



# DENVER GAINS VALUE FROM CLOUD DATA SERVICES

**A centralized infrastructure simplifies management, frees resources, builds resilience and improves support for unstructured data.**

**E**very few years in a system's life, IT teams must make a big decision: Do we continue to update what we have, or should we replace it with a new solution? That was the question the Technology Services Department for the City and County of Denver needed to answer as it explored options for primary and backup data storage.

"We wanted to get out of the business of managing infrastructure and facilities for data storage and instead move our focus to delivering value," says Sean Greer, director of IT service delivery for the City and County of Denver, in describing his department's work to modernize data storage. This work, part of Denver's transition from on-premises data centers to cloud services, began with several goals.

A top goal was to use the cloud for object-based storage of unstructured data. Virtual resources in the cloud would replace the city's on-premises, hardware-based infrastructure. However, the cloud would still need to support traditional protocols such as network file system (NFS) and network-attached storage (NAS) technologies.

"These are typical file protocols that applications and end users have used for years. We needed a way to translate them to object-based storage to leverage the

benefits from both an operational and cost perspective," says Greer.

Other goals for Denver were to eliminate the complexity and costs of managing storage hardware and increase defenses against ransomware and other cyberattacks. Reducing the low-value work involved in storage management would help the department improve employee recruiting and retention. And for the long term, the department wanted to support ongoing growth without the effort of frequent refresh cycles for storage systems.

"Hardware life-cycle replacements are a time-consuming and resource-intensive effort to migrate all the data to a new platform. These efforts require an organization to expend resources and training for a single event that will be outdated by the time the next replacement

needs to be done," says Greer. "So every three to five years our team had to expend a large amount of time and effort on an activity that not only did not bring value to the city, but ultimately negatively impacted those delivering city services."

## **Cloud storage and a single management platform**

Denver now uses the cloud to store NFS and application data for most city-county departments, including public safety, building and development, elections, finance and human services. To manage that storage, Denver utilizes a solution from Nasuni, along with cloud object storage, to meet the city's requirements for storage types, resiliency and recoverability.

The Nasuni platform encompasses a virtual edge appliance that supports multiple functions, including a gateway for user data access, synchronization to the cloud, and ransomware and disaster recovery protection. The appliance also handles the translation between object-based storage and end-user and application access to the unstructured file data.

An integrated management console in the platform gives IT a single point of visibility and control for every appliance and the available file data services as a whole.

## **About Denver's Technology Services**

The Technology Services Department provides central IT services for the City and County of Denver. These services include technology infrastructure, application development and technical support, and are available to all city departments.

Greer notes that an integrated management console decreases the challenges for IT of working with multiple different software tools. It also makes specific tasks easier, from restoring a user file from the backup to recovering from a natural disaster or cyberattack.

### Multiple forms of ongoing value

Deployment began at the end of 2021, but by early 2022, Denver's storage migration to the cloud was nearly complete and already delivering significant benefits, including:

#### Consistent services in challenging times.

The city instituted a hiring freeze during the COVID-19 pandemic, which meant IT couldn't fill positions that were open due to attrition.

"We lost some storage expertise, but because of this move, we were able to maintain operations," says Greer. "We also needed to find a way to be more efficient. One of the largest benefits was that we were able to maintain the same services with existing expertise and reduced complexity."

**Cost transparency.** Data storage managed as a centralized service gives city leaders insights into usage levels and associated costs at the department level instead of just for the city as a whole. "It's not about limiting or changing usage, but about giving transparency and context for what it costs the city to do business," says Greer.

IT leaders also have more visibility into their technology cost with the streamlined subscription model of the cloud. Previously, separate expenses around backup, disaster recovery and more made it difficult to predict costs.

**Employee satisfaction.** Employees now have more time to work on projects that have a direct impact for the city, and they can see how their work makes a difference. Greer expects this shift to help efforts to recruit and retain employees for his team.

"It's very hard to recruit and maintain talent now, but when people feel they are making a difference, that plays a major role in why they stay," says Greer.

**Stronger security protections.** An improved environment and capabilities to protect, detect and recover files enable IT staff to better respond to different threat scenarios, including a ransomware attack.

"Our new storage solution really reinforces our recovery stance and ability to protect the city from permanent disaster," says Greer.

**Solution flexibility.** Denver has the flexibility to easily add cloud capacity and new types of data as needs grow and change. "As agencies have learned about the city's use of cloud services, they want to add data, which is a credit to how well the deployment and system are working," says Greer.

The Nasuni platform also offers the choice of deployment among public clouds, private cloud and other object-storage solutions. This flexibility helps the IT team choose the cloud design that best meets requirements such as performance for frequently accessed data or cost-efficient storage for archive data.

### Tips for storage modernization

Drawing from Denver's experience, Greer offers three tips to achieve success in storage modernization.

**1 /** Address any decision-maker reluctance by pointing out the impact of continually refreshing in-house systems on costs and employee workload.

**2 /** When a cloud modernization effort begins, use automation to reduce the burden of low-level, repetitive tasks. For example, offer a self-service tool where users can enter and process their own requests for more storage capacity. Task automation may also allow routine user requests, such as recovering files from a backup, to be handled by the help desk instead of an IT engineer.

**3 /** Finally, look for data that may be stored by individual users or that has been forgotten within a department. In these cases, the data may be kept on desktops, in consumer-type storage devices or within specialized applications. Help these users understand the cost savings and operational improvements that can be gained from migrating that data to the cloud.

### Meeting the new demands of data storage

Greer notes the time has passed for the traditional model of over-provisioned, on-premises storage that is purchased as a five-year capital investment. Instead, a modern model is based on using cloud services that adapt to current usage levels and are purchased from operational budgets. This model also meets today's demands for data management with tools that support continued data growth, flexible access and resilience of cyberattacks.

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For more information, contact:  
Karl Sery, US West SLED Sales Nasuni — [ksery@nasuni.com](mailto:ksery@nasuni.com)  
Jeremy Brady, US East SLED Sales, Nasuni — [jbrady@nasuni.com](mailto:jbrady@nasuni.com)