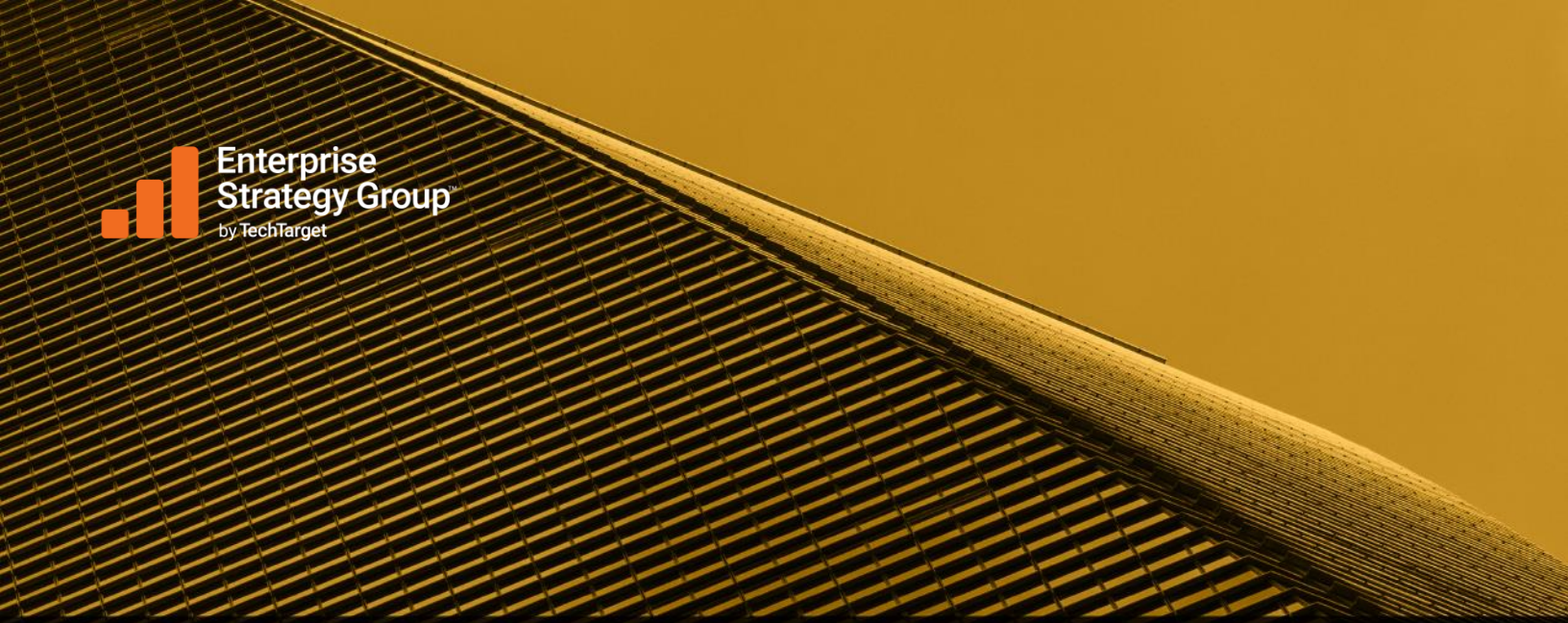

TECHNICAL VALIDATION

# NetApp BlueXP

## Comprehensive Management and Control of Hybrid Multicloud Storage

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# Introduction

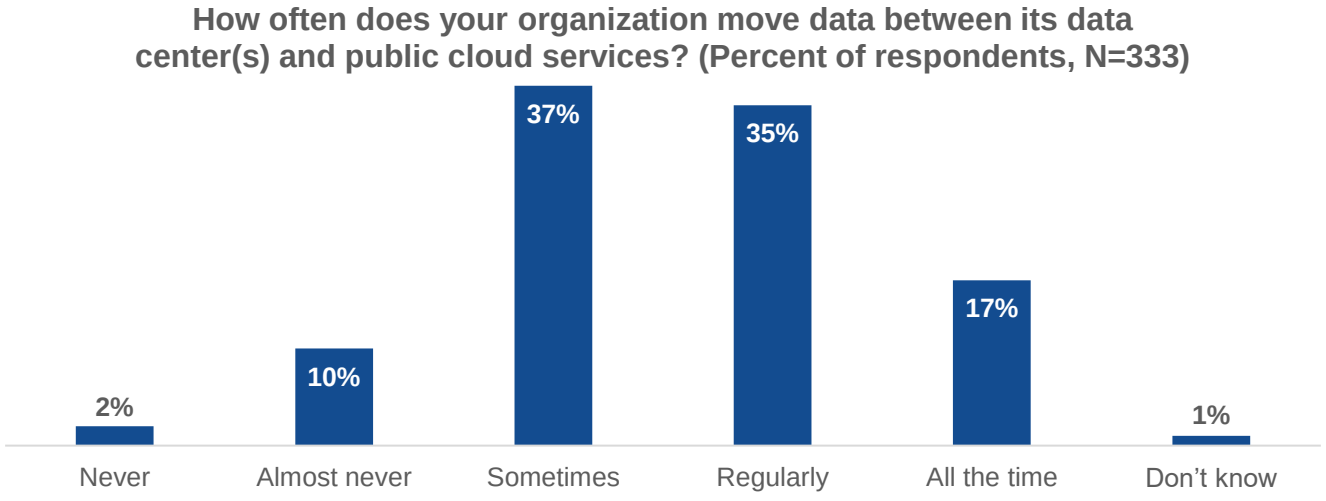
This Technical Validation from TechTarget's Enterprise Strategy Group documents our evaluation of the NetApp BlueXP control plane and associated data services. We reviewed how NetApp has designed the solution to simplify the way organizations manage and control their NetApp-enabled storage footprint deployed across on-premises and public cloud environments, as well as native storage from cloud service providers, via a unified console. We evaluated how BlueXP reduces the manual effort typically associated with data management tasks such as backing up, tiering, and classifying an organization's data, regardless of where it is stored.

