White Paper

Redefining Enterprise Data Protection with Commvault and NetApp

Delivering Complete Data Protection for Critical Data Workloads

By Christophe Bertrand, ESG Senior Analyst
And Vinny Choinski, ESG Senior Validation Analyst

January 2019

This ESG White Paper was commissioned by Commvault and is distributed under license from ESG.

Contents

The Enterprise Data Protection Mandates

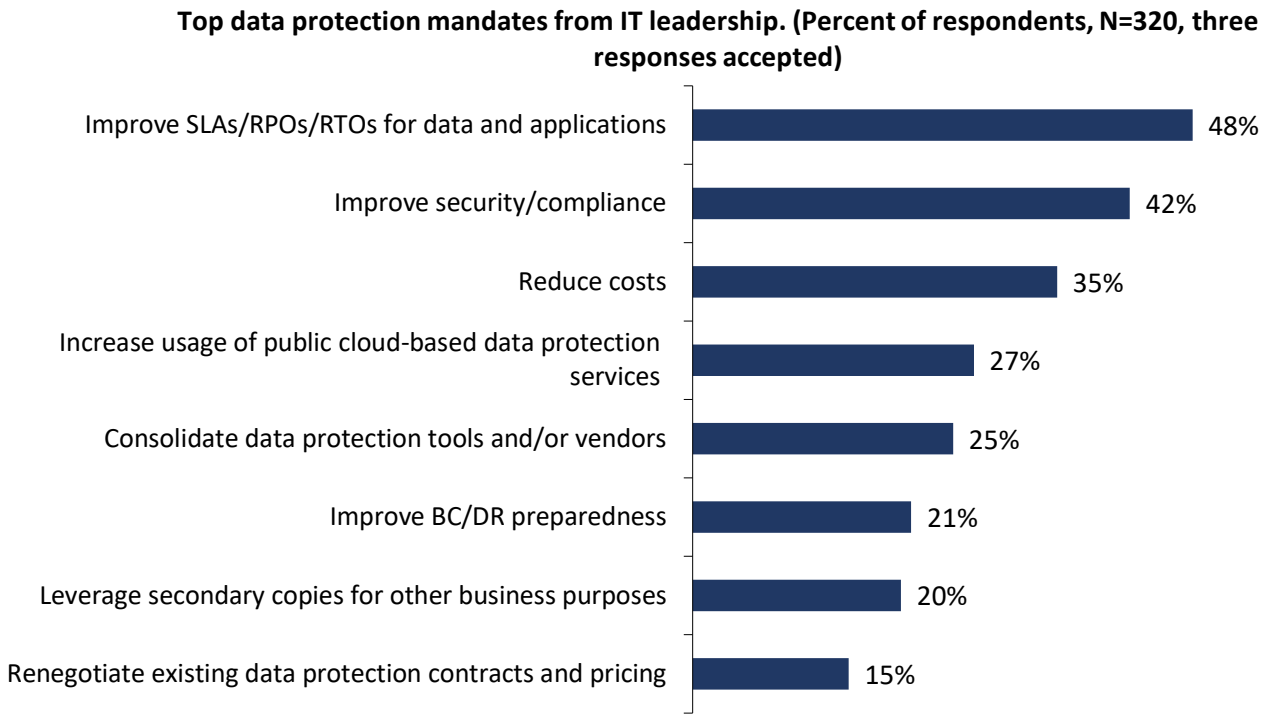
While the term "enterprise" is thrown around loosely, enterprise data protection is not easy to achieve. Many, or even most, organizations struggle mightily with the onslaught of new data that drives their business. "Keeping the lights on" is hard enough, but when an organization is attempting to transform into the digital world, the complexities are massively compounded.

IT is supposed to be a well-oiled machine in which compute, network, storage, and cloud layers seamlessly deliver against service levels every time—but the reality is that it's brutally difficult to keep up with the diverse workloads making up the IT landscape of enterprises. In turn, protecting these digital assets and ensuring their availability adds another layer of complexity that requires proven and comprehensive storage and software tools to work in unison. At stake: the business, or more precisely in IT terms, the service level agreements that must be met in ever-changing business and technical circumstances.

