CLIENT SUCCESS STORY

Australia Post meets Christmas demand with Adobe Experience Manager AWS migration

BUSINESS BENEFITS

- Mitigated risk of mission-critical platform failure
- Successfully scaled mission-critical platforms to meet Christmas and COVID-19 sales spikes
- Cut non-production AEM environment infrastructure costs by at least half

TECHNOLOGY HIGHLIGHTS

- Seamless migration of Adobe Experience Manager (AEM) from centralised to decentralised AWS accounts
- Automated scaling of AEM platform
- Automated creation and management of utility services

For many postal services around the world, the Christmas season demands a significant scaling of business operations to meet a dramatic rise in sales volume. To keep delivering to customer expectations, these organisations need to be able to count on their mission-critical business systems.

In the lead up to the 2019 Christmas season, Australia Post was at significant risk due to its limited ability to support its two most mission-critical websites – auspost.com.au and startrack.com.au.

These websites were running on an in-house Adobe Experience Manager (AEM) platform on Amazon Web Services (AWS), using several aging components.

Australia Post needed to undertake major development to support newer AEM versions and add features. As part of a wider transition of its AWS infrastructure that was underway, the business also needed to migrate its AEM platform to a decentralised cloud model.

On top of this, Australia Post had a shortage of appropriately experienced engineers who knew how to build, run and support AEM on AWS. With Christmas looming, this posed a major risk to business operations. Australia Post could simply not afford to enter this period without adequate support for its two key websites.

Tapping years of expertise with AEM on AWS

To access the expertise needed, Australia Post turned to Shine's five-years of experience migrating and running AEM on AWS for major banks.

Shine was also the organisation behind the creation and open-sourcing of the AEM OpenCloud platform of architectural and automation libraries – which have been further automated with an AWS Quick Start.

With the project kicking off in June 2019, Shine was responsible for ensuring all Australia Post's AEM environments were migrated by November.

Australia Post

Industry
Post & Freight

Geography
Australia

Australia Post is a Federal Government-owned corporation providing postal and freight services to every corner of a geography 79% of the size of the USA.

PROJECT FEATURES

Consulting & development
- AEM AWS production support
- AEM AWS cloud migration
- AEM OpenCloud integration
- Develop infrastructure utility services
- Cloud Managed Services

Cloud environment
- AWS

Technologies
- Adobe Experience Manager
- AEM OpenCloud
- Shine InfraCatalog

While building the new infrastructure automation capabilities, Shine was also responsible for supporting all Australia Post's existing AEM platforms and resolving any production problems.

To achieve the migration, Shine's engineers designed and implemented end-to-end AEM environment management functions on new decentralised AWS accounts using AEM OpenCloud. This allows Australia Post to create and shutdown AEM environments on-demand using CI/CD pipelines running on top of Jenkins.

Automated creation and management of utility services

During the project, the engineering team faced challenges with integrating to Australia Post's transitioning cloud architecture. These challenges were due to the following:

- There were several new standards and tools to integrate and comply with
- A custom routing layer, which sat in front of AEM OpenCloud, had a number of routing rules that needed to be checked manually and migrated one by one
- The new AWS account for the migration was limited since it only provided network resources and lacked utility services for integration at the application layer

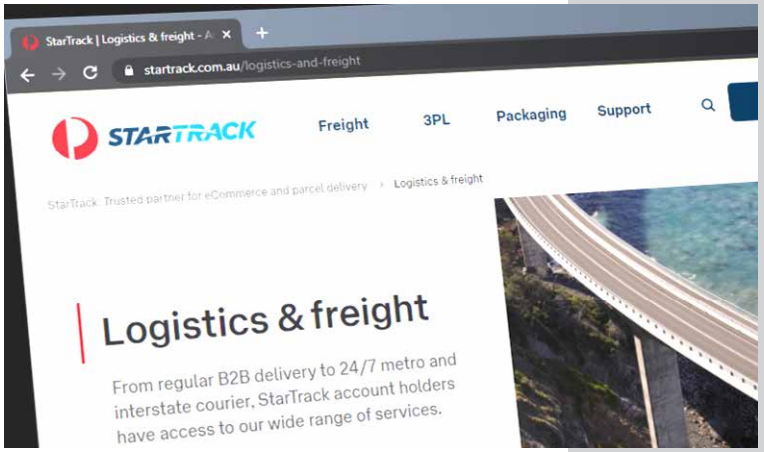
To address these challenges, Shine built a number of utility services for integrating the new decentralised AWS accounts to the existing central AWS accounts, and for running the management tools, which are the delivery pipelines for performing deployments, creating and terminating environments, running various tests, and so on.