## Background

Hybrid multicloud environments are a reality; organizations no longer have to rely on any single on-premises vendor or cloud service provider for on-demand IT infrastructure. In fact, according to Enterprise Strategy Group research, 73% of survey respondents cited that they currently use two to four public cloud service providers.[1]

Furthermore, 72% of respondents with these environments are moving data either sometimes or regularly between their data centers and public services, while 17% are moving data all the time (see Figure 1).[2] Enterprise Strategy Group research found that some of the top reasons for data movement included supporting application development/DevOps activities, as part of a data pipeline to support larger analytics/intelligence or machine learning initiatives, or as part of a data protection, data continuity, or data archive process.[3] Currently, GenAI and retrieval-augmented generation (RAG) workloads have emerged as two drivers for facilitating such data movement.

**Figure 1.** Organizations Are Embracing Multicloud Environments




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

Yet, moving data across storage systems located on premises and in different public clouds can easily become a complex set of operations and procedures that burdens organizations with unnecessary expenses and manual work. Managing data across storage silos becomes disjointed, as tasks to manage, control, and protect storage and data resources are normally constrained to the tool sets provided by individual storage vendors (whether on-premises or cloud-based). Obtaining ongoing status, analytics, and alerts in a timely manner becomes difficult, as

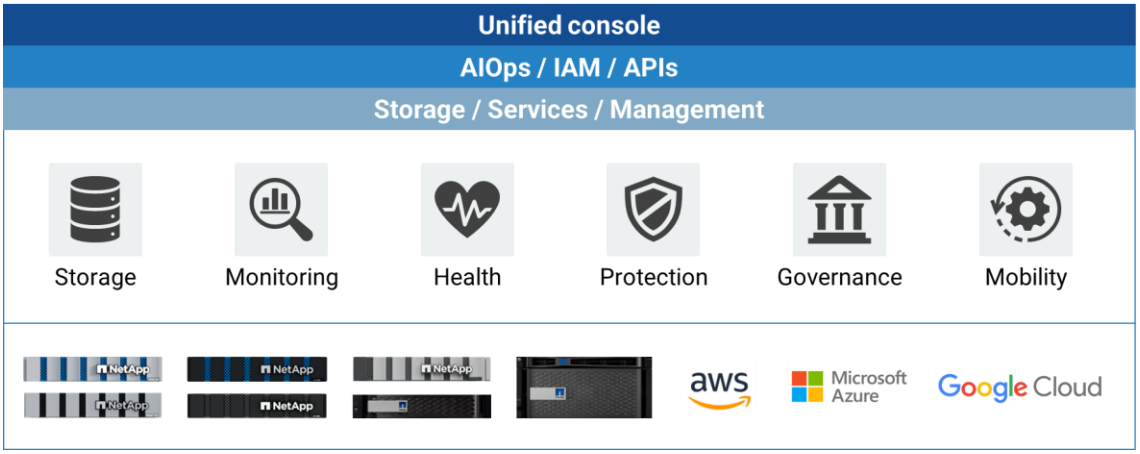
[1] Source: Enterprise Strategy Group Research Report, *Distributed Cloud Series: The State of Infrastructure Modernization Across the Distributed Cloud*, November 2023.
[2] Ibid.
[3] Ibid.

the tools and dashboards providing this intelligence are not standardized or integrated. As a result, organizations cannot be proactive and resolve issues before business operations are adversely affected. And as organizations continue to face constrained IT budgets, overconsumption of storage becomes a huge risk when managing different consumption plans across multiple storage vendors.

## NetApp BlueXP as a Common Control Plane

NetApp BlueXP is designed to help organizations better manage data stored across on-premises, hybrid cloud, and multicloud environments by providing unified control of storage and data services (see Figure 2). BlueXP consolidates disparate management tool sets, enabling a common approach to the processes, procedures, and policies across all storage deployed, regardless of its location. Provisioning, managing, optimizing, and monitoring the health of storage resources across the organization's environment, as well as the classification, protection, and mobility of data stored in those resources, can now be completed more quickly using standardized tools and workflows. By leveraging intuitive wizards, automated workflows, and AIOps, BlueXP enables IT generalists to complete even complex operational tasks without specialized training or additional staffing.

**Figure 2.** NetApp BlueXP




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

This approach to unified control integrates the functions of existing NetApp management tools used by NetApp customers. BlueXP provides the functions found in ONTAP System Manager, Active IQ Digital Advisor, Grid Manager, NetApp Keystone, Amazon FSx for NetApp ONTAP manager, and NetApp Support Services, among others. While BlueXP does provide a standardized approach to functionality across systems, organizations and teams (i.e., storage administrators) will recognize that key capabilities and advanced functions of the aforementioned individual tools are available.

The control plane also supports the ability to discover and manage (and in some cases, deploy net-new) storage environments and services from both on-premises and cloud service providers. On-premises storage that can be discovered include NetApp AFF, ASA, and FAS systems, StorageGRID, and E/EF-Series. BlueXP also recognizes managed public cloud-provided storage services such as Amazon FSx for NetApp ONTAP in AWS, Azure NetApp Files in Azure, or customer-managed resources such as Cloud Volumes ONTAP across all three major cloud providers.

