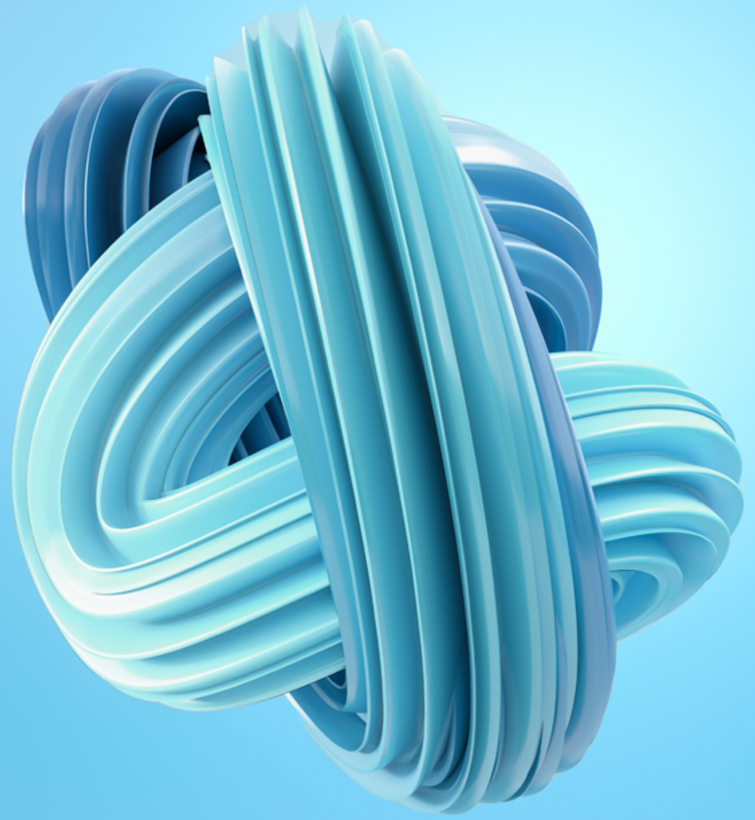
E-BOOK

NetApp's guide to the future of cloud

How the evolved cloud will change everything…for the better



NetApp

Contents

How did we get here? 3

The quest for a better experience 5

Meet the evolved cloud 5

Start here 7

1: Build for data management and cyber resilience 8

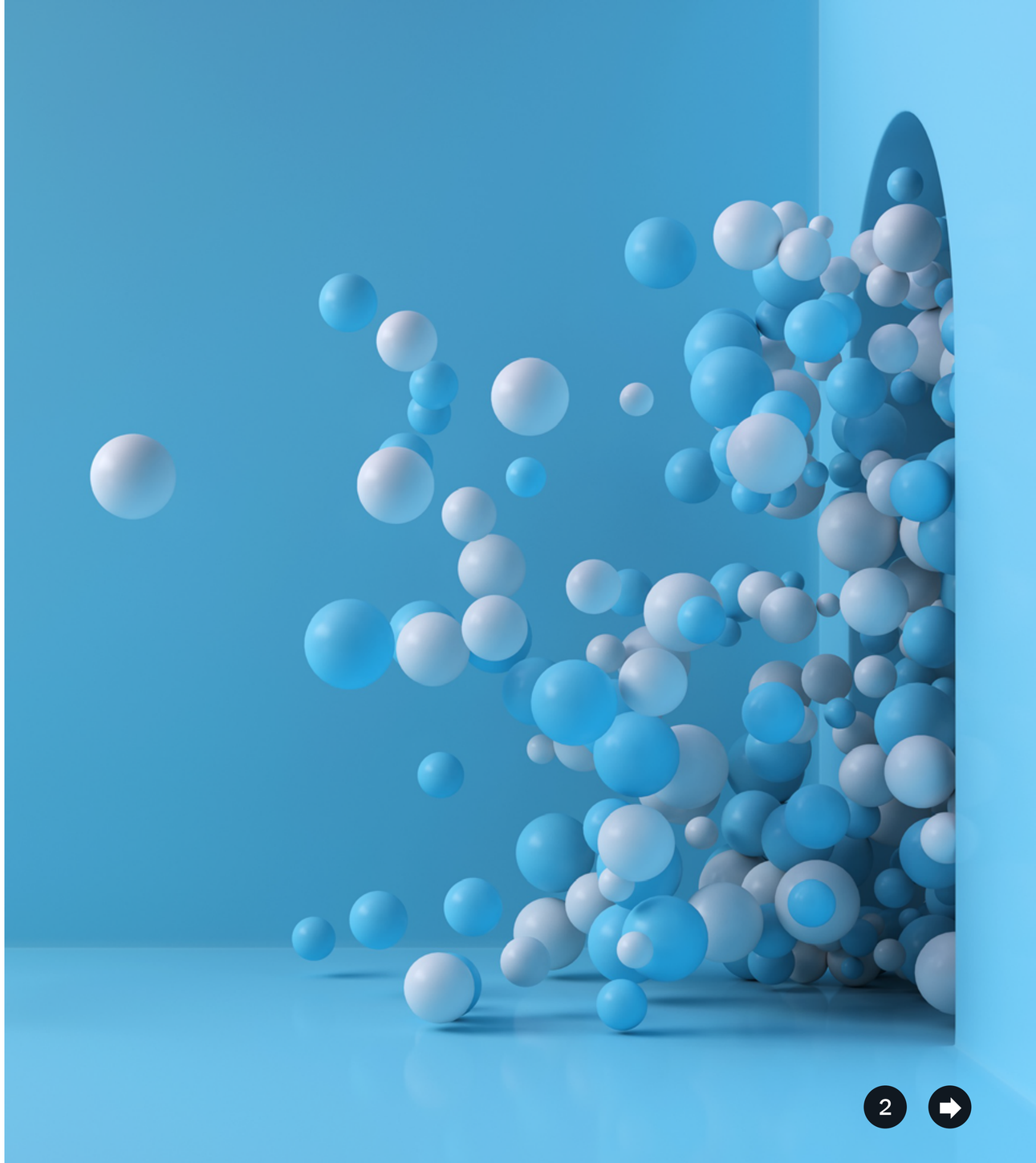
2: Condition for innovation and speed 10

