e-COST Hosting Phase 2
Cloud Migration Case Study

Executive Summary

COST funds the creation of research networks for collaboration among scientists. The environments needed to be updated and aligned.

By moving to AWS and implementing the right services, productivity increased while risks and costs reduced.

The Challenge

Standardizing

The production environment was running on a webserver and MySQL database, while the other environments were already running on on-premise servers and developers were running e-COST in containers on local docker servers.

Migrating

In an earlier decision to go cloud-first, the webserver and database were already moved to an AWS EC2 instance and RDS instance. This phase would get all the other environments into AWS as well.

Aligning

The architectural difference between the production environment and the other environments was a result from the agile approach the development team is taking with this application.

Why AWS

In the era of rapid technological change, the cloud is not only useful for backup and storage, it's key for future-proofing businesses and maintaining a competitive edge. Businesses moving mass amounts of data to the cloud can take advantage of the latest technology and move away from aging on-premises infrastructure, putting them at the forefront of innovation.

Migrating to Amazon Web Services (AWS) unlocks efficiencies and operational benefits that businesses never knew were possible. From lower costs to increased speed, AWS helps businesses focus more on core competencies and reimagine how they work and how they innovate.

About COST

The European Cooperation in Science and Technology (COST) is a funding organisation for the creation of research networks, called COST Actions. These networks offer an open space for collaboration among scientists across Europe (and beyond) and thereby give impetus to research advancements and innovation.

"Very big thanks to you, it is really a pleasure to work with you like this. I feel we achieved something and Cloudar made a big part!

Joachim Gagn - Head of IS "

Why Cloudar

Cloudar designs, builds, migrates and reviews AWS environments based on the AWS Well-Architected framework. This guarantees that the customer's architectural requirements are met. Cloudar is also ISO/IEC 27001 certified which is the best-known standard providing requirements for an information security management system (ISMS). Cloudar's single-vendor focus assures customers to get the most in-depth AWS knowledge available on the market.

The Solution

A new architecture was designed by Cloudar that offers COST the flexibility to start and stop development environments when needed and to update the environments when a pull request is approved and merged into the related branch.

The solution maximizes the use of Amazon services:

• Amazon RDS and Amazon EFS for persistent storage for the different environments
• AWS ECS in combination with Amazon EC2 and auto scaling to create a high-available container infrastructure
• AWS ECS Service and Task Definitions together with Service Discovery using Cloud Map and AWS ELB to define and run the application
• AWS CloudFormation to combine all different components in easy to deploy stacks
• AWS CloudWatch holds the metrics and logging for all environments. This allows troubleshooting when the application experiences issues
• AWS Lambda for automating the different parts and creating a streamlined solution

Additionally, several AWS technical partner solutions were used:

• Cloudcheckr© is used to ensure the setup complied with AWS best practices and to ensure ongoing compliance once the solution was in production. This also allows the customer to monitor the costs involved with their AWS usage.
• Site24x7© is used in conjunction with AWS CloudWatch to ensure optimal performance across all environments.
• Atlassian© products (Repositories and Bitbucket Pipelines) are used for versioning and collaboration, and orchestrating changes to the related environments.

"Cloudar designed a flexible and easy to deploy solution for moving to AWS and align all the environments. A set of AWS services were bundled into templates to have a detailed description of the whole architecture and to standardize environments.
COST "

Results and Benefits

The cloud-first approach and the will to align the production environment and the other environments created the need for COST to migrate and update their infrastructure and incorporate a DevOps approach.

At development level, they refactored the application to multiple containers in order to improve scalability, quality and management. To improve the release lifecycle and enjoy the benefits of the new architecture, the production environment and other environments needed to be updated to a similar architecture.

The solution consists of a set of CloudFormation templates. This results in easy re-creation of an equivalent environment, which eased the realignment of the production environment, and allows removal of a complete environment, which allows cost savings outside business hours for the development environments.

"The solution allows COST to increase productivity and innovation by using containers and automation. The alignment of the environments removes risks in the release lifecycle. Infrastructure as code offers standardization and cost-savings by starting and stopping environments as needed.

Next Steps

Besides monitoring health and security, Cloudar is constantly looking for ways to optimize the performance and reducing costs. That's just part of being a Cloudar Managed Services customer.

Benefits

Standardized

An improved release lifecycle that is standardized between development and production.

Reduced costs

Creation of temporary environments and deleting them outside business hours.

Improved productivity

A shift in focus from infrastructure to DevOps allows the development team to improve productivity.

Managed Services

As Cloudar manages the environment, COST can focus on its core business.

About Cloudar

Cloudar, an AWS Premier Consulting Partner & AWS Next-Gen MSP, was founded in 2014 with a 100% focus on Amazon Web Services. As DevOps, AWS and infrastructure experts, Cloudar offers rock solid, high available and scalable solutions for any type of business in the AWS Public Cloud. Being part of Xplore Group (https://www.xploregroup.be/en.html), Cloudar can offer their customers complete solutions that go beyond AWS expertise such as Big Data, Ai & Machine Learning Solutions, Cloud Native Development, ...
Cloudar has delivered dozens of agile, right-sized projects and provides 24/7 Managed Services to customers across all industries (including public sector), creating a well-architected core from which these organizations can operate and grow their journey in the AWS public cloud. Feel free to contact sales@cloudar.eu or visit www.cloudar.eu for more info about our AWS expertise.

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