Organizations can also obtain a comprehensive view into the overall health of their storage infrastructure, with the ability to drive down into specific storage clusters. Using data that incorporates NetApp best practices, telemetry data (supplied by customers with their permission), NetApp community-generated knowledge bases, and customer

historical data on past alerts, events, and anomalies, the built-in AIOps can recommend actions for resolving business-impacting issues and improve overall storage utilization and protection. BlueXP incorporates AIOps capabilities to automate routine tasks, detect anomalies, and optimize performance. Its workflow automation can operate across NetApp on-premises environments, first- and third-party storage, cloud object storage, and tool sets, thus reducing overall operational complexity. With an advanced tenancy model, BlueXP provides organizations with granular resource hierarchy control through the assignment of storage resources to specific projects and folders.

BlueXP has also been designed to deliver a disaster recovery service and integrated ransomware protection capabilities. The ransomware protection service can enable advanced AI-driven ransomware detection (for applicable systems), user entity and behavior analysis (UEBA) for malicious user threats, and prioritized workload protection schemes, including the triggering of immutable Snapshot copies when potential attacks are detected.[4]

# Enterprise Strategy Group Technical Validation

Enterprise Strategy Group evaluated how NetApp BlueXP can greatly simplify storage operations and management tasks. Using a combination of online demonstrations and access to a testbed environment, we specifically reviewed how this solution can help storage administrators and IT generalists perform complex tasks more easily via the graphical use interface, as well as how users can configure and utilize tiering, backup and recovery, and classification and create relationships between NetApp (on premises and cloud) and public cloud storage.

## Simplifying Visibility, Administration, and Tiering

Should organizations find themselves managing and administering storage across on-premises, hybrid cloud, and multicloud environments, the plethora of storage management interfaces present unnecessary complexity, as each on-premises and cloud storage vendor offers different interfaces that are not standardized on any common tasks or workflows. With BlueXP, organizations using NetApp on-premises and first- and third-party cloud storage can achieve operational and management simplicity with its unified control plane. Organizations no longer need to train on multiple types of management interfaces, specifically those offered by the cloud service providers, thus decreasing operational complexity and, subsequently, operational costs.

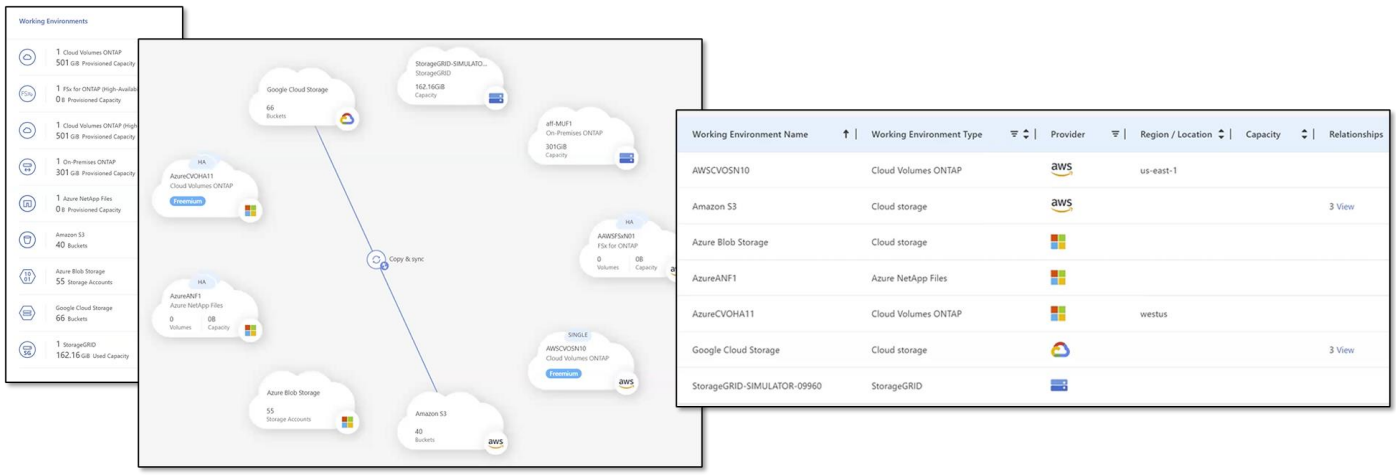
### Enterprise Strategy Group Testing

Enterprise Strategy Group first navigated to the graphical representation of storage resources (called the “canvas”) that was displaying the testbed (see Figure 3). The environment consisted of multiple “working environments” depicted on the canvas: Cloud Volumes ONTAP, Microsoft Azure NetApp Files, Amazon Simple Storage Service (Amazon S3), Microsoft Azure Blob Storage, Google Cloud Object Storage, NetApp StorageGRID, NetApp AFF ONTAP (on-premises), and Amazon FSx for NetApp ONTAP. Via the canvas, we could view this hybrid cloud environment either via a graphical or tabular view.

Using the graphical view, we saw the existing relationships between working environments provided by BlueXP data services. Via lines and icons, the canvas indicated if a “backup and recovery,” “copy & sync,” or “tiering” relationship existed between working environments. These relationships represented either NetApp-specific data services or agnostic services (such as “copy & sync”). Our testbed displayed a “copy & sync” relationship between Amazon S3 and Google Cloud Storage in Figure 3. We should note that these relationships could be initiated between any two applicable working environments managed by BlueXP.

[4] For more information about BlueXP’s ransomware protection capabilities, please read this Enterprise Strategy Group Technical Validation.