3: Keep operations simple 12

4: Think green 13

5: Ditch tools that create lock-in 14

Why NetApp is the right partner in the evolved cloud 15



How did we get here?

To understand where cloud is going, we need to acknowledge where it came from, including the good, the bad, and the ugly.

The mother of all disruptors
When public cloud burst onto the scene in 2006, it took disruption to a new level. Cloud stood in the face of monolithic IT and blew apart the traditional stack, promising speed, scalability, agility, and flexibility. The early days of cloud were marked by a mix of denial and experimentation. Many IT teams tried to control public cloud by putting it in a box, hoping it would just go away. (Spoiler alert—it didn't.) But public cloud continued to grow, expanding from a single silo in the business to a vertically integrated stack. It has continued to evolve as providers have accelerated their innovation to create more and more public cloud offerings and businesses have more fully integrated cloud into their IT strategies. This evolution has fueled years of industry conversations about the journey to cloud and how cloud fits into digital transformation.

One step closer to the edge
Digital transformation has evolved from a popular buzzword to a force of nature, as the constant demand for innovation challenges the ability of organizations to keep pace. Although cloud has introduced amazing opportunities to advance this transformation, numerous blockers stand in the way of businesses trying to thrive in a world defined by disruption:

Rapidly growing cloud sprawl has greatly increased the complexity of managing applications in the cloud.

Data and application silos have been created as short-term fixes in order to meet challenges of application portability, telemetry, and cloud interoperability.

Security risks have increased exponentially alongside cost management issues. Meanwhile, new challenges have appeared around asset visibility, governance, control, and compliance.

These challenges also exist in hybrid cloud environments, but they're immensely harder to tackle when you're using multiple clouds.

The accidental cloud

We're at the end of the beginning for cloud, with 94% of enterprises using cloud services in 2022[1]. No matter how you got to the cloud, you probably have a mix of configurations that have resulted in complex on-premises and multiple cloud architectures. In other words, you have a hybrid multicloud environment. But did you build a purposeful hybrid multicloud strategy, or did you stumble into it by accident? Some companies may have started with a strategy (good for them), but for many others it just sort of happened (oopsies). Groups within the organization opened new cloud accounts based on immediate needs, often bypassing IT altogether. The resulting mixture of environments has created a decentralized and chaotic hybrid multicloud experience that falls on the shoulders of ITOps and CloudOps teams to deal with.

94%

of enterprises use cloud services in 2022[1]

It's the end of the cloud as we know it

The looming X-factor is how to rein in the resulting nightmarish complexity. Every cloud has its own rules, tools, and processes, and there are never enough people with specialized skills to manage one cloud, let alone several. And as the COVID-19 pandemic has repeatedly revealed, disruption isn't going anywhere. Talent gaps are growing, and the pressure on technology-led transformation is increasing. So how do you balance the operational challenges with the pressure for IT-driven innovation without tearing your hair out?

