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SOFTWARE DEVELOPMENT

The orchestration platform that empowers geospatial AI pioneer Orbica

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Summary

AI-powered environmental monitoring platform Orbica wanted to focus on bringing its geospatial domain expertise to market — not learning new tools. Adopting the Spacelift platform to orchestrate its infrastructure has enabled Orbica's small engineering team to devote its energies to creating business value, delivering a new SaaS product from inception to production in under five months.

Stack

AWS, Kubernetes, OpenTofu/Terraform

Blending business logic in Terraform with Spacelift stacks, contexts, and policies allows Orbica to streamline DevSecOps management.

DX is transformed at Orbica, freeing developers from writing their own IaC pipelines to focus on work that adds business value.

Spacelift emerged as the most cost-effective and flexible option for Orbica, supporting multiple frameworks.

As Orbica pivoted from geospatial consulting to a product-focused development platform, it needed to balance security and stability against rapid development and feedback cycles — without burning out its developers. We spoke to Orbica solutions architect Doug Callaway about how Spacelift has helped the company streamline its infrastructure orchestration so it can get on with the business of delivering its geospatial domain expertise.

The challenge for Orbica

As a company intent on simplifying complexity, Orbica was a natural fit for the Spacelift platform. A pioneer in geospatial artificial intelligence, Orbica has transitioned from a consultancy that created bespoke solutions for clients across industries and geographies to a platform that enables others to build more sophisticated applications by integrating geospatial technology into their own workflows and apps. Its expertise lies in the geospatial domain, but it found that it was diverting excessive resources to seeking a balance between speed and control. And much of the responsibility for that balance was falling on Doug Callaway, the company's solutions architect.

"We needed something besides Kubernetes and Pulumi to manage the tech stack. It was too much for a single platform engineer to handle alone. We needed more of a self-service solution for the rest of the development team."

Why Orbica chose Spacelift

Doug discovered Spacelift at AWS re:Invent 2023 and realized it might be the solution Orbica was looking for. The company started a free trial with the aim of simplifying the DevOps process in CI/CD and making their developer experience as easy as possible. The aim was to create golden paths to avoid developers having to rewrite the same code to deliver the infrastructure they needed.

The results of the POC were compelling, and Orbica adopted the Spacelift platform to take care of their provisioning, configuration, and governance needs. The move would transform the developer experience (DX) at Orbica and allow Doug to get on with the business of architecting solutions. "I had become so bogged down in troubleshooting that I didn't have time to design for the next step."

Spacelift was also the most cost-effective and flexible option, supporting multiple frameworks including OpenTofu and Pulumi — not just Terraform. This flexibility mitigated the risk of vendor lock-in and sprawl as Orbica's tech stack expanded. The integrated Terraform registry also made it easier to manage a catalog of infrastructure modules to construct better abstractions and further improve the DX.

Orbica's Spacelift experience

The ecosystem of infrastructure solutions is a large and expanding one, but Orca found that Spacelift differentiated itself as a versatile platform orchestrator. Combining business logic in Terraform with Spacelift stacks, contexts, and policies allowed them to streamline DevSecOps management by allowing them to create powerful abstractions with minimal tools. Spacelift's flexibility allows for extension and high levels of abstraction, avoiding the costly developer time required to learn a new tool to manage their infrastructure and deployment requirements.

"The key to this solution was developing a simple, YAML-based schema where application developers can specify their resource configuration and requirements for each environment in plain language, without needing to learn another code language like Terraform's HashiCorp Configuration Language (HCL)" explains Doug. This approach was inspired by common Domain-Specific Languages (DSLs) like Kubernetes' Custom Resource Definition (CRD).

A Spacelift administrative stack monitors that stack.yaml for changes, passing the parsed workload specification as an input to a custom "Orbica Stack." Terraform module that brings the infrastructure resources to the required state. Application developers don't require any direct access to the Spacelift UI, so there's no need for any extra training or access.

Spacelift's impact on Orbica

Although Orbica's Spacelift deployment is still in its pilot phase, the DX has already been transformed. Onboarding is complete within hours, freeing developers from the toil of writing their own infrastructure-as-code pipelines — something that was arduous to maintain, delayed time-to-production, and ultimately led to developer burnout.

"Combining the YAML specification with Spacelift contexts and policies ensures sane defaults and compliance with organizational standards," says Doug. The abstraction further reinforces security by restricting Spacelift access to trusted platform and security engineers.

Just months into its adoption of the platform, Orbica has creative plans for its future use of Spacelift. The shift to Spacelift has already been a hugely positive one, bringing substantial improvements in cost savings, DX, and customer service. "Using Spacelift frees me up to focus on the future," concludes Doug.

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