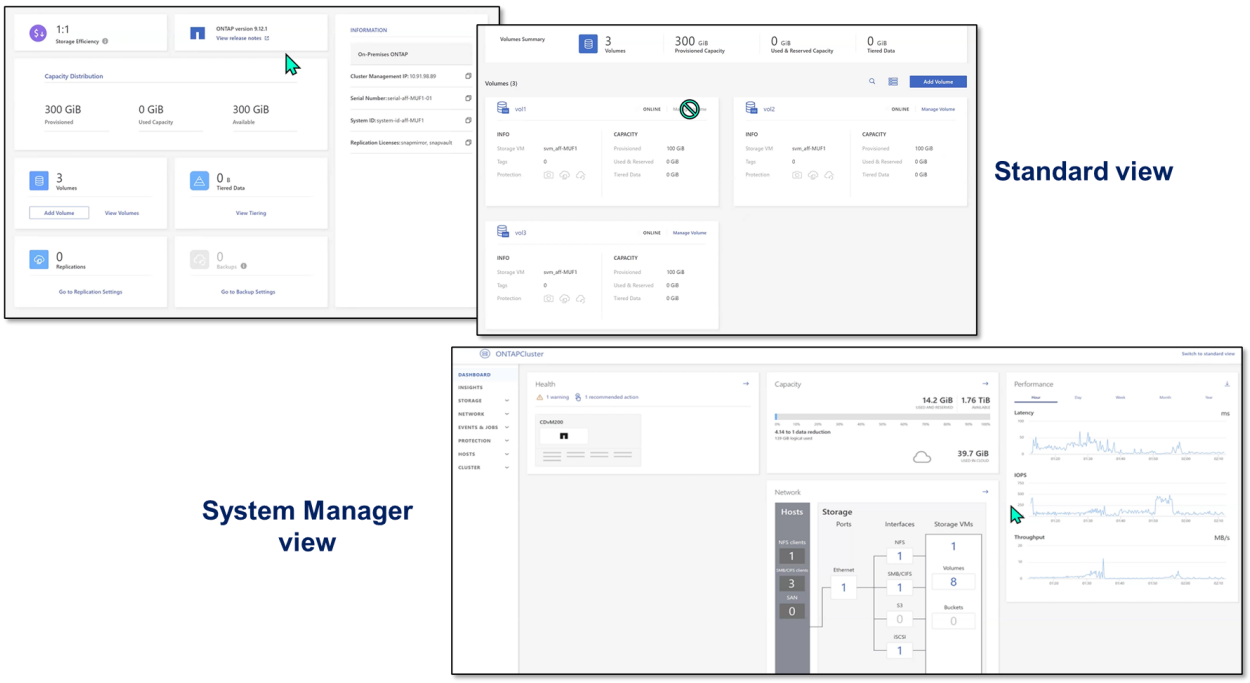
**Figure 3.** BlueXP Graphical and Tabular Visualization of Hybrid Cloud Storage Environment




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

To view and manage the status of any storage resource within any working environment, Enterprise Strategy Group simply double-clicked on its cloud-shaped icon. After double-clicking on the icon representing the on-premises NetApp AFF ONTAP storage, BlueXP presented a “standard view” that included information on capacity distribution, volumes, and enabled data services. Switching to the advanced view revealed the fully featured System Manager interface (see Figure 4). We also noted that providing both views can offer a level of familiarity to administrators who already have experience working with System Manager for individual NetApp storage systems. The need to upskill and learn yet another management interface is eliminated.

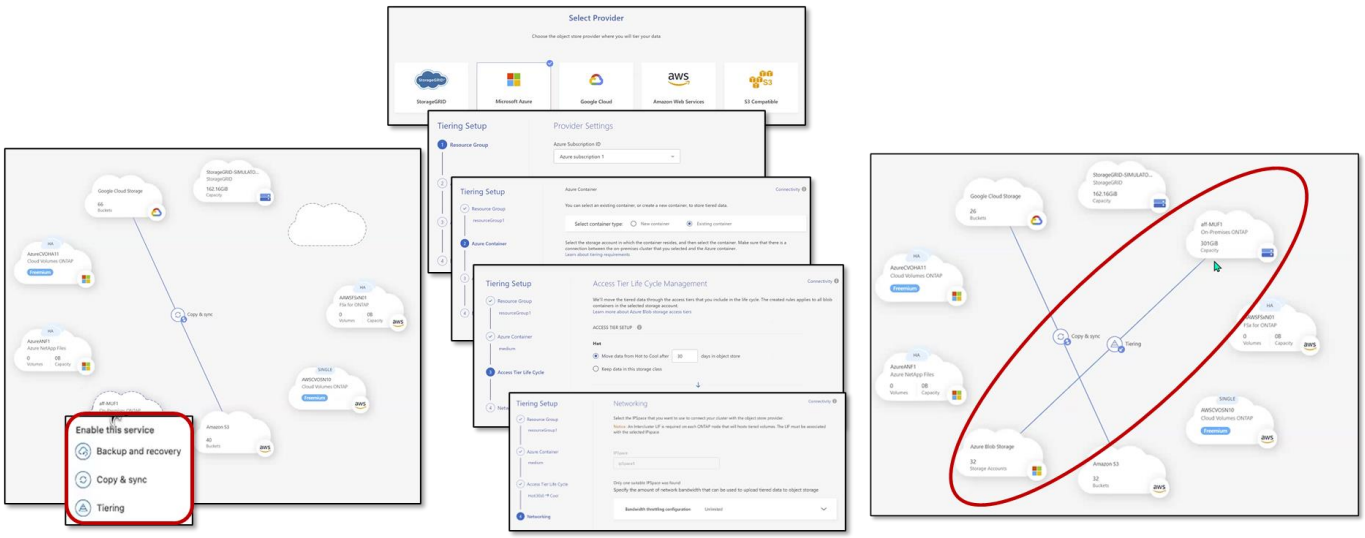
**Figure 4.** Storage Management Views: NetApp BlueXP and System Manager Integration




