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View Point

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Strategy for Testing Merger of Banks

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Abstract

Testing the merger of two banks can be a nerve racking experience for Quality Assurance (QA) teams. The impact, scale and complexity of the merger, all add to the challenge. So how do QA teams handle these challenges? Well, there are certain aspects of testing which need to be foremost in priority while testing such programs.

The following point of view identifies these key aspects and describes how a comprehensive test strategy for successfully handling such test programs needs to include them.

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Business Objectives and Associated Challenges

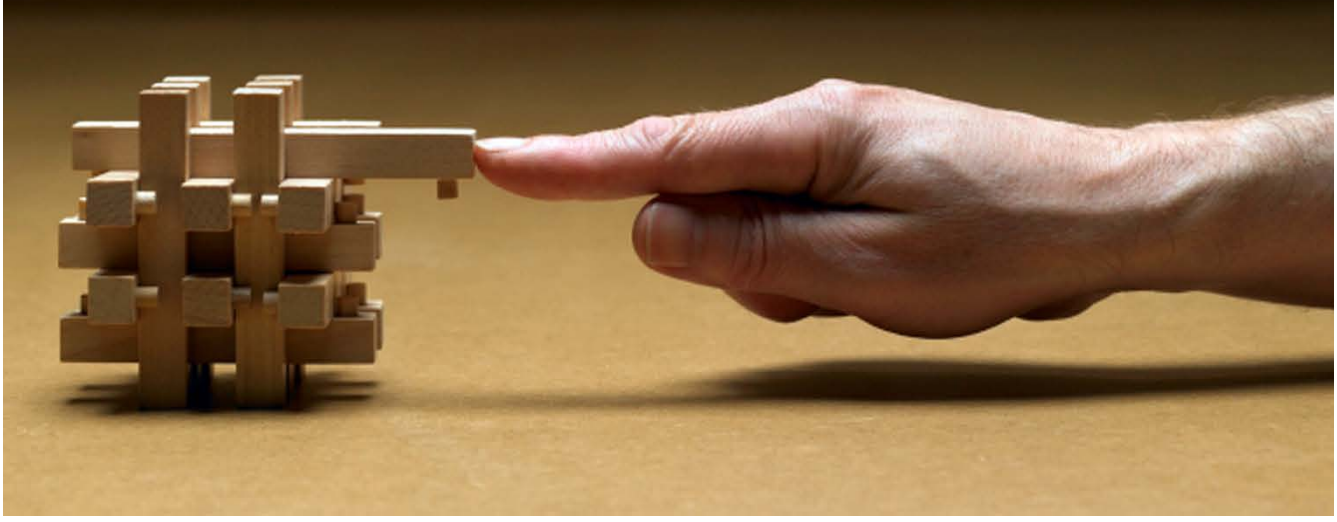
The broad objectives for any IT team overseeing the merger of 2 banks is fairly obvious – successfully migrate customer data (static and financial data) to the new entity, ensure continuity of business and create a positive experience for customers. Some of the other aspects which add to this complexity are:

- Spread of line of businesses and service offerings
- Age: The older the banks, the more complex the integration
- Co-operation between IT – Business organization of the involved banks

Associated with each of these objectives are IT challenges which make the transition, well, challenging.

For instance, successfully migrating customer data to an existing or new entity is both complex and voluminous as it involves modifying and integrating a large number of domains and migrating millions of customer records without any room for error. At the same time "Business As Usual" processes for existing clients need to run uninterrupted. Any interference due to the integration within individual domains, or, incidents in the production environment can lead to disruption of business. Done well, an integration program can ensure a positive experience for customers. Done incorrectly it can lead to disruptions in services for existing clients, or worse still, it may lead to incorrect product mapping in case of customers whose details were migrated as part of the integration program.

Therefore it becomes important to ensure that the QA teams responsible for the quality of the integration program develop an effective and efficient test strategy.



