

White Paper

# Simplify Your Cloud Journey with Dell EMC Storage

Dell Technologies Unveils a Strategy, Centered on the Dell Technologies Cloud, VMware Cloud Foundation, and Dell EMC Storage, that is Designed to Deliver Freedom and Flexibility

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## Introduction

We are in the midst of an IT trend—infrastructure design centered on hybrid and multi-cloud IT. Convincing factors are driving this movement, but so are complexities—a lot of them having to do with the pressures IT organizations feel to keep pace with new demands from line-of-business executives who need to keep the business competitive in a modern, digital economy.

It's proving to be quite difficult to meet those demands, as ESG research has revealed. To better understand perceptions of IT organizations, ESG surveyed 210 senior business decision makers that were familiar with their organization's IT plans. As part of this study, only 6% of the line-of-business executives ESG surveyed said they regard IT as a competitive differentiator, and 25% view it as a business inhibitor. The executives who view IT as an inhibitor say it is because IT processes are taking too long (43%), and/or that IT makes it too difficult to access data they need to do their jobs (43%).<sup>1</sup>

To help their businesses stay competitive, IT organizations clearly must do more to expedite operations and service delivery. Often, they look into leveraging public cloud services as the way to go. ESG found that 58% of IT organizations it surveyed now leverage public cloud infrastructure-as-a-service (IaaS), and 76% of them are leveraging more than one IaaS provider. Additionally, 64% of the organizations that leverage IaaS expected that their IaaS-related investments would increase this year.<sup>2</sup>

Even within hybrid-cloud environments, on-prem infrastructure still plays a major role. Consider that 56% of IT organizations surveyed by ESG in 2018 expected to be running more than half of their production workloads on-premises over the following two years.<sup>3</sup>

So, IT is forced to integrate multiple diverse, disparate technologies that span both on- and off-premises locations. It's an effort guaranteed to add complexity and consume precious IT personnel cycles—IT is spending time keeping the lights on instead of delivering vital business services. And these complexity increases are very real. Two thirds of the IT organizations surveyed by ESG view IT as being more complex than just two years ago, and almost a quarter of those respondents (24%) identified the integration of public cloud resources as one factor driving that increase in complexity.<sup>4</sup>

The fact that good IT personnel are at a premium further worsens the situation. As ESG research shows, IT architecture and planning expertise is the second most commonly identified IT skill shortage (cited by 38% of respondents), behind only cybersecurity.<sup>5</sup>

With all these factors in mind, and as new technologies and services emerge, any strategy that locks an organization into a single provider or single deployment option is going to come at a cost and surely will create a business disadvantage. That's why modern IT organizations need to embrace a hybrid/multi-cloud strategy that offers an easy, familiar management experience and delivers flexibility in the choice of technology and location.

Fortunately, Dell Technologies, a leader in IT infrastructure, has designed its [storage portfolio](#) to embrace a broad variety of cloud solutions and partners including Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), and VMware, along with its own [Dell Technologies Cloud](#)—while retaining a management experience that is familiar to IT administrators. These solutions offer a path to leveraging the public cloud resources of one's choice, while providing flexibility to change later if necessary.

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<sup>1</sup> Source: ESG Master Survey Results, [2019 Technology Spending Intentions Survey](#), March 2019.

<sup>2</sup> *ibid.*

<sup>3</sup> Source: ESG Master Survey Results, [Tipping Point: Striking the Hybrid Cloud Balance](#), October 2018.

<sup>4</sup> Source: ESG Master Survey Results, [2019 Technology Spending Intentions Survey](#), March 2019.