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

Initiating a relationship between any working environments is as simple as choosing the source working environment, then proceeding to “drag and drop” it to the desired target working environment. To illustrate this, Enterprise Strategy Group dragged and dropped NetApp AFF ONTAP system onto Azure Blob storage (see left of Figure 5). A drop-down menu presented the three services available between these working environments, and we chose “Tiering.” After choosing this option, a wizard launched that guided us to select the subscription account, the location of the container, and lifecycle management policies. After saving our settings, a line connecting the NetApp AFF ONTAP on-premises storage and Azure Blob storage appeared, illustrating the tiering relationship and its direction showing that Azure Blob storage was the target (see the right side of Figure 5). (While we walked through the “drag and drop” and  wizard process for establishing this relationship, we should note that BlueXP offers other ways to navigate this process, such as through menu options on the console.)

**Figure 5.** Drag and Drop With Wizard to Establish Tiering




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

As we further explored BlueXP, we discovered that other advanced options existed to further configure the tiering relationship beyond the frequency of tiering and the length of time that data remains tiered. For example, we could customize policies indicating that tiering begins when a percentage (e.g., anything other than the default 50% stated) of cluster capacity is full. We also found that additional tiering at the target storage—in this case, Azure Blob storage—could be configured to enable deeper archiving if desired.

Enterprise Strategy Group was particularly impressed with the simplicity in which these relationships could be established, especially when dealing with NetApp and third-party public cloud storage. Imagine working with separate consoles from different storage vendors to establish backup, archival, and tiering relationships without BlueXP. Coordinating tasks between disparate workflows would be time-consuming, complex, and confusing, which can easily lead to manual errors and rework.

## Why This Matters

Organizations now run applications and workloads that rely on data coming from disparate geographical locations stored across on-premises and single or multiple public cloud environments. Managing such a complex data infrastructure by coordinating tasks with individual tool sets and interfaces, tailored to individual storage vendors and providers, becomes complicated, time-consuming, and costly. Furthermore, dealing with multiple individualized tool sets may require upskilling administrators or acquiring new talent to handle this complexity, which can also lead to incurring unwanted expense.

Enterprise Strategy Group validated that NetApp BlueXP can greatly simplify the visibility, management, health monitoring, and operation of a data infrastructure spanning NetApp on-premises and first- and third-party cloud storage. After reviewing the integrated console and the “drag and drop” process for establishing a tiering relationship between on-premises and public cloud storage, we found that BlueXP can indeed simplify operations by eliminating the need to coordinate and complete tasks using vendor-specific, non-standardized consoles. With BlueXP, we saw how organizations can easily upskill IT generalists to perform complex operations across disparate storage options, whether on premises, in a private cloud, or on one or multiple public clouds, without the need for specialized training. The standardized console and workflows also help to reduce manual error when establishing relationships between disparate storage types.

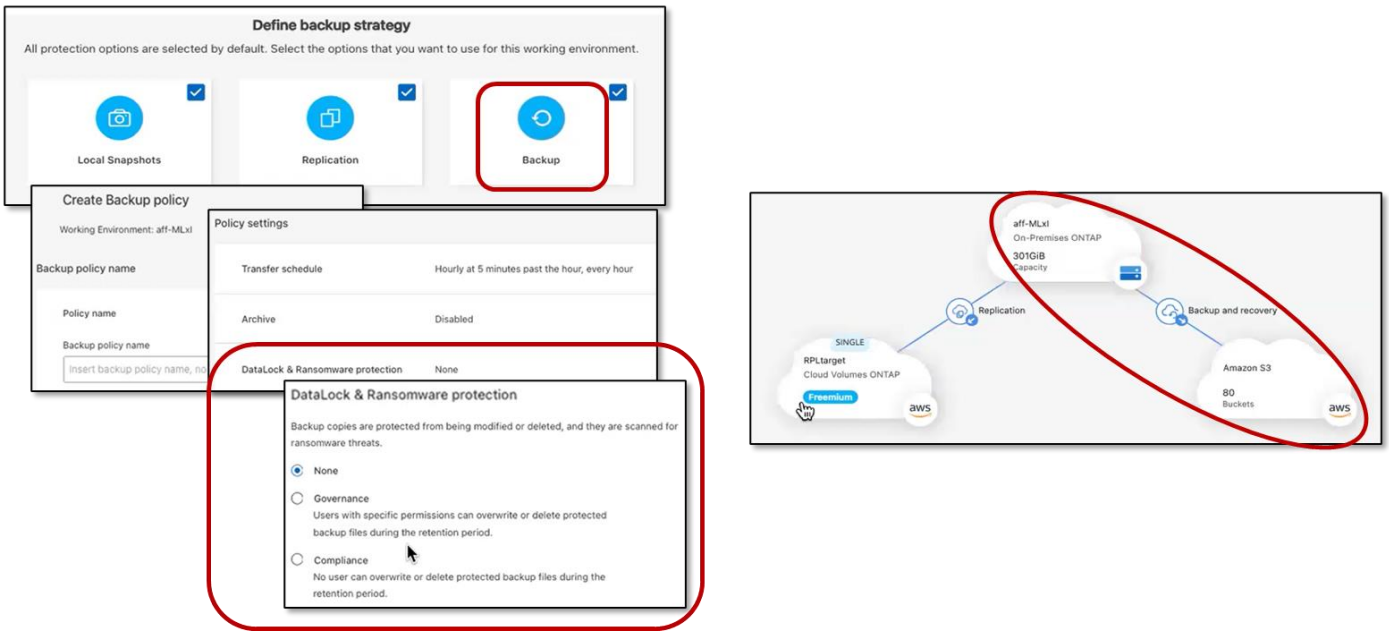
## Simplifying Backup and Recovery

With organizations generating and collecting more data than ever before, using third-party public cloud storage for backup and recovery of primary data stored on premises has become common. However, coordinating the tasks to establish a backup and recovery relationship between on-premises and third-party public cloud storage is prone to manual configuration error, as organizations face different and non-integrated tool sets and workflows. Not only does this add unwanted operational complexity and related costs, but this also can add unnecessary business risk, as backup and recovery processes must be executed correctly to minimize any business disruption. NetApp BlueXP simplifies how organizations can accomplish these tasks, regardless of the type of storage used and its location.