Comprehensive Strategy for Testing Complex Integration Programs

Before starting to develop a test strategy it is important to understand the migration strategy being adopted by the IT team. During a merger the migration is completed in a systematic manner and can follow either of the following approaches:

- Big Bang Migration
- Migration in Waves

In the second approach, different scenarios can be formed based on client segment (retail, private, corporate), type of products or simply a combination of client segment and product. The basic guiding principle to be followed is to reduce volume and increase complexity with each subsequent wave of the migration process.

Based on our experience in testing integration programs, we believe an effective and efficient test strategy is one which can –

- Manage size and complexity
- Enable seamless test execution
- Ensure schedule adherence and quality

Let us look at how we can develop a test strategy keeping the above points in mind. An effective and efficient test strategy is once which balances cost and quality.

Elements of a Successful Test Strategy

TEST APPROACH

To test a large bank integration program, we should look to test it in smaller parts. For instance each of the domains can be tested individually before testing the integration of domains and simulating the migration process end-to-end. Additionally, it is impossible to test every scenario in every cycle of testing. Hence the QA teams should develop a risk-based test strategy. A risk-based test strategy involves analyzing each requirement and assigning a level of risk which denotes its criticality in the overall migration process. High risk requirements are also assigned a high level of priority, meaning, they get tested earlier rather than later in the test lifecycle. Adopting such a technique translates into development of test scenarios focused on risks rather than requirements. This helps teams ensure that the risk of failure is lowered while keeping efforts and costs down to a minimum.

Last but not least, QA teams should look to test Non-Functional Requirements (NFRs) early in the test lifecycle and not wait till all functional requirements have been tested. This is especially important in large testing programs like the ones necessitated by the merger of two banks. Adding volumes can have a negative impact on existing SLAs, so it's important to analyze the impact of new volume on existing SLAs and cover that risk in your test strategy. Delaying the testing of NFRs poses considerable risk to the program because while a system or application may satisfy functional needs, it may not meet other performance requirements. Hence an ideal time to begin testing of NFRs is somewhere between testing of individual domains and testing of integrated domains.

TEST MANAGEMENT

Given the cross linkages between various domains it is important to establish a centralized QA organization for greater synergy and better communication between teams. Each domain must have a well identified point of contact who can co-ordinate test activities with the other domains. These points of contact play a crucial role in –

- Understanding the domains and business processes involved in the migration process: Most times the quality of testing suffers not because of lack of technical knowledge but due to inadequate knowledge of the business processes and the domains. Forming a core test team which comprises of these points of contact and engaging them as early as the end of requirements analysis phase helps overcome the knowledge gap. These individuals can anchor knowledge management sessions for the new team members who join as the programme progresses.
- Maintaining a well-defined defect management process which handles defects across all domains.
- Proactive Test Reporting: Having individual points of contact for each domain allows the program manager to get a consolidated and comprehensive view of the test progress. In the eventuality that testing is affected within a particular domain, the program manager can quickly and effectively develop risk mitigation plans to ensure the progress of the other domains and the program as a whole isn't impeded.

- Maintaining an up-to-date 'Run Book': The 'Run Book,' a document created by the business team, contains details about the migration process flow. The points of contact ensure the Run Book is up-to-date during the test execution phase when the migration process itself needs to be validated.
- Incident Management: understanding the root cause of an incident and fixing it promptly requires collaboration between the different points of contact responsible for individual domains.

From a test management perspective it is also very important to enforce centralized planning. There are just too many individual domains being tested simultaneously and the chances of conflicts between test teams over sharing of test resources like test environments are certain. This can lead to unexpected delays in testing and also affect quality of testing adversely, since the test data may be altered by a team testing a different domain. Centralized planning can help overcome these problems by allowing the creation of a dynamic test plan based on dependencies between various upstream and downstream systems. It involves using a simple tool (which can be developed in-house too) which captures requirements of all domains and identifies overlapping test resource requirements and forewarns the teams allowing sufficient time for reprioritization. As beneficial as this is, it tends to be the most neglected and underestimated aspect of testing.

