



Modern Storage: The Answer to Multicloud Complexity

Innovative organizations need innovative storage to manage and leverage data no matter where it lives.

Contents:

• Introduction	3
• Data Delivers: The Drive for Innovation and Digitalization	4
• Data Deluge	5
• From Cloud to Multicloud: Migration Matters	6
• Survey: More Multicloud Please	7
• The IT Talent Shortage & Security Challenges in Multicloud	9
• The Multicloud Management Mandate: Solutions IT Needs to Succeed	10
• Dell Technologies: A Partner You Can Trust	11



Cloud sprawl. Multicloud complexity. Data housed in systems anywhere and everywhere.

No matter what it's called or how it's described, it's a serious problem that's only getting worse. As just about any IT team will attest, the days when data lived solely onprem are long gone and never coming back. Instead, the vast majority of organizations are adopting a data-dispersing "multicloud" approach.

The strategy makes perfect sense: Running applications and storing data in various clouds allows organizations to operate with fewer IT resources. You can pick and choose the clouds you want to use—public, private, or a mix of both—based on what each has to offer for your business.

But there are also a number of significant challenges with multicloud.

Different clouds use different technologies, and the features found in one cloud environment may look nothing like those in the next. There are potential management and security implications as well, and there's always the issue of data mobility between disparate and incompatible cloud-based storage systems.

In this eBook, we'll look more closely at these and other challenges organizations often face in shifting workloads to cloud-based services, and then we'll suggest a novel solution: storage technology that facilitates data management and mobility across the entire multicloud ecosystem.



Data Delivers: The Drive for Innovation and Digitalization

To understand the challenges associated with multicloud, it's helpful to first understand why so many organizations have embraced this approach. The answer has to do with innovation and digitalization.

As digital processes have become more important to efficiency and effectiveness in every aspect of business, companies of all kinds are investing in technologies to help them harness the power of data.

Even so, technology is seen as an enabler for innovation. According to a recent study from Vanson Bourne, 86% of respondents are actively seeking out technologies that realize their innovation goal.¹

According to a survey of IT organizations conducted by ESG and IDC:²



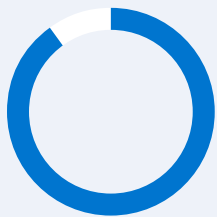
81%

of IT organizations report data will be their “business” within the next 3 years



75%

said they leverage public cloud infrastructure services



99.6%

of organizations are focusing on modernizing their end-user experience.³



53%

of organizations had an enterprise-wide digital transformation strategy in 2022, up from 42% in 2020.⁴

Data Deluge

Over the next five years, data will grow at a compound annual growth rate (CAGR) of 21.2%.⁵



Data created worldwide in 2021:

84.4 zettabytes (ZB)

Estimated data volume by 2026:

221 ZB

Underpinning everything is data, which organizations now see as fuel for innovation. Through the deployment of modern digital technologies, they've realized, they can store and access, manage, and mine data from across their business for insights they can use to drive success.

From Cloud to Multicloud: Migration Matters

What these technologies are depends on the organization, of course, but one tech trend—accelerated migration to the cloud—has been ubiquitous across almost every sector for years.

The reasons: “Cloud data ecosystems,” notes a 2022 Gartner report, “provide streamlined delivery and comprehensive functionality that is straightforward to deploy, optimize and maintain.”⁶

As companies innovate to meet the demands of changing markets, a primary goal is to ensure as much as possible that data can be easily accessed and analyzed.

This can be accomplished by relying on IT to spin up new servers and add storage capacity as needed, **but most organizations soon decide to also leverage cloud-based services.** Even in healthcare, where concerns about data privacy and security have slowed cloud migration considerably, close to 60 percent of organizations use public, private, or hybrid cloud platforms for at least some workloads and services.⁷

75%

of IT decision-makers say information technology is more complex today than it was two years ago.⁸

83%

of organizations will have implemented multicloud in the next 12 months⁹



Survey: More Multicloud Please

According to a survey of IT organizations conducted by ESG:¹⁰

53%

of those who use public cloud services said they leverage three or more providers

50%

said they want to improve connectivity to, and interoperability with, public cloud infrastructure

46%

said they invested in technologies to provide a cloud-like experience on-premises



As cloud-based services have become more popular, most organizations haven't hesitated to sign on with multiple cloud vendors. As Vanson Bourne noted in their latest global IT maturity index, 43% of respondents are embracing a mix of public and private cloud environments to achieve agility and innovate.¹¹

