



CENTURYLINK PROVIDES COST-EFFICIENT, ALL-FLASH PERFORMANCE FOR CLOUD SERVICES WITH VMWARE vSAN



INDUSTRY

COMMUNICATIONS AND
DATA SERVICE PROVIDER

LOCATION

MONROE, LOUISIANA

KEY CHALLENGES

- High storage costs hampered competitiveness
- Inconsistent performance of databases in the cloud didn't meet high standards
- Management was complicated and resource-intensive

SOLUTION

A leading telecommunications company, CenturyLink provides services to customers in over 37 states. One of its biggest challenges was the high cost and operational complexity of traditional storage. To lower costs and improve agility, CenturyLink modernized its infrastructure with VMware vSphere and vSAN™.

BUSINESS BENEFITS

- Saved \$1.2 Million on most recent data center deployment
- Consistent performance levels, delivering over 6M IOPS with all-flash clusters
- Accommodating different customer requests in just a few clicks

CenturyLink joins with VMware to offer customers a choice of two cloud service models: managed services with VMware vCloud® Air™ or enterprise cloud services from CenturyLink Cloud. The company has more than 55 data centers globally, 16 of which support CenturyLink Cloud and are 100% virtualized with VMware vSphere® across approximately 3,800 hosts, making CenturyLink one of the world's largest VMware deployments.

"We chose to build CenturyLink Cloud on vSphere because VMware gives us consistent, API-driven deployments and it's very easy to use," says Jeremyah Corner, Director of Software Development at CenturyLink Cloud. "We've been able to keep support costs down as we grow and manage the entire virtualization layer with just six people. We upgrade regularly to get the most value from VMware solutions—soon we will be upgrading to vSphere 6.5 to get the redundancy benefits of vCenter® High Availability."

Seeking performance, flexibility, and cost benefits, CenturyLink decided to modernize several of its data centers by replacing the traditional SANs that previously supported CenturyLink Cloud with VMware vSAN, a software-defined storage solution. As a result, the company is differentiating its services in a competitive cloud marketplace while improving manageability and controlling costs.

Company Overview

CenturyLink is the third-largest telecommunications company in the United States in number of lines served, offering communications and data services to residential, business, government, and wholesale customers in 37 states. It also provides cloud computing and managed services, offering secure enterprise cloud services for business applications, IaaS, PaaS, SaaS, DBaaS, and cloud management. CenturyLink ranked #407 on the Forbes Global 2000 list in 2016.

The Challenge

CenturyLink provides services to large and small customers through CenturyLink Cloud, one of the world's largest VMware-based public clouds. Although customer needs are diverse, most want fast storage for their database workloads, which was expensive to provide using traditional SAN storage. Recognizing the need to scale performance to support the latest technology and modern business apps, CenturyLink wanted a more flexible and cost-effective solution.

“One of the biggest business challenges we had was the cost of traditional SAN,” says Corner. “Storage was eating our budget alive, representing the majority of our data center deployment costs. It was also difficult to streamline performance levels for our customers—we had to be very careful about how many IOPS were being consumed.”

At the time, CenturyLink Cloud had approximately 30,000 virtual machines (VMs) on various brands and models of storage devices. Storage management was a growing challenge, chipping away at operating expenses. “It was a maintenance nightmare,” says Corner. “We needed a more modern solution for primary VM storage that would give us better manageability, scalability, and control over VM performance while reducing overall storage costs.”

The Solution

CenturyLink chose VMware vSAN, VMware’s hyper-converged infrastructure (HCI) solution, for CenturyLink Cloud. It deployed all-flash vSAN storage clusters at six of the data centers that support CenturyLink Cloud to offer customers a range of performance and redundancy options.

CenturyLink’s vSAN environment runs on a Dell server platform and is already more than 10 petabytes of all-flash storage, and the company plans to expand as its cloud hosting business grows. The vSAN environment consists of two clusters, each with 32 hosts running on vSAN 6.2. By building a hyper-converged storage system composed of commodity cache drives and SSDs, CenturyLink has removed the performance limitations of traditional SAN storage.

