Customer Case Study

Image Hosting Service Implements Flexible Cloud Infrastructure

Executive Summary

- **Customer Name:** Photobucket
- **Industry:** Image hosting
- **Location:** Denver, Colorado
- **Number of Employees:** 74

Challenge

- Using resources more efficiently to compete with competitors
- Establishing flexible cloud infrastructure to streamline operations
- Reducing data center size, complexity, and maintenance

Solution

- Deployed FlexPod infrastructure solution featuring Cisco Unified Data Center infrastructure and NetApp storage running OpenStack to improve data center agility and efficiency

Results

- Eliminated 10 racks of equipment, saving over US$120,000 in data center costs annually by migrating resources to cloud
- Accelerated server provisioning time from days to minutes
- Reduced footprint for database servers by 98 percent

Photobucket deployed Cisco infrastructure running OpenStack to scale with aggressive growth strategy.

Challenge

With more than 13 billion hosted photos and videos from 100 million registered users, Photobucket is one of the world's largest image and video hosting services. Over the past 10 years, Photobucket has expanded its services beyond hosting and sharing media to image editing services and collaborative "Stories" containing sharable media and text.

In recent years, Photobucket has faced increasing competition from companies, including Flickr, Instagram, and Pinterest. To remain a leader in the growing market, Photobucket must make the most of its resources by working smarter and faster than the competitors. "By developing a flexible and efficient infrastructure, we can emphasize nimble and dynamic operations that better meet customer demands and market trends," says Jay Kistler, director of operations at Photobucket.

As part of Photobucket's initiatives around increasing efficiency, the company implemented a flexible cloud infrastructure to streamline data centers, reduce complexity, and improve the server utilization through virtualization. Although the company tested many different combinations of hardware and software, Photobucket deployed converged FlexPod architecture, featuring NetApp storage and Cisco® Unified Data Center infrastructure, for its combination of power and simplicity.

After considering cloud and hypervisor options, Photobucket worked with Cisco to implement OpenStack with the KVM hypervisor. "We looked at OpenStack from a variety of different sources, including commercial distributions, but decided on the standard open source release. We also need high performance from our network to access over 16 PB of stored photos," says Kistler. "Cisco is the clear leader in cloud computing in our

minds, and their help getting it all to work in our datacenter, especially around the integration of network devices into OpenStack, has gone a long way to ease the implementation."

"The flexible OpenStack cloud running on Cisco UCS enables us to provide higher availability and a much more stable experience for customers. Previously, we had to display a maintenance statement once a month when we did updates, but we haven't needed a single maintenance break since switching to Cisco UCS."

– **Brian Talley**
Manager of Systems and Networking
Photobucket, Inc.

Solution

Photobucket hires skilled staff comfortable with manipulating code and working with command line interfaces, so the company can quickly and incrementally achieve benefits from open source systems, such as OpenStack. Not only does OpenStack reduce costs compared to proprietary systems, but Photobucket developers can gain support from the entire OpenStack community. "Open source software allows us to build upon skill sets that we have within the team and immediately reap benefits from new developments within the community," says Kistler.

OpenStack for Cisco Unified Computing System™ (UCS®), in particular, offers a comprehensive set of open APIs to facilitate custom development and a unified, flexible approach that mirrors the Cisco Unified Data Center infrastructure. Cisco UCS B200 M3 Series blade servers deliver scalable performance on memory-intensive workloads to boost performance on the Photobucket website. The 16 blade servers in each of the two data centers handle primarily front-end and middleware components of the Photobucket platform, connected by UCS 6296 Fabric Interconnects for redundancy. OpenStack works smoothly with the Cisco Nexus® 5000 Series switches with Cisco Nexus® 2000 Series Fabric Extenders and Cisco UCS fabric interconnects to extend the fabric to multiple virtual machines.

