



Case Study Abbey National plc (Abbey)

Abbey improves automation and control of its cash machine network with cost effective solutions from Level Four Software

Abbey, one of the UK's largest personal financial services companies, was formed following the merger of the Abbey Road Building Society and the National Building Society in 1944, and listed on the London Stock Exchange in 1989.

Abbey offers a comprehensive range of personal financial services, including savings and investments, mortgages, banking, pensions, unit trusts, life and general insurance products, as well as secured and unsecured lending, to over 16 million customers in the United Kingdom.

Following the announcement made in February 2003 that Abbey will focus solely on UK personal financial services, its strategic goal is to deliver to UK consumers the highest level of service and advice.

Part of this strategy includes providing customers with highly efficient and functional cash machines. Abbey has been working with Level Four to support the development of new screen content, to automate testing and prepare its entire cash machine network for EMV compliance.

Case Highlights

Background

Abbey supports over 16 million retail banking customers in the UK served through 741 branches and 2,800 cash machines.

Challenge

The bank required a solution to help develop new screen content and functionality on its cash machines and automatically test its entire network from the desktop. It also required a tool to prepare its cash machine network for EMV compliance.

Solution

Abbey installed Level Four's ATM test and development software - the ATM Channel Development Suite, plus EMV FastTrack to meet the EMV mandate.

Results

Empowered Abbey to develop new cash machine applications in-house.

Drastically reduces timescales and costs of adding new cash machine functionality.

Increased confidence in deploying and solving network problems quicker.

Automatically tests every level of functionality and every potential transaction from end-to-end.

“Abbey cited the speediness of adding new functionality to the cash machine network as a key selling point of Level Four’s technology.”

New functionality required on cash machines

Abbey has always been focused on delivering value to its customers and one key area within its retail banking strategy has been to provide an efficient, highly functional cash machine channel. Back in 1997 the bank needed a solution to help it develop new screen content and functionality on its cash machines to serve the increasing number of cash machine users in the UK. At that time, Abbey was encountering problems with memory management within its cash machine network. It needed to determine how best to categorise the screens on a machine and identify any screens that were using more memory than necessary. It also needed to introduce foreign language capability for VISA customers, which would involve a major review and re-organisation of the screens. The bank wanted to avoid labour intensive manual searching and use automated tools to achieve this.

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ANDY SAMPSON,
SYSTEMS MANAGER FOR CASH MACHINE
DEVELOPMENT, ABBEY

Abbey also wanted to upgrade the content on its cash machines using automated software. Its existing approach required making a change to the cash machine test screen/state configuration files, with very crude complex edit tools, and loading onto physical cash machines in a test room. Staff would then manually check each screen and state flow using test cards on cash machines connected to a test host system. This approach was becoming very resource intensive and time consuming.

Automating this process would help improve the time to market for adding new content to its cash machine network. This was vital considering the competitive nature of the banking industry and the fact that the bank supported one of the largest cash machine networks in the UK at that time. Today the bank’s network supports circa 3,000 machines.

After evaluating several companies, Abbey selected Level Four Software to provide the capabilities it needed. Andy Sampson comments on the initial meeting:

“We saw a demo of Level Four’s product and were truly impressed. We hadn’t seen anything like it before. It showed us exactly what we needed to do and how it could be achieved with automated tools. Even more surprising, the demo alone identified anomalies in our download functionality, so we’d already gained value from the first meeting.”

Automation enhances development

Prior to deploying the solution from Level Four, Abbey had to make all cash machine changes manually on the mainframe and then download this information to each cash machine. This process was difficult to control, time consuming and error prone because of the complex processes and high human element involved. Developers had to update the cash machine test configuration files from a desktop dumb terminal connected to the test mainframe, then download the file to a test cash machine. Any errors, major or minor, meant repeating the lengthy process until a state for User acceptance sign-off and final production release was reached.

Abbey deployed ATM Developer, a key component of Level Four’s ATM Channel Development Suite. Using ATM Developer, Abbey could create, prototype, manage and deploy

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both existing ATM downloads and new content, non-disruptively from an office desktop PC. Providing full simulation from the desktop significantly improved the time to produce files for final, real ATM test sign-off.

Abbey was able to introduce new applications to its existing software architectures through the creation of new ATM downloads and server-based logic, and migrate painlessly to more sophisticated environments as they were deployed.

The software instantly enabled Abbey to map out the sequences of every potential transaction state flow, and cross-reference the flows to analyse where potential faults may occur. The software can route straight to the problem, so if a mistake is made in deployment it is very easy to identify and correct.

Martin Macmillan, CEO, Level Four, comments, "Our software has empowered Abbey to develop new ATM applications in-house, drastically reducing timescales and costs. And because our software is not hard coded, or fixed to a certain standard or protocol, it is able to adapt as ATM networks change - protecting Abbey's investment. This is particularly important as banks are getting ready for the introduction of chip cards and PIN at point of sale."

From development to testing

Having recognised the benefits of using host simulation responses provided by ATM Developer,

Abbey soon realised the next logical step was to be able to interact with a real test host so that more "real-world" testing could be achieved from the desktop. Key members of the Abbey team worked with Level Four to develop a tool that could meet its requirements. Today this product is called ATM Simulator.

