WHITE PAPER

Bring Your Storage from Ground to Cloud

Dell APEX Storage for Public Cloud

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Introduction

Organizations are struggling with a wide range of challenges as they navigate through complexity to unlock the transformational rewards promised by diversified multicloud strategies.

There are many reasons organizations would choose a multicloud environment (i.e., public clouds, private clouds, on-premises, edge, and colocation). Some organizations want to use best-of-breed solutions or avoid getting stuck with one vendor. Other organizations need to follow rules about where their data can go or just appreciate options and flexibility.

Many organizations see the following challenges as they seek digital transformation rewards with a multicloud approach:

- **Unpredictable costs.** Dealing with sporadic, unplanned cloud costs can make meeting future budget requirements difficult.
- **Skills gaps.** Managing data across multicloud environments often requires familiarity with new tools and frameworks.
- **Cloud inconsistencies.** Security models and the availability of storage features might lack consistency.
- **Management complexity.** The challenges of managing data across different cloud and on-premises environments.
- **Limited visibility.** The inability to get a holistic view of where data lives and the function it serves can lead to security and compliance challenges.

Organizations need a strategic balance between harnessing multiple cloud environments and managing the intricacies of integration, security, and optimization.

The Dell APEX Storage for Public Cloud family of software-defined storage offers, coupled with Dell APEX Navigator, can help address these challenges by making it easy to combine enterprise-class Dell storage software with the scale, economics, and services available in the public cloud.

Multicloud Challenges

The disparate nature of multicloud operations creates numerous challenges for organizations, especially when it comes to the deployment of apps and the storage and movement of data. TechTarget's Enterprise Strategy Group recently surveyed 350 IT professionals responsible for evaluating, purchasing, and managing applications at large midmarket and enterprise organizations in North America.[1] When asked to rate their level of agreement with the following statements related to their organization's application deployment decisions, they responded as follows:

- 81% agreed with the statement, "We face challenges with application and data portability across locations including data center, public cloud, and edge."
- 82% agreed with the statement, "We struggle to properly size workloads for the optimal infrastructure (on- or off-premises) environment."
- 86% agreed with the statement, "We regularly migrate applications and/or data from on-premises locations to the public cloud."

This research shows that many IT leaders feel overwhelmed with the difficult decisions that need to be made, combined with the rapid pace of technology change, particularly when it comes to multicloud initiatives.

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[1] Source: Enterprise Strategy Group Research Report, *Multi-cloud Application Deployment and Delivery Decision Making*, June 2023.

Other Enterprise Strategy Group research shows that public cloud services continue to play a huge role in modern IT, with 90% of organizations leveraging two or more public cloud service providers (see Figure 1).[2]

Figure 1. Organizations Leverage Multiple Public Cloud Infrastructure Service Providers

