Streamline and modernize key AWS infrastructure for Treehouse

testdouble ®

aws PARTNER

The Client

treehouse

Environment: Education
Size: 20 employees with three full-time developers
Location: teamtreehouse.com
Engagement: 6 months focused on AWS infrastructure

> The Test Double team's deep understanding of AWS and the DevOps tooling translated into a streamlined project schedule and immediate infrastructure cost savings.
>
> **–Jason Gilmore**
> CEO

The Mission

Tech: AWS (ECS, EKS), Terraform, Chef, Rails, MySQL
Impact Areas: Reduced infrastructure overhead (cost & time), Increased capability (autoscaling)

Reducing complexity to enable award-winning online education

The technology team behind the award-winning online coding and design school Treehouse recently embarked upon an extensive audit of their platform code base and cloud infrastructure, with the primary goals of reducing complexity and monthly expenses.

Recognizing the enormity of this task, while needing to balance other ongoing priorities, Treehouse partnered with Test Double to lead the infrastructure audit and overhaul.

Test Double's assessment provided a clear path for completion. The new recommendation helped the small team more effectively manage the infrastructure while also cutting the ongoing infrastructure cost by approximately 30%—without any loss in capacity.

The Fix

Steps to the Fix: Assessment & containerize infrastructure, transition to ECS orchestrator, training & documentation

Treehouse is a large application spanning multiple services. The app lets students create their own cloud-based development environment, among other features. At the project's onset the infrastructure spanned close to 40 servers and an EKS cluster.

We started by mapping existing infrastructure in order to understand how platform features interoperated. Then we containerized everything and rebuilt from the ground up around an orchestrator. ECS was chosen over EKS to minimize overhead for the team. All tasks were completed without incurring production downtime.

Finally, we helped the team through regular pairing and training sessions, ensuring they have the knowledge to keep maintaining the new infrastructure after the handoff.

Great Software

- Containerized all services, plus fully redesigned and simplified infrastructure
- Improved observability and implemented auto-scaling
- Implemented continuous deployment on all services with automatic deployment of feature branches (dev environment) for the main application

Great Teams

- Trained team on how to work with the infrastructure from a developer perspective
- Trained technical lead on Terraform & AWS, plus how to maintain the infrastructure from an ops perspective
- Imparted security and resilience principles— including best practices for PRs, logging and restricting operations, automated deployments

The Results

The mandate resulted in important reductions in infrastructure complexity, making it possible for the small team to more effectively maintain and upgrade the infrastructure. The infrastructure was modernized to make it more secure and resilient, resulting in fewer incidents and helping the team to detect and resolve them faster when they occur. Capacity was improved and infrastructure cost was reduced. Several automated systems were put in place to make deploying code easier and faster.

25% reduction in AWS cost and established plan to **increase savings to 40%**

Documented data pipeline exposing **additional possible cost reduction of $50 - 100k per year**

Reduced infrastructure from ~40 servers to 3 servers + serverless ECS cluster

Removed or upgraded important dependencies on old, end-of-life projects **to reduce business risk**

The Team

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