Among those key service levels are recovery time objectives and recovery point objectives (RTOs and RPOs), indicators that form the keystone of the data protection service level edifice. Miss one or both of these, and your ability to recover data or support availability falls apart. ESG research shows that improving SLAs, RPOs, and RTOs is the top mandate from IT leadership to the data protection teams, as can be seen in Figure 1. Maintaining these service levels is also the number one challenge organizations reported for data protection.[1] Additional priority mandates such as compliance and cost reduction should also be highlighted as they affect crucial infrastructure decisions.

Against this backdrop, picking the right combination of vendors to make up this critical part of the infrastructure can look like assembling a puzzle to many IT leaders seeking to meet these difficult mandates.

Figure 1. Top Data Protection Mandates



Source: Enterprise Strategy Group

[1] Source: ESG Master Survey Results, *2018 Data Protection Landscape Survey*, October 2018.

Enterprise Backup Requirements

Enterprise data protection requires enterprise tools that meet *all of the requirements* that help IT leadership drive efficiencies and meet service levels. When attempting to meet the stringent data protection requirements of the enterprise (and avoid crafty or heavily promoted marketing buzz), proven successful technology partnerships that work as advertised right now—instead of promising perfection in the future—are most important. The stakes are simply too high to risk experimenting in a production world. In Table 1, ESG presents its perspective on key data protection requirements based on research and many years in the data protection space.

Table 1. Top 10 Data Protection Enterprise Requirements

Capability	Why It Matters
Broad enterprise application support	Enterprises rely heavily on mission-critical applications to support generating revenue. They seek to achieve the lowest possible downtime (low RTO) and minimal to no data loss (low RPO). The data protection infrastructure must be *deeply integrated* with most, if not all, of these applications to provide a coherent and consistent service level.
Advanced and broad storage snapshot support across arrays and hosts	Snapshot technology, whether on the host or storage system, offers the convenience of speed and performance, enables more frequent recovery points and lower bandwidth utilization, and is a key requirement in the enterprise. The data protection solution must support a *wide variety of storage systems and hosts* in order to deliver *consistent and complete capabilities*.
Advanced cloud support (storage and optimized recovery)	Cloud has become critical to the data protection infrastructure of most enterprises and offers great capabilities and challenges in terms of support. To qualify as an enterprise solution, vendors need to provide advanced tiered storage capabilities, multiple recovery or failover options, and economic/cost optimization. It is critical to offer a *broad array of cloud storage options and integrations*.
Broad OS and hypervisor support	An enterprise, unless it is a very "young" organization (less than 10 years in business), will likely have multiple server platforms (physical and virtual) and technology layers in its infrastructure, including "legacy" systems. An ideal solution for enterprises covers *all of these platforms or a large majority*. Multiplying specialized backup and recovery solutions can lead to more complexity, operational inefficiencies, and cost.
Source and target deduplication and replication	Data takes up space, and space (storage) is money! For backup and recovery in the enterprise, it is critical to optimize storage consumption with deduplication. Offering multiple deduplication options is necessary (source or target) since topologies may vary. The endgame is to build *proven data reduction efficiencies* into the workflow and optimize costs and performance.
Advanced orchestration, including AI and ML	Enterprises' stringent RPOs and RTOs require a solution that can help support or create a disaster recovery "runbook," orchestrating the recovery workflow of multiple systems and intertwined applications in an exact sequence. In addition, enterprises now expect more "intelligence" from their data protection solutions with artificial intelligence- and machine learning-based predictive actions or recommendations to better deliver RPOs and RTOs based on a variety of infrastructure conditions and historical patterns.

