Dashbird.io

CASE STUDY: GOING SERVERLESS

How Shamrock saves countless dev hours and +$100,000 with Lambda & Dashbird

BRIEFING ++++++++

Cloud Bill
Reduced by 90%
+$100K in savings

Application Health
Dozens of hidden bugs uncovered
and fixed in record time

Debugging Time
Hundreds of hours saved, reduced
from minutes to seconds per issue

Cloud Stack
AWS Lambda + Dashbird
API Gateway, Step Functions, X-Ray

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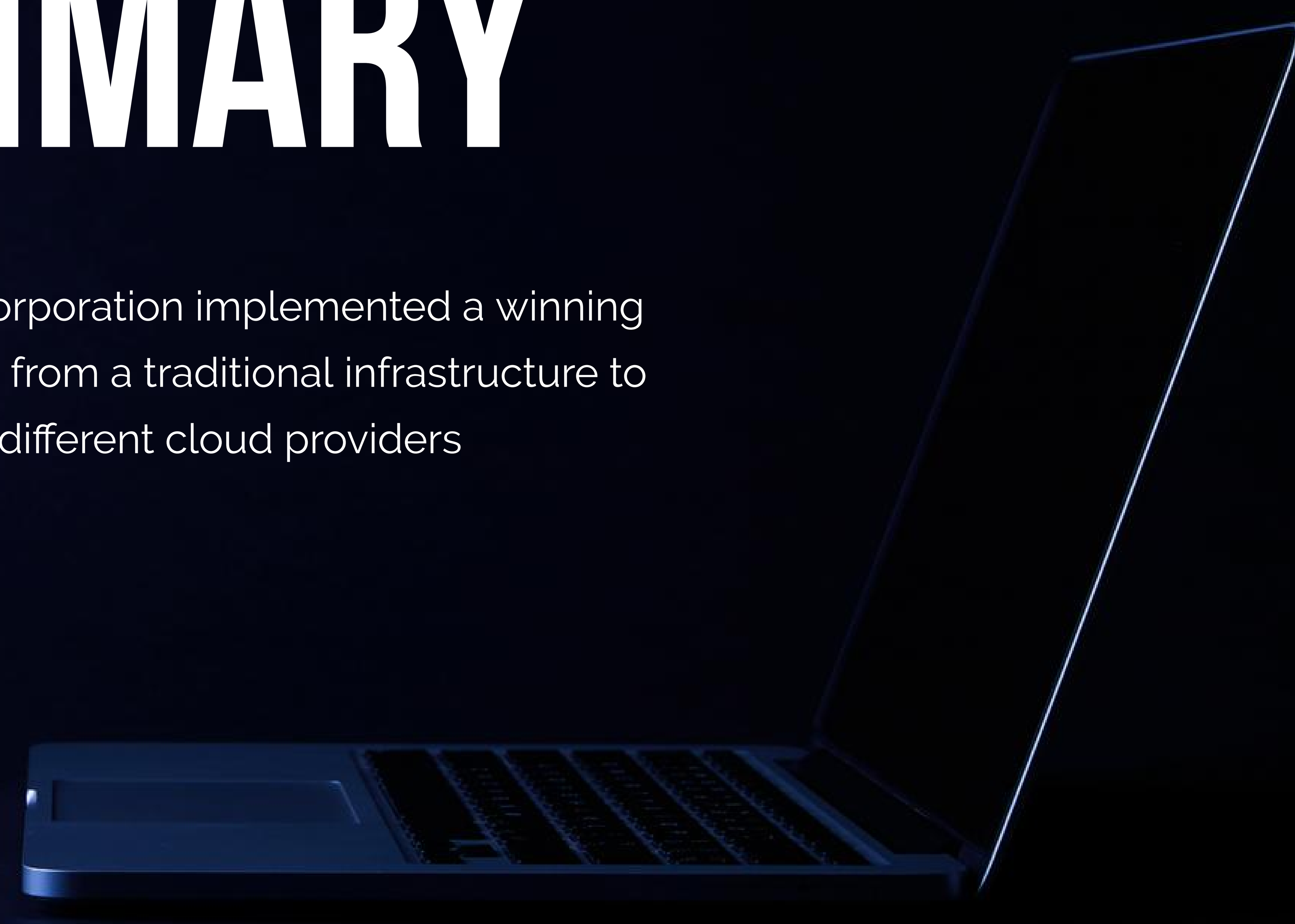
EXECUTIVE SUMMARY

How Shamrock Corporation implemented a winning migration process from a traditional infrastructure to serverless across different cloud providers



Starting Point

Shamrock Corporation was running in a traditional server cluster on top of Google Cloud Platform, using primarily NodeJS in the backend.

Problem & Solution

Maintaining idle resources to cope with demand peaks and keeping the cluster healthy was taking a toll at the company's budget and development time. Shamrock moved to a serverless architecture running on AWS Lambda and monitored by Dashbird.

