



NetApp®

Success Story

Alaska ETS Builds Private Cloud, Bringing New Levels of Efficiency and Flexibility to State Government IT

Alaska Enterprise Technology Services (ETS)



KEY HIGHLIGHTS

Industry

State government

The Challenge

- Enhance citizen services
- Centralize access to IT resources across entire state
- Allocate technology resources on utility-based model

The Solution

Build virtual private cloud based on VMware® vSphere® built on FlexPod® from NetApp and Cisco.

Benefits

- Transforms from decentralized to utility-based IT model
- Reclaims and repurposes 60% of storage resources
- Achieves 95% server virtualization for substantial cost avoidance
- Enables disaster recovery and data replication
- Delivers services 66% faster
- Reproduces data such as e-mails in minutes

Customer Profile

The state of Alaska's nickname—The Last Frontier—is fitting. With an area of 586,400 square miles, Alaska boasts the biggest landmass in the United States, yet ranks 47th in population, with just over 700,000 people calling the state home. The capital city, Juneau, is situated on the mainland of the North American continent, but is not connected by road to the rest of the United States highway system. In fact, many of Alaska's road systems are not interconnected.

The combination of a sparse population and large landmass can make it a challenge for citizens to access education, health, public safety, and other services. At the same time, like other state governments, the State of Alaska is always conscious of the need to deliver high-quality and timely services to Alaskans in the most cost-effective and efficient manner.

The Challenge

Decentralization contributes to inefficiencies

Within the Alaskan government, there are 16 departments and agencies that oversee citizen services. The Division of Enterprise Technology Services (ETS) has a staff of nine and is part of the

Department of Administration. ETS's job is to provide core information technology services, such as the underlying hardware, software, network infrastructure, and enterprise services that empower state departments, across two primary data centers and a third site commissioned for disaster recovery.

Until recently, ETS had taken a decentralized, "project-based" approach to providing IT services. For example, if a department needed to expand its Microsoft® Exchange capacity or install a new ERP system, ETS would take the traditional approach: buy more equipment. But often, says Corey Kos, enterprise architect for ETS, new projects could be deferred for months with servers waiting in boxes until limited design and engineering resources were freed up. Or a new project based on shifting political priorities might take precedence, causing delays.

The need to match capacity with demand

The inability to efficiently plan capacity requirements was another issue. There was no centralized approach to storage and server provisioning and management. As the IT needs of various departments fluctuated, pockets of

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Corey Kos
Enterprise Architect, ETS

under- and over-utilized resources were common. And, because of the autonomy of various departments, server sprawl caused management challenges, information backup issues, and high server software licensing costs. Even services such as VoIP were being sourced and replicated across departments, instead of being implemented through ETS for more centralized management.

“We needed a rapid way to spin up or scale back quickly instead of building standalone systems,” says Corey Kos, enterprise architect at ETS. “We saw a tremendous opportunity to have technology used as a utility. We wanted to have organizations pay us for services when needed—and when they no longer needed our services, there was no infrastructure to dismantle.”

The Solution

A unified computing system for the data center

To go from a decentralized infrastructure to a utility-based service, ETS built a private cloud based on VMware vSphere on FlexPod. FlexPod, a prevalidated data center solution built on a flexible shared infrastructure from NetApp and Cisco, offers a consolidated, more efficient solution that saves IT resources through features such as secure multi-tenancy and disaster recovery. VMware vSphere eliminates the old “one server, one application”

model because it enables organizations to run multiple virtual machines on each physical machine.

Kos and his team chose FlexPod for several reasons. Chief among them was, first, the collaborative nature of the vendors supporting the solution. “FlexPod provides a good, clean design, coordinated services, and a good execution,” says Kos. The second reason was the ease of use and management of NetApp® storage systems. Even entry-level IT people unfamiliar with NetApp storage have been able to manage the systems without training.

The two largest data centers in Juneau and Anchorage based on FlexPod are mirror images of each other. The configurations include three clustered NetApp FAS6240 storage systems, each running Data ONTAP®, as well as Cisco Unified Computing System™ (Cisco UCS®) B200 blade servers. The blade servers connect to Cisco Nexus® 7000 Switches and to Cisco Nexus 2000 Fabric Extenders. A Cisco® MDS 9140 Multilayer Fabric Switch uses the Fibre Channel protocol to boot from the NetApp SAN.

In Fairbanks, a DR site currently under deployment will be powered by a NetApp FAS3270 storage system that switches over to Anchorage in the unlikely event of a crisis or outage. Virtualization using VMware vSphere is

a crucial part of the solution. Almost 95% of the environment is virtualized, from 15,000 mailboxes running on Microsoft Exchange Server 2010 to many customized databases used for government processes running on Microsoft SQL Server® 2008, to help maximize resource utilization.

The main protocol used is NFS, which allows ETS to create an NFS mount point with ease. “NetApp’s support for NFS makes it a lot easier for us to increase and decrease service levels on demand—and in our private cloud utility, that’s vital,” says Kos. “Projects may come to us and look like they need a lot of storage space, but as time goes on, we baseline them and see that we can easily throttle back so every project has exactly the storage required.”

