

National Australia Bank saves \$6 million with Adobe Experience Manager migration to AWS

Open-source AEM OpenCloud platform accelerates deployment

BUSINESS BENEFITS

- \$6 million saved in infrastructure and licensing over five years
- A more agile digital publishing and marketing platform drives faster time to market
- Simple consumer product sales via digital channels doubled from a 31% share in 2017 to 63% in 2020.
- Directly attributable increases in online product applications

TECHNOLOGY HIGHLIGHTS

- World-first innovations for AEM on AWS
- Upgrades down from 12 months to one month
- Shift from direct deployments to blue/green releases
- Creation of the open-sourced AEM OpenCloud libraries
- 100% production release success

Australia has a highly homogenous and competitive retail banking sector. Fight for market share over the past decade has centred on improving the customer experience (CX) – with a focus on innovation in online banking.

In 2014, National Australia Bank (NAB) committed to improving the CX of its various websites to retain customers and gain competitive advantage.

However, the bank was unable to introduce new online banking features rapidly and cost-effectively. This was mainly due to developers and engineers being occupied with managing and updating the on-premise Adobe Experience Manager (AEM) Content Management System (CMS) – which was being used across the bank's web properties.

With the adoption of enterprise cloud solutions growing at the time, NAB looked into migrating its key technology platforms to cloud environments such as Amazon Web Services (AWS). This would result in lower IT operating costs

and capital expenditure – and greater scalability and availability of platforms and applications.

Migrating AEM to AWS no easy task

Upon deciding to migrate AEM to the AWS cloud, NAB discovered it was no easy task. The powerful yet monolithic AEM wasn't originally designed to leverage cloud capabilities such as horizontal scalability and ephemeral environments.

Due to the limitations of AEM, organisations like NAB were forced to build bespoke solutions from the ground up – which was costly. But more than that, this approach has prevented businesses from fully leveraging cloud best practices.

At NAB, AEM environments couldn't be created in a repeatable manner or on an as-needed basis. Further, production environments were rarely touched due to stability concerns, which resulted in fewer releases than desired.



Industry: Retail Banking

Geography: Australia

National Australia Bank (NAB) is one of Australia's four largest retail banks. When this project began in 2014, it was ranked 41st largest bank in the world.

PROJECT FEATURES

Consulting & development

- Cloud migration
- Adobe Experience Manager on AWS
- AEM OpenCloud

Cloud environment

- AWS
- Akamai

Technologies

- Adobe Experience Manager
- AEM OpenCloud
- Jenkins
- Puppet
- InSpec
- Ansible
- Bees with Machine Guns
- Chaos Monkey

Also, major annual AEM updates were arduous and time consuming. They required changes to code (to support the application) and the underlying infrastructure.

Failing to realise AEM's industry-leading value

With all these challenges, NAB's engineers and developers had little availability to build and deploy new features for customers in a timely fashion. NAB was using an industry-leading CMS, yet they weren't able to use it to its full potential to realise the desired ROI and competitive advantage.

When NAB's technology leadership team identified an opportunity to overcome these challenges and pave the way for continuous delivery, they turned to Shine, with whom the bank had a years-long relationship in software engineering and development.



World-first innovation of AEM on AWS

To migrate AEM and provide NAB with full auto-recovery and scaling-on-demand, Shine introduced world-first AWS best-practices for design, tooling and end-to-end AEM environment management capabilities.

Shine developed a set of new capabilities including:

- Descriptor-based package deployments
- AEM security guideline checks
- A repository upgrade
- Blue-green releases and readiness checks.

With these capabilities and innovative use of tools like "Bees with Machine Guns" and "Chaos Monkey", the solution reached 99.95% availability.

AEM automated environment management libraries open-sourced as AEM OpenCloud

Shine subsequently open-sourced these new capabilities in 2016 as a set of libraries – AEM OpenCloud – containing all the building blocks for running AEM in the cloud.

Unlike alternative SaaS offerings, these libraries provide organisations the level of customisation needed to use

their standard operating environments – without compromising security or existing processes.

AEM OpenCloud enables organisations to deploy AEM in the cloud in half the time. Leveraging its capabilities has been further accelerated in 2020 when Shine developed an AWS Quick Start in collaboration with AWS.

Shine worked with NAB's DevOps team to integrate the AEM OpenCloud framework into its operating environment. This involved:

- Creating a set of build pipelines running on top of Jenkins
- Environment configuration
- Implementing auto-baking of AMIs
- Supporting Dynamic Media
- Ensuring it worked on CentOS

During the project, NAB's developers also contributed code to AEM OpenCloud.