Approximately how many unique public cloud infrastructure service providers (IaaS and/or PaaS) does your organization currently use? (Percent of respondents, N=333)
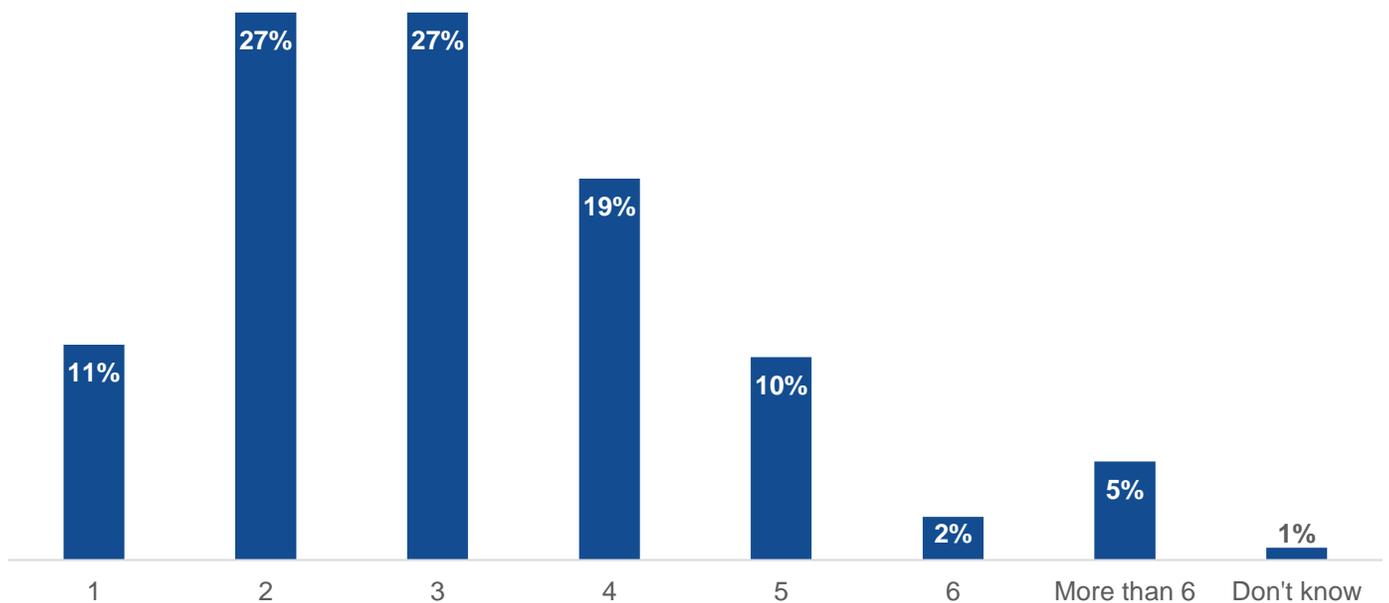
Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Enterprise Strategy Group research also shows that meeting security expectations (25%), meeting cost expectations (25%), and the time and cost of learning different architectures (25%) top