

# Woodside - SMARTapps

## Case Study



MECHANICAL  
ROCK

# The Client

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**Woodside is Australia's largest independent oil and gas company with a global portfolio worth \$28 billion dollars.**

The company invests across its value chain to support operational excellence and reduce exploration, development and production costs.

This includes advanced analytics and cognitive computing, IoT, 3D printing and the adoption of a flexible cloud native platform for specific software solutions.

## **Operating Efficiency**

Woodside operates a large number of oil and gas platforms around the world. Maintenance of these valuable assets consumes a sizable portion of Woodside's operating budget.

By adopting innovative technology solutions, Woodside has been able to actively reduce this ongoing spend, and leverage significant operating efficiencies.

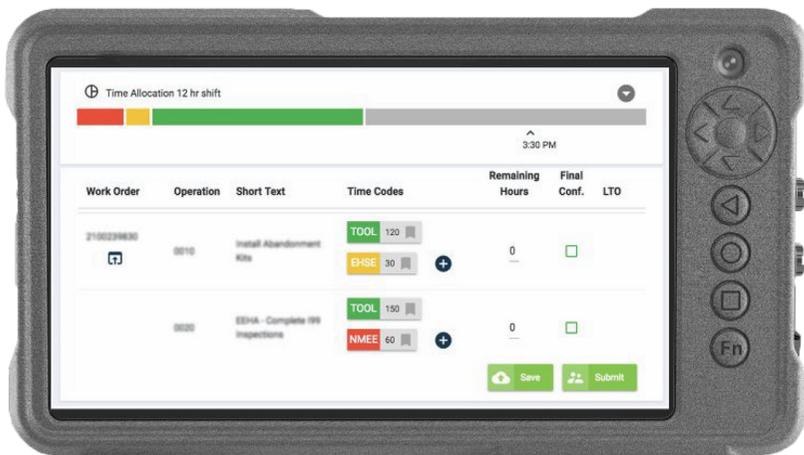


# The Solution

## Smart Maintenance

Building on cloud native technology and using cutting edge web and serverless solutions, Mechanical Rock has delivered a suite of 'smart' apps to support Woodside maintenance teams in the field. These apps eliminate paper based processes and give mobile maintenance technicians the same degree of access to enterprise systems as they would have in the office.

The SMARTapps solution brings together the power of cloud native computing, with modern web technologies to deliver a seamless mobile solution for maintenance engineers in the field.



## Progressive Web meets Serverless Cloud

A 'progressive' web application which integrates seamlessly with corporate backend systems when network connectivity is available, and caches data for synchronisation when used on remote sites without connectivity.

A serverless backend which autoscales to meet demand but only consumes compute resources when in use.

Bi-directional integration with backend corporate systems to allow offline access to plant maintenance documentation, timesheeting and task management.

Deployable and automated continuous delivery pipelines which allow real time updates to live production systems with zero downtime.

# The Solution

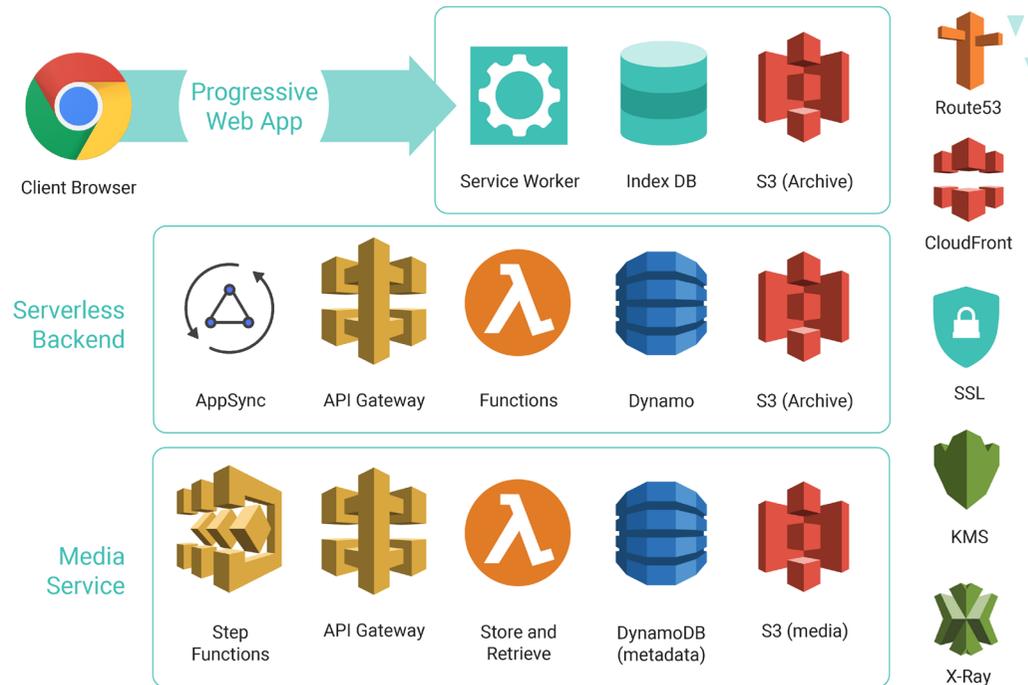
## Cloud Native Development Environment

The SMARTapps solution utilises AWS cloud services to deliver a cloud native platform for maintenance mobility.

The Progressive Web App written in React.js, provides offline capability ar a rich user experience in the browser (allowing seamless updates and a native mobile app experience).

The Serverless Backend synchronises data with enterprise systems-of-record and preserves the offline state for users. A backend Media Service, implemented as a cloud native microservice, delivers rich media to the multiple front-ends including SMARTapps.

The SMARTapps design follows all the principles of the AWS “Well Architected Framework” (WAF) to deliver a secure, scalable and robust solution that is flexible and cost efficient.



# The Benefits

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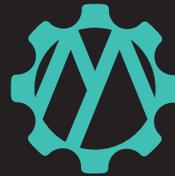
The Mechanical Rock cloud native solution offers significant benefits over traditional software systems:

- A fluid and responsive user experience via the progressive web app, even in the challenging ergonomic environment of an oil and gas plant.
- Access to native device hardware, like the camera, which allows maintenance workers to capture images in the field and attach them to work orders and operations.
- Secure Single Sign-On (SSO) via the enterprise authentication platforms and Javascript Web Tokens (JWT).
- Lower total cost of ownership (TCO) because there are no long-running servers and the solution automatically scales to meet concurrent demand.
- Increased reliability through 'everything-as-code' and rigorous test frameworks.
- Real time deployment to production with zero downtime and no need for lengthy 'app store' approval.

The Mechanical Rock SMARTapps solution delivers a responsive modern software experience and harnesses the power of a cloud native application to provide a seamless mobility solution for Woodside's maintenance engineers, at a fraction of the cost of rival implementations.

*"With SMART Apps we've been able to deliver on our vision of providing a simple and intuitive interface into SAP for our field-based technicians. This will lead to improved plant reliability & integrity (consistent data quality) and productivity (elimination of waste)."*

**Gary Wilkinson**  
Maintenance Business Team Lead  
Woodside Energy Ltd



# Think we can help with your project?

Get in touch so we can chat about your plans over a coffee

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