Automated TV client testing: Swisscom partners with S3 Group to deliver the ultimate IPTV experience

Swisscom selects S3 Group's StormTest® to meet its automated testing needs

Swisscom, Switzerland's largest telecommunications provider with more than 700,000 digital TV customers, recently made the decision to automate the testing and validation of its IPTV service. After careful evaluation of different solutions, Swisscom selected S3 Group's automated test platform StormTest.

S3 Group accelerates the end-to-end delivery of multiscreen TV for digital TV programmers, operators, component vendors and managed service providers. The company's automated digital TV testing platform, StormTest, allows the automated software testing to be executed efficiently and effectively across multiple digital TV platforms and is proven to reduce testing effort by up to 80%.

Why did the need for automation arise?

With each new client release, Swisscom goes through a test phase to guarantee the quality of builds delivered to the operator's subscriber group. The Swisscom-branded Microsoft Mediaroom Client and the operator's applications run on the Mediaroom Presentation Framework (MPF) supported by the Microsoft Mediaroom IPTV platform.

As with many pay-TV companies, Swisscom previously carried out the testing and validation of its IPTV services manually. The problem is that traditional manual testing is time-consuming, repetitive and provides more margin for errors. This manual testing process became untenable when the need for testing broader and more complex usage scenarios emerged within Swisscom. The operator went looking for a tool that would allow the automation of its IPTV client testing while providing more efficient, accurate and repeatable test cycles – an objective that was previously unachievable.

The key challenges of automation that led Swisscom to select StormTest

As a core requirement, Swisscom was looking for a tool that would allow it to verify and test automatically the entire set of services and technologies delivered to its subscribers via its heavily customised IPTV Set-top Box (STB).

The Swisscom TV service using Microsoft Mediaroom middleware also posed challenges around building an adequate test tool for automating some of the thousands of test cases on a wide range of IPTV receivers. Quite a few generations of receiver devices are deployed on the operator's network, and any new client release has to work on all of these IPTV devices.

Since manual testing is still the reference method for carrying out end-to-end testing, automated testing had to deliver the same results, if not better. In essence, the automated end-to-end testing had to interface with a customer portal and/or the operator's backend systems and infrastructure equipment.

Two important capabilities that helped StormTest stay above the competition were:

- StormTest's ability to automate the validation of customer-customised STB parameters, by interfacing the platform with the operator's Customer Portal. This includes using the OTT interface as a data

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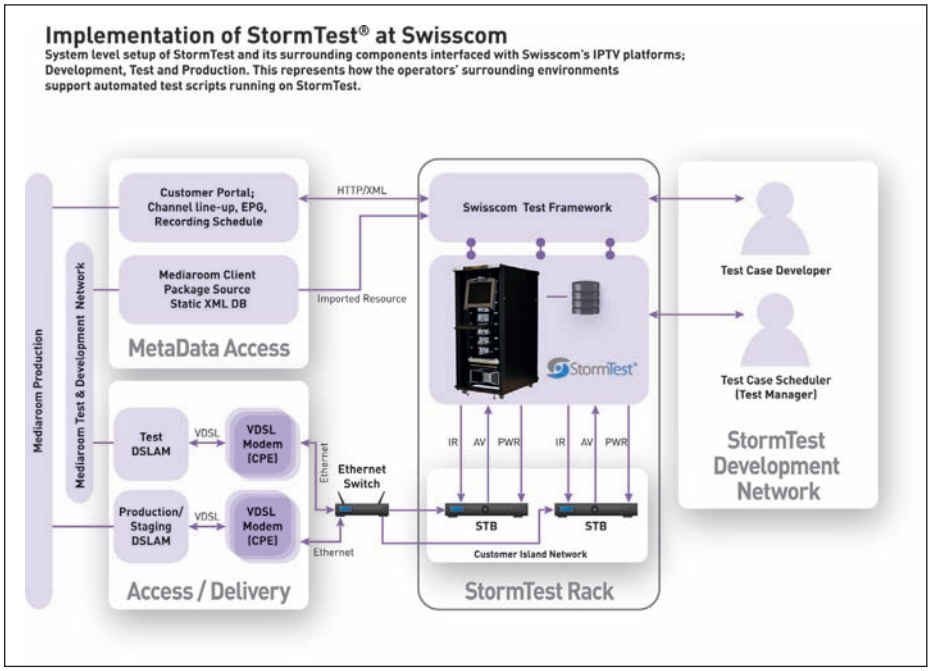

source for customer channel line-up, verifying the scheduling of recordings and automated validation of changes carried out by the customer on the STB side (configuration parameter changes, including channel display order verification);

- StormTest's ability to test the performance of TV apps running on various releases and generations of STB, including measuring loading time during peak hours.

