Information Alliance, Inc.

Transforming data into decisions

Case Study

Technology Modernization Facilitated by Effective Quality Assurance

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Project Overview / Key Business Drivers

One of our Pacific Northwest clients recently undertook a technology obsolescence initiative to transition off of unsupported platforms for their enterprise data warehouse (EDW) database and their extraction, transformation, and load (ETL) platform which loads the EDW and also transports other non-EDW data sets. Although functional, these platforms lacked important security capabilities and were still at older product versions which had become unsupported by the product vendors.

Transitioning off of these legacy versions required the migration of large volumes of critical business data. Ensuring successful migrations required a structured and comprehensive approach to Quality Assurance (QA).

Key Considerations

In defining a structured and comprehensive QA approach and corresponding Test Plan, the following components needed to be taken into consideration:

Data Completeness – In migrating a large corporation's EDW from one database platform to another required an assurance that all data would be successfully migrated, and no records would be lost or left behind.

Data Accuracy / Integrity – Not only must all data be migrated, but data accuracy and integrity must be maintained. This was of particular concern because not only was the data being migrated to a newer database version (2 major releases newer), but the newer performance and security features and datatype changes presented additional opportunities to impact migration results.

Load Performance – Large volume migrations can take many hours (sometimes days!) to complete. With finite load windows and the need to perform test runs with partial loads required some means of estimating times required to perform full loads.

Information Alliance, Inc. Professional Services:

- Project management, including procurement oversight, vendor onboarding and management, team staffing, and stakeholder relationship management
- QA and UAT oversight, including test plan review and approval, facilitation of daily meetings to asset test results and review issue logs.

Approach to Quality Assurance

Information Alliance collaborated with client stakeholders and the data migration service provider to define a comprehensive approach to QA testing that would ensure a successful project, while minimizing the amount of iterative migration test runs. Key aspects of the QA plan included:

Critical Success Factors – It was important that all parties had a common understanding of what "success" looked like. We defined these success factors and high-level success criteria prior to the start of system testing.

Clearly-Defined Pass/Fail Criteria – In defining all test cases, it was imperative that all had objective and unambiguous pass/fail criteria defined, and clearly-defined expected results. Only then could an appropriate pass/fail determination be made.

Leverage Product Utilities – Whether manually obtained, or through the configuration of data transfer utilities, it was important to define, collect, and compare pre-migration metrics and post-migration metrics.

Clean QA Environment – To properly estimate the eventual production migration load duration, the QA environment was configured (RAM, CPU allocation, storage amount and type, OS version) to mirror production. Tables were truncated prior to each load iteration.

Automated Test Runs – Once test scenarios were defined (data migrations and ETL test runs), those which could be automated – were. This required careful configuration of scripts and utilities (and review by the technical team prior to execution) to ensure the necessary information would be captured. The technical team review of test runs was important because a mis-configuration or oversight of a parameter setting could mean the need to re-run a scenario – which could take 24-36 hours to complete.

Maintaining an Issue Log – All observed anomalies were logged, assigned to a project team member, and investigated. A key step in this process was to use pre-defined criteria to determine whether an anomaly was a defect – thus requiring corrective action, an issue which would require investigation and explanation, or an enhancement that would be considered for a future effort. Corrective actions and root cause determinations were reviewed and approved as a team.

Month and Quarter-End Loads – The project was planned so that system testing and UAT spanned an end-of-month and end-of-quarter period. Some ETL jobs and standard reports were only run on a monthly or quarterly basis. So, it was important that the upgrades and migrations not be prematurely deemed a success until these infrequently-run jobs and reports were evaluated for correctness.

Leveraging the Results

Not only did the project successfully migrate over 1 terabyte of production data, upgrade its ETL application and target databases, but the enterprise was able to leverage enhanced security and performance features on the new environment. Moreover, UAT of business reports identified reports and data sets which were no longer needed and could be retired. An additional outcome was the upgrade, setup, and configuration of new Development and QA environments which would enable the team to incorporate these separate environments into their dev, test, and production migration lifecycle.

About Information Alliance, Inc.

Information Alliance, Inc. is an IT professional services firm dedicated to helping clients achieve their business goals by providing expertise in project management, business analysis, quality assurance, and data integration, with specialization in technology modernization and information delivery projects. Its depth and breadth of experience, coupled with a structured approach helps clients transform data into useful information.