

## Coal LSL AWS migration – case study

### 1 Business Context

Coal Mining Industry (Long Service Leave Funding) Corporation (Coal LSL) decided to insource operations as part of a decision to optimise their business model. From a technology perspective, this presented the challenge of setting up a complete IT operation to support the separation from the incumbent administrator. Coal LSL recognised the suitability and potential advantages in using cloud-based services and adopted a cloud first approach, to simplify the uptake and management of the core registry system as well as the supporting IT and business systems. The aim of the cloud first approach was to provide a flexible and efficient IT platform designed to meet Coal LSL’s business demand.

### 2 Our Role

Coal LSL engaged CMD Solutions to support the cloud adoption program and ensure the appropriate foundational elements were correctly set up from the outset. In particular, Coal LSL required assistance to take advantage of the benefits the Amazon Web Services (AWS) platform offered while also using an architecture that adheres with Australian Government cloud standards and relevant industry best practices, compliance standards and policies.

Coal LSL partnered with CMD to assist with the rapid enablement of the IT platform, set up secure efficient Infrastructure as Code patterns and to provide escalated Cloud Managed DevOps assistance on an ongoing basis.

### 3 Approach and Method

The project worked within a short separation timeline using an Agile phased approach to stand up the core business services required to support the day one business operations. The project focused on enabling the Coal LSL IT environment across “backend” and “frontend” services. The “backend” services included the servers, storage, network and infrastructure required to run the core business systems along with the supporting shared services. The “frontend” project activities were focused on the front-end user side services such as desktops/laptops, email and office productivity software.

### 4 Significant technology challenges that were faced by Coal LSL

- Setting up a complete IT operation within a short timeframe
- Legacy applications and platforms
- Scaling to complete the design and migration activities required within project deadlines
- Establishing a secure, production grade IT platform that is efficient and easy to manage
- Create a strong security posture to protect Coal LSL’s client data without imposing management overhead
- Stand up or source the appropriate AWS and DevOps skills needed to support the system migrations and ongoing operational management of the environment
- Tailor and incorporate governance controls to take advantage of the cloud operating model (e.g. deployment orchestration, operational governance, change and incident management, service management)
- Create a foundation to minimise technical debt to support the future move toward a more efficient micro-service architecture

#### 4.1 Technology Context

Coal LSL required a complete secure foundational environment setup to support the transition of IT systems to replace services previously provided by the incumbent administrator. Coal LSL selected to migrate to AWS for all backend IT services in combination with several SaaS services for front end and non-differentiated services. The Coal LSL environment was built from greenfield AWS accounts with the implementation of all services required to support Coal LSL staff and its clients.

## The Coal LSL IT platform

Coal LSL were transitioning from a legacy IT environment which consisted of several COTS applications and services primarily running on Microsoft Windows. In consultation with CMD Solutions, Coal LSL decided to perform an initial transformation migration which would allow Coal LSL to provide a greater level of availability, scalability and security to its operations. Based on the limited timeframe for the initial migration, Coal LSL and CMD worked on ensuring that the right transformations were completed within the initial separation project. CMD ensured that Coal LSL client data was secure and had housed in a scalable foundation which would facilitate Coal LSL to continue to reduce costs and improve the service offering for its clients.

There were a number of key areas which were identified for uplift / transformation to ensure that Coal LSL could not only maintain but improve the level of service from both initial migration and into the future. The key areas are outlined below.

### AWS Accounts and Networks

Coal LSL were coming from a traditional flat network environment with all infrastructure and application services being hosted within private co-location data centres. The migration to AWS allowed Coal LSL to transform its base network infrastructure within a very short period providing air-gap separation of production and test services at both the AWS account and network layer. The introduction of 3 air-gapped AWS accounts to provide Coal LSL guaranteed separation and control of services meant that Coal LSL could improve the security and availability of service to operations.

### Automated Build and Deployment

CMD Solutions assisted Coal LSL to both perform the initial migration and implement a fully automated build and deployment process. This would not have been possible without moving from existing manual processes to a fully automated build and deployment process which was tuned to provide zero down time release and automated deployment of Coal LSL managed testing environments to allow for unprecedented ability to test application and system upgrades, releases and patches.

## 5 Key Outcomes and Benefits

The IT enablement component was one element of the overall business separation and office move project. Overall, the business separation and IT enablement project was delivered on time, on budget and was received very positively.

CMD were able to assist Coal LSL to rapidly stand up a production ready AWS environment integrated with various third party supporting SaaS products. The production grade AWS platform was created using Infrastructure as Code with secure and scalable architecture design patterns.

The project provided Coal LSL with the following key benefits:

- A secure, robust, private AWS platform customised to Coal LSL's requirements
- A scalable and efficient AWS architecture
- A low risk migration completed without service failures
- Enhanced Coal LSL cloud capability through mentoring from highly experienced AWS engineers
- A clear migration strategy for each target application

The CMD team delivered the following key IT enablement activities throughout the course of the project.

- An Infrastructure as Code delivered AWS platform
- Automated AMI creation pipeline
- Implemented, configured and tested clustered file servers
- Deployment, configuration and data migration of the core administration platform (3 tier application)
- CloudWatch/ Datadog monitoring and Sumologic log correlation solution
- Alerting / notification policies

- Active directory design and configuration (user and group standards, OU and GPO)
- Backup solution design and creation, including policies

CMD's participation in the project from inception to day 1 go live was delivered within 3 months which would have been extremely difficult to achieve using traditional on-premise infrastructure. The cloud environment is backed by a secure and resilient AWS platform that can be managed efficiently and scaled up easily using automation as the business needs increase.