In other words, with mass cloud adoption, the story has shifted from migration to effectively managing the day-to-day. That means breaking down silos and complexity, and managing your applications, data, and resources seamlessly, efficiently, and securely across and between multiple clouds and on-premises environments.

Solving for effective management is the nexus behind the evolved cloud.

[1] Zippia, 25 AMAZING CLOUD ADOPTION STATISTICS [2022].

The quest for a better experience

Clearly, the status quo is not sustainable. It's time for cloud's next great evolution, in which it becomes the de facto platform for your business and delivers on its full potential for everyone. Not just the early adopters or startups, but large enterprises too, across every industry.

What we're describing is a world where the benefits of cloud aren't held back by its complexity. Where costs are automatically optimized, and threats are autonomously thwarted. Where silos are broken down, interoperability is the norm, and IT teams don't need countless specialists. Where data and applications can live and move anywhere—on premises, in any cloud, across multiple clouds, or in a hybrid environment. And where attaining sustainability goals finally becomes a reality.

This is what the evolved cloud delivers.

Meet the evolved cloud

The evolved cloud is a strategic approach to hybrid multicloud environments where cloud is fully integrated into your architecture and operations. An evolved cloud state breaks down silos to simplify management, create consistency, and deliver complete observability across on premises and multiple cloud environments.

Abstraction, a key tenet of evolved cloud, makes it easier to integrate and manage disparate environments, apply common policies and processes across them, and move applications or data between them. Combined with powerful automation, abstraction frees up IT teams by allowing for a unified operational approach that drastically improves on the current working model. This means going from accidentally using multiple clouds to purposefully and strategically leveraging them, and ensuring they are efficient, secure, and continuously optimized.

In an evolved cloud state, IT organizations can achieve:

- **Effortless interoperability** between public clouds, private clouds, and data centers
- **Centralized operations** and management across environments
- **Application and data consistency** that supports innovation without locking you into a proprietary cloud application framework
- **Continuous optimization** of efficiency and costs with simplified billing and explanations
- **Visibility** into and across your entire data estate with consistent protection and security
- **Common data management** capabilities at the storage infrastructure layer along with open source databases for stateful applications
- **Optimization and automation** for stateless and stateful applications for all well-known Kubernetes distributions

We need this, we want this, we deserve this. But if we've learned anything over the last few years, it's that change is hard. It's time to transition from the frenetic mode of putting out fires with buckets of water, to intentional hybrid multicloud design. In short, it's time to transition to the evolved cloud.

What makes the evolved cloud tick?
Here are a few things you need in an evolved cloud state:

- **Unified management plane.** Abstraction enables a consistent operational approach, centralized management, and complete visibility into and across disparate cloud and on-premises environments.
- **Common set of APIs,** services, policies, and open architectures. Gain consistency and flexibility in order to move, manage, and integrate workloads, data, and resources as needed with simplified operations.
- **Powerful AI-driven automation.** Intelligent automation handles monitoring, operations, and optimization to boost efficiency and cost savings, while enforcing sustainability guardrails.
- **Easy integration**, management, and movement of data and resources. Eliminate lock-in and limitations on flexibility.

Start here

You've probably learned the hard way that ineffective hybrid multicloud management means soaring costs, complexity, and risk that are a drag on any business. You need to get the day-to-day hybrid multicloud operations right today, so you can get back to innovation that leaves your competition in the dust. But how do you achieve hybrid multicloud flexibility and agility without adding to or worsening the complexity you're already experiencing? In other words, **how do you make cloud work for you?**

We have a five-step plan to get you started. No matter which steps you start with, you'll need all five to thrive in an evolved cloud state:

1. Build for data management and cyber resilience
2. Condition for innovation and speed
3. Keep operations simple
4. Think green
5. Ditch tools that create lock-in

Let's get started.

1 Build for data management and cyber resilience

Operating in an evolved cloud state means that your applications and workloads must be able to pull data from multiple clouds. Data should move effortlessly between clouds and on premises and be stored in the right place at the right cost. Storage is a critical component of every evolved cloud strategy. In the evolved cloud, data mobility, co-locating data sets and workloads, and file storage are simply better— easier to use and more accessible—because your storage foundation is consistent on premises and across clouds.

But being able to move and use your data how and where you want it doesn't mean that you have to accept more risk. As you are aware, every node in your organization's hybrid multicloud environment is like a door or window that might be inadvertently left open. Yes, there are external threats like ransomware. But often the enemy is within the perimeter. An employee clicks the wrong link or opens a nefarious attachment, and the whole house of cards comes tumbling down. It took only one compromised password to disrupt the Colonial Pipeline[2].