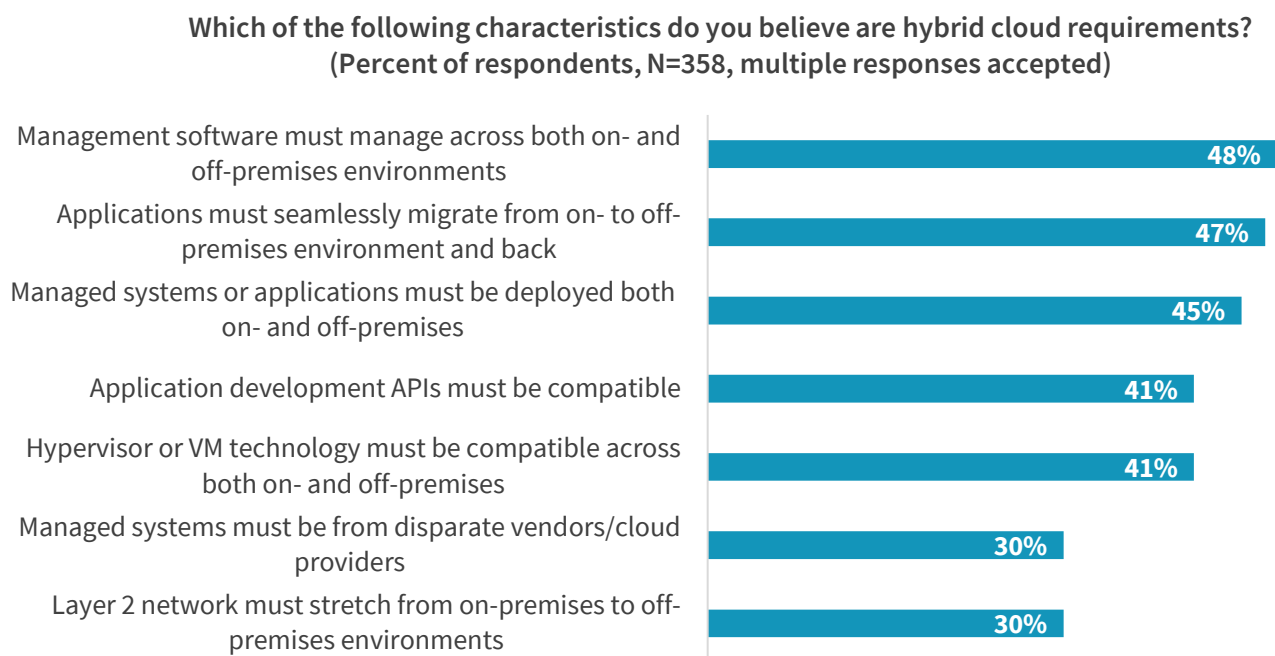
<sup>5</sup> *ibid.*

## The Hybrid Cloud Reality

ESG conducted a study of 358 IT professionals currently responsible for their organization’s on-premises and cloud-based infrastructure in North America to better understand the complexities and needs of hybrid cloud environments. The research shows that businesses are putting great thought into the goals they wish to achieve from hybrid cloud IT, and great consideration into what challenges they can expect to face.

Figure 1 illustrates the requirements IT organizations have for hybrid cloud environments.<sup>6</sup> The most frequently mentioned requirements relate to their desire to have a single-pane management view across all on- and off-premises resources, and moving data and applications back and forth as necessary.