Results

Shamrock cut their cloud bill by 90%, with savings in excess of $100K per year, while also abstracting away most of the infrastructure hurdles. Dashbird incident detection algorithms allowed the Development Team to uncover and fix hidden bugs in the application previously buried in gigabytes of raw logs. By using Dashbird debugging tools, the team also managed to reduce the time spent on fixing issues by an order of magnitude, saving countless hours.

About Shamrock Corp

Shamrock Corp began in 1986 as a freight brokerage serving commodity shippers. They evolved into a multi-faceted company employing 750 people and doing business in several industries such as:

- Transportation Logistics
- Financial Services
- Computer Software
- International Trade Finance

Shamrock has been able to sustain an impressive annual growth of 25%. Such rapid expansion poses challenges for the DevOps and Development Team.

Starting Point & Challenges

Shamrock Development Team is Javascript-oriented, relying heavily on Node.js. In the past, using a cluster of servers in Google Cloud Platform (GCP) with load-balancing and auto-scaling solutions, the cloud bill exceeded $150K per year.

A cluster of servers not only required too much time invested in maintaining the cloud assets in a healthy state but also imposed an inevitable waste of capital allocated on idle resources. Despite huge sums of hours invested in managing the cloud stack, the performance of the services was hardly on par with Shamrock's team speed and quality goals.

The time required at infrastructure management was one of the main issues Shamrock was trying to free itself from, in order to allow the technical team to work on what matters to the end users. Reducing the capital spent on cloud services was another challenge the DevOps team faced.

Successful Migration to Serverless

The company DevOps Team carefully investigated multiple options to tackle the challenges at hand and decided that going serverless was the best solution, which proved to be a wise decision. The migration not only abstracted away most of the infrastructure hurdles they were experiencing in a server cluster but also improved performance and reduced the cloud bill by 90%, saving more than $100K per year.

The company now relies on AWS Lambda for a myriad of processes, from serving REST API requests to running background jobs such as processing invoice images and automating back-office tasks.

Such migrations are usually very risky for DevOps and Development Teams and could lead to unprecedented failures if not properly handled with the right plan and tools. Shamrock team managed to find a winning strategy and just the right combination of resources to keep them covered, ensuring expectations were met and goals were achieved.

The rich integrations offered by the AWS ecosystem were at the center of Shamrock successful strategy, which relied on an event-driven approach and microservices architecture.

API Gateway service was used to manage REST APIs from deployment to authentication and throttling behavior. Shamrock also took advantage of auto-triggering services connected to AWS Lambda. When an invoice image is uploaded, for example, a Lambda function is automatically invoked to take care of internal processing and connecting to the back-office system. Since event-driven architectures can become convoluted and difficult to maintain if not properly executed, Shamrock built their logic on top of Step Functions, a managed orchestration service by AWS, which simplified the coordination of all Lambda functions, databases and other cloud assets.

X-ray, a distributed tracing system by AWS, was used by Shamrock to achieve high visibility over the entire stack. Although most services were relatively simple and such level of tracing wasn't an absolute requirement, this architecture proved successful by reducing uncertainty and obscurity during migration time.

Solving Monitoring Issues

While the new infrastructure stack was meeting Shamrock's team expectations, there was a big issue to be solved now: properly monitoring and debugging the Lambda functions. Although AWS offered CloudWatch, the Development Team found it to be a general-purpose monitoring service, not tailored for serverless needs.

Dashbird checked all requirements in terms of performance, easiness of use and optimization of the development time. A key factor for Shamrock was that Dashbird connected to the Lambda logs in a completely unintrusive way, without requiring code instrumentation nor adding latency to the execution. The incident management and reporting offered by Dashbird, coupled with the service error detection algorithms, allowed the Development Team to uncover dozens of bugs that were previously buried in gigabytes of raw logs.

Conclusion

Shamrock experience is highly valuable to illustrate that, when carried out with proper planning and the right tools in place, migrating traditional and monolithic applications to a serverless architecture can be done successfully and lead to tremendously positive results to the company bottom line, as well as the DevOps and Development Teams' quality of life and morale.

Our primary goal in Dashbird is to make sure every development team can succeed in running any backend system on top of serverless architecture, benefiting from all the advantages it offers.

Customer Profile

Company name	**Shamrock Trading Corporation**
Headquarters	**Overland Park, Kansas, United States**
Industries	**Transportation, Software, Financial Services**
Company size	**750 employees**
Website	**shamrocktradingcorp.com**
Social profiles	**LinkedIn** | **Twitter**

Leadership Profile

Name	**Shawn Aucoin**
Role	**DevOps Manager**
Short Bio	Shawn is a **technical manager** with strong **product ownership skills**. He has demonstrated ability to manage **complex requirements** on diverse projects with **conflicting timelines**.
Social profiles	**LinkedIn**