Capability	Why It Matters
Archiving capabilities	The ability to archive data is absolutely critical to ensure compliance with the many complex regulations enterprises face. This applies to all the data in the environment and implies advanced management capabilities to move data at the right time to the right tier of archive/storage (which may be in the cloud). Keeping track of archive data is also a key requirement.
Single console management	The advent of IT generalists across all market segments including the enterprise, combined with the lack of IT skills sets in data protection, have fostered the simplification of many solutions to the point where it is now imperative to manage data protection from one console. This means using modern ease of use and management consolidation capabilities (including ecosystem integrations).
Appliance delivery options	The appliance form factor—converging hardware, software, and networking—is often preferred in decentralized topologies for reasons associated with ease of purchase, use, and deployment, especially in large data centers. Enterprises expect scale-out capabilities and flexible offerings with delivery modality options ranging from reference architectures to virtual appliances and physical models.
Advanced tape support	Tape is not dead! It is still heavily used in many enterprise environments for backup and archiving. *Enterprise tape support means advanced automation and tape library capabilities, and not just format support.*

Commvault and NetApp: A Partnership Built for The Enterprise

Partnership Highlights: Keeping It Simple

The common thread in the partnership effort is simplicity, resulting in easy to buy and deploy solutions. NetApp and Commvault have developed a deep technical collaboration over the years, culminating more recently in a full reseller agreement in which NetApp and its channel partners offer a NetApp solution that includes Commvault Complete Backup and Recovery software. Commvault's leading backup and recovery solution coupled with NetApp's Data Fabric is a great solution for end-users. With Commvault, NetApp customers can simplify end-to-end backup and recovery operations, in particular snapshot management, and easily migrate and manage critical data and workloads across their on-premises, cloud, and virtualized infrastructure. Commvault's offerings are a great complement to NetApp's portfolio of both primary and secondary datasets and enable end-users to fully leverage the cloud with orchestration and management of datasets.

Technology Highlights

Commvault Complete Backup and Recovery provides comprehensive portfolio support for NetApp environments to protect the data, virtual machines, and applications stored across the full range of NetApp storage systems, including HCI, AFF/FAS, ONTAP, SolidFire, E-Series, and StorageGRID. The integration between NetApp snapshots, VMs, and enterprise applications lets users centrally manage their protection and recovery processes from one console. Backups from NetApp onsite hardware solutions can be easily extended to Azure, AWS, Google, Oracle Cloud, or numerous other cloud storage options, with the same data management, encryption, and security policies both on-premises and in the cloud.

Efficient Data Reduction

Commvault and NetApp offer multiple options to efficiently reduce the amount of data that needs to be managed to support business-critical operations. Customers can leverage the built-in Commvault source and target deduplication capabilities and NetApp data reduction capabilities. NetApp deduplication and NetApp data compression technologies can work together or independently to achieve optimal savings. Both have the ability to run either as an inline process as data

is written to disk or as a scheduled process. When the two are enabled on the same volume, the data is first compressed and then deduplicated. Deduplication removes duplicate compressed or uncompressed blocks in a data volume. True enterprise-class deduplication like that supported by Commvault and NetApp is not a given, and some vendors fall short in this area, which can in turn affect operational efficiency and other processes like data replication.

Comprehensive Storage Integration

NetApp snapshot technology can help address stringent RTO/RPO SLAs. However, managing snapshot copies separately from backup typically requires complex scripts to ensure all copies are cataloged for easy search and restore. Commvault software integrates natively with NetApp snapshot technology, including SnapVault and SnapMirror, to help reduce protection windows and enable faster recovery using a single management interface. A SnapVault collection of snapshot copies on a flex volume can be used to restore data if the primary data is not usable. SnapMirror is a replication solution that can be used for disaster recovery purposes, where the complete contents of a volume or qtree is mirrored to a destination volume or qtree.