**Figure 1. Hybrid Cloud Requirements**



*Source: Enterprise Strategy Group*

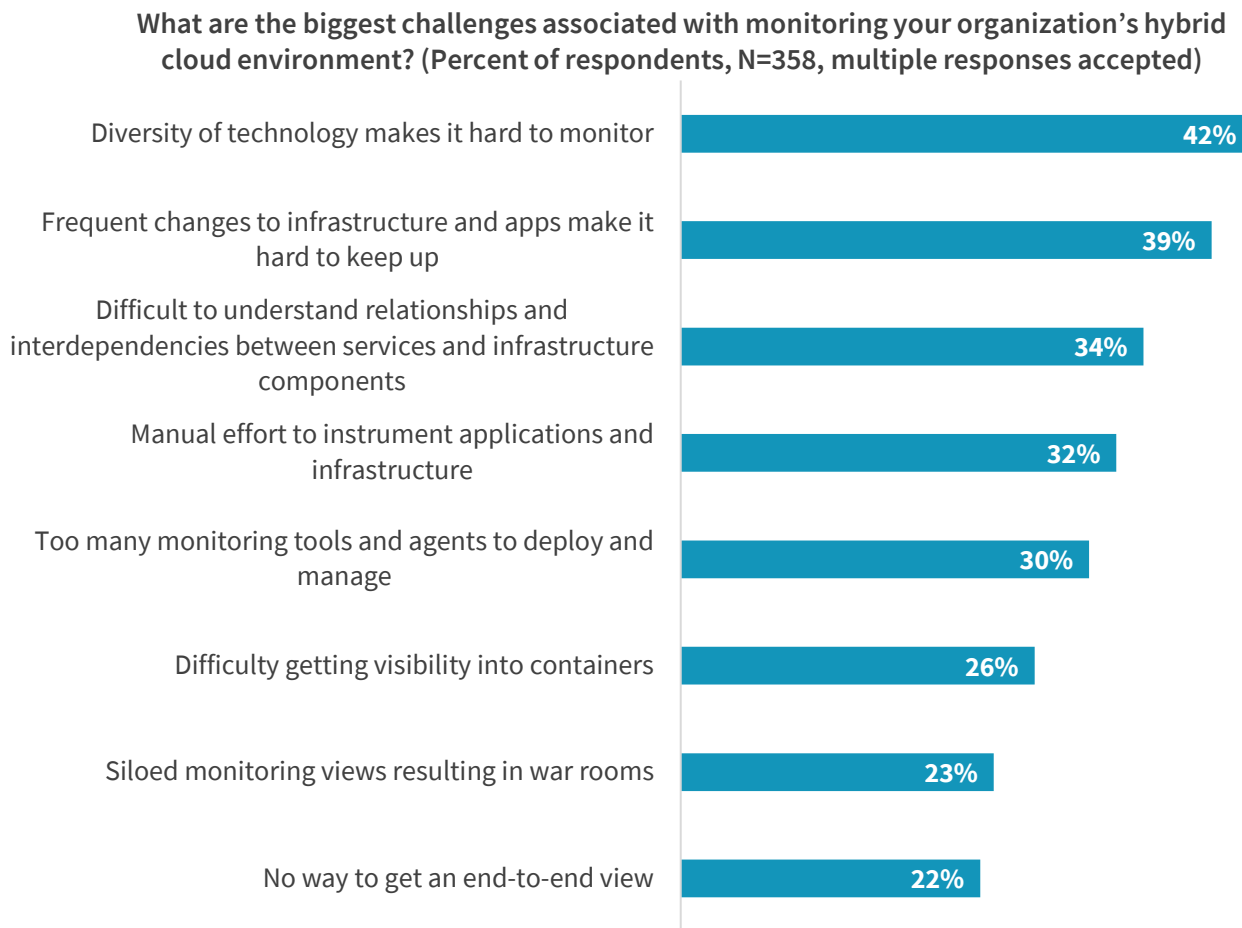
However, these objectives are accompanied by several challenges, as organizations already leveraging hybrid cloud environments can attest (see Figure 2).<sup>7</sup> It appears that regardless of how easy one single, standalone technology may be to configure and manage, integrating multiple new and diverse technologies adds significant costs and complexity that consume precious IT personnel cycles. In fact, among all challenges that surveyed IT organizations are experiencing in regard to monitoring hybrid cloud environments, diversity of technology was their most commonly identified challenge (cited by 42% of respondents).

That challenge of technology diversity looks to be even more common among IT organizations that identify themselves as being “infrastructure-up” (i.e., they are hybrid-cloud-using IT organizations that initially had an on-premises data center, but extended their operations to include public cloud resources). Half (50%) of those respondents cited technology diversity as a hybrid cloud monitoring challenge they currently face.<sup>8</sup>

<sup>6</sup> Source: ESG Master Survey Results, [Hybrid Cloud Trends](#), May 2019.

<sup>7</sup> *ibid.*

<sup>8</sup> *ibid.*

**Figure 2. Hybrid Cloud Monitoring Challenges**

Source: Enterprise Strategy Group

The other cited challenges related to hybrid cloud environments reinforce the fact that managing multiple, disparate, ever-changing technologies that interact and have different management requirements is an increasingly complex and costly endeavor.

In some cases, complexities tied to managing off-premises resources can become so burdensome, they lead to IT bringing workloads back on-premises. A majority of data storage decision makers surveyed by ESG (55%) report that their organization has moved at least one workload back from public cloud services to an on-premises data center.<sup>9</sup> In those instances, only a few workloads were moved back (typically fewer than five), but the cost, complexity, and time for any move of this sort can be significant.

Clearly, reducing the complexity associated with hybrid cloud environments would make those complicated, costly moves less necessary and less common.