### Enterprise Strategy Group Testing

To evaluate how NetApp BlueXP can simplify backup and recovery operations, Enterprise Strategy Group worked on another testbed consisting of Cloud Volumes ONTAP on Amazon Web Services (AWS), NetApp AFF ONTAP, and Amazon S3. We performed another "drag and drop" to backup data from the on-premises NetApp AFF ONTAP to Amazon S3, then selected "Backup and recovery" from the drop-down menu. Running through the wizard, we found options to manage local NetApp snapshot copies, replications to secondary storage, and remote backups, regardless of whether the primary data is on premises or in the cloud (see top left of Figure 6). Should all three options be chosen, we could easily implement a backup strategy implementing the 3-2-1 backup rule.

**Figure 6.** Creating Backup and Recovery Relationship With Associated Backup Policy



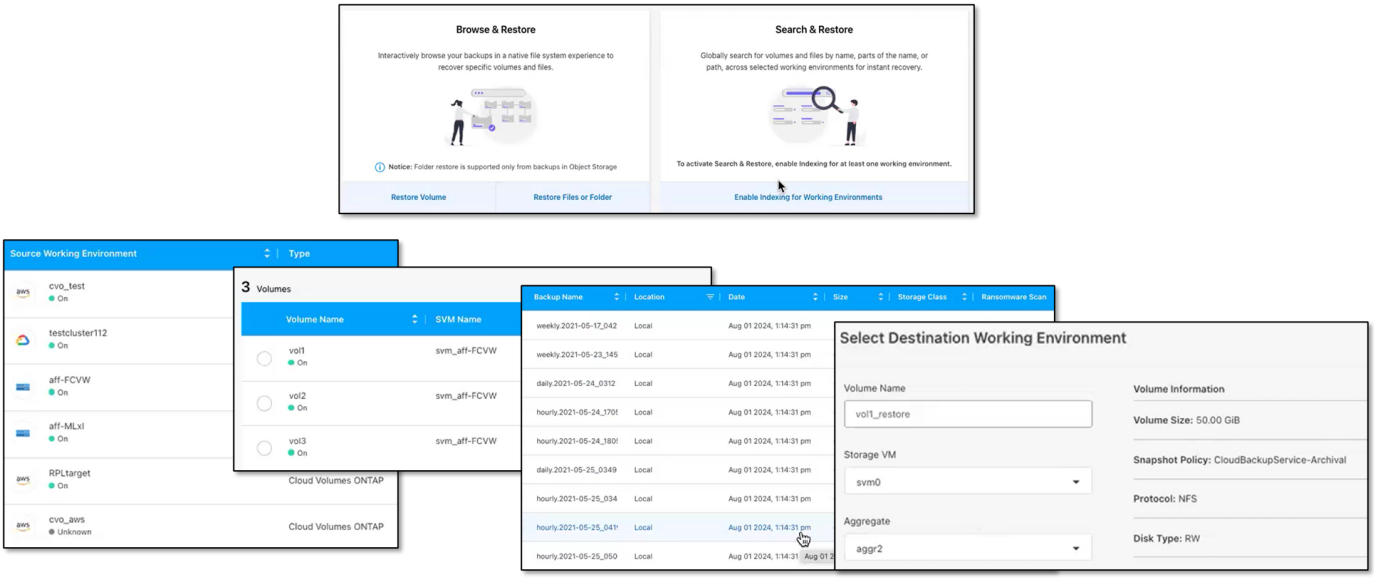

*Source: Enterprise Strategy Group, a division of TechTarget, Inc.*

As we progressed through the wizard for configuring the backup policy, not only did we walk through basic parameters, such as frequency of backup creation, but also the level of ransomware protection to apply to backups. We could select either "Governance" to grant specific users with overwrite or delete permissions access to protected files during the predefined retention period or "Compliance" that prevents any user from having permission to overwrite or delete backup files. The ability to choose preconfigured policies, rather than establish a new one, was also presented, which can help users to save time and reduce manual errors.

Enterprise Strategy Group should point out that block-level replication only involves those blocks that have changed. Leveraging ONTAP storage efficiencies, only the required storage is consumed with these smaller "incremental-forever" backups. Less time and overhead are incurred than network data management protocol (NDMP) incremental backups.

We then navigated through the setup of a restore operation (see Figure 7). As observed in previous examples, we saw how easy the process is to initiate a recovery operation using wizards, choosing the location and volume in which the backup was located, the actual backup to be used, and the destination storage where data would be restored. We could have chosen between a normal restore (for volumes requiring high performance) or quick restore (ideal for disaster recovery situations in which data must be accessed as quickly as possible).

**Figure 7.** Configuring a Restore Operation via Wizards




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

## Why This Matters

Recent Enterprise Strategy Group research uncovered that two-thirds (66%) of respondents store 500 TB to 10 PB of backup and archive data on premises, while another two-thirds (64%) store this amount of secondary data using public cloud services.[5] If organizations continue to store this amount of secondary data in these disparate storage types, the need for a simple and unified control plane for configuring backup and recovery processes is imperative for removing operational complexity.

