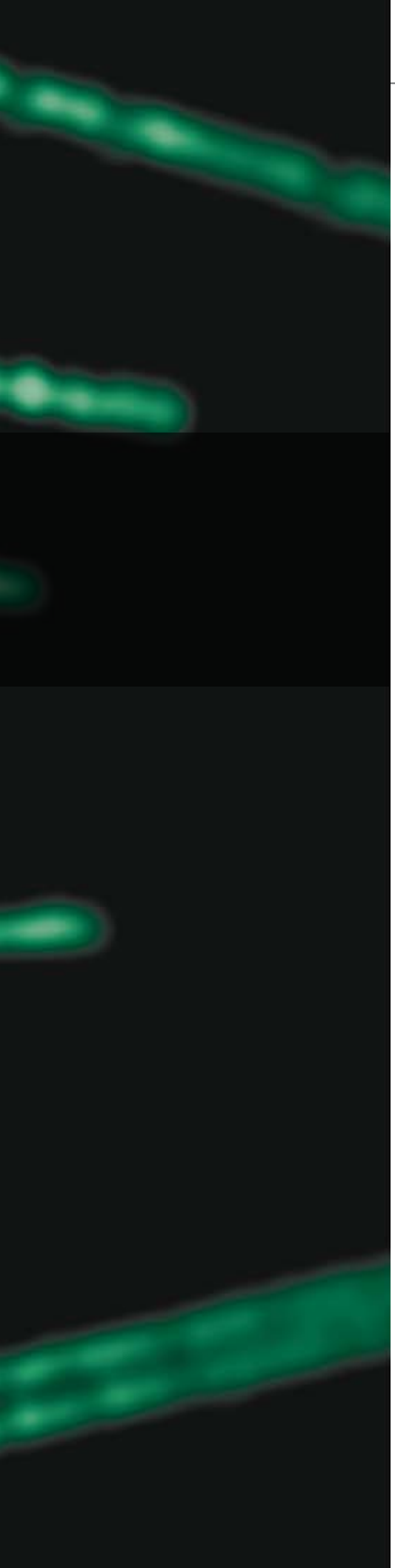
BRIDGE: test

Comprehensive, fully-automated testing of
ATM software applications

levelfour


BRIDGE



Automated testing solution for Windows-based ATM applications

BRIDGE: test is Level Four's advanced testing solution that enables fully automated end-to-end testing of live XFS-based ATM software applications that connect to an online payments host. The product is aimed at financial institutions and payments processors who run networks of Microsoft Windows-based ATMs using the CEN/XFS industry standard open interface.

BRIDGE: test has been selected by many of the world's leading financial institutions and payments processors across Europe, North America and the Middle East. They are using BRIDGE: test to drive cost savings and productivity gains throughout their networks, while ensuring the highest possible level of customer service at their ATMs.

Much more than just a test tool, BRIDGE: test empowers ATM deployers to take control of their ATM application and, as a result, demand the highest level of service from their suppliers.

The changing ATM software landscape

The move away from OS/2 as the dominant ATM operating system towards Windows has offered the industry a significant opportunity. Today's modern ATM applications have the capability to offer a richer and more graphical experience of targeting individual customers.

The migration to Windows on the ATM is synonymous with the introduction of the XFS open standard. This has enabled a separation of the application software from the targeted hardware. This technology shift offers ATM deployers a significant opportunity in terms of running a single ATM application across a multi-vendor ATM estate, resulting in lower development and maintenance costs. This in turn has helped drive down hardware costs as the market for ATM hardware becomes more commoditised. However, there are significant business and technical challenges faced by the market in terms of successfully deploying and maintaining Windows-based ATM applications.

Historically in OS/2 based networks, the primary focus of testing was concerned with the messaging traffic between the ATM and the payments host, which used simple proprietary protocols such as NCR's NDC, and Diebold's 912. OS/2 applications were typically very stable and seldom updated. The configuration of the ATM was closely controlled by the host and the information to change the ATM presentation was downloaded from the host.

With the migration to Windows, much more of the responsibility for processing of transactions is transferred to the ATM; the software stack is now significantly more complex and updates are made much more frequently. A Windows software environment can often contain a number of independently supplied products:

- Manufacturer bespoke Windows Operating System
- Manufacturer specific XFS Service Providers (SPs)
- ATM software application
- Software distribution package
- Monitoring agent
- Advertising software
- Firewall/Anti-Virus software

Compared to the relative simplicity of an OS/2 stack, the increased complexity requires a new approach to testing of the software application. Focus on testing the ATM software itself is now at least as critical as testing its interaction between the ATM and the financial host.

Because of this new-found complexity, Windows-based ATM software must be exhaustively regression tested each time updates are introduced to ensure that the customer experience is not compromised. ATM deployers have to take into account the frequency of security updates for Windows, and should consider how to ensure that these updates do not impact on the ATM application. Clearly these factors compound, resulting in a dramatic increase in the volume and frequency of testing required. This results in an inevitable requirement to introduce a strategy to automate testing.

First movers in Windows migration failed to appreciate how the problem had fundamentally changed and have subsequently suffered software quality problems in the field. It is now industry accepted best-practice to use automated testing tools for Windows-based ATM networks.