the list of concerns when using multiple cloud service providers. Notably, many respondents identified challenges related to the time and effort associated with moving applications and data between multiple cloud services.
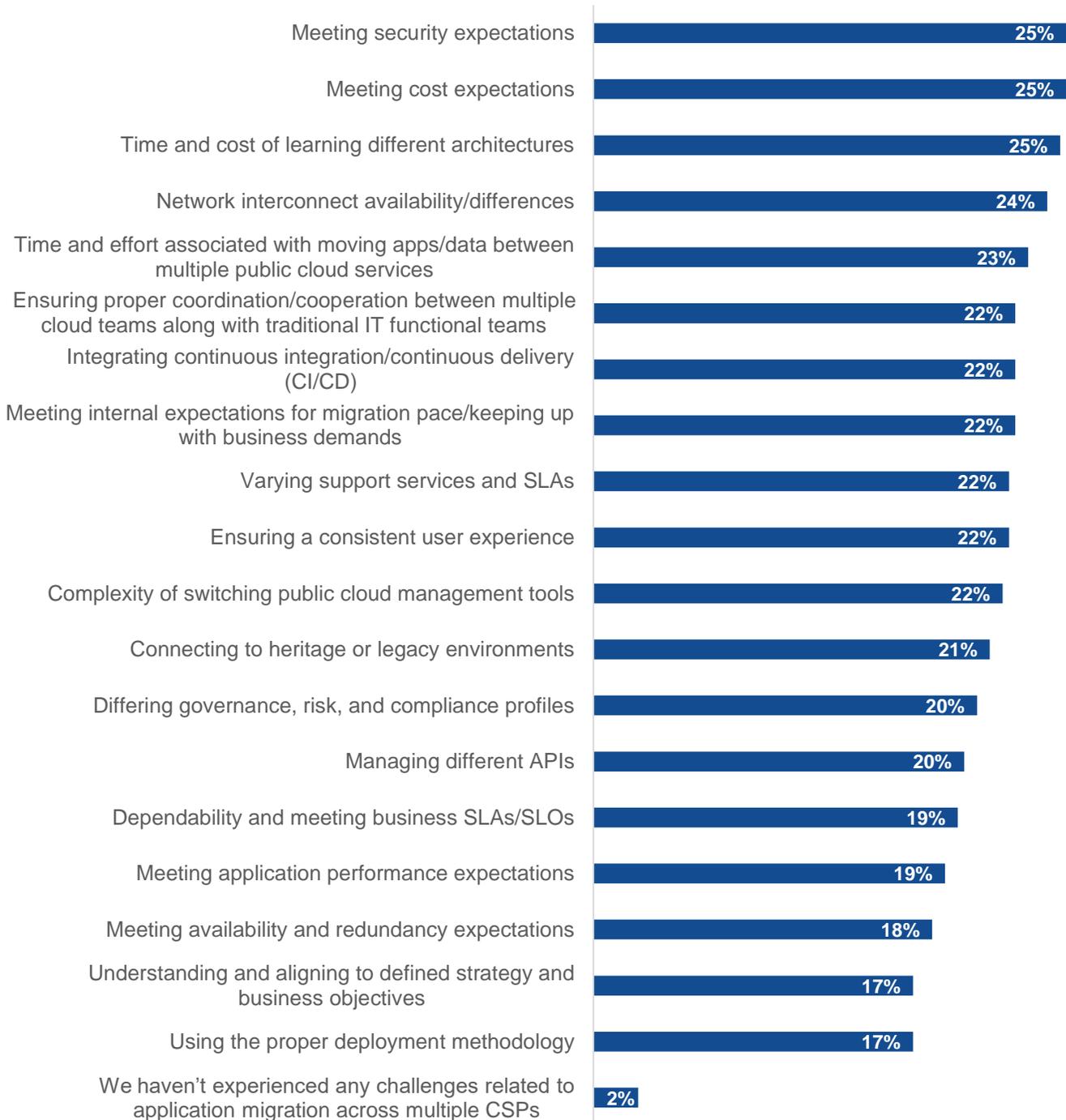
Overall, the average respondent selected four responses, suggesting there are multiple areas of complexity involved with cloud migrations in multicloud environments (see Figure 2).