To create and manage the required infrastructure utility services – Jenkins, jump host, reverse proxy, forward proxy, and penetration testing environments – Shine's engineers developed a new reusable automation platform, InfraCatalog.

To complete the integration project, Shine's engineers leveraged dozens of AWS services – including C2 Auto Scaling, Elastic Load Balancing, Amazon CloudFront, Certificate Manager, Lambda, Route 53, Secrets Manager, SNS, SQS, S3, and Systems Manager (a full list of services is available in the AWS-Shine Australia Post Technical Case Study).

With the new decentralised AWS accounts integrated to the existing central AWS account, Australia Post achieved a flawless transition from its in-house AEM cloud platform to the new AEM OpenCloud platform.

While Shine led and implemented most of the solution, Australia Post's



Cloud Infrastructure Team managed the VPC and subnet networking resources. Shine also worked with Australia Post engineers to make rule changes on the routing and DNS layers they were managing. The project employed an Agile development methodology and DevSecOps approach to Australia Post's security compliance standards which led to establishing CIS benchmarks, Rapid7 scanning, and Checkmarx code scanning.

On-schedule seamless migration ready for Christmas

By November 2019, all AEM environments were seamlessly migrated with no outages, data loss or corruption – and the platform performed exceptionally well during the Christmas 2019 peak.

With the migration complete, Australia Post's Cloud Infrastructure Team, which included two Shine engineers, was responsible for the AEM environment of auspost.com.au, startrack.com.au and other microsites, using AEM OpenCloud.

Several production releases have occurred since, and the platform performed well through the unexpected COVID-19 lockdown - which introduced additional usage-load due to an increase in parcel deliveries - with platform scaling handled by configuring additional AEM instances.

In addition to production, Australia Post's development team is using AEM OpenCloud's consolidated architecture to manage its development, test and pre-production AEM environments. This gives the business a more cost-effective way of running multiple dev AEM environments, while also being able to shut down unused environments after hours.

3

Previously, six complete environments were using the in-house AEM platform – each with 5-10 servers that were mostly staying up. Now with AEM OpenCloud, Australia Post has just one complete production environment (using AEM Full-Set environment) which always stays up, while the other environments only need to be running on-demand.

In April 2020, the project switched to a Shine Managed Service engagement with two Shine engineers still embedded in the Cloud Infrastructure Team. The team is responsible for operating, supporting and enhancing the AEM environments – and for 24/7 support of the production environment.

Open-source environment mitigates risk

By integrating AEM OpenCloud, Australia Post now enjoys a highly automated, modern open-source AEM platform that's being used by other large organisations around the world.

The business avoided the significant cost of upgrading and maintaining an in-house AEM platform – while gaining upgraded libraries and modern functionalities they didn't previously have, including:

- Descriptor-based package deployments
- Three level backup
- AEM security guideline checks
- Repository upgrade
- Blue-green testing automation
- Readiness checks

Importantly, the platform also enables future AEM upgrade projects thanks to AEM OpenCloud's support for running multiple versions of AEM – currently 6.2, 6.3, 6.4 and 6.5 – in parallel.

Migration projects are usually difficult enough, but this project faced a unique combination of additional complex challenges – including a shortage of in-house knowledge, an aggressive timeline, and the need to build multiple utility services for the new decentralised AWS accounts.

Yet Australia Post achieved a seamless migration while cutting non-production AEM environment infrastructure costs by at least half. And when faced with the Christmas demand and unexpected COVID-19 lockdown spikes, its platforms scaled smoothly to keep Australia Post delivering.

Images:

1 User:Orderinchaos, CC BY-SA 3.0, via Wikimedia Commons
2 Gene Blackley / CC
3 Maksym Kozlenko, CC BY-SA 4.0, via Wikimedia Commons