

Solution Brief

NetApp Cloud Volumes for Google Cloud Platform

File data mobility and management with extreme performance on Google Cloud Platform

The cloud is the agile and innovative platform for business. Both public and private cloud adoption continue to grow as enterprises recognize the cloud's strategic business value.

The cloud enables organizations to reduce costs and removes the expenses of managing data centers, plus scale up for additional storage space or features as needed. Data in the cloud is secure with encryption at motion and at rest, providing peace of mind to customers. Google Cloud goes further with chips, servers, storage, network, and data centers, all purpose-built for end-to-end, secure data protection. Sophisticated Machine Learning (ML) finds and redacts sensitive information to prevent data loss.

Harnessing all the data required for effective Artificial Intelligence (AI) and ML applications is a challenge for traditional solutions. The cloud offers dramatic advantages in analytics, with the ability to integrate AI and ML within applications. You can accelerate development by automating development and test environments and being able to clone hundreds of environments in minutes.

NetApp and Google Cloud are uniting their strengths for the first time for Cloud Volumes, a fully-managed, native cloud data service with advanced data management capabilities and unprecedented performance. This relationship extends the reach of NetApp's world-class data services, backed by hundreds of thousands of customers, to Google Cloud's innovative leadership in application development, analytics, and machine learning. NetApp is a leader in data management with over 25 years' experience delivering high-performance, highly-available storage. As the fastest growing major public cloud at \$1B/quarter, Google is primed to address the key needs of their customers by offering this advanced level of data mobility and management with extreme performance.

Key Features

- Fully managed service with no-ops, integrated into the Google Cloud Platform console
- Migrate data between on-premises and the cloud
- Provision volumes from 0 to 100TB in seconds
- Multiprotocol support (NFS, SMB)
- Protect data with automated, efficient Snapshots
- Accelerate application development with rapid cloning
- Consume cloud services such as analytics, AI, and Machine Learning

NetApp Cloud Volumes for Google Cloud Platform

NetApp Cloud Volumes for GCP is fully-managed, cloud-native service so you can manage your workloads and applications with ease. Migrate your workloads to the cloud and run them without sacrificing performance (see table below). Cloud Volumes Service removes obstacles, so you can move more of your file-based applications to the cloud, with support for NFS v3 and SMB. Plus, support for NFS v4 is coming soon. You do not have to re-architect your applications, and you get persistent storage for your applications without complexity.

Cloud Volumes on GCP is integrated into the Google Cloud Platform console. Users experience a fully managed service with no-ops, along with support and billing from Google. World-class support, managed by Google Cloud, enables you to configure access for specific roles. This one solution enables you to quickly and easily add multi-protocol workloads. You can build and deploy both Windows and UNIX-based applications.

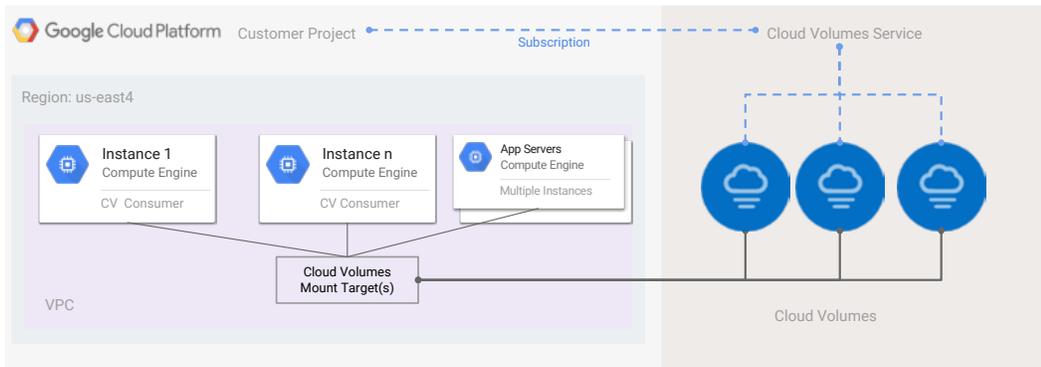
You can schedule snapshots of your Cloud Volumes and restore them to keep your data protected. You can also create clones and then migrate them to continuously keep your datasets in sync. Use Cloud Volumes Service to keep productive across your file services-based workloads, such as analytics, DevOps, and database applications.

With three service levels (standard, premium, and extreme) that can be changed on demand, you are guaranteed to find the right performance fit for your workload and adjust as the nature of your application changes. Performance for each Cloud Volume scales with the amount of allocated capacity, so performance is not limited as your dataset size grows. You can also increase/decrease the allocated capacity on the fly as well - without having to worry about adding/deleting underlying nodes.

