



Letter from the CEO



When the business history of the late 'noughties' is written those of us involved in banking and financial technology will be reminded of a challenging time.

Banks remain under unprecedented pressure not just from the business slowdown and squeeze on available capital but also in terms of public perception. Rightly or wrongly, banks have taken a lot of the blame for the current economic turbulence. In times like these it is even more important for banks to go 'back to basics' and rebuild customer trust by ensuring the availability and quality of their banking services.

As the primary customer touchpoint, the ATM channel provides a critical channel through which banks can re-engage with their customers. Our mission is to help banks to reduce costs and improve the quality of their ATM networks. This focus has helped shape emerging

best practice in ATM test automation and enabled Level Four to grow through 2009 in terms of clients, revenues and new geographies.

This newsletter will focus on the similarities and differences between ATM strategies in Europe and America. We will also discuss the importance of data stability when implementing effective best practice testing. Finally, we will highlight some of the benefits of the workflow feature in Regression Test Manager (RTM), and provide our existing customers with some top tips. I hope that you enjoy the read and that you have a successful 2010.

Ian Kerr, CEO, Level Four

Please email your comments to enquiries@levelfour.com

TecBan implements Level Four technology to maximise services and innovations in their ATMs



Level Four announced that TecBan, a company specialised in ATM network management, is using Level Four's BRIDGE:test for their ATM software to deliver greater test automation to their network of over 6,800 ATMs. With the new technology, TecBan can provide

better customer service to its clients – the largest and most important banks in Brazil – by improving quality and increasing the speed to market of the new functionality. Additionally, automating test procedures have provided TecBan with more rigorous and frequent testing at a reduced cost to maximise availability of their ATM network. With BRIDGE:test, TecBan have incorporated the technology in the development life cycle, enabling new services to be rapidly rolled out to the market and ensuring high levels of ATM availability for their customers.

Stop press

Level Four signs first BRIDGE:test customer in Asia.

Level Four is proud to announce its first customer in Asia. The region has always been a strategic growth opportunity for us and this customer is a significant step forward to building our presence in Asia. More details to follow in the near future.

What's inside

The differences between American and European ATM strategies..... 2/3
Best Practice: the importance of data ... 4
Workflows in Regression Test Manager (RTM) 4

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The differences between American and European ATM strategies

Are American financial institutions lagging behind their European counterparts in regards to the ATM functionality offered to customers? Generally speaking, the answer is yes – American banks tend not to have implemented the self-service applications that encourage consumers to use ATMs for activities beyond simple cash withdrawal. While Europe has been utilising advanced functionality self-service applications since the 1990s, it is just now becoming a trend in the U.S., and one that will certainly affect how banks do business moving forward.

One of the major structural differences between the two markets is the degree of fragmentation within each banking environment. The European market is more consolidated than the US, having experienced several decades of mergers and acquisitions across the sector. While the U.S. has seen a higher level of consolidation in the past two years, there are still significantly more financial institutions in the U.S. than in Europe and the U.S. has about 8,500 federally chartered institutions that are insured by the FDIC. This has meant that, in terms of ATM deployments the US market is unique. In fact, the top ten banks in the U.S. own approximately 50 per cent of the country's ATMs and there is an additional dozen or so institutions that deploy between 500-800 ATMs each. In comparison, only three to four of the top financial institutions in each country dominate the market in Europe, with 50 or more per cent of all ATM deployments.

The rate of adoption of new technology is also a key differentiator and Europe clearly leads the way when implementing new functionalities at the ATM. In recent years, the underlying technology platform for ATMs has undergone major change in both Europe and the U.S from OS/2-based systems to Windows-based ATM platforms. In Europe, this shift, synonymous with the introduction of XFS-based, open standards technology, started in the late 1990s. It also enabled the concept of “multi-vendor” networks, where a single application could run across ATMs from different suppliers. These technology changes were partly driven by consolidation within the industry since mergers and acquisitions meant that many banks required a single application to run across their entire fleet of ATMs. This was especially the case with the top European banking groups who operate across numerous countries and recognized that utilizing XFS-based, open standards technology would help ease the burden of network consolidation.

The implementation of EMV also played a key role in driving technology changes in Europe since the early 2000s. While this standard is not yet a reality for the U.S. market, European banks faced the challenge of complying with EMV specifications, designed to combat growing levels of magnetic stripe card fraud. Many of the old systems running on their ATMs were not physically able to handle the additional cryptography overhead that was required to process chip transactions. Consequently, financial institutions



were forced to replace much of the software within ATMs in order to efficiently meet the EMV specifications. Furthermore, because there were physical limitations on the hardware, many financial institutions chose to upgrade their ATMs to higher spec machines. These refresh projects were inevitably Windows based, open standards devices, and often went hand in hand with a communications upgrade to TCP/IP.

While many top U.S. based financial institutions have been slower to implement new technology, they are very aggressive in their research of new technology. Generally speaking, in Europe, banks are more inclined to either write their own application or have a unique application written for them by a third-party vendor. This is especially true in France, Spain, Italy and Germany. This is very different from the U.S., where most financial institutions generally prefer a more off-the-shelf type of solution from one of the top technology vendors.

