

File Services With APEX Multi-Cloud Data Services

Simultaneous access to multi-cloud compute and applications for unstructured file data

Key Features

- Durable, persistent cloud-attached file storage
- No secondary data center or infrastructure to manage
- End-to-end managed service
- Simple and predictable subscription-based pricing
- Scale up compute and storage on demand without complexity
- Ideal for technical workloads in industries such as Life Sciences, Manufacturing, Energy and Media and Entertainment
- Solution for Microsoft Azure - high bandwidth, low latency connection to Microsoft Azure using Azure ExpressRoute Local and no outbound data traffic costs

Business Challenges

In the data era, cloud adoption has never been higher, but data centers aren't going away either. In fact, a vast majority of cloud strategies include on-premises data centers. Cloud is not a destination, it's an operating model that requires a data first approach to balancing workload requirements across on-premises and cloud and ensuring that data is secured, protected and available where and when it is needed, and stored and managed within compliance policies.

Unstructured data such as file faces its own set of challenges in the cloud such as maintaining user experience, scale and performance limitations, and the difficulty of applying cloud data analysis tools to on-premises data. In addition, compute intensive workloads are also very demanding on storage and many require high read/write throughput and symmetric data access to storage while producing hundreds of gigabytes of data.

Dell Technologies offers a solution that addresses these challenges through a cloud-attached file storage service that delivers high performance at scale and has a flexible design to optimize costs and keep business in control of their data.