Enterprise Strategy Group validated that NetApp BlueXP can greatly simplify how organizations backup and restore data, whether the data is stored on premises or in first- and third-party cloud storage. We found that the standardized processes and tool sets, presented via wizards, can help to complete backup and recovery tasks and set up the necessary policies, subsequently ensuring that business can return to normal operations, without the risk of manual error, should they be disrupted.

[5] Source: Enterprise Strategy Group Research Report: *Cloud Data Protection Strategies at a Crossroads*, August 2023.

## Simplifying Data Classification

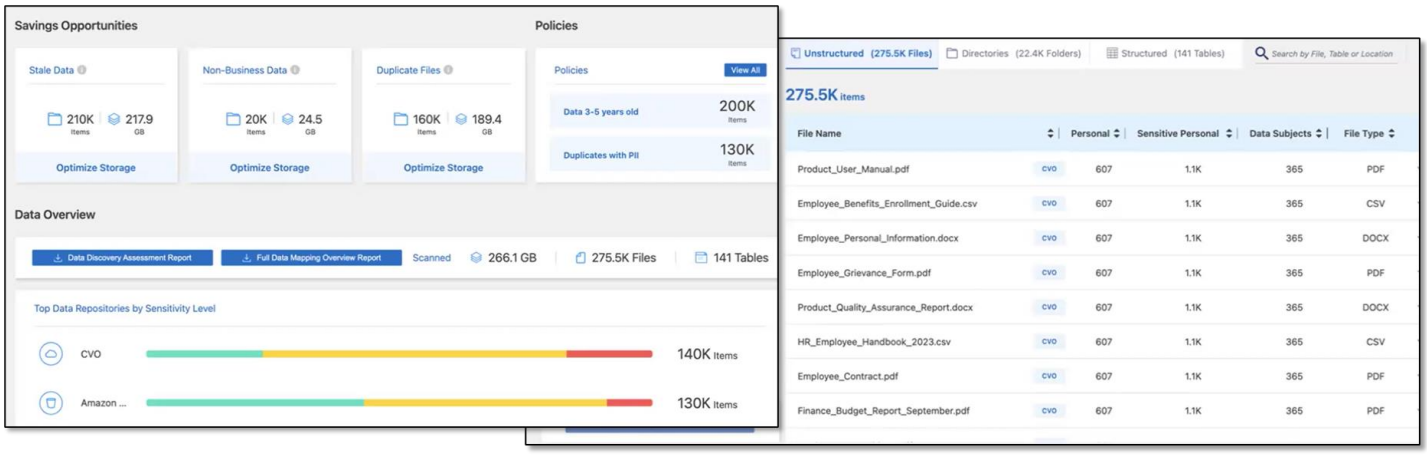
With the numerous data regulations that exist today, organizations must ensure compliance by protecting personal and sensitive information. In addition, knowing how much of the data being stored is non-valuable (i.e., old, duplicate, or trivial) at any given time is critical to managing expenses in light of constrained IT budgets. However, the amount of data to continuously monitor has become overwhelming. The built-in BlueXP classification service enables organizations quickly and easily determine the types and sensitivity of data in their data infrastructure to support use cases such as storage optimization, maintaining compliance, and preparing data for GenAI projects or data migration, with little manual effort.

### Enterprise Strategy Group Testing

Enterprise Strategy Group examined how BlueXP can establish comprehensive visibility into all data contained within both NetApp on-premises and cloud-based storage, regardless of geographic location. By using these classification services, we observed how organizations could uncover insights and provide actionable intelligence to determine how best to manage their data.

We first navigated to the Governance tab and viewed how much stale, non-business, and duplicate data currently resided in our test environment (see Figure 8). We also saw how BlueXP classification identified and classified personal identifiable information (PII) automatically and according to sensitivity, revealing exactly the repositories in which they reside. BlueXP could be configured to run on any or all parts of the existing NetApp storage environment at no additional cost.

**Figure 8.** Classifying Data Within the Current Storage Environment

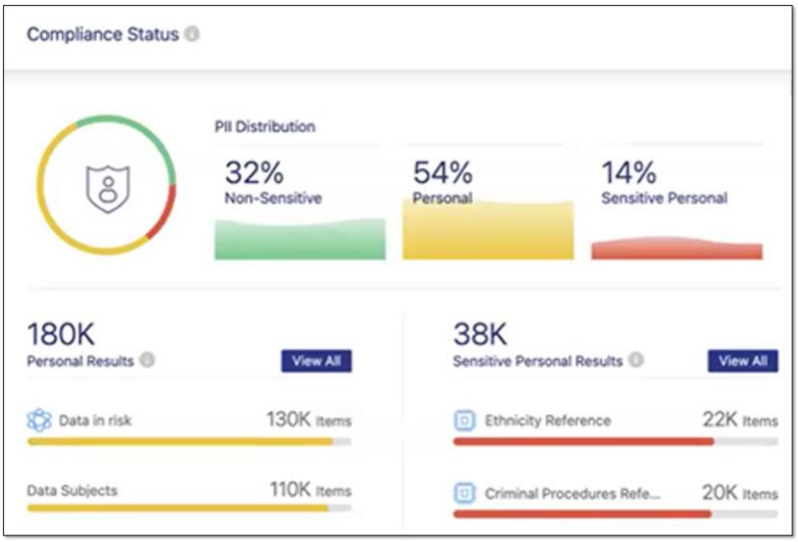



*Source: Enterprise Strategy Group, a division of TechTarget, Inc.*

Obtaining details beyond the amount and type of data was also easy, as we saw how we could dive deeper into any stale, non-business, or duplicate data. For example, we could discover the items (such as files) that were classified as unstructured data. We could also see those repositories holding the most sensitive data, using that view to prioritize where to focus when assessing compliance. By clicking on the **Optimize Storage** button, we found exactly where the data—whether stale, non-business, or duplicate data—resided so that subsequent action could be taken to improve storage utilization.