Scale-out Architecture

NetApp HCI is an enterprise-scale hyperconverged infrastructure that delivers predictable performance on a highly flexible, efficient architecture that is simple to deploy and manage. NetApp HCI has a node-based shared-nothing architecture that delivers independent scaling of compute and storage resources. This approach enables users to dynamically scale up or down on demand, avoiding inefficient overprovisioning and simplifying capacity and performance planning. The solution starts as small as six nodes and can be expanded in a granular fashion over time to reduce TCO. The combined solution enables customers to integrate any Commvault software feature or module for data protection as the scale-out infrastructure evolves and grows. The ability to scale out is a must-have in the enterprise space, and it is critical that end-users evaluate the true capabilities of the vendors they consider in their evaluation processes as not everyone offers true scale-out capabilities. Commvault's scale-out architecture combined with secondary storage scale-out capabilities provides enterprises with flexibility and predictable performance.

Flexible Archiving

Commvault software has strong data placement and retention management capabilities. Integrating NetApp StorageGRID Webscale—a software-defined, object-based storage platform that provides intelligent policy-driven data management—can enhance these capabilities. NetApp StorageGRID Webscale uses a grid architecture in which copies of object data are distributed throughout the system to optimize durability, protection, and performance. If part of the grid goes down, another part immediately takes over, which results in objects always being available for retrieval. The solution supports standard object storage protocols such as Simple Storage Service (S3) and OpenStack Swift. Archiving is another great example of the designed-for-the-enterprise nature of the combined solution, one that sets NetApp and Commvault apart from other vendors.

Advanced Tape Capabilities

Tape is still a reliable, high-capacity, and cost-efficient medium for data storage. Most enterprise data protection customers still leverage tape for some part of their data protection schemas, including long-term archive, offsite copies, and second tier onsite copies to name a few. Because of this, vendors that historically ignored delivering tape capabilities have been forced to hastily create bolt-on tape capabilities for their solutions or partner with specialized tape technology vendors to compete in the enterprise. Mature tape capabilities are part of the Commvault backup and recovery DNA. These capabilities enable granular management of the data that customers choose to store on tape media. The combined Commvault/NetApp solution also leverages the Network Data Management Protocol (NDMP). NDMP provides an open standard for network-based backup of network-attached storage (NAS). For Commvault/NetApp customers, NDMP

increases the speed and efficiency of NAS data protection because data can bypass media movers and be written directly to tape storage. Newer versions of ONTAP software support Storage Virtual Machine-aware NDMP backups. This helps in optimizing NDMP backup performance by choosing efficient data transfer paths and maintaining full compatibility with the integrated non-disruptive operations and volume mobility capabilities of ONTAP software. These capabilities strongly resonate with many enterprise customers today. While cloud has become critical as part of backup topologies, advanced tape support still remains a distinctive characteristic of a true enterprise solution.

The Bigger Truth

Enterprises face tremendous challenges to establish effective and efficient data protection that scales with the demands of modern enterprises. The complexity of the infrastructure and the requirement for processes to be as smooth and predictable as possible to deliver on service level agreements call for strong integration of the storage and software layers.

This is why the Commvault and NetApp partnership delivers value and better business outcomes to customers. The power of a true technical and business partnership between storage and data protection software is evident: It directly benefits customers with easy to purchase and deploy solutions and it also allows for better RPOs and RTOs with fewer integration headaches.

In the past few quarters, Commvault has been focused on delivering on its promise of innovation, with the introduction of AI-based features, simplicity with an updated console, and powerful capabilities around scale-out features.

This partnership and the continued innovation that characterizes both organizations also highlight the crucial fact that "enterprise" data protection is not just a marketing exercise. Others can say they are enterprise-ready, but few actually are. Well over a thousand joint enterprise customers over the past few years are living proof of this successful collaboration.

Commvault and NetApp are built for use now, without compromise, and create a mission-critical foundation for the future.

Enterprise Strategy Group is an IT analyst, research, validation, and strategy firm that provides actionable insight and intelligence to the global IT community.

 www.esg-global.com

 contact@esg-global.com

 P. 508.482.0188