PLATFORM9

CUSTOMER CASE STUDY: PHOTO RETAILER

Hybrid cloud transformation using cloud-native technologies

Optimize infrastructure, automate infrastructure operations and software development workflows using serverless functions-as-a-service with Fission & Kubernetes

Executive Summary

A leading photo sharing and storage service allows users to upload, print, and share photos and photo artifacts with friends and family. Unlimited uploads encourages users to upload as many photos as they want, resulting in up to 20 TB of new photos updated daily.

During holidays, such as Christmas, Valentine's Day, Easter, Mother's Day, and Father's Day, the site traffic greatly increases as users create photo gifts for friends and family. This means, they have excess data center capacity most days and just enough capacity for the holidays. Given the cost of data center infrastructure, the online retailer wanted to move to a model where data centers would be run near peak utilization most days of the year, with excess capacity for holidays being elastically provisioned from public cloud providers.

In terms of infrastructure, they had almost 7,000 VMs on VMware vSphere. Previously, they tried using VMware vRealize Automation as a cloud platform but determined that it wasn't suited to their DevOps needs and requirements. They wanted an open source orchestration approach with a developer friendly experience rather than a proprietary cloud platform built for traditional IT. In addition, the team evaluated VMware NSX for software defined networking but were concerned about the lock-in to VMware's virtualization technology and high total cost of ownership due to licensing and operating costs.

Finally, the developers were experimenting with new cloud technologies such as AWS Lambda and found that they could build and scale applications more effectively using Lambda. They decided to look at new technologies to help with not only hybrid cloud, but with serverless development as well. Platform9 provided a simple, unified cloud platform to manage infrastructure using open source cloud technologies and delivered the ability to burst from the data center into AWS when needed to effectively support the 19 busiest days of the year. It accelerated development with the ability to offer self-service to the team while supporting containers and Fission to automate development and operations. Lastly, it provided a centralized view of their globally distributed large scale data centers.

Key Solution Points

Challenge

- Simplify management across VMware and AWS environments
- Manage increasing VMware costs and product complexity
- Support dramatically increasing seasonal resource demands
- Difficulty supporting developer resource requirements
- Support the development pipeline

Solution

- Platform9 Managed OpenStack for centralized management across multiple data centers and public cloud
- Leverage VMware and KVM simultaneously to effectively manage costs
- Seamlessly burst into AWS to meet seasonal demands without impacting the customer experience
- Self-service across the product set accelerates development projects
- Platform9 Managed Kubernetes with Fission to accelerate application development and deployment while effectively manage costs

Results

- Significant reduction in data center costs
- Extend the useful life of VMware investments while managing future costs
- Deliver a consistent customer experience regardless of the season
- Meet project timelines by empowering developers
- 82% faster application delivery with Fission

The Challenge

Legacy Infrastructure

As with many organizations, this company had a legacy data center infrastructure, and their business requirements could no longer be met on the older technology set. The infrastructure needed to be modernized to be more agile and flexible so it could better service their customer workloads with 20 TB of new content daily. Additionally, they needed to effectively support the demands of their development team with self-service, robust APIs, and powerful cloud-native technologies to automate software delivery and operations.

Sporadic Capacity Needs

The organization considered public cloud, specifically Amazon Web Services, to meet their growing needs. However, the team already had a sizable on-premises infrastructure, and it became apparent it was going to be cost-prohibitive to migrate their substantial environment to the public cloud rather than use it for overflow a few times of the year. Hybrid Cloud was promising, they just needed a platform and an organization to partner with to support their strategy.

Concern With Complexity of Managing Cloud Platforms

Due to their prior experience with VMware vRealize, the team wanted a cloud platform that did not require significant professional services and a long gestation period for the development and operations teams to fully realize the benefits. With a fast moving team and business, it was just not practical to invest time or resources in a professional services approach.

Difficulty meeting developer needs

The software development team had to make requests to get access to the resources they needed. This meant that applications were built with limited automation. The result was during peak traffic periods, like the holidays, required a lot of coordination and fire drills between the development and IT/Ops teams. The online retailer wanted to modernize their approach by which operations could be built into the way software was built, tested and run, so that peak traffic situations were a non-event.