But while a multicloud strategy allows companies to leverage different cloud platforms for different business needs, the approach doesn't always translate to easier work on the part of IT. With data centers built on infrastructure not only on-prem but edge, colocation sites, and public-cloud services as well, **multicloud complexity and a host of related challenges have quickly become the new normal for IT.**



MULTICLOUD COMPLEXITY

Foremost among the challenges technology teams can face when it comes to multicloud usage and management is the need to understand constantly evolving platforms with different features, capabilities, and configurations. **Every cloud—private, public, or hybrid—is created with its own set of technologies**, from its operating systems to its management platform. The nearly impossible job for the people slogging away in IT: ensure that individual workloads are moved to the clouds that best meet their unique requirements.



BUDGETARY CONSTRAINTS

Almost every cloud deployment is initiated with the expectation that it will eventually **help drive cost reductions**. That puts IT in a tough position: as they manage the multicloud environment, they must constantly evaluate workload placements not only according to efficacy and efficiency, but also in terms of how each platform might impact their overall budget.



MODERNIZATION

Each time an organization moves to a new cloud, IT must deal with the difficult work of aligning legacy and traditionally sourced workloads with **the latest capabilities** this newly sourced cloud brings.



UNPREDICTABLE GROWTH

With shadow IT inevitably a factor, IT must constantly check that workloads are placed within the right limits of the right platforms. **Appropriately sizing and approving workloads** is critical to ensuring that spend goes where it should.



LIMITED HUMAN RESOURCES

The talent shortage in IT is real. Organizations that are short on experienced technology staff may have trouble **finding people with the expertise** to handle the management of multiple cloud platforms.



SECURITY AND DATA SOVEREIGNTY

Every time an organization adopts a new cloud, it first must consider the security implications. Cloud providers put technologies, policies, and controls in place in an attempt to **protect their customers** from threats, but IT teams must develop their own security strategies as well.

The IT Talent Shortage & Security Challenges in Multicloud

With any new technology deployment, it's up to IT to get the job done. Cloud implementations are no exception: Without the right expertise on staff, things can go sideways very quickly.

If organizations are lucky, they have the people and the know-how to make the most of the modern multicloud environment. The reality, however, **is that talent is hard to find**. There just aren't enough experienced professionals in IT to meet the demands of the industry.

Beyond the shift in technology, some organizations are resistant to adopting key practices like automation because they lack programming skills, and some fear that they may automate their way out of a job.

451 research revealed in a recent study on cloud-native infrastructure adoption that 31% of respondents cited skills shortage as a challenge.¹²

Cyberthreats to Data Security

Cybersecurity attacks are on the rise. Organizations can innovate with confidence when their data and applications are secure and protected. Their top-5 threats, in order of importance:

- 1 Overall complexity of the modern computing environment
- 2 Evolving threat landscape
- 3 Employees don't take cybersecurity threats seriously
- 4 Security teams not working hand in hand with business stakeholders
- 5 Too many discrete IT security solutions to manage

The Multicloud Management Mandate: Solutions IT Needs to Succeed

Because everyone agrees that multicloud is here to stay, the only question is how to make it more manageable. What do the experts working in IT need to have in order to maximize the value of their multicloud environment?

Ask around in any IT department, and the answers will depend on their specific deployments. Invariably, however, a number of themes will emerge focused on a desire for **more simplicity, security, and automation.**

To succeed in multicloud, IT needs:

- 1 A central location for managing their organization's data
- 2 Tools that allow them to access different clouds, streamline cloud management, and reduce multicloud complexity
- 3 Solutions that facilitate secure and efficient data processing and analysis
- 4 Automated processes that allow staff to devote more time to other work
- 5 Platforms that enhance multicloud sovereignty, including optimal placement of various workloads
- 6 Solutions that enable data mobility, security and back-up, and overall reliability for developers who rely on containerization



Dell Technologies: A Partner You Can Trust

While organizations can never hope to control everything, they only need to put the right infrastructure in place to get the most value from their data no matter where it lives. One sure way to drastically reduce the complexity of any multicloud environment: Bolster flexibility, security, and data mobility with storage solutions from Dell Technologies. Three Dell products in particular were created with multicloud challenges in mind:

PowerStore

Intelligent storage designed to adapt to IT's evolving needs, PowerStore facilitates improved workload management by allowing teams to monitor and move data seamlessly between multiple cloud locations.

