

SUCCESS STORY

NetApp cuts AWS costs by up to 75% with Spot by NetApp



**The cloud, run right.
Giving workloads the cloud infrastructure they deserve—always available, always scalable, and always at the lowest possible cost.**

Problem solved

Like many enterprises, NetApp is constantly looking for ways to use public cloud compute to enable cloud bursting and reduce data center footprint. But public cloud has been cost prohibitive. Until now.

Client outcomes

NetApp deployed Spot by NetApp® to enable cloud agility while slashing compute costs in AWS by up to 75% per instance.

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49% to 75%
Drop in costs
over AWS
On-Demand pricing

More cloud. Less cost.

Inside the NetApp Common Test Lab (CTL) cloud test ecosystem, where NetApp engineers test updates to Cloud Volumes ONTAP® for AWS, cloud compute costs were rising. EC2 usage for Cloud Volumes ONTAP for AWS testing averaged about 85 instances per day. Monthly spending was projected to top \$110,000 for Cloud Volumes ONTAP for AWS alone. Eyebrows were raised.

“When you’re testing in the cloud, at some point, someone is going to come knocking at your door to talk to you about your bill,” says Mekka Williams, the principal engineer on NetApp’s Hybrid Cloud Engineering team and the cloud test architect for Google Cloud, AWS, and Azure. “We needed to figure out how we could curb our spending without reducing efficiency.”

Engineering
projected to save
\$35K
per month

The team began looking at using AWS EC2 Spot instances, which let you use excess compute capacity in AWS for up to 90% less than the cost of On-Demand instances. The catch—and it’s a big one—is that AWS can terminate a spot instance with just a 2-minute warning if it needs that capacity back.

“We had tried to use AWS’ cloud-native Spot solution, but our QA teams weren’t too excited about the idea that an ONTAP node might be yanked from underneath them during their test execution,” explains Williams. “They just didn’t need the extra burden of having to battle with that uncertainty.”

Enter Spot (now Spot by NetApp¹), a novel and ingenious way to take advantage of hyperscale spot instances at discount prices

IT can now move
1 data center
to public cloud in
the next 3 years

without the risk. Elastigroup by Spot uses machine learning models to monitor compute usage and predict spot interruptions in advance, migrating at-risk instances to new instances to avoid disruption.

Williams started doing some testing of her own to see if Spot could be made to work in a complex enterprise environment such as NetApp’s CTL. As with those of many large enterprises, NetApp’s library suite is a bit of a juggernaut, featuring older languages that have been used to test ONTAP for years, such as Perl, and newer languages, such as Python and cloud-native COI.

1. NetApp acquired Spot on July 13, 2020, after NetApp IT’s proof of concept of Spot.

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More cloud. Less cost.

Elastigroup handled it like a champ. By integrating Spot APIs, NetApp's CTL could save up to 65% in compute costs per instance while avoiding service interruptions. Williams and her team excitedly presented their findings to their colleagues in NetApp IT, who were also searching for a more cost-effective way to use public cloud services from AWS.

The heart of NetApp IT is CloudOne, a hybrid multicloud environment that provides a one-stop shop for everything that NetApp developers need to focus on their applications. The NetApp Support site, which is accessed more than 200,000 times a month by NetApp customers around the world, is just one of 56 applications that are built and run on CloudOne.

"I had people calling me asking if we knew anything about the acquisition. We had no idea, but the solution was so good that we were going to use it regardless."

Mekka Williams,
Principal Engineer, NetApp Hybrid Cloud Engineering team

"We had explored using spot instances on AWS, but it was just too much risk for us," says Michael Morris, senior director of IT Platform, Cloud, and Infrastructure Services. "Your ability to react in such a small window takes a lot of planning and automation. That just doesn't work for production applications that are running 24/7."

The NetApp Engineering department had already demonstrated success with Elastigroup, but for Spot to work for NetApp IT, it had to meet three critical criteria. It would need to:

- Make public cloud cost equal to or better than running in a NetApp data center.
- Provide nonstop availability for developers and their production applications.
- Be self-sufficient, which means incurring little to no management overhead.

"Elastigroup met all of our criteria," says Morris. "We moved five applications to Elastigroup and instantly realized a 49% to 75% drop in costs compared to using On-Demand AWS EC2 instances. We received alerts from AWS about upcoming interruptions, but because Elastigroup predicted and automatically migrated those spot instances to new ones, we never experienced a disruption. Spot's automation, APIs, and slick user interface make it easy to use, so we're able to focus on other parts of our environment without worrying about how to ensure efficiency and availability for our compute infrastructure."

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By the end of August 2020, NetApp IT will have migrated every nonproduction container node in the CloudOne DevOps platform to Spot's products—including the Support site. After that, the team plans to migrate an additional 48 applications off its legacy hybrid cloud environment and onto CloudOne running on Spot.

"What's most exciting is that this will enable our 'grand strategy,' which is to eliminate a traditional data center running subproduction applications and DR workloads over the next 3 years," says Morris. "That's a big deal to us because it will help us simplify IT and free up our team to focus on more strategic projects."

Back in Engineering, Williams and her team are now busy identifying every workflow they can possibly move to Spot. Using Spot Analyzer, Spot's intelligent management tool, Williams can see all her spot instances at a glance and identify workflows that have the highest likelihood of success. "Seeing all that on one screen, it just screams at you, 'Use me!'" says Williams.

When all is said and done, the Engineering team expects to save 60% to 65% in compute costs across the workflows it can migrate to Spot. Back-of-the-envelope calculations show that could mean \$35K per month or more in savings

for Cloud Volumes ONTAP for AWS testing environments. Perhaps even more significantly, Spot is driving a cultural change in the way NetApp Engineering thinks about its on-premises resources.

"A few days after we presented our Spot proof of concept to our leadership, we found out that NetApp had acquired Spot. I had people calling me asking if we knew anything about the acquisition," says Williams. "We had no idea, but the solution was so good that we were going to use it regardless."



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As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services and applications to the right people—anytime, anywhere.

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