain geographical locations). With this new infrastructure, it's easy to instruct your authorization system to process these transactions in a different way. By using Java-like scripting, subsequent changes can be made just as easily.

"Royal Bank of Scotland Group has pioneered the use of scripted authorization. Business drivers for change, that would previously have required software development, have been possible through changes to authorization scripts. This cuts development and testing time dramatically and, as a result, produces a quicker time to implementation. This has also made it easier to implement more complex rules in the authorization process. Lastly, but importantly, the risk of the change is reduced because the complexity of the implementation is simplified," said Paul Jackson, Acquisition Programme Manager, Royal Bank of Scotland Group, UK.

Layer 3 - Using Modern Techniques

Rules engines can provide excellent decision-making support. In conjunction with object technology, rules engines provide an environment where it is easy to implement and, perhaps more importantly, change segmentation in the decision-making process. Each element in the process is broken down into what is called an

object (examples include questions such as "Is the PIN valid?" or "Has the customer exceeded their usage limit?") and these are combined to meet the business need to authorize a particular transaction. New objects can be created to analyze specific data elements, and objects can be used in the rules engine in many combinations to meet the particular requirements of each organization.

The pattern recognition power of neural network technology is today being used to identify transactions that are fraudulent, part of a money laundering process and even indicative of subsequent customer default. Historic transactions are analyzed to detect patterns; these are then compared with the current transaction to generate an indication of how closely they meet the historic pattern. The power of modern computers allows this process to be carried out in real time, producing immediate evaluation of a transaction that could be taken into account in the authorization process. Even an immediate "after the event" analysis is valuable in reducing future fraudulent or costly activity on the account or card.

At ACI, we believe that with these three layers, any organization – with any legacy systems – can create a payment engine that is more responsive to business needs. When you know it is appropriate, you can relax the rules of a particular account.

In other circumstances, you can strictly apply the rules. Here are some examples.

- You could accept a withdrawal request that takes the account over its limits when the customer has no history of going overdrawn. You could reject the same request when the customer has been regularly overdrawn and takes time to correct the situation.
- To determine the overall funds available to a customer, you can sweep together the balances of all their different accounts – savings, loans and current accounts.
- You could offer customers an incentive (such as higher interest rates) to establish a linked set of savings accounts with shared usage rules (such as no withdrawals of less than $200, or a limit of six withdrawals per year). Customers could use these individual accounts for different savings purposes. In the UK, several banks have recently introduced this type of product.
- You can reduce risks by monitoring customer activity. If, for example, activity on a credit-based account suddenly increases as activity on a current account declines, the customer might default. Your payment system can trigger contact with the customer to establish the real situation.
- You can respond to customers in different ways. An informal link between a customer's different accounts gives you a clear indication of the value of that relationship. Your response to "high value" customers may be different than your response to single-product customers.
- You can apply different rules to different delivery channels. If a customer makes multiple requests that take an account overdrawn, your system could generate the proposal that this customer takes out a loan. Naturally, it would only be appropriate to deliver this proposal via certain channels – branch, phone banking and Internet banking; possibly not ATM and certainly not merchant acquiring channels.

Overcoming Objections

With all these advantages, why has the retail banking industry been slow to adopt these technology solutions? There seem to be two key reasons.

First, organizations are reluctant to risk making such a major change to the IT infrastructure. While the full benefits are realized once most or all channels are routed through the centralized authorization system, at ACI we have proved that step-by-step implementation is also feasible.

Second, in many banks, the people who own the current, disparate systems are reluctant to give up control (and their IT budgets) to allow the creation of this more shared architecture. Smaller organizations might be able to convince everyone to cooperate for the greater good of the bank. Larger organizations usually require a high-level sponsor or strategy group to facilitate change.

Why ACI?

We make it our business to help customers optimize their return on investment, transact in high volumes (ACI software processes more than 40 billion transactions in a year), and apply new technology. We lead in e-payment processing products and have vast payment marketplace experience.

Among software providers, we are unique in our ability to address the breadth of services across the payments value chain – a single source for end-to-end solutions, helping you to simplify implementations and speed your time to market for new services.

ACI Commerce Framework