For every screen change or update to content, Abbey needed to be sure that the cash machine

would function effectively and not disrupt users or affect customer confidence. It also needed to maintain a high level of security. The testing tool built by Level Four enabled Abbey to emulate putting a physical card in a cash machine and test the possible routes and outcomes. It could

test every level of functionality and every potential transaction from end-to-end, directly from the card, through the cash machine and up to the test host system. Level Four's tools also mimic the real fonts and graphics on ATM screens, including characteristics such as colour and blinking text, providing a totally realistic test environment.

Abbey has seen significant benefits since deploying the software. For example, as a member of LINK, Abbey can be notified at any time that there is a new joiner, or an existing member introducing a new card range to LINK. Abbey, using ATM Developer and ATM Simulator, can easily add the new card range and attributes (i.e. PIN block format) to a test ATM configuration file and test rapidly before final release and distribution.



“Level Four’s EMV FastTrack is helping Abbey to rapidly deploy new applications capable of supporting the EMV standards across their ATM networks.”

Prior to adopting Level Four’s configuration and test tools, this process could have taken up to two weeks to complete because of the extensive coding and physical interactions required with cash machines and the host system. Today, it takes just 48 hours to update and test in preparation for roll out across the entire network.

Abbey cited the speediness of adding new functionality to the cash machine network as a key selling point of Level Four’s technology. The bank is currently exploring potential new areas of service, for example utility bill payment using the cash machine.

New dimensions of testing

There are still instances when manual testing of cash machines takes place, for example when a person tries to physically break a machine to check the durability and security. Apart from that, all other testing can be derived through software that simulates a cash machine.

For example, testing for sensor failure is possible. Level Four’s software can mimic a failure situation with various different low-level data byte information. The process imitates how a cash machine would respond and tests that the host system reacts in the appropriate way. “This has opened a new dimension of testing for us,” says Sampson.

Previously, the ATM development team at Abbey would have to book out one of the testing cards and one of the six physical cash machines located within Abbey’s testing centre in order to conduct testing. Now there are 20 virtual cash machine environments available from the desktop.

“We’ve not measured ROI scientifically, but we know Level Four’s software and technical expertise is an easy cost to justify,” comments

Sampson. “We couldn’t manage without it now. Today we have much more comprehensive testing and much more confidence.”

Introducing EMV Smart Cards

More recently, Abbey has deployed EMV FastTrack, a tool that enables them to rapidly deploy new applications capable of supporting the EMV standard across their ATM networks.



The European banking industry faces a deadline of January 2005 to meet EMV smart card specifications set by EMVCo, an organisation run by MasterCard and Visa. A full-scale rollout of smart cards will follow shortly after and will affect every single debit and credit card user in the UK. The aim of EMV smart cards is two-fold - to reduce levels of card fraud in the UK, which was approximately £430m in 2002, and to introduce multiple applications on the cards.

Macmillan notes that most UK banks are looking to derive more revenue from their ATM channels and it is anticipated that using multi-application smart cards could turn ATMs into a profitable distribution channel to service customers.

The key feature of EMV FastTrack is its ability to rapidly introduce new products/services at

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the cash machine by shortening the time it takes to test EMV applications and infrastructure. EMV FastTrack avoids the need to burn real chip cards in development phases by creating virtual cards, and simulates all the components in the network - from host switches to ATMs and the banking interface - providing fast, repeatable and all-encompassing testing processes.

Level Four has helped Abbey to understand the complexity of EMV compliance and the potential impact this could have on its business if it isn't fully prepared. Sampson comments, "One of our primary goals is to ensure that we do not inconvenience our customers during the transition. We are confident that by working with Level Four we can deliver improved functionality at the cash machine, and provide a reliable service that our customers can count on."

Sampson estimates that the introduction of multi-application chip cards will see the level of testing on cash machines increase tenfold because of the complexities of the chip. In the shorter term, the introduction of single application chip cards and PIN at point of sale - which is gradually being implemented across the UK from May 2003 through to 2005 - will triple the amount of testing required. Both of these scenarios would make it practically impossible and economically unviable for banks not to automate their testing.

With the use of Level Four’s software, Abbey expects to be EMV compliant by Q1 2004, as much as 9 months ahead of the deadline of January 2005.

Effective working relationship

Abbey and Level Four have developed a close working relationship throughout the course of

their six-year shared history. Level Four has assisted Abbey's growth in the ATM channel, and Abbey has helped shape certain functionality within Level Four's product suite, helping to make it a commercially successful product.

Sampson recognises many benefits of the relationship, particularly the great knowledge within Level Four's technical team that has helped Abbey understand its own network better. "We have increased confidence in deployment and we know we are able to solve problems quicker. Level Four's technology is well ahead of its time in terms of design."

Macmillan comments, "Customers are becoming more accepting of new functionality at cash machines, which means that banks need to keep pace with customer expectations. With our technology a bank can automatically test and easily deploy new ATM applications and content from a central location."



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