Austal

Case Study

MECHANICAL ROCK

The Client

Austal is a ship builder, global defence contractor and acknowledged world leader in the design and construction of customised defence and commercial vessels. Austal also design, install, integrate and maintain sophisticated vessel information management systems (such as MarineLink and IMARCS).

Austal's successful product and process innovation has seen the development of some of the world's most advanced commercial and defence vessels, including the iconic Littoral Combat Ship.

Austal's proprietary integrated ship control and monitoring system, 'MARINELINK-Smart', allows extensive, customized realtime and remote monitoring and management of various onboard machinery, equipment, systems and processes.

The Problem

The next generation of MARINELINK-Smart is under development and has the capacity to provide a game changing technology for Austal's clients.

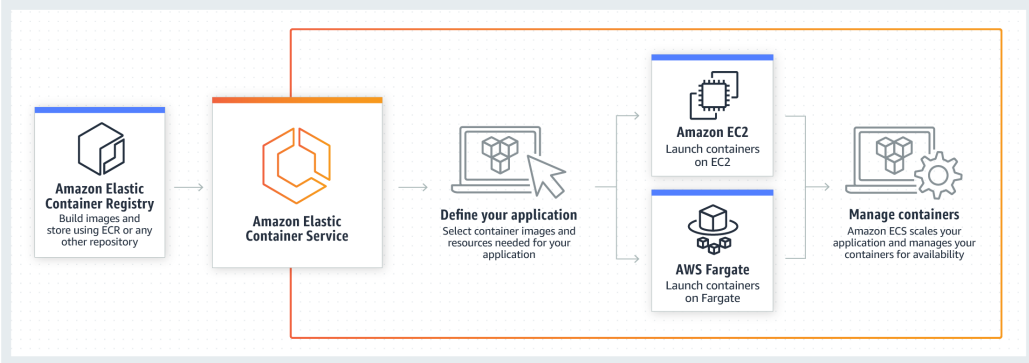
The system is being developed using containers hosted on AWS Elastic Container Service (ECS). Future versions will seek to use IoT based sensors and sophisticated machine learning to tune vessel performance.

With an aggressive time frame for productionisation, the Austal development team turned to Mechanical Rock to automate and streamline the development and production environments so that they could focus on delivering the MARINELINK solution.

Automation, Resilience and Best Practice

The Mechanical Rock brief was to:

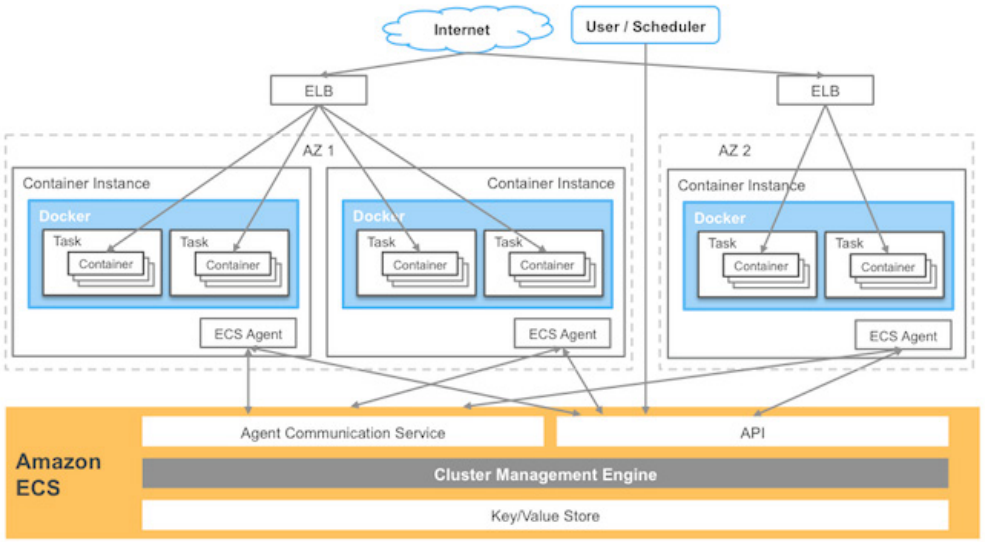
- Automate the deployment of ECS clusters.
- Build a deployment pipeline for the docker containers to ECS.
- Improve the reliability and resilience of the system.
- Provide guidance on best practice AWS & container architecture, including identity and access management.



The Solution

The initial goal was to automate the deployment of the Elastic Container Service (ECS) clusters and build a deployment pipeline for the docker containers.

We followed the AWS Well Architected Framework to set up the ECS clusters in a production-ready state with auto scaling.



The Austal solution uses a number of open source data solutions running on AWS infrastructure, as well as proprietary code.

AmazonECS

Influxdb

Apache NiFi

Ansible

The Benefits

- An optimised AWS account model (master, nonprod, prod) with cross account security and permissions.
- CloudFormation stacks to automate deployment of components like S3 buckets, EC2 instances and the ECS cluster which delivered a consistent and repeatable infrastructure build.
- This increased the reliability and resilience of the system through ECS auto-scaling and auto-healing services. This was further enhanced by making the InfluxDB self-healing.
- But an end-to-end cloud solution isn't possible for the Austal use case since the software must run on vessels at sea. So as part of the solution Mechanical Rock delivered automated client builds on target machines via Ansible and gitlab pipeline to provide consistent application deployment.
- And finally Mechanical Rock has provided Austal with extensive guidance on best practice AWS & container architecture, including identity and access management.

Think we can help with your project?

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

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