All NAB web properties hosted with AEM OpenCloud

Since 2014 nab.com.au has been delivered by AEM on AWS. It was subsequently delivered by the AEM OpenCloud-based platform, which has been hosting all of NAB's other web properties since 2017.

NAB now leverages blue/green releases

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Todd Copeland
Former GM of Digital

to provide quick roll-back capability and perform necessary testing on a production environment before cutting over. This has been a tremendous improvement on the bank's previous practice of direct deployments to production.

Now the production environment isn't long-lived. It's re-created with each new release. This ensures the operating systems are properly patched. Having a repeatable and stable environment creation process also increases confidence in the maintenance of the platform.

What's more, development teams that were not previously involved in the environment management process are now leveraging this capability to create and shutdown non-production environments in a self-service model.

A 'you built it, you run it' model is now encouraging developers to understand

how cloud infrastructure works. And despite some initial hurdles, they are now happily using Jenkins pipelines to manage their own environments and provide product support.

100% success with production releases

NAB's managing engineers are responsible for releasing features to production successfully and ensuring their teams have a clear runway for delivery.

The success of a release used to be a coin toss. But with OpenCloud's environment readiness checks and the automation it enables, managing engineers are now confident that their teams can deliver new customer features, and they've laid the foundations for continuous delivery.

NAB has also added new checks – such as code quality and vulnerability scanning – into its CI pipeline.

Since implementing OpenCloud, NAB's releases have been 100% successful. The DevOps team also has more time to focus on building additional capability for the platform (monitoring tools, code quality checks, etc.) instead of maintaining production systems.

Upgrade project time reduced more than 90%

Applying AEM product updates now takes significantly less time. The

original upgrade project (including changes to the application) took a year to complete.

The subsequent upgrade took six months – and the latest upgrade to AEM 6.5 took just one month. This agility can be directly attributed to the quality of the AEM OpenCloud libraries and upskilling of the NAB DevOps team.

Doubling digital channel sales volumes

With less time spent on AEM upgrades, NAB's development teams can focus on building industry-leading experiences for customers at a much faster pace. This is translating to increased customer satisfaction and sales volumes through digital channels.

For example, simple consumer product sales via digital channels have doubled from a 31% share in 2017 to 63% in 2020.

Further, since NAB's technology leadership team decided to migrate platforms to the cloud in 2014, NAB has seen a 97% reduction in "High" priority incidents and an 85% reduction in "Critical" priority incidents for their technology platforms.

NAB's AWS running costs have also been optimised through consolidated environments that require fewer resources (1 engineer instead of 12). Also, non-production environment

costs reduced by over 90% – with further savings achieved through shutting down environments overnight.

After completing the migration, Shine provided a resource to support the platform and help NAB add new features (like automatic patching of environments and overnight shutdown). Since late 2020, NAB no longer depends on Shine's assistance with maintenance.

\$6 million infrastructure and licensing savings

Citing the project in a July 2014 interview with *The Australian*, NAB's former General Manager of Digital, Todd Copeland said:

"NAB is attributing savings of almost \$6 million in infrastructure and licensing costs over five years, and big increases in applications for loans and credit cards, to its move to a more agile digital publishing and marketing platform. The ability to change content on its online and mobile sites much more quickly can directly be linked to a 30 per cent increase in applications for one banking product.

"The redesign of a personal loan form in nine weeks — led to a 45 per cent improvement in the conversion rate of applicants to customers. Credit card pages that were tested and "optimised" for the best response rate using the

new platform generated 3000 more applications a year," said Mr Copeland.

"It was very cost-competitive, we've driven 400 per cent efficiency through my team directly."

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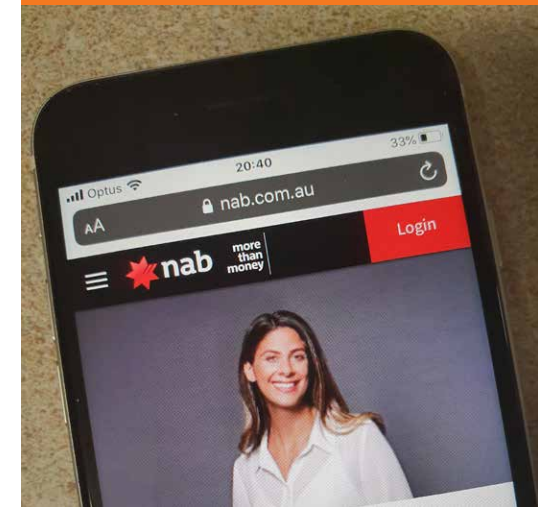


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