

# Accelerate Enterprise Application Lift and Shift to Google Cloud

Get your enterprise application to the  
cloud 10x faster—without rearchitecting<sup>1</sup>

 **NetApp** +  **Google Cloud**

# By the Numbers

83%

of enterprise workloads will be in the cloud by 2020.<sup>2</sup>

76%

of enterprises are looking to cloud apps and platforms to accelerate IT service delivery.<sup>3</sup>

49%

of organizations plan to migrate to the cloud for disaster recovery and high availability within the next 3 years.<sup>3</sup>

2x

the amount of SAP in the cloud by 2020 versus today— a 30% compound annual growth rate.<sup>4</sup>

# Introduction

Nine out of 10 companies will have some percentage of their applications or infrastructure in the cloud by 2019.<sup>5</sup>

This statistic includes large enterprises looking to migrate their business-critical enterprise applications as part of their digital transformation strategy. Migrating ERP solutions like SAP to the cloud can deliver increased speed and agility, faster time to production, predictable costs, and lower TCO.<sup>6</sup>

Moving enterprise applications to the cloud can present challenges. In many cases, enterprise applications require shared file access performance that is not readily available in object-based cloud storage. Getting these applications to run in standard cloud configurations often requires expensive and time-consuming redesign. In addition, standard cloud configurations may not be able to deliver the security and reliability that is required for these business-critical applications.

Advanced file share solutions used in conjunction with public cloud storage can deliver a set of simple cloud-native file services with the protocols, performance, and availability characteristics required to run existing enterprise applications. This ability allows companies to migrate enterprise applications with minimal impact, maximum security, and unfettered availability.



# Three Key Reasons to Use a Shared File Service When Migrating Enterprise Applications to Google Cloud

## 1. Achieve Fast Seamless Migration

Because many enterprise applications depend on high-performance file storage, it's imperative to recreate that same file storage scenario in the cloud. Using a shared file service instead of object-based storage lets you quickly and easily lift and shift enterprise applications to Google Cloud. This scenario enables you to meet the performance and reliability requirements for critical enterprise applications and maintain complete accessibility during the migration. You can also continue to sync and update your systems after the initial migration takes place.

During cloud migration, the shared file services import data from on-premises and other storage repositories. The data is then integrated with file directory metadata, which maintains domain credentials, access and authorization, and group memberships. This integration also helps to ensure overall compliance with industry and government regulations.

## 2. Simplify Operations

Shared file services deliver a full-function, no-ops solution that eliminates the need to refactor or redesign your enterprise application—a process that typically takes months or years. Proper automation can save development costs and time to deployment, especially if you are deploying and managing multiple databases. Administrative tasks such as data copies, backup and restore management, and monitoring can easily be automated.

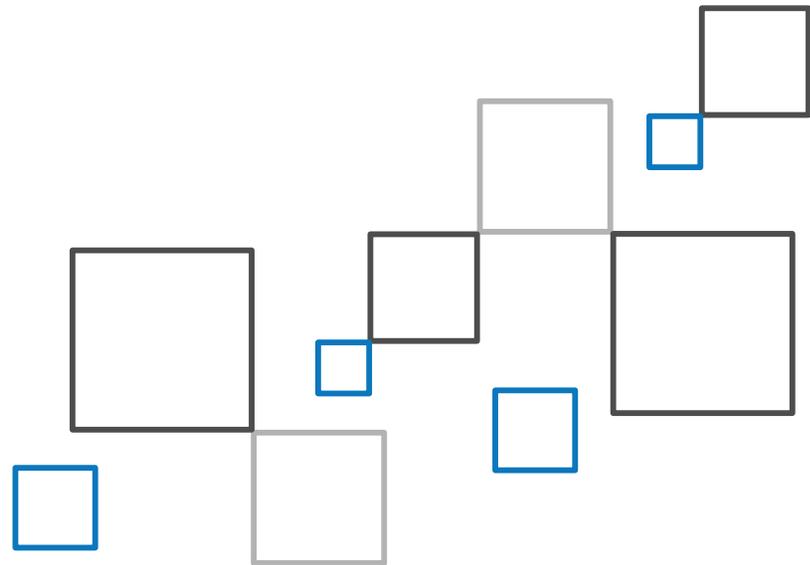
Using a fully managed service reduces the need to configure and manage your file share environment, enabling your developers and database administrators to focus on higher-value projects and helping your applications engineers bring new products to market faster.

### 3. Maximize Availability and Data Security

Shared file services help to maximize the availability of your data. They also help to make all of your data more resilient to disasters and infrastructure failures. And they facilitate encrypting all customer data at rest and in transit.

Using shared file services also simplifies the use of snapshot copies, rapid clones, and easy replication. When accessing file shares, enhanced security can be provided through fully configurable export policies for NFSv3 protocol, dedicated Active Directory connections for SMB 3.0 protocol, and the use of access control lists (ACLs). In addition, read only or read/write access permissions can be set for a range of allowed client addresses.