Many respondents identified challenges related to the time and effort associated with moving applications and data between multiple cloud services.

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[2] Source: Enterprise Strategy Group Complete Survey Results, *Distributed Cloud Series: The State of Infrastructure Modernization Across the Distributed Cloud*, August 2023. All Enterprise Strategy Group research references and charts in this white paper are from this survey results set unless otherwise noted.

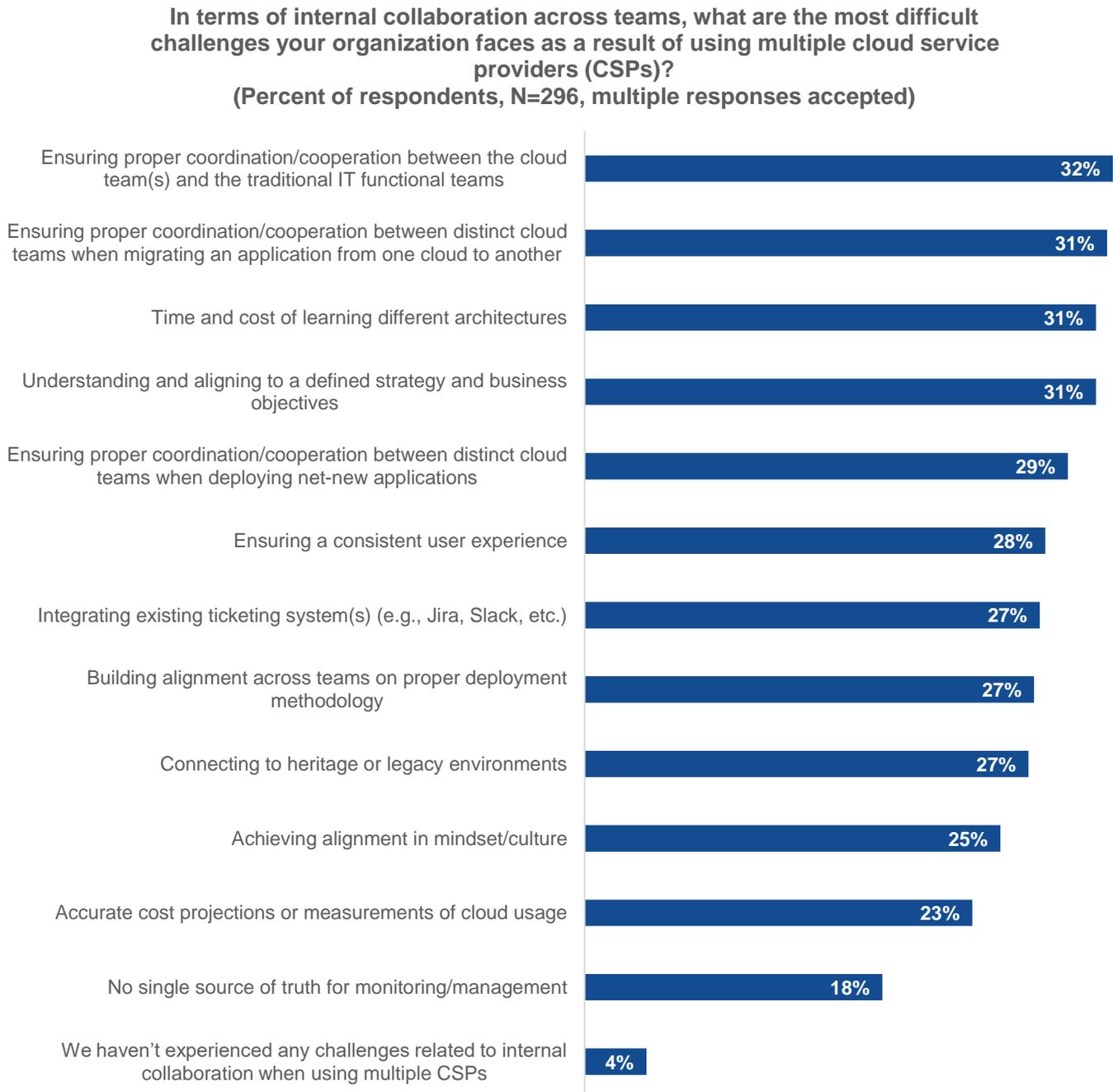**Figure 2.** Challenges of Application Migration

In terms of application migration to a public cloud provider, either from an on-premises location or from a different public cloud provider, what are the most difficult challenges your organization faces as a result of using multiple cloud service provide

Challenge	Percent
Meeting security expectations	25%
Meeting cost expectations	25%
Time and cost of learning different architectures	25%
Network interconnect availability/differences	24%
Time and effort associated with moving apps/data between multiple public cloud services	23%
Ensuring proper coordination/cooperation between multiple cloud teams along with traditional IT functional teams	22%
Integrating continuous integration/continuous delivery (CI/CD)	22%
Meeting internal expectations for migration pace/keeping up with business demands	22%
Varying support services and SLAs	22%
Ensuring a consistent user experience	22%
Complexity of switching public cloud management tools	22%
Connecting to heritage or legacy environments	21%
Differing governance, risk, and compliance profiles	20%
Managing different APIs	20%
Dependability and meeting business SLAs/SLOs	19%
Meeting application performance expectations	19%
Meeting availability and redundancy expectations	18%
Understanding and aligning to defined strategy and business objectives	17%
Using the proper deployment methodology	17%
We haven't experienced any challenges related to application migration across multiple CSPs	2%

Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Team coordination leads the list of collaboration challenges when dealing with multiple cloud providers. Specifically, Enterprise Strategy Group research shows that 32% of respondents stated that ensuring proper coordination between the cloud team(s) and the traditional IT functional teams was a top multicloud challenge. In addition, 31% cited ensuring proper coordination between distinct cloud teams when migrating an application from one cloud to another, 31% cited the time and cost of learning different architectures, 31% cited understanding and aligning to a defined strategy and business objectives, and 29% cited ensuring proper coordination between distinct cloud teams when deploying net-new applications as other top multicloud collaboration challenges (see Figure 3).

