
Real-time Insight into Payments

by Dr. Giles Nelson

Complex event processing gives banks and corporates real-time visibility of their payment processes which is an important requirement in the quickly changing payments landscape.

The Payment Services Directive (PSD) and the single euro payments area (SEPA) are beginning to have a substantial effect on the banking industry. A key question for banks is how they are going to respond to these changes and, in particular, how they are going to use new technology to ensure they can operate efficiently and continue to compete.

Currently, between 30-40% of non-interest revenues for banks comes from payment processing. With cross-border payments soon costing the same as domestic payments, the higher revenues from cross-border payments will disappear and banks will be left with a gaping hole in their finances. Furthermore, banks will be exposed to greater competition, as corporates will no longer need to use domestic and international banks to execute their European payments. The revenue loss that banks may suffer is estimated to be significant.

Cap Gemini and ABN Amro estimate that direct payment revenues may decline by between 38-62% in some parts of the market by 2012. Other estimates put the decline in European payments revenue between US\$18bn and US\$44bn. While banks are feeling the pressure from this, it is undoubtedly good news for European businesses and consumers. Financial Insights, the financial services analyst firm, estimate that between 0.5-0.75% of GDP in European countries is currently spent on payment processing. The reduction of this should make us all a little richer.

Competition is further increasing with new payment institutions entering the market. Paypal is probably the most well known example. Most of the payments made through Paypal are still tightly linked to, and dependent upon, a bank providing the underlying infrastructure. However, fairly recently Paypal incorporated itself as a bank and will, therefore, be able to deepen its service offering in a way it was previously barred from doing by regulations.

Mobile telecommunications companies are often also cited as an obvious way for consumers to make small payments (micropayments) in a highly convenient way. So far this has yet to really take off, but the whole macro change in the market promised by the PSD offers opportunities for either mobile telcos to take either a lead themselves or for them to team up with banks to offer micropayment services.

In parallel with regulatory and competitive changes in the market place comes the influence of modern information technology (IT). Service users now expect instant access to information and services, usually over the web. They want to know how their important transactions are being executed, when they may expect completion and if there are exceptions that will materially affect their business. Too often, though, banks have been slow to introduce these services and corporates slow in demanding them. To force change, regulatory bodies have had to intervene.

In the UK in 2008, the Faster Payments Scheme (FPS) was introduced to deal with the issue of banks being slow in speeding up the three-day payment cycle. Consumers are now benefiting because payments can be made in near real-time between domestic banks. A consumer now feels, when using online banking, that things are happening in a way they intuitively expect.

To summarise, banks have to face the following issues:

- Lower revenues and greater competition in the payments market. This will lead to fewer banks processing more payments at lower margins.
- Outsourced payment operations. Some banks will decide to leave payment processing to others. They will use another bank's white-labelled payment services. For example, Deutsche Bank is already offering such services.

- Greater expectations from customers. With greater competition banks will have to differentiate their payment offerings using value-added services. These might include giving more day-to-day control over how and when payments are executed and the provision of tools to allow customers to monitor and control their payments.
- Greater risk of fraud. Easier cross-border payments and faster payments execution mean that banks are more exposed to fraud. The SEPA Direct Debit (SDD) is seen as a particular problem area. Already banks are struggling: with FPS, banks have had to agree two-hour grace periods where payments are still revocable because fraud and anti-money laundering checks are currently not possible in the standard 12 seconds that banks have to execute a faster payment.

How Can Technology Help Respond to These Challenges?

The core processing systems in many banks are still mainframe-based, often using code and data back to the 1960s. They are highly dependable systems and have had, in some instances, hundreds of millions of dollars invested in them. However, banks that want to become payment leaders are going to have to think big. They must be able to deal with higher payment volumes and offer higher-value services in order to compete. Simply relying upon tried-and-tested technology platforms that may have worked previously, in a predominantly national environment, won't be viable. Banks that are not prepared to invest will have to outsource their payment operations or get out of the payments business altogether.

Some lessons about the use of technology can be learned from elsewhere in financial services, particularly in electronic trading. The trading of equities, foreign exchange (FX), derivatives and bonds has been transformed over the last decade with the introduction of new technology. In fact, it has got to a point where trading is so dependent upon technology that the two are indivisible.

Investment in technology by banks and brokers has been motivated by having to deal with greater volumes of trades, the wish to be the first to identify and execute on trading opportunities, and the need to differentiate services to clients such as asset managers and hedge funds. Of particular influence has been complex event processing (CEP). This enables real-time business data to be monitored, analysed and acted on with unprecedented flexibility and speed. As well as being used to monitor market data and execute trades automatically (algorithmic trading), it has been used by banks for real-time risk management reporting. No longer do banks have to wait until a risk management report is delivered, perhaps, twice a day. Positions can be monitored continually and exceptional positions identified; these can then be dealt with immediately.

Exchanges and regulators are also using this technology to give them an immediate operational view. The UK Financial Services Authority (FSA) is using CEP to identify suspicious and aberrant trades in real-time so it can intervene and stop abusive behaviour before it has a material effect on the market. In software industry parlance, they are using it to perform business activity monitoring (BAM).

The same benefits that CEP technology has provided in capital markets are equally relevant in payments. CEP technology can provide a true real-time view of payment operations so organisations can more proactively identify exceptions in payment execution, to better predict when cut-off times will be exceeded and better manage liquidity. While some payment systems may give access to some real-time status information, often there's very little analysis provided and no correlation with information held in other systems. CEP technology can reach into many systems, mainframes included, to provide a more holistic and correlated view of operational information. And CEP technology is built for scale and performance, so it can cope with the greater payment volumes that will arise from consolidation and the provision of outsourced services.

Payment customers themselves can directly benefit from better real-time insight. With the right choice of technology, banks can offer access to key information about customer transactions on graphical dashboards, delivered directly over the web. Visibility and control can be placed in the hands of customers themselves. The richness and flexibility of this may vary, depending upon the sophistication of the customer and the revenues coming to the bank.

Fraud detection is another area that can benefit. Already in electronic trading, as well as in conventional retail businesses, this technology is being used to identify patterns of behaviour that are fraudulent, or marked as potentially fraudulent and then analysed further offline. It is becoming more important to move from a prescriptive, rules-based anti-fraud approach to one that is based on looking for temporally correlated patterns

of behaviour that deviate from historical norms. This promises to be a more resilient approach in a world where many fraudsters actually know the prescriptive anti-fraud rules.

Conclusion

The macro changes in the payments market that are in play will require banks who want to take a lead in payments processing to innovate and modernise their payments infrastructures and the services they offer to clients. With payments moving faster, increasing pressure from fraud and greater competitive pressure, the need for real-time insight and control will prove irresistible. New technologies, such as CEP, proven elsewhere in the financial services industry will provide part of the answer.