Photobucket also implemented the Cisco UCS C24 M3 Series Rack Servers to consolidate its MySQL database deployment. By virtualizing on the high-performance rack-mount servers, Photobucket migrated the contents of 380 servers onto only 8 Cisco UCS C24 M3 Series servers, reducing its footprint by 98 percent. This step not only reduces the complexity and cost of the current infrastructure, but also gives Photobucket more physical capacity to grow in the future. Cisco UCS 2204XP Fabric Extenders serve as cost-effective connections from the rack servers to the unified Cisco fabric at the aggregation layer. Using OpenStack Provider Network functions allowed direct access to their physical network without introducing any hypervisor-based network latency delivering the throughput and performance they need.

By combining Cisco UCS Manager with the open source data center automation solution SaltStack, Photobucket gains the ability to quickly provision and migrate data. Photobucket uses this flexibility to quickly shift resources to meet development or customer demand. By also shifting data between servers, Photobucket can take servers offline at any time for upgrades or maintenance without affecting service levels.

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Results

With billions of media files, Photobucket needs a growing volume of high-capacity equipment, which makes space a premium in data centers. Using the new OpenStack cloud running on Cisco UCS, Photobucket has significantly reduced the footprint in the data center and created room for growth. In total, the company has migrated over 200 virtual machines to OpenStack and saved about 10 racks of hardware from the data

centers. “Consolidating servers using OpenStack and Cisco UCS is saving us over $120,000 in data center costs annually,” says Kistler.

Automation available in Cisco UCS Manager and SaltStack also reduces deployment time from days to minutes. Previously, deploying several new servers in the data center could take a week. Several staff members would be pulled from existing projects to rack, connect, configure, and validate servers manually. Once installed, all other systems, including monitoring, inventory, and load balancing, needed to be updated separately.

The new Cisco infrastructure also makes almost anyone within Photobucket IT able to build new virtual machines in about three minutes. Employees do not need to physically travel to the data centers; they can deploy servers from anywhere using the OpenStack web interface or the command line interface. Server profile templates help reduce deployment time by configuring servers at the click of a button. Fast deployment encourages business agility, eliminating the need to purchase and verify physical servers before expanding capacity or implementing new developments.

SaltStack enables Photobucket to automate tasks, such as DNS updates, to free architects from daily maintenance and enable them to concentrate on higher-value activities, including designing and engineering solutions. “Overall, we’re saving about 40 hours of labor a week: the equivalent of gaining an extra staff member,” says Kistler.

With more time available, Photobucket can reallocate technical staff to ongoing projects, including establishing a new central logging and ticketing system, that improves overall efficiency in backend systems. The network monitoring system, for example, is undergoing a long overdue upgrade with staff adding templates and servers to the monitoring system. “Previously, we concentrated our available resources on customer-facing systems, but automation and streamlined provisioning with OpenStack and Cisco UCS gives us time to optimize our internal systems to gain added efficiencies,” says Kistler. “By working smarter on the backend, we can concentrate our efforts on developing more stable and innovative experiences for our customers.”

Next Steps

Photobucket is planning several projects to continue boosting efficiency. By expanding integration with OpenStack and Cisco UCS, Photobucket plans to further automate provisioning to enable all configurations and updates at the click of a single button. This automation will not only reduce the time that staff spend on maintenance, but it will enable staff members without extensive data center experience to handle provisioning. With the saved time, Photobucket plans to continue improving backend efficiency with better configuration management and a new central logging and ticketing system.

Product List

FlexPod Solutions

- Cisco Unified Computing System (UCS)
- Cisco UCS B200 M3 Blade Servers
- Cisco UCS C24 M3 Rack Servers
- NetApp

Routing and Switching

- Cisco Nexus 5000 Series Switches

Fabric Extenders

- Cisco Nexus 2000 Series Fabric Extenders

Fabric Interconnects

- Cisco UCS 6296 Fabric Interconnects

Network Management

- Cisco UCS Manager
- SaltStack

Cloud Computing

- OpenStack

Applications

- MySQL

For More Information

To find out more about Cisco Unified Data Center, please visit: www.cisco.com/go/unifieddatacenter.
To find out more about Cisco UCS, please visit: www.cisco.com/go/ucs.
To find out more about Cisco Nexus, please visit: www.cisco.com/go/nexus.
To find out more about OpenStack at Cisco, please visit: www.cisco.com/web/solutions/openstack.
To find out more about FlexPod, please visit: www.cisco.com/go/flexpod.

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