“The bottom line for why we selected VMware vSAN above any other solution was speed,” says Corner. “When subjected to our aggressive load tests, the other HCI solutions we evaluated just fell over. Moving to vSAN also allowed us to avoid the noisy neighbor problems that we experienced with traditional SAN storage. That’s huge for a service provider operating a multi-tenant environment. Right now, VMware is the market leader in software-defined storage, and vSAN was the perfect first step toward modernizing our data centers.”

With vSAN, CenturyLink can easily accommodate different customer requirements for performance and redundancy with just a few clicks. Managed directly from the vSphere client, vSAN integrates with VMware vSphere to provide continuous availability for storage, as required.

“One of our favorite vSAN features is the ability to change fault tolerance levels based on customer requests,” says Corner. “If a customer wants a superfast, hyperscale VM for test/dev but they don’t need redundancy, we can give it to them. If they need to guarantee high availability for production workloads, we can do that, too. With vSAN, we can give each customer the exact storage resources that they need and make them redundant to two failures. With traditional SAN or even other software-defined storage solutions, that would be very difficult for us to achieve in a cost-effective manner.”

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JEREMYAH CORNER
DIRECTOR OF SOFTWARE DEVELOPMENT
CENTURYLINK CLOUD

VMWARE FOOTPRINT

- VMware vSphere 6.0.2
- VMware vSAN 6.2
- VMware vCloud Air

APPLICATIONS VIRTUALIZED

- Typical enterprise workloads

PLATFORM

- Dell

Business Results & Benefits

In an extremely competitive industry, VMware vSAN is helping CenturyLink differentiate its public cloud services in the three areas that matter to customers: performance, availability, and cost. “We run a lot of databases in the cloud, and vSAN has made a big difference in performance,” says Corner. “We can deliver over 6M IOPS with our all-flash clusters and streamline consistent performance levels. That leads to fewer support calls and happier customers. Data is always available, and we don’t need to raise our prices to offset large capital expenditures.”

Since introducing vSAN, CenturyLink Cloud has surpassed 60,000 VMs. Using hyper-converged infrastructure powered by vSAN helped CenturyLink reduce total cost of ownership for storage. With granular scaling and the ability to use affordable, non-proprietary flash drives, vSAN helped reduce capital expenditures (CapEx). Rapid deployment with automated storage provisioning and simplified management decreased operating expenses (OpEx). As CenturyLink Cloud grows, this frees engineers to focus on more strategic initiatives.

“Because vSAN integrates so well with vSphere, it just takes a few extra commands to configure the storage for a VM after we do the initial host configuration,” says Corner. “If we were using a traditional SAN, provisioning storage and interacting with the hardware vendor would take a lot of one person’s time. With vSAN, we’re getting all-flash storage at around \$1 per gigabyte with no re-occurring OpEx.”

If CenturyLink needs to open a new data center, hyper-converged infrastructure keeps the cost and hardware footprint down. “The combination of VMware vSphere and vSAN gives us a standardized, stable, and efficient API-driven deployment model that we can repeat over and over again,” says Corner. “Now when we go into a new data center location, we won’t need five racks to hold all the storage and compute. With vSAN, we’ve reduced data center deployment costs by over 50%, saving \$1.2 Million on our most recent deployment.”

Looking Ahead

In the future, CenturyLink plans to expand the use of all-flash storage to its entire public cloud to give all its customers compelling performance benefits. “Software-defined storage is the future, and going down that path will make it easy and cost-effective for us to go all flash, all the time,” says Corner. “With vSAN behind CenturyLink Cloud, our customers can easily run modern apps that require huge amounts of flash storage. That’s a big win for our business and our customers. Our goal is to never buy traditional storage again!”