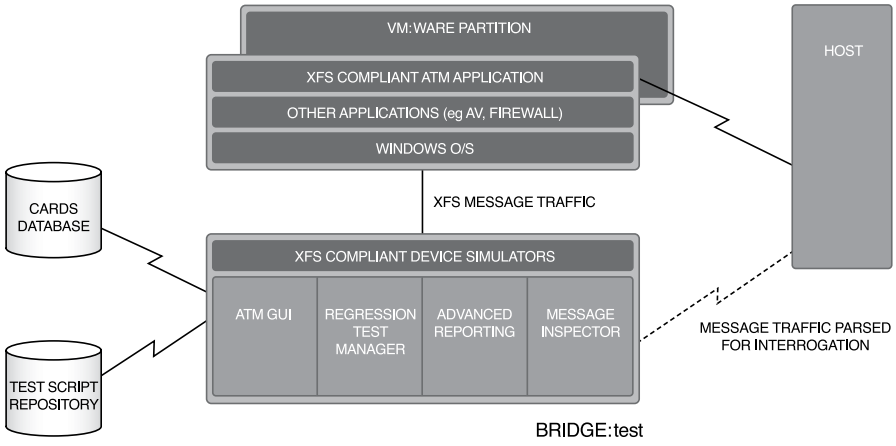
ATM deployers are facing increasing complexity of software running on their ATMs. Some are choosing to develop modern, new applications, which place more logic in the ATM. Others are opting for Windows versions of the legacy applications that were available under OS/2 (eg, NCR's NDC, Diebold's 912 or their various emulations). For either of these scenarios, BRIDGE: test can ensure a far greater breadth and depth of testing than could ever be conducted manually, ensuring more reliable ATM software in the field.

How does BRIDGE:test work?

BRIDGE:test loads ATM software into a separate Windows partition to the main test application. The original software stack (e.g. the load CD) is loaded, believing it is resident on a real ATM. BRIDGE:test provides a simulated set of XFS-compliant service providers that interface with the graphical user interface and regression testing tools within the solution.

Once connected, BRIDGE:test allows the user to control the ATM application through the open XFS layer using an intuitive graphical user interface. Each XFS device is modelled "in software" allowing the setting of complex device failure conditions to use software simulations rather than trying to recreate these at the real ATM. As a result, triggering hardware faults is as easy as clicking a check box.

BRIDGE:test is typically a server-based installation, allowing all relevant stakeholders in both business and technology to access the virtual ATM on their desktop PC through a simple desktop shortcut. Currently BRIDGE:test is being used by development, testing, business, marketing, training and audit/operations areas – testament to its wide applicability within any ATM deployer's organisation.



Key Functionality

Sophisticated Regression Testing Engine
BRIDGE:test provides a full end-to-end regression testing engine for ATM transactions. A high-level scripting language is used to define complex, repeatable tests that can execute automatically. Data-driven testing from an external data source or test case repository can be easily achieved, and existing test plans can be simply imported. A cards database can be created containing details of all the card information (including EMV information) and any combination of transactions, including setting hardware fault scenarios, can be tested automatically. This intensity of testing cannot be replicated manually.

The Regression Test Manager (RTM) functionality within BRIDGE:test provides a way of organising hundreds, and even thousands of test cases within a single test scenario. A powerful results comparison engine can then show actual results compared with an established baseline test, and automatically highlight any differences that the user should be alerted to.

Automated Documentation
BRIDGE:test provides advanced reporting capabilities at both business and technical levels aimed at creating tailored reports quickly and accurately. HTML reports can be created to accurately record all events occurring within the ATM, including screen displays, XFS message traffic, host messaging traffic among others. This provides a single point of reference that is created at source.

Test results documentation can be easily stored and used in conjunction with a test case repository as a way of proving that certain tests were carried out, and verifying their corresponding results.

Support for EMV/3DES
BRIDGE:test has comprehensive support for the latest security standards including EMV and 3DES. Its EMV support provides a chip simulation and full card interrogation, seamlessly interfaced into the BRIDGE:test user interface. It is possible to interface with an industry standard EMV card reader to create a soft image of an EMV card, and also to modify any card information in the database (e.g. to see how an ATM application would react to unexpected information on the card).

Advanced ATM device support
Support is also available for the latest generation of enhanced functionality ATM devices including Bunch Note Acceptor (BNA) and Cheque Processing Modules (CPM). These are separately licenceable components within BRIDGE:test and can be provided as and when ATM deployers look to introduce such functionality.

BRIDGE:test

Features

- Provides an independent, flexible, desktop-based environment for any CEN/XFS-compliant ATM application
- Allows any authorised user in the organisation to access a "virtual" ATM on their desktop PC
- Provides a cards database to support all card information, including EMV cards
- Allows an automated replay of test cases for truly automated ATM application testing
- Ensures all host message traffic is visible and captured
- Ensures test documentation is fully automated, enabling the highest quality standards to be achieved
- XFS standards compliant

Benefits

- Eliminates dependency on using real ATM hardware for testing
- Reduces human error of manual testing
- A realistic ATM interface that can be used in other business areas (e.g. helpdesk, training and marketing)
- Dramatically reduces time to market of new ATM application releases or updates
- Significant improvements in the breadth and depth of testing scenarios that can be executed
- Enables XFS standards conformance testing

Installation and configuration

BRIDGE:test is typically installed in a server environment on the ATM deployer's internal Local Area Network. This approach allows users to access the software through a desktop shortcut, and also simplifies the host connection requirements. Configuration is performed onsite by Level Four's skilled engineers.

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