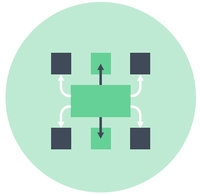
You not only need **complete visibility across every environment**, but you must also diligently safeguard against cybersecurity threats. And of course, complexity breeds vulnerability when you have disjointed policies and processes for data security, protection, compliance, ransomware prevention, and disaster recovery across your data centers and clouds.

Forget trust but verify. The new model: Verify and never trust. In the evolved cloud, data protection, security, compliance, and governance team up for total cyber resilience. What does that look like?

A Zero Trust model with a multilayered, data-centric approach that goes beyond perimeter security. A microcore and perimeter (MCAP)—an interior definition of data, services, applications, or assets to be protected by a comprehensive set of controls. Examples of controls to mitigate damage or loss of valuable data include multifactor authentication, role-based access, comprehensive logging, and auditing to protect against ancillary attacks.

Always-on protection is backed up in seconds, restored in minutes with zero data loss.

Automated advanced threat detection enables you to see across and monitor disparate environments, reduce risks, and reduce blind spots for data and infrastructure.



Data governance enables you to classify and categorize your data as well as to prevent unauthorized access, disclosure, and modification of data stored across your organization.

Don't settle for protection that's bolted on as an afterthought. Built-in hybrid multicloud protection is key.

[2]ZDNet, Colonial Pipeline ransomware attack: Everything you need to know

2 Condition for innovation and speed

The term *innovation* is overused, but it does play an important role in how you compete and win in the market. As change continues to hum along at a fast clip, you're required to **continuously transform and innovate faster and faster**, over and over, again and again, and at scale. But complexity, resource constraints, and silos in your hybrid multicloud environment can slow you down, especially when you're running a variety of applications.

A typical organization may be running legacy monoliths, open-source apps, modern cloud-native, Kubernetes-based apps and databases along with their applications. And your innovation strategy has a variety of objectives when it comes to modernizing your applications and cloud integration. Everyone knows the **six R's**: rehost (lift and shift), replatform (update some foundational things like your operating systems or databases), refactor (recode apps for cloud-native architectures), repurchase (use a SaaS service), retire (delete the app altogether), and retain (it works, don't touch, don't move it… don't even look at it).

Depending on your organization's strategic motivations, whether technical or budgetary, you can implement any of the six R's for each application. **An evolved cloud state makes it easier for you to execute on any of the six** by providing you integrated data management with single-pane-of-glass governance, enterprise data protection, and compliance to condition your hybrid multicloud for innovation and speed.