Using snapshots effectively during test and development phases also helps you accelerate time to market. On-demand scaling and adjustable performance tiers let you quickly test different scenarios to maximize your overall system performance.



# Lift and Shift Enterprise Applications to Google Cloud by Using NetApp Cloud Volumes Service

NetApp® Cloud Volumes Service (CVS) for Google Cloud delivers easy-to-implement and easy-to-use cloud-native file services for your enterprise applications. This fully managed offering provides NFSv3 and SMB 3.0 interfaces.

[NetApp CVS helps companies migrate their existing enterprise applications to Google Cloud up to 10x faster when compared to developing a new application.<sup>1</sup>](#)

It delivers complete integration with file directory metadata, helping to maintain domain credentials, access and authentication, and group memberships. And NetApp Cloud Sync technology makes migration easy by letting you import data from on-premises and other storage repositories.

Cloud Volumes Service is a fully managed service that is delivered through Google Cloud, with account and technical support also delivered by Google Cloud. It allows you to dynamically adjust performance levels based on your workload by increasing performance when you need it and decreasing performance when you don't. With CVS, you can spin up 100TB of high-performance file storage in the cloud in just a few seconds.

High reliability is delivered through industry-leading enterprise-class hardware and software. Redundant network ports and paths all the way up the stack and across cloud connections help protect against network failures. And access management with read/write permissions delivers self-service while maintaining control and security.

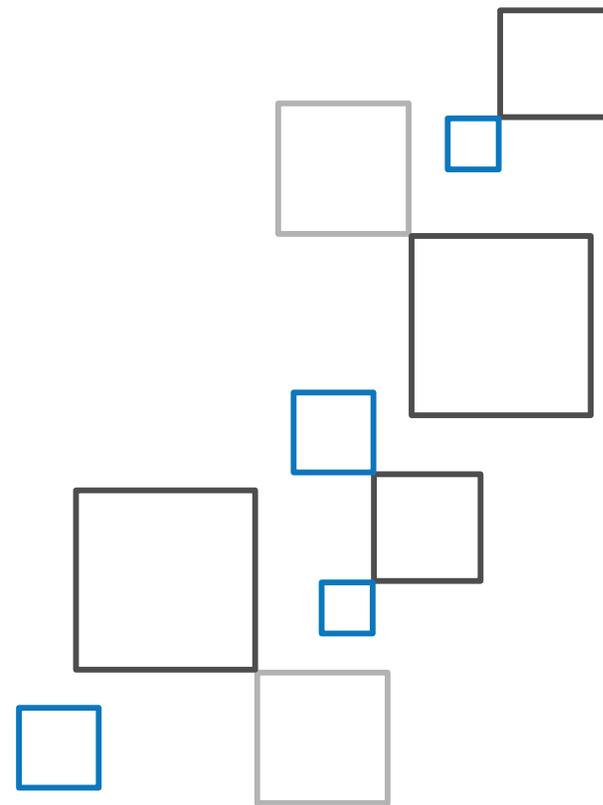
Snapshot copies, rapid clones, and easy replications help deliver high application availability with no data loss (RPO=0) and short recovery times (RTO < 60 seconds) instead of hours compared to traditional backup services.

Cloud Volumes Service is priced and structured to reduce costs. Tiered service offerings let you pay for higher-performing tiers of storage only when needed. And task automation reduces development and maintenance time.

# Snapshots with Cloud Volumes Service for Google Cloud

Snapshot copies and rapid clones are key features of Cloud Volumes Service that help protect against data corruption, improve data protection, and achieve fast recovery time. When a snapshot image is created, it exactly matches the base volume. After the snapshot is taken, the first write to any block or set of blocks on the base volume causes the original data to be copied to the reserved capacity before writing the new data to the base volume.

Subsequent snapshots include only changed data blocks. Before data is overwritten on the base volume, the snapshot feature uses its copy-on-write technology to save the required images of the affected sectors to the snapshot reserved capacity.



# Use Cases

## Global Healthcare Company Migrates Enterprise Apps to Google Cloud

A major global healthcare services and products company is currently migrating 100% of their application loads to the cloud with an overall goal of simplifying operations and ease of use. Two years into the project, the company ran into challenges migrating their enterprise applications. The company teamed with NetApp to implement a Cloud Volumes Service for Google Cloud solution to migrate these critical enterprise applications.

CVS for Google Cloud delivered simple and easy-to-consume NFS and SMB endpoints running in Google Cloud. The company pays only for the storage they use and can move performance tiers and simply and efficiently adjust capacity based on their specific application requirements.