Under the “Compliance” tab, we found that BlueXP classification tallied the amount and type of sensitive data (see Figure 9). BlueXP comes with out-of-the-box classification to sort through data within existing NetApp storage environments.

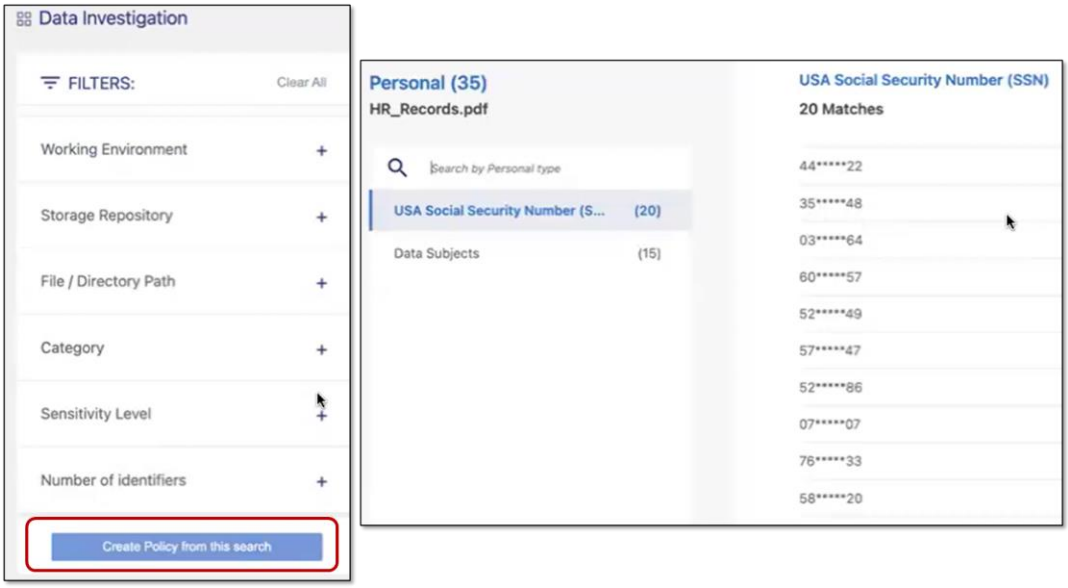
**Figure 9.** Uncovering Types and Amounts of Sensitive and Personal Data




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

We also saw how administrators could investigate data to obtain answers to specific questions by selecting specific "Data Investigation" filters (see Figure 10). For example, we uncovered files containing SSNs that are open to the public. To ensure that the proper action is taken if other SSNs were discovered in publicly available files, we could also create custom policies based on this investigation. Providing the capability to create a policy based on specific investigations ensures that proactive steps are taken, should a similar event occur in the future.

**Figure 10.** Searching for Specific Data Based On Classification Filters




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

### Why This Matters

Of those data governance technologies that organizations will make the most significant investments in over the next 12-18 months, 53% of respondents cited data classification as a top priority.[6] Data classification should be a best practice in data management, whether protecting data, complying with regulations and company policy, optimizing storage utilization, migrating data, or filtering data for GenAI or RAG workloads.

Enterprise Strategy Group validated that the NetApp BlueXP classification service enables organizations to quickly and comprehensively view all data stored in their NetApp storage infrastructure, residing on premises or in the public cloud. We reviewed how BlueXP simplified the location and classification of stale, non-business, and duplicate data. We also noted how policies can be customized based on data investigations to automate how data is to be treated when found within the storage environment.

# Conclusion

The need to access data efficiently and easily has become paramount as organizations store data on premises and in multiple public cloud environments. However, managing that data becomes a headache, as the underlying data infrastructure incorporates multiple storage types and services. This is especially true as organizations continually need to optimize how data is stored, backed up, tiered, and classified, without dealing with vendor-specific tools and processes.

NetApp BlueXP is designed to deliver unified management via a control plane that enables organizations to operate a data infrastructure spanning NetApp on-premises and first- and third-party public cloud storage. With standardized tools and workflows, organizations can deploy, discover, optimize, and manage hybrid multicloud storage without the need to learn and coordinate disjointed tasks between vendor-specific management consoles to conduct operations such as copy and sync, tiering, and backup and recovery. Setting policies that govern how these operations are performed is also greatly simplified, regardless of the type and location of the source and the target storage being used. Operational overhead and expenses thus decrease, which is especially helpful when faced with constrained IT budgets.

Throughout our evaluation, Enterprise Strategy Group validated that BlueXP can help organizations, via its unified control plane, to:

- Simplify the visibility of their hybrid multicloud storage environment through one console as well as simplify operations, such as tiering or copy and sync, via drag and drop functionality.
- Simplify how organizations can configure backup and recovery processes and polices, especially when using on-premises and public cloud storage as source and target.
- Simplify classification of data across all NetApp storage types to support storage optimization, compliance, and governance activities.

If your organization currently stores data in hybrid and multicloud environments and wants a simpler approach to management of storage and data services, Enterprise Strategy Group strongly suggests looking more closely at BlueXP.

[6] Source: Enterprise Strategy Group Research Report, *Reinventing Backup and Recovery With AI and ML*, June 2024.

**About Enterprise Strategy Group**
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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