Swisscom's approach to automation with StormTest

Implementation strategy

Swisscom relies on the HV16 rack configuration of the StormTest test platform, populated with a host of Swisscom's current and older-generation IPTV STB devices; these include the latest multi-room PVRs and zapper boxes as well as older devices out in the field that include a variety of different brands and models.

It was crucial for the operator to keep full control of its IPTV clients. For that reason, Swisscom's testing teams have built a software framework on top of the StormTest API that allows them to control and depict their TV clients in a more constructive way and provides a more pragmatic approach to writing test cases. Now an operator can quickly take advantage of the level of customisation that can be tested on their Mediaroom IPTV client.

Key test cases scenarios

End-to-end platform testing is one of the key testing requirements that Swisscom attempts to automate using StormTest. The operator focuses on checking customer customizable elements including channel line-up, scheduled recordings, parental settings and whether changes are reflected on the TV client.

Swisscom does this by having StormTest interface with TV backend services (e.g., Customer Portal, Mobile App Services).

In the case of channel line-up verification, Swisscom has to test that a customer's parameter changes are reflected on the STB. Checking this is made possible by StormTest. S3 Group's automated test platform first checks which services the customer is entitled to by interfacing with the Customer's Portal and retrieving this particular customer's ~ channel line-up.

StormTest then uses Swisscom's framework as a wrapper to browse through the STB's TV guide, check through the channels and dynamically build up the channel line-up, which it then compares with the customer's line-up fetched from the backend. Any difference between the two is immediately identified and notified to Swisscom's teams for further analysis and correction.

Other test cases include:

- Multi-room testing carried out with the execution of test cases across different devices.
- Performance testing of TV apps and STB client features, such as stress testing of STB applications at peak hours.
- Automated validation of changes carried out by the customer on the STB side (configuration parameter changes, including channel display order verification).

Swisscom's experience of automated testing summarised and the impact of StormTest

After evaluating a given number of frameworks commonly used in the Web space, Swisscom found StormTest to be a highly-reliable test development platform for addressing its automated testing needs both now and in the future. The operator has realised not only the benefits of more accurate, repetitive testing but has also appreciated the extra features that automated testing tools deliver. Such a level of in-depth testing is a strong requirement for them.

Even though Swisscom is still in the early stages of deploying an automated test facility, and it is still quite soon to be in position to carry out an in-depth comparison between manual and automated testing, the company appreciates the fact that it can further develop the tool. They benefit not only in the area of functional testing, but also in addressing the wide array of performance testing needs, which is an area in which Swisscom is seeing much progress. The StormTest deployment has instantly improved the accuracy of testing as well as turnaround time.

Functional testing has been made more cost-effective and reliable through the introduction of automation with StormTest. Testing is also more reliable since more tests are carried out in a more accurate way. More tests lead to more results, and more results allow the identification and correction of more failures, thus delivering significantly more robust IPTV client software during each release.

The end-to-end platform quality delivered at each release has been positively impacted by the introduction of automation. Following the deployment of StormTest by Swisscom, the operator has provided feedback that "[...]as interactive services and multiple devices continue to become the norm, [we] needed a partner who [could] help us ensure the highest quality of end-to-end platforms", and that they have found this partner in S3 Group.

To Swisscom, the capabilities of StormTest's automated testing solution means that further development can be supported in the future.

What's next?

Swisscom is planning to introduce client testing automation earlier in the process in order to benefit further from the extra features and reliability brought by the automation of testing and client validation. The operator regularly deploys new client releases that will need to be tested, verified and validated. Swisscom plans to continue to build up its framework to support new test cases for its future IPTV STB clients and to fully integrate StormTest across the full development life cycle.