Figure 3. Challenges of Multicloud Collaboration

In terms of internal collaboration across teams, what are the most difficult challenges your organization faces as a result of using multiple cloud service providers (CSPs)?
(Percent of respondents, N=296, multiple responses accepted)

Challenge	Percent
Ensuring proper coordination/cooperation between the cloud team(s) and the traditional IT functional teams	32%
Ensuring proper coordination/cooperation between distinct cloud teams when migrating an application from one cloud to another	31%
Time and cost of learning different architectures	31%
Understanding and aligning to a defined strategy and business objectives	31%
Ensuring proper coordination/cooperation between distinct cloud teams when deploying net-new applications	29%
Ensuring a consistent user experience	28%
Integrating existing ticketing system(s) (e.g., Jira, Slack, etc.)	27%
Building alignment across teams on proper deployment methodology	27%
Connecting to heritage or legacy environments	27%
Achieving alignment in mindset/culture	25%
Accurate cost projections or measurements of cloud usage	23%
No single source of truth for monitoring/management	18%
We haven't experienced any challenges related to internal collaboration when using multiple CSPs	4%

Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Dell APEX Storage for Public Cloud

Multicloud environments can provide significant benefits, but organizations need to address the challenges described above, including leveraging multiple public cloud infrastructure service providers, managing cloud migrations, and managing team coordination and collaboration.

The Dell APEX Storage for Public Cloud family brings enterprise-class file, block, and protection software to public clouds. The solution enables organizations to address these multicloud challenges and simplify operations with consistent tools and experience across on-premises and public cloud environments, including intuitive management through a centralized console. It provides seamless multicloud data mobility and a highly scalable architecture, which enables organizations to access the right resources in the right place, based on existing cloud strategy. The solution also includes advanced data services and high performance to run mission-critical workloads, as well as cyber resiliency to ensure the security and integrity of data. Centralized governance provides organizations with end-to-end visibility and role-based policy enforcement across storage environments.

The Dell APEX Storage for Public Cloud solution family includes APEX Block Storage for Public Cloud, APEX File Storage for Public Cloud, and APEX Protection Storage for Public Cloud.

Dell APEX Block Storage for Public Cloud

Dell APEX Block Storage for Public Cloud consists of highly flexible, scale-out block storage in the public cloud that delivers greater capacity efficiencies compared to native cloud block storage. Designed to optimize block-based workloads, including databases, analytics, Dev/Test, virtualization, and containers, the solution provides the following key capabilities:

- High availability by placing data across multiple availability zones without unnecessary replication or copies of data.
- Ability to leverage native replication to move and protect data, including backup snapshots.
- Flexible deployment options that enable users to optimize performance and cost to meet workload requirements.
- Data services using snapshots, thin provisioning, and replication.
- The ability to move data seamlessly between on-premises and public cloud environments, as well as across regions.

The solution is deployed using an intelligent orchestrator that can optimize the instance types needed to support the capacity and performance requirements of workloads. Dell APEX Navigator, discussed in detail below, offers a simplified user experience to deploy and manage the APEX Block Storage solution.

Dell APEX Block Storage for Public Cloud is currently available on AWS and Microsoft Azure.

Dell APEX File Storage for Public Cloud

Dell APEX File Storage for Public Cloud leverages Dell's leading network-attached storage (NAS) solution in the public cloud as a software-defined offer. Capable of handling mission-critical workloads for unstructured data, including cloud burst for high-performance vertical workloads, analytics and AI, disaster recovery and ransomware protector copy, data center to cloud migration, etc., this enterprise-class scale-out file storage brings the familiar OneFS software-defined solution to the cloud with the following key capabilities:

- Built-in native replication with SyncIQ for easily moving data from on premises to the cloud. The same OneFS software with enterprise-grade features and built-in security works on-premises and in the cloud, without the need for any changes to the underlying storage architecture.

- Consistent user experience by using familiar web UI, CLI, and APIs so that there is no need to retrain the IT staff.

- Scale-out architecture with support for leading-class performance and scale, designed to handle hybrid cloud and cloudburst file data use cases.

Dell APEX File Storage for Public Cloud is currently available on AWS and Microsoft Azure.