The Solution: SaaS-Managed Fission, Kubernetes, and OpenStack from Platform9

The organization chose Fission, the open source functions-as-a-service framework for Kubernetes, as a primary application development platform for their software developers. Fission runs on top of Kubernetes and enables developers to focus on their application business logic, while automating common operations that were previously being done manually, such as:

- Application deployment: Code functions are deployed by Fission, when they are being used by clients such as other software systems, end user requests, or as part of a larger business workflow
- Application scaling operations: Fission leverages Kubernetes for cluster management, which means that as more users leverage the photo sharing site, Fission and Kubernetes automatically scale functions horizontally, as needed. This eliminates the need for developers and IT/Ops engineers to spend nights and weekends during the busy holidays addressing scaling issues
- Optimizing resource usage: Fission deploys code functions or scales up and down code functions only when needed, which reduced idle time due to over-provisioned virtual machines, significantly reducing infrastructure costs

Underneath Fission and OpenStack, the organization modernized the infrastructure layer within the datacenter by replacing their VMware-based architecture with Platform9 Managed OpenStack, KVM, and OVS-based Software-Defined-Networking. With Platform9's support for existing VMware environments, the IT Team was able to leverage their existing VMware investments with their new environment, unifying management under a single pane of glass. This provided a consistent view of resources for their VMs, containers, and serverless infrastructure. Finally, with Platform9's support for AWS, the photo-sharing online retailer now has a unified cloud platform that works consistently across any infrastructure with any type of application workload (VM, container, or serverless function).

Leveraging Fission to Accelerate Image Processing

Event-triggered functions instantly reformats and uploaded image into several usable versions for customer viewing and project needs.

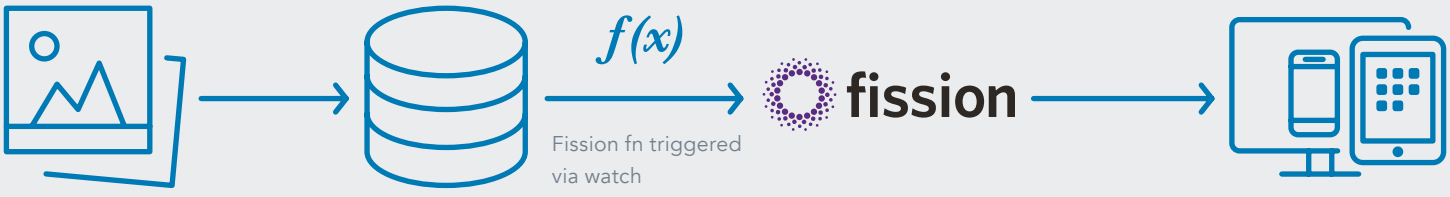

Photo uploaded

Uploaded to object storage cluster

Fission fn triggered via watch

Fission function runs image resizing code to generate web, mobile and tablet size versions

The solution was deployed in just a few hours, and no professional services were needed. Ongoing management and maintenance is conducted by Platform9's SaaS management technology and includes a guaranteed SLA. Now, developers, administrators, and operations can focus on efforts that increase customer satisfaction and drive business revenue.

With support for KVM, they were able to significantly lower their hypervisor licensing costs without sacrificing features, while supporting the needs of developers. With self-service, developers had access to the resources they needed quickly, accelerating project timelines. With the availability of industry standard open source APIs such as Fission, Kubernetes, and OpenStack, software developers and IT/Ops could automate their workflow using a multitude of dev/ops tools that are compatible with those technologies.

The Results

The team was able to significantly reduce infrastructure costs, enhance operational efficiency while improving the software development workflow within the organization.

Accelerate application development while optimizing resource usage

- With Fission, developers can deploy production-ready applications in under one hour. Workflows further simplify development with the ability to orchestrate a set of serverless functions into more complex applications.
- Fission only consumes resources while it is running, dramatically reducing infrastructure costs. It increases utilization of on-premises assets and decreases public cloud costs.

Modernized infrastructure managed by experts dramatically reduces operational costs

- A fully managed SaaS offering, Platform9 provides continuous management and maintenance, freeing up resources to focus on development and other needs that contribute to revenue generating activities and customer satisfaction.

Leverage containers and KVM infrastructure to reduce hypervisor licensing costs

- Reduction in hypervisor costs by leveraging KVM over other hypervisors gives the organization the features they need while dramatically reducing costs.
- With support for VMware, the return on previous VMware investments is further extended.
- Containers accelerate application development providing the team with the tools they need simplifying container orchestration and greatly reducing complexity.

Realization of true hybrid cloud

- With Platform9, the team was able to more effectively manage their on-premises private cloud environment and could easily burst into Amazon Web Services when needed.
- In a single pane of glass, they can manage their VMware and KVM environments, along with Kubernetes clusters and serverless functions for a complete view of utilization and application performance across the entire environment.

Increase developer productivity

- Self-service gives developers access to the resources they need, when they need them, ensuring no interruption to software delivery.
- Leverage a robust set of APIs to automate workflows using a multitude of devops tools that are already compatible with these technologies, greatly expanding the development landscape for the team.