Business Benefits

Fast deployment

The oldest data center was in Anchorage, and the ETS team, using FlexPod, was able to move the computing services to the new Juneau data center over a weekend. Then, after a few days of testing, the team replicated the services back to Anchorage and into a new facility—in just three hours. Now, because of the two identical data center locations, ETS can provision capacity for secure IT services that enhance the work of government employees, who, in turn, serve

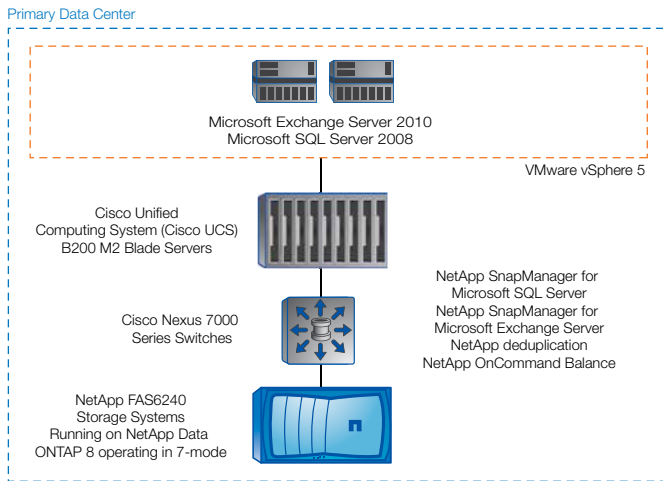


Figure 1) Alaska ETS built a private cloud based on VMware vSphere on FlexPod. The two largest data centers in Juneau and Anchorage based on FlexPod are mirror images of each other. The configurations include three clustered NetApp FAS6240 storage systems, each running Data ONTAP, as well as Cisco UCS B200 blade servers with Cisco Nexus 7000 Series switches and Cisco Nexus 2000 Fabric Extenders. Almost 95% of the environment is virtualized with VMware vSphere—from Microsoft Exchange Server 2010 to SQL Server 2008.

Alaska citizens. Instead of taking six months to deliver a new service, that time has been cut to about two months—a 66% improvement.

FlexPod streamlines ongoing provisioning and management through several unique capabilities. For instance, the Cisco Unified Computing System allows Alaska to provision new servers in minutes because of its wire-once architecture and service profiles. This supports the strategic goal of spinning up new services very quickly. Secondly, the prevalidated architecture and design implementation guides have eliminated integration time and costs.

Comprehensive management and support, with ease

NetApp OnCommand® Balance, says Kos, has everything to do with ease of storage maintenance at Alaska ETS. OnCommand Balance collects performance-related data all the way from an application to the storage it uses. With the collected data, the software models application and component behaviors and analyzes the application-to-storage route for potential performance bottlenecks. OnCommand Balance also works within virtualized environments, an important factor since Alaska ETS's environment is 95% virtualized.

Another useful tool for Alaska ETS is My AutoSupport™, a unified set of

predictive technologies designed to proactively and remotely prevent or minimize incident impact while increasing the operational efficiency of storage systems. In the unexpected event of a drive or motherboard failure or other issue, My AutoSupport automatically detects the problem, and despite the distance from anywhere in the United States to Alaska, a new unit appears with impressive immediacy. "It doesn't happen that we need it often, but if we do need a new part, it's here within just a couple of days," says Kos. "Our staff is amazed."

More efficiency, lower costs

NetApp also offered uniquely advantageous core storage efficiency and recovery software, including NetApp deduplication, NetApp SnapManager® for Microsoft SQL Server, and SnapManager for Microsoft Exchange—all valuable components integrated with the NetApp Data ONTAP operating system.

Deduplication has enabled ETS to constantly reclaim an average of 60% of space from the state's overall 800TB of data statewide, which can be dedicated toward other projects. In addition, replication is no longer a worry. Software such as NetApp SnapManager for Microsoft SQL Server and SnapManager for Microsoft Exchange has made it easy to recover application data and databases in minutes.

Better service to citizens

With a NetApp storage foundation in place, ETS has enabled the state's various departments to deliver services and benefits to Alaskans more efficiently than ever despite state budget cuts. The state can spin up new instances of SQL Server databases or Microsoft Exchange implementations quickly to deliver services to citizens more efficiently, with intelligent and more complete use of existing resources.

Investing in a strategic technology during an economic downturn has positioned the state for future growth and has proven valuable as state agencies look to continually streamline and improve citizen services. Today, no matter what information is needed, even if it's a request filed under the Alaska Freedom of Information Act, ETS can turn the information over within days. The enhanced processes are the direct result of installing FlexPod from Cisco and NetApp.

The unified infrastructure based on FlexPod and managed by ETS enables the State of Alaska's many departments to share resources, accelerate the delivery of services and benefits to Alaskans, and save taxpayer dollars. With a solid foundation in place, ETS is now moving to the next phase of its rollout, which includes replacing remaining tape-based libraries with

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more space-friendly and efficient disk backups, and even more virtualization initiatives. The integrated environment also further opens the lines of communication between ETS and the government departments it services, driving collaboration and embodying the spirit of government in the service of citizens.

SOLUTION COMPONENTS

FlexPod Components

NetApp FAS6240 and FAS3270 storage systems
Data ONTAP 8
Cisco UCS B200 Blade Servers
Cisco Nexus 7000 Series Switches
Cisco Nexus 2000 Fabric Extenders

Virtualization Component

VMware vSphere 5

NetApp Software

SnapManager for Microsoft SQL Server
SnapManager for Microsoft Exchange Server
NetApp deduplication
OnCommand Balance
My AutoSupport

Third-Party Products

Cisco Unified Communications Manager
Cisco MDS 9140 Multilayer Fabric Switch
Microsoft Exchange Server 2010
Microsoft SQL Server 2008

Protocols

NFS
CIFS

Partners

Cisco
www.cisco.com
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