



Case Study

Product testing services of GIS Spatial Application for a Major Govt. Client

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Solution offering	Product Testing Services
Project name or title	GIS Spatial Application

Case Study for Product testing services of GIS Spatial Application

Client Profile

Client is a reputed organization which deals with various Planning and environmental aspects. Client is using GIS spatial technology in the delivery of planning and development services, such as the online lodgment and tracking of applications, viewing planning information on a web based interactive map and providing new ways for stakeholders to engage with the planning process. The tools and services which are developed by client, helps business and the community to access and transact with planning services from anywhere, any time.

Business Situation

This product uses Google-maps technology to help you quickly navigate the planning rules that apply to individual land parcels, or search for properties that match certain planning controls. It has been developed primarily for councils and professionals such as architects, builders, certifiers, developers and planners. This is a cloud based product which is developed on Azure & GME cloud platform.

Users can do a basic text-based search by either typing an address or place, or an interactive search directly on the map. You can also use land titles information to do an advanced search. Once a property is found, the user can view a summary of the relevant planning rules or select different map layers. The “Proximity” feature lets users search for map layers that apply to properties near the specified address. Users can also explore multiple map layers simultaneously.

The portal provides links to Environmental Planning Instruments – including LEPs or State planning policies - on the Legislation website, which remains the authoritative source.

Technical Situation

Below were some of the key business areas within the application which needed to be tested:

Location Search: In this module, user can search any address or place by typing it under location search or an interactive search on map. Search functionality also provides advanced search options. Result is displayed in a info-window with the associated details like DP number, LGA and EPI etc; also it retrieves the intersecting layers on that particular property.

Advanced Search: In this module, user can search any address or place by performing advanced search by Lot and Plan number, Local governance area, proximity etc.

At higher level, below are the testing types which are conducted on this product.

Testing Type	Testing Description
Cross Browser and Functional	This product is developed for community and Business, so Testing team tested this product on various OS and browsers.
Accessibility	Accessibility testing is carried out to ensure the people with impaired vision can also use this application. Testing team followed “AA” standards guideline for testing this portal.

Performance	This product is developed for mass of people, so it is tested with different performance aspects like shakeout, average load, peak load, stress and soak tests.
Data Transformation testing	In this module, Python code is implemented to extract the data and convert it into desirable format. Testing team was involved into testing of python code logic and workflows.
Data Validation and Migration Testing	In this module, client was pulling the data from different sources, applies ETL logic, converts it into target database and then uploads the same data into GME and Azure cloud. Testing team was involved into testing of FME workbenches ETL logic, database and data upload activities.
Disaster recovery testing	Testing team identified different Disaster points and carried out testing around it to make sure that application is recovered within given time frame for eg: Traffic manager went down.
Governance and Security Testing	Security and Governance testing is carried out to ensure that the user with the given entitlements can view the specific details which are associated to particular entitlements.

Solution

Adactin proposed and implemented gradual update process which was divided into 14 Phases.

Functional and System Integration Testing

Phase-1 – Test Plan

- Liaise and consult Client test team to gather complete Functional requirements
- Testing team spent time with SME's to understand end to end business processes and business need for the application
- Creation of high level test scenarios

Phase-2 – Functional Test Cases Design/Enhance

- Design of detailed test cases for system and integration testing for the application
- Design of UAT test cases
- Design of Pre-Release test cases
- Test data Setup for the application

Phase-3 – Execution Cycle-1 - Functional and System Test Execution

- Test data setup in test environment
- Execution of functional and system test cases for the application
- Parallel teams to test Cross Browser and OS/Devices Compatibility Testing
- Logging of bugs in Bug Management tool
- Publishing of test results

Phase-4 –Execution Cycle-2- Integration and System Test Execution Phase

- Test data setup in test environment
- Execution of system and integration test cases for the application
- Parallel teams to test Cross Browser and OS/Devices Compatibility Testing
- Publishing of test results

Phase-5 –Execution Cycle-3- Regression Cycle

- Test data setup in test environment
- Execution of Regression test cases for the application
- Parallel teams to test Cross Browser and OS/Devices Compatibility Testing
- Publishing of test results