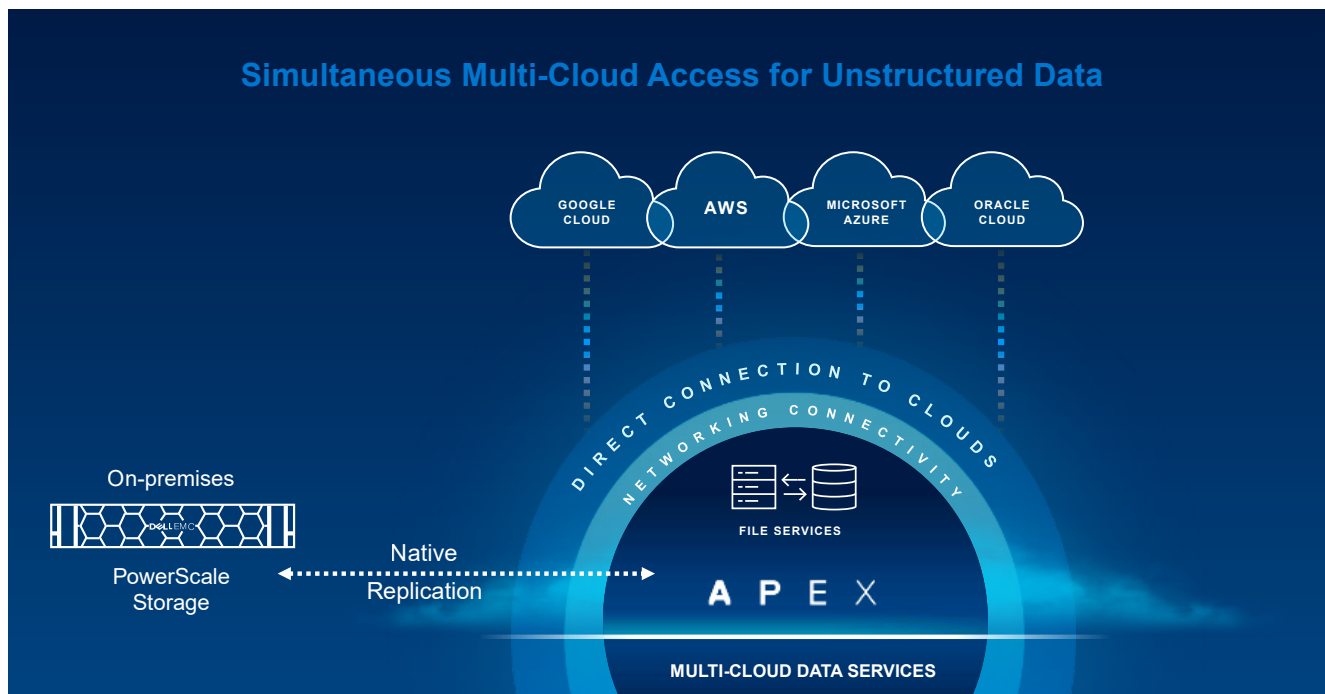
Solution Overview

File Services with APEX Multi-Cloud Data Services allows users to connect their file storage capacity, consumed as-a-Service, directly to public clouds

including Amazon Web Services (AWS), Microsoft Azure, Google Cloud and Oracle Cloud. This is done through a high-speed, low-latency connection between the service location and the cloud(s) of choice. Organizations gain an on-demand cloud consumption model for compute workloads and storage, combined with the high performance, high availability and scalability of Dell Technologies infrastructure. The APEX Console provides a single user interface for ordering and managing multi-cloud connectivity.

Cloud-based compute combined with File Services with APEX Multi-Cloud Data Services allows for the right combination of compute and storage for high I/O throughput, file-based workloads that require high compute performance on a periodic or unpredictable basis, making them suitable for a cloud consumption model. This solution is ideal for securely moving or deploying demanding applications to the public cloud for analytics, design automation, artificial intelligence/machine learning (AI/ML), scientific and technical computing, large file processing like media rendering and life sciences workloads.

Simultaneous Multi-Cloud Access for Unstructured Data



Multi-Cloud Use Cases across the spectrum of cloud vendors, users can obtain a wide variety of offers from compute power to software services to pricing (spot vs. guaranteed), and even to geographic service availability. Multi-cloud connectivity for data lets users optimize across these variables while also avoiding being locked into a particular cloud provider. For example, for compute, the various public clouds offer the choice of dozens of VMs with a wide variety of CPUs/GPUs - some optimized for HPC workloads, memory capacity and network options. When compute services are combined with File Services with APEX Multi-Cloud Data Services, users take advantage of file storage with a single multi-petabyte name space that supports symmetric data access across all the capacity to get a fully managed cloud-based environment that meets the most demanding application requirements.

Life Sciences

Genome analysis is one of the key use cases for life sciences. The raw data generated by a genomic sequencer for the complete genome of a single human is approximately 100GB. This dictates a requirement for a massively scalable file storage service to which capacity and performance could be added. Large research facilities processing hundreds of thousands of genomes per year, generate petabytes of very large file data (typically 500GB per file set) to be stored, and have a demand for computing power that is bursty by nature – a perfect application for on-demand, easily scalable cloud computing. File Services with APEX Multi-Cloud Data Services supports high-bandwidth connectivity of genomic data to compute resources in the hyperscalers, to optimize sequencing performance and minimize compute costs.

Automotive Manufacturing

Automobile manufacturers around the world engage in research and development activities to improve drivers' experience behind the wheel. First, manufacturers need to collect, consolidate, and manage car sensor data and metadata gathered from multiple locations for advanced driver-assistance system (ADAS) projects. Then, manufacturers take advantage of high-speed low-latency connections from their data to the public cloud(s) for AI/ML model training and algorithm testing. File Services with APEX Multi-Cloud Data Services helps users gather data from sources on multiple premises and process it in multiple clouds, so users can take advantage of cost, processing capability and software features available from cloud vendors.

Energy

Data has become a big part of today's search for new sources of energy. In addition to data gathered during seismic surveys, satellite images contribute to the flood of information to be analyzed. Energy companies take advantage of the capabilities of artificial intelligence (AI) tools from all the cloud vendors to analyze petabytes of information gathered from satellite images and seismic surveys to improve the effectiveness of drilling operations. File Services with APEX Multi-Cloud Data Services lets users gather data from multiple sources and make it available for processing in multiple clouds, eliminating data gravity and cloud vendor lock-in.