Service Levels	MB Throughput / TB	Workload Types
Standard	16MB	General Purpose, File Shares, Email, Web
Premium	64MB	Databases, Applications
Extreme	128MB	OLTP High Performance Databases

Cloud Volumes Technical Architecture

Single Project



Use Case Examples

Cloud Volumes Service for GCP supports and expedites the deployment of various cloud-native systems through rapid delivery of cloud-native shared filesystems and a rich set of storage management features. The primary use cases to consider when using Cloud Volumes Service are file services, analytics, DevOps, and databases.

File Services

Cloud Volumes Service for GCP is a highly-available and enormously scalable platform for creating cloud-native NFS and SMB file systems. By virtue of NetApp's long-running experience of delivering enterprise, on-premises NAS solutions, Cloud Volumes Service comes with a complete range of supporting features, such as read-only and read-write client access control, connections over both NFSv3 and NFSv4, Active Directory integration for SMB filesystems, to name a few. This helps users easily migrate existing applications to the cloud and provides them the best platform to develop and maintain file storage solution in the cloud. All of which saves users time and budget by reducing the spend on hardware, maintenance, power, cooling, and physical space. By utilizing File Services on NetApp Cloud Volumes organizations can focus technical resources on other projects that bring more value to the business.

Analytics

NetApp Cloud Volumes for GCP can be used to create data lakes in the cloud and synchronize data with on-premises systems or other data sources in the cloud. Advanced solutions for analytics and machine learning are coming soon, and can access data in Cloud Volumes integrations with GCP BigQuery, Dataproc, AutoML, and Dataflow to generate new insights from your data.

Incremental synchronization of data from repositories across an organization reduces the time and effort required to make data available for cloud-native analytical processing. The results of the analysis can also be synchronized out of NetApp Cloud Volumes for GCP back to other systems, whether on-premises or in GCP. Targeting Cloud Volumes files systems directly from Google Dataproc means that copy operations are not necessary and allows a single repository to serve data for both normal use and analytics.

DevOps

One of the major benefits of using Cloud Volumes Service for GCP is the ability to create writable clones of existing storage without adversely affecting the source storage volume being cloned. This makes it very easy to set up development, test, and CI/CD environments that include access to an up-to-date copy of production data. A clone is based on a snapshot, which determines the state of the data in the clone at the point in time at which it is created. To create a more up-to-date clone, users can simply use a more up-to-date snapshot, which can also be created directly before cloning. A single Cloud Volumes Service storage volume can support many simultaneous clones, allowing DevOps engineers to provide cloned storage for multiple environments at the same time.

Cloud Volumes Service for GCP works with [Google Cloud Deployment Manager](#), which gives DevOps engineers and cloud architects the power to deploy infrastructure using code and define templates to create an entire stack of GCP services. Cloud Volumes Service can be integrated into these templates using a custom resource definition, allowing a snapshot and clone to be created of existing storage and then connected to the new test servers deployed by the template.

Databases

As companies shift to web-based applications and e-commerce, they increasingly rely on open-source databases to manage and to serve their business data. These databases are often at the heart of Online Transaction Processing (OLTP) which can include banking, retail sales, and online purchases. Slow response times often send customers looking elsewhere. Will your customers wait for your application or webpages to load? Will they return to a slow website? Most customers won't do either. Reliable, high-performance storage is where NetApp Cloud Volumes Service can help. Whether you're accessing the primary database or a snapshot copy, you can expect excellent, consistent performance from NetApp Cloud Volumes Service.

NetApp Cloud Volumes Service for GCP supports different levels of performance for each file system. Database administrators can allocate individual storage pools for hot or cold data, giving them fine-grained control over the use of high performance storage or more cost effective, capacity storage. Cloud Volumes Service ensures that file systems are highly available and resilient against system failures, so setting up highly-available database services in the cloud now becomes very easy.

If the success of your business depends on database performance, consider the value that NetApp Cloud Volumes Service provides. With Cloud Volumes Service, you can be confident that your data is durable, encrypted, highly available, and high performing.

Conclusion

NetApp Cloud Volumes for GCP enables organizations to remove the complexity associated with implementing cloud-native file systems, allowing them to get up and running quickly and easily. To learn more about Cloud Volumes Service for GCP, visit [Cloud Volumes for Google Cloud Platform](#).

About NetApp

NetApp provides a full range of cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with its partners, NetApp empowers global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation, and optimize their operations.