The existence of a larger mid-tier banking market in the U.S. impacts technology adoption as well. The US has a significant number of institutions that deploy 300 ATMs or less and many do not run their own ATM network. It is simply not cost effective for these smaller financial institutions to have a dedicated ATM IT staff so many prefer to outsource the responsibility instead. This trend is less frequently seen in Europe, since most financial institutions are normally much larger, with at least 1,000 ATM deployments each, making an in-house solution the more cost effective strategy.

In terms of ATM functionality, in countries such as France and Spain, the propensity to innovate at the ATM has been high. Because banks develop their own ATM applications in these countries, they are able to easily develop additional self-service transactions, such as ticketing applications for mass transit and mobile phone payment applications. While the Spanish and Portuguese have been enjoying

these self-service benefits at the ATM for several years, Americans continue to use the ATM primarily for cash withdrawals, balance enquiries, and check or cash deposits.

While several structural and regulatory requirements – such as EMV mandates – have moved Europe ahead of the U.S. in terms of ATM functionality, the gap is shrinking as the US is increasingly focusing on this aspect of their ATM offering. This is in part due to the growth in self-service technology across numerous areas, including airport check-in, mass transit ticketing machines and grocery store checkout lines. It is likely that the technology will become more popular with consumers over the next couple of years and, as a result, banks are likely to increase their self service offering at the ATM.

As more American financial institutions move to Windows and open standards-based technology for ATM applications, banks will be able to fully utilise the ATM as a critical revenue stream and increase the services offered through this channel. For example, as banks begin to rebuild customer relationships, they are looking to capitalise on the ATM network by deploying technology that enables the ATM to not only recognize and authenticate the user but also provide personalized transactions, such as remembering cash withdrawal habits, deposit habits and offering updates to accounts the customer holds.

Whilst there are many differences between the European and US ATM markets, it is clear that developments within the industry are occurring on both sides of the pond. Though Europe leads the way in ATM innovation, banks in both areas have a significant way to go in fully utilising the channel. As banks in both Europe and America look to build relationships with their customers and increase their customer service offerings, improving the ATM channel is set to be a focus for all banks in 2010.



Best Practice: the importance of data



For repeatable and reliable testing to be successful, it goes without saying that the data which drives the tests itself needs to be repeatable and reliable. Whether manual or automated testing is deployed, its validity can only be as rigorous as the test data provided. For regression testing, the test data needs to be consistent run to run. With manual testing, there is often room for the data to be prepared before each test run. With automation, tests are

usually started as 'fire-and-forget' with results being analysed at some point in the future. In addition, the volume of tests that are run simultaneously increases. Both these factors make manual preparation a non-starter for effective automation. Furthermore, because of the speed and volume of testing, the data provided needs to be reliable and repeatable as well as able to cope with the high demand for data that an automated test environment enforces. Many financial institutions have reliable and repeatable test data but this test data is geared to manual testing which then becomes unreliable in an automated environment.

To illustrate: it is common in manual test labs testing ATM application software to find one or two plastic cards that are used for transaction flow testing. The accounts that these cards tend to be associated with are usually of the unlimited type (no limits on ATM withdrawals or account balances). However, unlimited in this case quite often is a limitation that is not reached when manually testing. When the same card is offered to an automated test environment multiple instances of the test tool will use this card to fire off tests which result in a tenfold, sometime hundredfold increase in their usage. It is not uncommon to discover at this point that the 'unlimitedness' of these cards/account are limited. For example, the balance in the account being depleted at a rate manual testing could not achieve;



what was once seen as an unlimited balance being reset at midnight is now depleted in a matter of hours. Examples like these show how a potential full run can be stopped because of the reliability and repeatability of a test being unable to cope with the high demand.

To conclude, one of the key steps organisations need to implement for successful test automation is data stability that will support high demand using a repeatable and reliable data set. Data stability enables successful test automation consistently and over time as well as benefiting manual testing processes.

Data stability is one of the key foundations of any automated test environment.

Mark Hazelhoff Roelfzema,
Head of Product Management, Level Four

Workflows in Regression Test Manager (RTM)

Regression Test Manager (RTM) in version 2.10 introduced a workflow. The workflow starts with creating a test case (Design phase) in which the domain expert builds a test case which reliably runs and passes all its rule criteria. At that point it would be set to Execution phase to allow it to be executed as part of a test set execution run. As the number of test cases increase (through hundreds if not thousands of test cases) it is expected that a number of them will fail for various reasons; for example, the application has changed, the upstream host reacts unexpectedly, or the test case conditions are incorrect. The test case is then analysed and, if found to require modification, the test case will be set to Design phase which will prevent it from being executed as part of a test set run.

This has little impact for a single tester, who should know what is in Design phase and what is in Execution phase. In larger teams however, where the roles of domain expert and tester are not always held by the same person, the team needs to be aware of any changes to test cases. This is especially true for test Project Managers who must be made aware of what is and is not being tested during each test run. In the reporting pages of RTM, users are able to sort results. By sorting test reports on the status of a test case it is possible to show which test cases were not executed in a test set and therefore provide the feedback to the test project manager and the wider team.