Media and Entertainment

Video rendering, a critical process for Media and Entertainment (M&E) organizations, is another key use case for this solution. A typical movie may require rendering of several hundred thousand frames at 50MB each, generating hundreds of TBs per movie. Time-to-market may be a great consideration, as production often needs to be contained to a few months. The entire film may be as large as several PBs and on-premises compute infrastructure may not be available to produce the film, which benefits from very highly parallelized rendering processes. Rendering video in the cloud allows M&E organizations to combine flexible cloud compute resources with the scalability, performance, and efficiency of File Services with APEX Multi-Cloud Data Services.

Specialty Use Case – Zero Egress Fees With Microsoft Azure

Microsoft Azure provides a range of compute options and software services for on-demand, cost-effective processing of high-throughput, file-based workloads. Enterprise-grade reserve compute enables operational flexibility. Azure has also made investments in infrastructure and analytics services. For example, the Microsoft Azure H-series family of high-performance computing virtual machines (VMs) deliver the throughput required for genomic analysis workloads and deploying one to thousands of VMs is simple and flexible. Plus, customers only need to pay for the compute and services used. APEX Multi-Cloud Data Services File Services for Microsoft Azure provides a high-bandwidth, low-latency connection using Azure Express Route Local, enabling users to efficiently run data-intensive workloads in Azure. It also eliminates outbound data traffic costs for data written to the storage service within Azure.

Specialty Use Case – Superna Eyeglass Suite for Disaster Recovery and Cyber Recovery

APEX Multi-Cloud Data Services can provide hosting services for the entire Superna Eyeglass software suite. The Superna suite enables customers to implement off-premises disaster recovery (DR) and cyber recovery (CR) solutions for data created in on-premises PowerScale arrays. Customers must bring their own Superna licenses and operate the solutions themselves. The Superna Eyeglass Suite is comprised of DR Manager, which complements PowerScale SyncIQ data replication in a DR solution and manages the replication of configuration information, Ransomware Defender, which manages the air gap in a Cyber Recovery (CR) solution, and Easy Auditor, which provides real-time detection of security audit conditions. The most popular implementation is to have two File Services implementations in APEX Multi-Cloud Data Services, one for Disaster Recovery (DR) and one for Cyber Recovery (CR). The Superna software manages the logical air gap for Cyber Recovery, preserving a pristine copy of the customer's data that can be recovered to public clouds if a cyber event occurs.

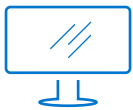
Another Unstructured Data Use Case – Object Services

Object Services with APEX Multi-Cloud Data Services supports both application and archive use cases. The object format is another way to store data often found in applications that process unstructured data. Object data stores are often used for long-term retention and archiving of application data, as well as data stores for applications written to be cloud-native or platform-agnostic. The primary use case is for long-term retention and archive of data originated on PowerMax, PowerScale and PowerProtect. Object Services with APEX Multi-Cloud Data Services can be an offsite archive for on-premises storage or a cheaper tier for arrays that make capacity available to multiple public clouds. It can also provide S3 protocol-connected storage for cloud native applications running in the public clouds. In all cases, the solution minimizes egress charges because the data is not stored in public clouds.

Why File Services With APEX Multi-Cloud Data Services

File Services with APEX Multi-Cloud Data Services delivers the advantages of Dell Technologies infrastructure as-a-Service, including high-availability, data resiliency and flexible scalability combined with the economic benefits of public cloud-based services for compute. The APEX Console enables acquisition and operations of APEX Multi-Cloud Data Services, including configuring and managing multi-cloud data connections.

Dell Technologies' storage products' native replication capabilities allow businesses to easily move their data from on-premises to workloads in the cloud. This solution can be a replication target for [PowerScale](#) scale-out NAS for demanding file workloads, including support for Superna Eyeglass Suite for Disaster and Cyber Recovery. Customers' ability to replicate from existing Dell Technologies infrastructure and compatibility with on-premises arrays with operational consistency makes it possible to easily cloud-enable data that originates on-premises.



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