### The Demands of Digital Business Will Only Increase

ESG's findings related to application development and containers also tell a story: The complexities will increase unless IT takes steps to mitigate them. That's because even as IT organizations become more familiar with the ins and outs of using a public cloud service, new demands and technologies are here (or just over the horizon), ready to complicate matters for them even further. For example:

<sup>9</sup> Source: ESG Master Survey Results, [2019 Data Storage Trends](#), November 2019.

- ESG application development spending research shows that 85% of organizations surveyed employ DevOps or plan to deploy it in the next 12-24 months to automate the continuous integration, deployment, and monitoring of code and application infrastructure.<sup>10</sup>
- Container-based workloads are on the rise, as 21% of organizations surveyed by ESG said that increasing infrastructure capacity that supports application development is one of their most significant app-dev investment areas. Additionally, 17% identified increasing the use of containers as a significant app-dev investment area.<sup>11</sup>

## Design for a Single Cloud Experience, not a Single Cloud Provider

Given the growing demands of digital business, combined with the growing diversity of new technologies, IT organizations should strive to achieve a consolidated, simplified view of their IT resources while delivering a cloud experience both on- and off-premises. That is a smarter approach than focusing all efforts on using one public cloud provider as a way to reduce complexity.

## Dell Technologies Delivers Cloud Freedom and Flexibility

Any IT organization that is designing a hybrid cloud environment should have Dell Technologies on its short list of vendor partners to evaluate. Dell Technologies designs its storage to embrace and support a multitude of leading cloud technology options—including AWS, Azure, Google Cloud Platform, and VMware.

With Dell Technologies Cloud Validated Designs, IT organizations can leverage Dell EMC technology as part of the Dell Technologies Cloud. Dell EMC Cloud Storage Services offers multiple options for Dell Technologies [Cloud-enabled Infrastructure](#) to be leveraged in solutions with multiple public cloud providers.

## Dell Technologies Cloud Validated Designs

The Dell Technologies Cloud is built on Dell EMC infrastructure that leverages VMware Cloud Foundation. It connects to public cloud providers to deliver a consistent hybrid cloud experience on- and off-premises. This cloud service offers multiple options for on-premises infrastructure deployment. For example, it leverages a preconfigured hyperconverged platform. It provides a fully managed service offering available under a subscription model. And, for organizations desiring cloud capabilities while still meeting the performance and capacity demands of their most storage-intensive applications, Dell Technologies offers Cloud Validated Designs. As part of this program:

- Dell Technologies ensures multiple infrastructure options—including Dell EMC [Unity XT](#) and [PowerMax](#) storage arrays—are validated and optimized for VMware Cloud Foundation.
- Dell Technologies offers a vRealize Operations (vRO) plugin for PowerMax. This plugin allows IT administrators to leverage VMware deployment tools when deploying and provisioning storage. It provides functionality including provisioning capacity or scheduling snapshots directly from vRO.
- Dell EMC storage supports vRealize Automation (vRA). This permits automation of storage management activities by establishing workflows through a self-service portal, expediting deployment of IT services. That in turn, enables the business while freeing up its IT resources.

<sup>10</sup> Source: ESG Master Survey Results, [2019 Technology Spending Intentions Survey](#), March 2019.

<sup>11</sup> Source: ESG Brief, [2018 Application Development Spending Priorities](#), February 2018.

The business-level benefits of using Dell Technologies Cloud Validated Designs relate to:

- **Having a choice of storage infrastructure**—IT organizations can select the right technology for them based on their specific workload requirements. They may opt for Dell EMC's NVMe-based/storage-class memory (SCM)-enabled PowerMax for high-performance, mission-critical workloads. Conversely they may choose the Dell EMC Unity XT to support a midrange environment, especially with unified block and file.
- **Gaining flexibility to shift as needs evolve**—The model offers organizations more freedom to integrate new technologies as they become available. It also assists them in leveraging their existing investments—not only their Dell EMC storage system investments, but also their storage networking investments (e.g., Fibre Channel).

## Dell EMC Cloud Storage Services

[Dell EMC Cloud Storage Services](#) are designed to suit IT organizations using multiple hybrid cloud solutions offered by one or more public cloud service providers. Dell Technologies understands that no single cloud option will be perfect for every environment, and with that reality in mind, it is offering technology and services that extend hybrid cloud solutions into multiple cloud environments.