Phase-6 –White-Box testing / Unit testing

- Plan for unit testing of Legislation interface with Planning Maps
- Design unit test cases
- Execute Unit Test and Web-Services test cases
- Publishing of test results

Phase-7 –Data Management and Transformation testing

- Planning for Data Management and Transformation testing
- Data Transformation, conversion, Validation testing
- Publishing test results

Phase-8 – UAT Testing and Facilitation

- Test data setup in UAT environment
- Shakedown testing in UAT environment and setup for business users
- Facilitate Business users to execute UAT test cases
- Publishing of test results

Phase-9 – Pre-Release Testing and Sign-off

- Execution of Pre-Release test cases
- Provide final test completion report

Phase-10– Post Release Adhoc Testing

- Execution of Pre-Release test cases
- Provide final test completion report

Non Functional Testing Phases

Phase-11 – Performance Testing

- Design Performance Test Plan and gather performance requirement from stakeholders
- Performance Environment and Tool Setup
- Performance Test Script Design
- Execute Performance Scripts

- Bottleneck Identification
- Publish performance test results
- Re-Execute Performance scripts after fixing of performance issues.

Phase-12 – Accessibility Testing

- Design Accessibility Test Plan
- Setup of Testing tool for Accessibility testing
- Execute Test scenario and Publish results
- Re-Test of application once issues are fixed

Phase-13 – Governance and Information Security Testing

- Test Environment and users setup for Governance and Information security Testing
- Design and Execution of Test scenarios
- Publishing of test results

Phase-14 – Disaster Recovery and Backup Testing

- Design Backup Test Plan and gather key architectural requirements for Backup testing
- Design Disaster Recovery Plan and gather key architectural requirements for Disaster Recovery testing
- Design and Execution of scenarios
- Publishing of test results

Benefits

Find below benefits of technical solution proposed to the client:

- Team logged more than 600 issues as part of testing phases leading to improving the quality of the application.
- All key business rules were thoroughly tested within the limited timeframe to make sure that they work correctly. No Production issues recorded for those areas.
- Suggestions to improve the flow of business process were made with the business team, to create a better functional application. For e.g. Info window related enhancement, Smart devices portability
- Suggestions to improve the UI and Usability of application were made assisting in hand-over to business team quickly. For e.g. application should display Location search address into Advance search options
- Suggestions to improve infrastructure of application to avoid down time For eg: Traffic Manager & File configuration server should have at-least 2 instances, Data types and length should be consistent on different environments
- UAT Facilitation process established with business team helped in under covering some key business process gaps.
- Training to complete business users team, made sure that all users are familiar and comfortable with the application before production release.
- Effective bug tracking process ensured that open bugs could be easily tracked and fixed.

Products and Tools we used

Tool	Usage
Microsoft Excel	Requirements mapping, Test case creation and execution
Neotys Neoload	Building and execution of Performance (SVP) scripts
Jmeter	Building and execution of Stored procedure related performance scripts
Mantis	Defect Management and Reporting
AChecker, Wave and Screen Reader	Accessibility Testing
SQL Server Management Studio	Data verification and validation
FME & ArcGIS	Data validation and ETL logic testing
WING IDE	Python Scripts compiler

Test Execution was done across various Operating Systems and Browser Combinations, using Desktops, Laptops, Tablets, etc.

Configuration	Device/Laptop	Browser
Configuration 1	Windows version 7	Chrome version 34 & 35 Firefox version 28 & 29 IE version 9, 10, 11
Configuration 2	Mac OS X version 10.6.8	Safari version 7 Chrome version 34
Configuration 3	Windows version 8	IE version 11, Chrome version 35
Configuration 4 (Tablet)	iOS version 7.0.3	Safari version 7
Configuration 5 (Tablet)	Android version 4.4.3	Chrome version 35
Configuration 6 (Tablet)	Windows version 8	IE version 11
Configuration 7 (Sanity)	Windows XP	IE version 8

Assistance provided by client resources

- Assistance provided by client SME's in understanding business requirements.
- Client SME's conducted knowledge sharing sessions on different modules of product
- Client's IT team helped in getting access to GIS, FME & AZURE cloud environment.
- Client's Development team assisted in bug fixing.
- Client's Project Management and Test Management teams assisted in test coordination with business users and development team.

For More Information

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