FIRE + RESCUE

CASE STUDY

Strengthening critical emergency systems

**FRNSW's ESCAD upgrade
with Planit**

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Fire and Rescue NSW:
A critical public safety mission

Fire and Rescue NSW (FRNSW) is one of the world's largest urban fire and rescue services and the busiest in Australia. With a commitment to enhancing community safety, FRNSW plays a crucial role in minimising the impact of hazards and emergency incidents on people, property, the environment, and the economy of New South Wales (NSW).

To modernise its emergency response capabilities, FRNSW embarked on the ESCAD Vision5 Upgrade Program, an essential initiative designed to improve incident and response management. The goal was to ensure faster, more effective emergency responses while enhancing multi-agency cooperation with organisations like the Rural Fire Service (RFS) and the State Emergency Service (SES).

Key Outcomes:

Automated functional regression testing **improved overall quality and efficiency**

Performance testing identified and resolved bottlenecks, **enhancing system scalability**

Reduced manual regression effort from three weeks to one week

Successful execution of 541 test cases, enabling rapid feedback and issue resolution

Around 30 defects raised from Tosca automated regression testing within 1.5 years, apart from manual and UAT testing

Continuous collaboration and transparent reporting strengthened project execution

Ensuring operational continuity through system modernisation

FRNSW faced significant operational challenges due to its ageing emergency services computer-aided dispatch (ESCAD) system. The existing Vision4 platform was reaching capacity and nearing the end of its operational lifespan, posing substantial risks to service continuity.

The upgrade sought to transition from Vision4 to Vision5, enhance operational communications and training consoles in Alexandria and Newcastle, and establish a new Strategic Operations Centre (SOC) and training room in Alexandria. FRNSW also required an upgrade of their existing Audio Management Unit (AMU) to improve communication reliability and operational efficiency.

Without these upgrades, FRNSW risked severe disruptions in its emergency response capability, which could directly impact its ability to serve the community effectively during both daily emergencies and large-scale crises.

Partnering with Planit for quality and performance excellence

Given these high stakes, FRNSW required a trusted partner with extensive experience in quality assurance, automation, and performance engineering to ensure a seamless transition to the Vision5 platform.

A key reason for this was that the highest level of quality was required for the implementation of the new solution. The main goals included delivering an efficient and accurate emergency services CAD system, minimising downtime and failures through high-quality system design and testing, improving response times by enabling dispatchers to make quicker decisions, and providing a scalable system capable of handling increased incidents or more complex requirements in the future.

Planit was selected due to our industry-leading reputation, technical expertise, and proven track record in functional testing, test automation, and performance engineering. Our ability to customise solutions that met FRNSW's needs further reinforced confidence in the partnership.

A comprehensive testing strategy for a mission-critical system

Recognising the high stakes of this safety-critical system, our consultants structured their approach to align with FRNSW's strategic objectives. Over the course of just over two years, Planit remained actively engaged with the ESCAD upgrade program, adapting to evolving project needs and priorities while maintaining a consistent focus on quality and performance.

The engagement began with a performance risk assessment to identify potential performance and operational resilience risks associated with the new ESCAD solution. Historical transactional data was analysed to simulate real-world workloads during performance testing, ensuring the system's scalability and stability. Our team also focused on enhancing regression testing efficiency by implementing automation solutions tailored to Vision5's technical environment.

Automation played a pivotal role in accelerating testing cycles, particularly for regression testing. Our team conducted proof-of-concept activities to determine the most suitable tools for both test automation and performance testing. Tricentis Tosca was selected for test automation, while OpenText LoadRunner, Apache JMeter and simulators were used for performance testing. This strategic tool selection enabled seamless test execution while addressing unique challenges posed by the complex Vision5 client-server application architecture.

Our consultants worked closely with FRNSW's project team, fostering high levels of collaboration throughout the engagement. The team executed multiple rounds of automated and manual regression testing, ensuring system stability and reliability. Notably, 541 test cases were executed within just five days, significantly expediting the testing process. The implementation of Vision AI-enabled automation further streamlined after-hours regression testing, improving overall efficiency.

Delivering impactful results for FRNSW's emergency response capability

Our comprehensive testing and quality assurance solutions yielded significant improvements in FRNSW's emergency response system. Automated regression testing drastically reduced manual testing efforts, cutting regression cycles from three weeks to just one week. The extensive test coverage, including automated runs across multiple environments, ensured that Vision5 was rigorously validated before deployment. Around 30 defects were raised from Tosca automated regression testing within 1.5 years, apart from manual and UAT testing.

In addition, our performance testing strategy proved instrumental in identifying and resolving key system bottlenecks, enhancing overall system scalability. With 35 performance tests executed, FRNSW gained critical insights into system performance under varying loads. The seamless integration of automation and manual testing approaches further contributed to a high-performing, reliable Vision5 solution.

FRNSW also recognised our team's responsiveness and adaptability throughout the engagement. Transparent communication with the project director ensured proactive issue resolution and continuous improvements.

Essentially, the success of this project strengthened FRNSW's ability to respond to emergencies with improved speed, accuracy, and reliability. We're proud to have played a pivotal role in enhancing FRNSW's emergency response capabilities, ensuring a more resilient and future-proof system that supports first responders in their mission to protect communities.

Tools and Technologies Used

Technologies:
- NEC Vision5
- Microsoft .NET Framework
- GD92 protocol
- Microsoft SQL Server

Tools:
- Atlassian Jira
- Tricentis Tosca
- OpenText LoadRunner
- Apache JMeter

Key Services

- Quality Engineering
- Test Automation
- Performance Engineering
- Test Tooling
- Resilience Engineering

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At Planit, we are experts in quality engineering and assurance. We bring extensive domain expertise and targeted solutions to meet the specific challenges faced across the spectrum of technology-intensive industries. We can provide you with the right skills and advice to deliver quality quicker for your digital projects and core system transformations.

Contact us to find out how we can accelerate growth for your business.