- Software-driven design
- Adaptable architecture
- Cost-effective multicloud access
- Seamless data and application mobility

PowerMax

The world's most secure mission-critical storage platform, PowerMax offers unmatched cyber-resiliency and seamless movement of application data copies from on-premises to cloud.

- Industry-leading cybersecurity
- Intelligent storage automation
- DevOps manages containers, not infrastructure
- Economical public cloud storage/secondary processing

PowerFlex

An unbounded software-defined infrastructure platform, PowerFlex uses automation to simplify the multicloud experience across storage, compute, and lifecycle management.

- This industry-leading block storage is also available in the AWS Marketplace
- Broad hyperscaler support maximizes multicloud flexibility
- Intelligent insights and unified management simplify operations at scale
- Comprehensive tools enhance DevOps productivity and IT agility

Public Cloud Storage

Brings Dell file, block, and object storage software to public cloud.

- Combine power of Dell storage services with native public cloud services
- Software-driven design
- Adaptable architecture
- Cost-effective multicloud access

Payment Options

Customize your technology and pay only for what you use with Dell APEX Flex on Demand.

An aerial night view of a city, likely Hong Kong, with a dense network of blue lines and dots overlaid, representing a digital or data network. The city lights are visible through the network lines.

Working together, PowerStore, PowerMax, and PowerFlex can deliver the performance, efficiency, and hardware-enabled security IT teams need to optimize control of their multicloud portfolio and innovate into the future. Dealing with a data deluge and the complexity of multiple clouds in different locations? Three platforms and your challenges are solved; that's software-driven storage innovation from Dell.

Learn how your organization can use Dell Technologies storage solutions to power the “any data in any cloud” experience.

Sources

1. Dell Technologies Innovation Index, 2022. <https://www.delltechnologies.com/asset/en-us/services/support/templates-forms/dell-technologies-innovation-index-research-report.pdf>.
2. ESG White Paper, “Dell Technologies Continuously Modern Storage,” May 2022, <https://www.delltechnologies.com/asset/en-us/products/converged-infrastructure/briefs-summaries/dell-continuously-modern-storage-ebook.pdf>
3. Dell Technologies. “Blaze a trail with Intelligent Innovation”, July 2022. <https://www.delltechnologies.com/asset/en-us/solutions/infrastructure-solutions/industry-market/blaze-a-trail-with-intelligent-innovation-core-report.pdf>
4. IDC, “IDC FutureScape: Worldwide Digital Transformation 2022 Predictions,” October 2021, <https://www.idc.com/getdoc.jsp?containerId=US47115521&pageType=PRINTFRIENDLY>
5. IDC, “High Data Growth and Modern Applications Drive New Storage Requirements in Digitally Transformed Enterprises”. <https://www.delltechnologies.com/asset/en-us/products/storage/industry-market/h19267-wp-idc-storage-reqs-digital-enterprise.pdf>
6. Gartner, “What’s New in the 2022 Gartner Hype Cycle for Emerging Technologies,” August 2022, <https://www.gartner.com/en/articles/what-s-new-in-the-2022-gartner-hype-cycle-for-emerging-technologies>. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally, and HYPE CYCLE is a registered trademark of Gartner, Inc. and/or its affiliates and are used herein with permission. All rights reserved.
7. Forbes, “How Healthcare Organizations can Transform—and Become Data Driven,” August 2022, <https://www.forbes.com/sites/delltechnologies/2022/08/24/how-healthcare-organizations-can-transform-and-become-data-driven/?sh=116fa93158bb>
8. ESG White Paper, “Dell Technologies APEX: Transforming IT Infrastructure and Delivering a Path to the Post-hybrid Cloud Era,” April 2021, <https://www.delltechnologies.com/asset/en-us/solutions/apex/industry-market/esg-whitepaper-dell-technologies-apex.pdf>.
9. Forrester, “Dell Opportunity Snapshot,” January 2022. 10. ESG White Paper, “Dell Technologies Continuously Modern Storage,” May 2022, <https://www.delltechnologies.com/asset/en-us/solutions/apex/briefs-summaries/forrester-onsnap-analyst-multicloud-digitaltransformation-itagility-report.pdf>
11. Dell Technologies Innovation Index, 2022. <https://www.delltechnologies.com/asset/en-us/services/support/templates-forms/dell-technologies-innovation-index-research-report.pdf>
12. 451 Research, “Infrastructure Requirements for a Cloud-Native World”. <https://www.delltechnologies.com/asset/en-us/products/storage/industry-market/451-research-dell-and-intel-special-report-requirements-for-cloud-native-infrastructure.pdf>