How an automated test approach enabled an international broker firm (with multiple trading platforms) to successfully meet the ongoing requirements of MiFID II

The client: A leading international broker

Industry: Capital Markets

Ten10 services: Test strategy, functional testing, automated software testing

The client

The client is a global firm of professional intermediaries that plays a pivotal role in the world's financial, energy and commodities markets. The 2,800-broker organisation manages a portfolio of businesses providing intermediary services, contextual insights and intelligence, trade execution, data and analytics. It enjoyed revenues in excess of £900 million in the first half of 2017.

Preparing for MiFID II

The client needed to prepare for upcoming legislation that mandates the delivery of formatted reports in order to comply with new EU regulations. Preparedness for the EU's revised Markets in Financial Instruments Directive (MiFID II) is a priority: the regulation comes into effect on 3 January 2018, and requires the company to disclose details of orders submitted to and transactions conducted on the trading venues it operates.

The purpose of the project is to achieve compliance with the new transparency rules which were introduced in response to the 2008 financial crisis in order to make financial markets in Europe more resilient, transparent and investor-friendly.

Setting the project goals

The company uses numerous trading platforms across the newly-merged organisations to process the trading of a wide range of asset classes including rates, FX, commodities, fixed income, credit and equities.

The client had no system for unifying data delivery in order to produce the desired output: reports for the regulator, in the correct format, of transactions generated by the company. To attain compliance could have involved major changes to all its trading platforms. In addition, given that the regulation was to come into effect within a year of starting the project, there was a deadline to meet.

So the company determined to create a system that could accept the data generated by the various platforms – whether structured or unstructured. The client decided to adopt a data-lake approach using the MarkLogic NoSQL database, and turned to Ten10 to assist with system creation, integration and testing.

Determining a test approach for variable data and data delivery methods

The large number of widely disparate order and trade management and processing platforms in use by the company generates data in a range of formats – such as JSON and XML, for example. The data delivery methodology also varies by platform: some push data, others pull. In addition, the number of trading strategies is in excess of 3,000, which is too high for a manual testing approach. Consequently, it would have been unfeasible, given the scope and complexity of the work and the schedule involved, to make changes to each of these systems so they could directly produce the transparency information required by MiFID II in a unified format within the deadline.

This variety of order management and trade management systems and the variety of asset classes and instruments traded on those platforms led Ten10 to make two strategic recommendations.

First was the development of an automation framework to support automatic injection of resources into the company's data lake, a process that would involve simulating the upstream systems. The second was the automation of verification and validation of results and output – in effect, intercepting the data to be sent to the regulator – instead of relying on conventional, manual functional testing to perform these tests.

Developing an Agile test approach as part of a continuous integration solution

Deploying a small team of five individuals, we worked closely with the client's developers to perform a test coverage that would have otherwise required a huge manual functional testing team.

We used a custom Java automation testing framework executed as part of a continuous integration solution – in an Agile approach to development. Regression testing capability was consistently built alongside functional testing without extra efforts by re-using the same test scripts in a continuous integration solution triggered on each new build.

The automation testing framework underwent several transformations throughout the project life-cycle to adapt to changing project needs. It ended up being also used to test areas of the data-lake in isolation, to test systems other than the data-lake solution itself, and even allowed early end-to-end testing while some external dependencies were not yet met by supporting reference data mocking-up. This helped to keep project progress on track.

The versatility of our automation framework and the skills of our resources meant new areas of testing which cropped up late into the project could be picked up by the existing testing team without requiring additional resources.

In addition, Ten10 has delivered extra value in the form of assistance with solution design, project management, solutions architecture and implementation creation.

Test deliverables at-a-glance

Jira management

Managed the ~2500 tickets for the entire 20-25 person GIRCA team.

Manual testing across multiple front and middle office systems including strategy testing

Order management systems: 9 different platforms

Trade management systems: 12 different platforms

Field validations: ~150 fields *~95 deal types *2 (orders & trades), (4-5 rounds of testing - more for reportable instruments)

Lifecycle testing: ~5 fields *95 deal types *15 scenarios (many steps each) *2(orders & trades) (4-5 rounds of testing- more for reportable instruments)

Automation testing

Hundreds of scripts, thousands of assertions, run several times a day.