Dell EMC Cloud Storage Services combine file and block storage on Dell EMC Unity XT or PowerMax, or file-only storage on Isilon with public cloud providers such as AWS, VMware Cloud on AWS, Microsoft Azure, and Google Cloud Platform. The services can connect external storage directly to the cloud enabling multi-cloud agility or provide a fully integrated native cloud experience to cover a wide variety of technologies and use cases. For example:

- **Microsoft Azure for compute-intensive workloads** provides a higher bandwidth of up to 100Gbps and lower latency—as low as 1.2ms—connection to the cloud using Azure ExpressRoute Local. In an ESG research study of storage decision makers, egress fees (31%) were the most commonly identified challenge with leveraging public cloud infrastructure services.<sup>12</sup> With no outbound data traffic costs, this solution enables workloads that require a lot of temporary writes to storage to cost-effectively leverage hybrid cloud solutions, like keeping OneFS file data outside the cloud, such as at a managed service provider, and then use Azure on-demand, highly scalable compute and processing services.
- **Disaster recovery-as-a-service (DRaaS) in VMware Cloud (VMC) on AWS** leverages VMware Site Recovery along with native replication of Dell EMC storage arrays. This solution leverages the cloud to eliminate the need to set up and manage a separate DR environment, while also providing full operational consistency through VMware and automating DR operations. This service can help reduce RPOs while saving cost.

### Dell EMC Cloud Storage Services: Microsoft Azure with Isilon Use Case Example – Life Sciences

The raw data for the complete genome of a single human is approximately 100GB, a billion times more data than a typical OLTP-type transaction. A large facility processing hundreds to thousands of genomes per week not only generates petabytes of data to be stored, but also generates a demand for computing power that is bursty by nature. This type of application is well-suited for on-demand, easily scalable cloud computing. In addition, since genomic processing is at its core a pattern-matching application, there are writes to temporary files on the Isilon OneFS storage during a large part of the sequencing operation. Isilon OneFS storage connected to Microsoft Azure compute and processing service with no outbound data traffic costs offers a compelling solution—OneFS cost-effective storage performance at scale and Microsoft Azure scalable compute performance coupled with Azure's application services for genomic processing.

<sup>12</sup> Source: ESG Master Survey Results, [2019 Data Storage Trends](#), November 2019.

- **Multi-cloud agility** is achieved by directly connecting Dell EMC storage, consumed as a service, to public cloud providers through a high-speed, low latency connection, while keeping data independent of the cloud. This allows users to leverage compute and services from multiple clouds simultaneously or switch between them based on application needs without having to move the data, keeping customers in control of their data and eliminating cloud vendor lock-in. Leveraging native array-based replication also makes movement of data from on-premises to the cloud simple and secure.
- For a **native cloud experience**, Dell Technologies has partnered with Google Cloud Platform (GCP) to offer Cloud OneFS, secure scale-out NAS storage combined with GCP's powerful compute and data analytics products. This enables a complete cloud service fully integrated into the GCP portal and marketplace that delivers all of the performance and scale of Isilon, consumed in an OpEx model. This service is ideal for use cases such as life sciences and media and entertainment, where billions of files require extra compute to handle burst requirements as well as analytics to get more value out of data. According to Dell Technologies, general availability for this service is targeted for early 2020.

## The Bigger Truth

Organizations today want to manage their data on- and off-premises the same way. They want to move workloads from one environment to the other based on business need. They want to spin up assets where they need to be, regardless of whether the location is onsite or offsite. And they want to do all of those things without worrying that it will work. That can happen when the infrastructure is invisible—working quietly and transparently behind the scenes.

Dell Technologies makes this kind of modernization effort seamless with multiple options to achieve a centralized—yet transparent—cloud experience. These solutions are just the most recent proof-points that this vendor has the kind of broad-based, powerful portfolio that is up to the task of delivering a cloud IT experience in a variety of deployment models suitable for a huge range of organizations.

To find out more about Dell EMC Cloud-Enabled Infrastructure, please visit:  
<https://www.dellemc.com/solutions/cloud/cloud-enabled-infrastructure.htm>

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