Aerospace company reaches *new heights* by moving web apps to the cloud

A major corporation with operations in aerospace and manufacturing was spinning off multiple divisions into separate companies. Leadership needed a data center exit plan that could happen quickly to match the scheduled divestiture while still addressing maintenance and security challenges.

Capgemini helped the company migrate more than 30 web application workloads from physical data centers to Amazon Web Services (AWS) cloud. This included establishing effective cloud operations and ways of working, as well as subsequently decommissioning remaining technologies.

Building a migration factory model

Capgemini and the client worked with AWS to build a factory model for performing the migration. This required standardizing the process for greater consistency and predictability while mitigating risks and increasing efficiency.

Region: USA

Industry: Aerospace and defense

Client challenges:

A corporate spin-off needed to migrate its data out of the existing on-premises data centers without disrupting access.

Our approach:

Capgemini and AWS built a factory model to perform the migration to a cloud environment.

Business outcomes:

The partnership addressed security and reliability concerns while reducing time and costs needed for the migration.

The factory model included an identity and access management (IAM) provisioner to create and assign identities and corresponding access authorization across the organization, shell stories (high-level outlines of different functions) to support faster ideation and greater flexibility (all within an Agile framework), and CloudFormation templates to provision AWS applications (also known as "stacks") quickly and reliably.

The IAM provisioner made it easier to manage the roles and policies for creating required resources. As a result, the partnership avoided multiple discussions with the AWS administrative team – reducing pre-migration effort by 80 percent.

The shell stories provided a pre-defined structure for tracking migration tasks and supplied reliable consistency. This saved time for the scrum master, who was tasked with keeping the project on track and updating the client on progress.

Using existing CloudFormation templates meant engineers only needed to modify the application-specific parameters – saving roughly 70 percent of the standard time for creating migration resources.

A quick migration

Capgemini's team needed to finish this project quickly to help the client avoid paying standard and additional costs outlined in the transition service agreement associated with not exiting the datacenters by 2025.

The data experts at Capgemini executed each stage of the IT migration process.

- **Discovery:** The team assessed the existing system to determine what needed to be migrated and which dependencies to consider.
- **Architectural design:** The team designed the target architecture of the system post-migration – ensuring it adheres to all compliance and security requirements.
- **Containerization:** Different applications and their dependencies were packaged into separate Docker "containers," standard units of software that run reliably in different computing environments.
- **Re-platforming:** Existing applications were adapted so they could operate on the new cloud platform without disrupting any functionality.
- **Cutover:** The team moved the network traffic (including data and users) from existing endpoints to the newly deployed cloud environment.

Modernization for the future

But it wasn't just about migrating what already existed. The Capgemini team dedicated a substantial amount of time to modernizing the underlying required software infrastructure throughout the migration process.

DevOps automation freed engineers from performing repetitive, administrative tasks so they could focus on more pressing issues. This saved every member of the support team roughly four hours of effort for each deployment, which occurred at least twice a month for each application.

Improvements to the branching in GitHub (the software development platform) allowed for changes to different sets of code without disrupting other elements within the overall repository. The development team benefited from having multiple branches and multiple work streams at all times.

Centralized logging captured and stored all relevant information about the data (e.g., errors, requests), which makes it easier to monitor system health and troubleshoot issues.

The team conducted vulnerability remediations to identify and resolve any problems or weaknesses in the system's security. Following the Cybersecurity Maturity Model Certification (CMMC) framework, as established by the Department of Defense, ensured compliance and established best practices for protecting against potential cyberattacks.

From development to operation

Capgemini followed a comprehensive process for handing the solution over from the development and implementation teams to the client's operations and support teams that would operate each application daily. This transition to operation (TTO) phase is crucial for preventing any gaps in service or downtime to systems.

Throughout TTO, knowledge was transferred, documents were handed over, operational readiness was established, tools were set up, and ongoing support from the initial Capgemini team will help address any issues should they arise.

Business results

The migration factory's IAM provisioner, shell stories, fully automated DevOps, and individualized CloudFormation templates all saved time and energy throughout the engagement. And the quick migration of the applications and associated data from on-premises to cloud avoided additional expenses.

But the ultimate goal wasn't simply reducing one-time costs associated with staying in the older data centers too long. The team was dedicated to positioning the client for ongoing agility, growth potential, and cost reduction.

Post-migration, the client is enjoying a 30 percent reduction in the standard recurring expenses associated with operating the web applications.

Since the engagement, these applications have experienced zero downtime, and the client has not been required to fix any vulnerabilities. The applications are operating smoothly and effectively without disruption, and with greater scalability, accessibility, reliability, and security.

Additionally, being within the AWS ecosystem means the client can capitalize on and incorporate relevant innovations as they develop.

About Capgemini

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