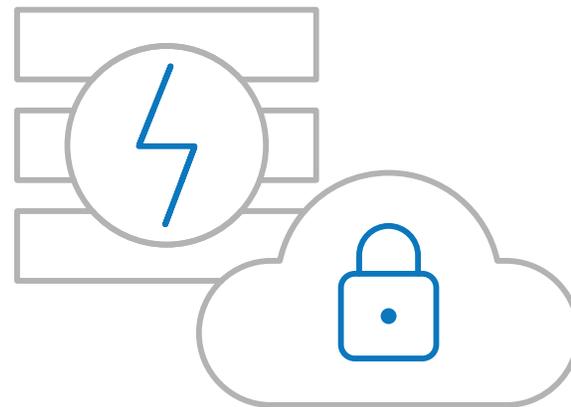
For their first application, the company used Cloud Volumes Service to deliver highly available NAS encrypted storage for application binaries. They started with 10TB of storage and quickly expanded to over 100TB. The company expected the migration might take 6 months, and was extremely pleased when they moved their application to Google Cloud in just 2 weeks, 10X faster than planned. Next steps include using NetApp Cloud Sync to move Isilon data to CVS for Google Cloud, with additional opportunities for migrating their electronic data interchange (EDI) workloads.

# Enterprise Workflow Management Provider Migrates Enterprise SaaS Applications to Google Cloud

A global SaaS enterprise workflow management provider recently committed to migrating all their workloads out of two data centers and into Google Cloud by the end of 2019. A key requirement for the company was to accomplish this migration with minimal impact to their customers.

The company's engineering team worked with NetApp to implement high-performance Cloud Volumes Service as their NFS storage solution. Because the company already makes extensive use of snapshots (rapid clones) in their on-premises application stack and workflows, they liked the fact that the NetApp CVS solution also supports enterprise-grade snapshots in Google Cloud.

The no-ops nature of CVS helped the company focus and streamline the application design in their compute engine and leverage the elasticity of Google Cloud. The company has currently deployed a 12TB volume to start their migration. Their current environment has approximately 154TB of NAS workload for lift and shift migration to Google Cloud.



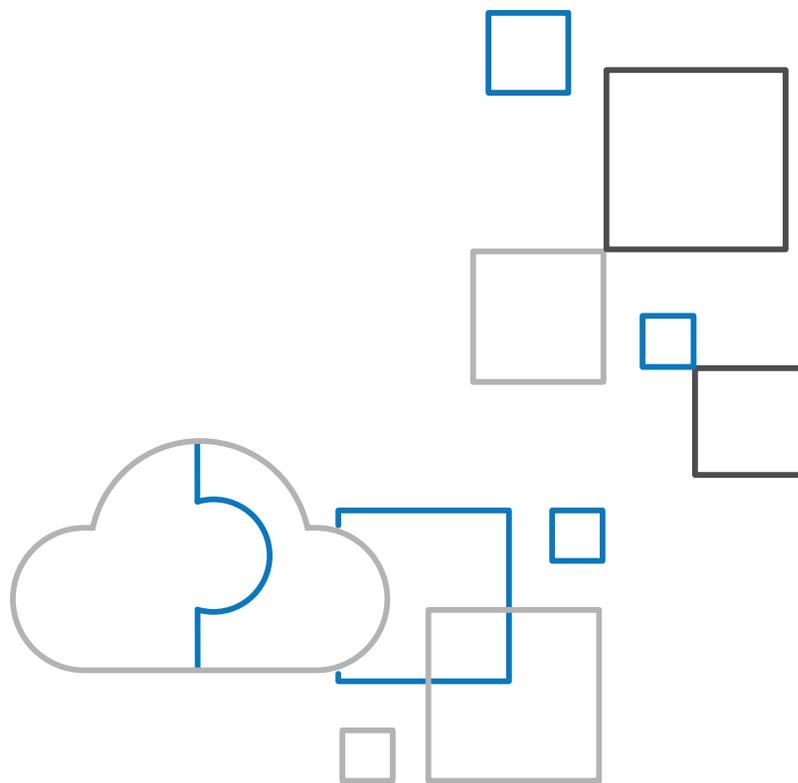
# Next Steps

Consider using NetApp Cloud Volumes Service for Google Cloud to seamlessly migrate your business-critical enterprise applications to Google Cloud, simplify your operations, and maximize your application availability and data security.

Learn how to effectively migrate your applications without rearchitecting and nondisruptively scale capacity and performance on demand. And above all, maximize availability and maintain data security with improved data protection and fast recovery times.

[Learn More](#) →

1. NetApp customer reference data
2. Forbes. [80% of Enterprise Workloads Will Be in the Cloud by 2010](#).
3. Forbes. [State of Enterprise Cloud Computing, 2018](#).
4. Forbes. [As Cloud Surpasses License Revenue in 2018, 10 Strategic Insights](#).
5. IDG Communications. [2018 Cloud Computing Executive Summary](#).
6. CIO Review. [Best Practices for Migrating SAP HANA to a Cloud Environment](#).



## About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation, and optimize their operations. For more information, visit [www.netapp.com](http://www.netapp.com). #DataDriven

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