TEST EXECUTION

QA teams are subject to a lot of pressure during the test execution phase when they need to ensure testing is completed on time and without any compromises on the quality front. However the test execution phase can be managed efficiently by following the principle of time boxing for each phase of testing. For instance, testing within domains is stopped the moment the allocated time is exhausted and the team moves to the next phase of testing. The objective of the teams is not to achieve 100% quality in each phase of testing but to do so at the end of all testing phases. This pragmatic approach to testing helps reveal defects sooner than later since the testing resembles actual scenarios more closely as it progresses from testing within domains to testing of integrated domains.

To ensure high quality of testing, QA teams should make use of the Run Book during the test execution phase to simulate the actual migration process while testing the integration of domains and end-to-end migration process. A good run book is very essential in the migration process as it helps teams ensure completeness and correctness of the integration process. The Run Book lists all steps which need to be completed in order for the entire integration process to be complete. It is also important to note that the quality of testing depends heavily on quality of test data. Setting up a test data management team at the program level helps provide quality test data for testing of each domain and test data profiling to ensure better simulation of business scenarios (Ex.: Creation of specific account types). Effective test data management also enables test teams to test in parallel without waiting for other chain processes. QA teams also need to ensure that once testing of integrated domains and end-to-end migration process begins, each cycle must use and process same test data that the test cycle was initiated with. No new or additional test data must be introduced midway through a test cycle.

Test Automation and Regression Testing are also areas of focus during the migration process. While the merger of the banks may involve the migration of millions of records, it is important from a business point of view to ensure that none of the existing clients are impacted adversely. The only way to ensure existing functionalities and processes remain unaffected through the migration process is to conduct extensive regression testing. This should be viewed as an opportunity rather than an impediment. Test scenarios and test cases used for regression testing, if designed properly, can also be used to test the migration of new records. Further, to boost efficiency, test cases used for regression testing can be automated. The team should also identify other test cases which are executed often. Automating such repeatable test cases helps reduce the effort involved in testing drastically.

Regression testing shouldn't only be restricted to functional requirements. Even the NFRs like performance requirements should be retested to ensure there is no degradation in performance when all the domains have been integrated and the migration process is tested from start to end. This not only helps teams test and monitor the performance of the entire system but also determine an appropriate schedule for the migration process itself. Sometimes, it may be noticed that while the systems in production (also referred to as "Business As Usual") are functioning as per expectations they witness a considerable drop in performance when the migration process is run in parallel. As far as the bank's operations are concerned this may not be an acceptable scenario (Imagine a new customer having to wait for an unusually long time for creation of an account which may otherwise be a very quick process.) Therefore the teams may then decide to schedule the migration process such that it doesn't interfere or impact existing business. The easiest way of doing this is to schedule the migration process at non-peak business hours of the bank.

Benefits

The approach outlined above brings with it many benefits as we have seen from our own experiences. By adopting a risk based testing approach which focuses not on testing every requirement but on covering all risks, we can help reduce test efforts significantly. Of course careful automation of test cases also reduces effort and time involved in testing.

Quality of testing itself is improved by establishing a centralized test organization. This includes the points of contacts for each domain, the test data management team, the focus on testing NFRs in parallel with functional requirements and leveraging the Run Book effectively.

At the same time the concept of time boxing, comprehensive reports and better utilization of resources helps keep the program on schedule and within budget.

Based on our experiences we believe test teams following the approach outlined by us will be able to reduce overall effort involved in testing by about 30% and test cycle times by 20%.

Conclusion

Testing the migration process due to merger of two banks is always a challenging proposition given the high stakes involved. Critical to the success of the program is the ability of the team to manage time, costs, resources and complexity effectively and efficiently. To do so the team requires a good understanding of the migration process and a comprehensive yet flexible test strategy which addresses the fundamental requirements of such a program. All the best with your integration programs!

About the Authors

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Ron is a Test Manager with ABN AMRO Bank N.V. and based in Amsterdam. He has held several roles in QA prior to this including Test Specialist and has a total of 12 years of experience in ABN AMRO. His areas of interest are Performance Testing within complex environments / systems. Ron is 41 years old, married and has 3 kids.

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