Dell APEX Protection Storage for Public Cloud

Dell APEX Protection Storage for Public Cloud provides software-defined data protection storage and supports a broad set of backup applications that enables users to maintain control and ensure data immutability. The solution provides the following key capabilities:

- A great fit for backup to the cloud, backup in the cloud, and cloud disaster recovery (DR).

- Ease of configuration and deployment, typically within minutes.

- Support for up to 256TB per instance and the ability to scale in 1TB increments.

- Efficient data protection by backing up only unique data segments.

- Deduplication, compression, and encryption of the stream as data is ingested.

- Automated, policy-based, network-efficient, and encrypted replication for DR, multi-site backup, and archive consolidation.

- Replicate data between clouds and on-premises or between clouds.

- Data immutability with Retention Lock Governance mode in all supported cloud environments.

Dell APEX Protection Storage for Public Cloud is currently available in AWS, Microsoft Azure, Google Cloud, and Alibaba Cloud.

Dell APEX Navigator for Multicloud Storage

Dell APEX Navigator enables multicloud management and operations via a simple, secure software management solution. The Navigator provides advanced capabilities within the APEX Console to enable organizations with a centralized user experience spanning multiple storage types deployed in public clouds and on-premises environments.

For multicloud storage, the initial set of Navigator capabilities enables IT operations and storage administrators to:

- Deploy, configure, manage, and monitor Dell storage in public clouds and move data across on-premises and public cloud environments.

- Rapidly deploy Dell storage in the public cloud with simple configuration and automated provisioning of underlying public cloud resources, as well as automated deployment of Dell storage software.

- Centralize storage management activities with access to familiar Dell storage management tools for a consistent experience across public cloud and on-premises environments, which eliminates the need for retraining.

- Use public APIs with automation tools such as Red Hat Ansible and Terraform to automate deployment, management, and decommissioning of Dell storage in public clouds and to move data from on premises into the public cloud and back.

- Monitor Dell storage deployments across environments and take actions based on intelligent insights with information regarding system health, performance, capacity, license inventory, and easy access to deeper insights for on-premises deployments.

- Optimize data movement between Dell storage deployed on premises and in the cloud.

Dell APEX Navigator also helps facilitate Zero Trust adoption by using a security approach that incorporates zero-trust principles, including role-based access control, single sign-on, and federated identity.

For a first look at the functionality of Dell APEX Navigator with APEX Block Storage for AWS, please visit: https://www.delltechnologies.com/asset/en-us/solutions/apex/industry-market/esg-first-look-apex-block-navigator.pdf.

Conclusion

To ensure their modernization strategies keep pace with the speed of their businesses, organizations should navigate multicloud complexity strategically. Successfully navigating this complexity requires a meticulous approach that balances the benefits of diverse cloud ecosystems with the demands of seamless integration, robust security, and optimal performance.

With Dell APEX Storage for Public Cloud, organizations can overcome multicloud challenges with:

- Cost-optimized consumption, resulting in TCO improvements.

- Intuitive management through a centralized console, along with operational consistency across on-premises and public cloud environments.

- Increased performance, along with advanced data services and enterprise-class reliability and security, to run mission-critical workloads.

- Consistent tools and experience with seamless data mobility between on-premises and public cloud environments.

- Centralized governance with end-to-end visibility and role-based policy enforcement throughout multicloud environments.

With the Dell APEX Storage for Public Cloud family, organizations can extend on-premises infrastructure to the public cloud and create a multicloud solution across on-premises and public cloud environments with consistent operations. This would enable organizations to transition away from physical data centers and the administrative tasks associated with infrastructure maintenance.

Also, as workloads transition to the cloud, organizations can leverage the services inherent in specific public cloud environments across AWS, Microsoft Azure, Google Cloud, and Alibaba Cloud.

Any business that is struggling with multicloud complexity should be looking at the Dell APEX Storage for Public Cloud family of software-defined storage offerings. For more information, please visit:

https://www.dell.com/en-us/dt/apex/storage/public-cloud/index.htm

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TechTarget's Enterprise Strategy Group provides focused and actionable market intelligence, demand-side research, analyst advisory services, GTM strategy guidance, solution validations, and custom content supporting enterprise technology buying and selling.

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