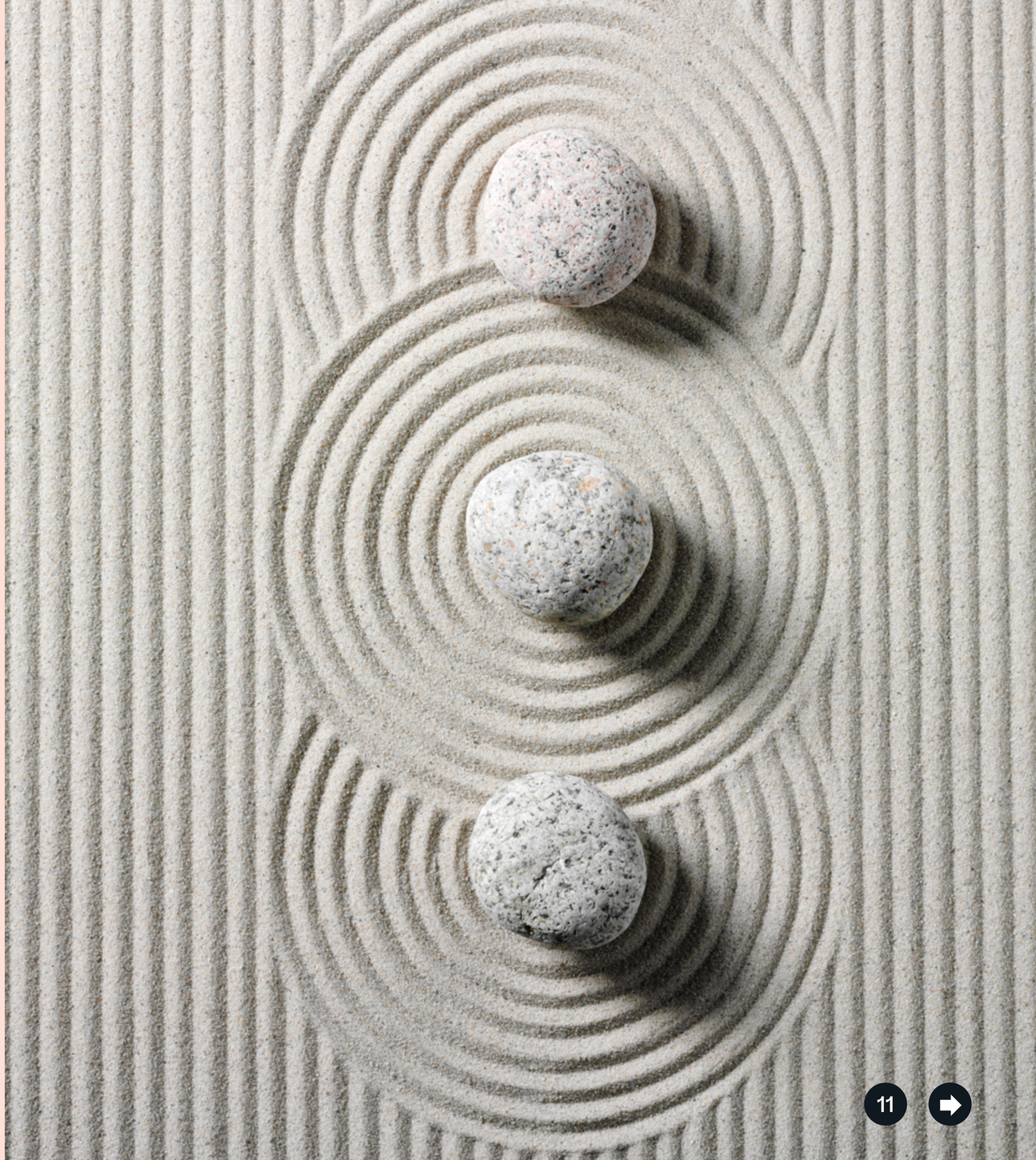
At the same time, traditional apps and their data, such as enterprise apps or storage heavy VM workloads, increasingly reside in your cloud infrastructure. And because of their important nature, they need to be highly performant, reliable, and available. But running these types of applications in the cloud often comes with high costs, suboptimal availability, and complexity. An evolved cloud enables you to migrate these apps quickly and cost effectively to the cloud of your choice, and to manage them effectively once they're migrated. You decide where your apps and workloads go.

An evolved cloud provides flexible database access for your apps. Whether your application is accessing open-source databases in the cloud or leveraging your on-premises data store, your evolved cloud needs to be a one-stop shop for deploying, managing, and monitoring your data layer and related infrastructure. For example, using a legacy database with an open-source application can create bottlenecks. An evolved cloud removes those barriers and enables your apps to use the best database technology for your application.

Furthermore, in an evolved cloud state, developers can use the development platform of their choice, and their work product—applications and workloads—can be deployed anywhere without overwhelming complexity. This flexibility requires persistent, scalable data stores that are easily migrated and managed, delivering application mobility for DevTest, data migration, and application updates.

Simplify, standardize, unify
An evolved cloud also simplifies and standardizes the management of containers and microservices. Many organizations adopt Kubernetes to deliver cloud-native applications. Kubernetes helps DevOps build and quickly release portable applications that can run on any infrastructure, from edge and data center to the cloud. However, running cloud-native applications on Kubernetes poses additional infrastructure challenges, and it also requires a broad range of data management capabilities – including backup, cloning, disaster recovery, data lifecycle operations, data optimization, compliance, and security.

Bringing together all your applications under unified management is essential in an evolved cloud state. It's needed to simplify the management of persistent data for Kubernetes clusters, deploy open source and cloud-native applications in minutes, and deliver the bare-metal performance, high availability, and sub-millisecond latency that your storage-heavy VM workloads and enterprise apps require. Operating in the evolved cloud gives you reliability and efficiency at the scale that your apps need. Who doesn't want that?



3 Keep operations simple

It's no secret that most organizations are dealing with a **cloud skills gap**. All the disparate cloud services, protocols, and processes require a mountain of (often manual) work, and there just isn't enough specialized talent available to make sure that your hybrid multicloud environment runs properly. When you think about the most transformative technological innovations of recent times, they all have a people angle. Strategically using multiple clouds is no different.

Many of these "as-a-service" innovations focus on making it simpler and more efficient for people to get the things that they value the most. These innovations offer standardized service, with the same experience wherever you are in the world, controlled through a single SaaS-based interface. You can get these services on demand where and when you need them, with a few clicks, and pay as you consume. It's all easier when you move to evolved cloud.

Unified operations

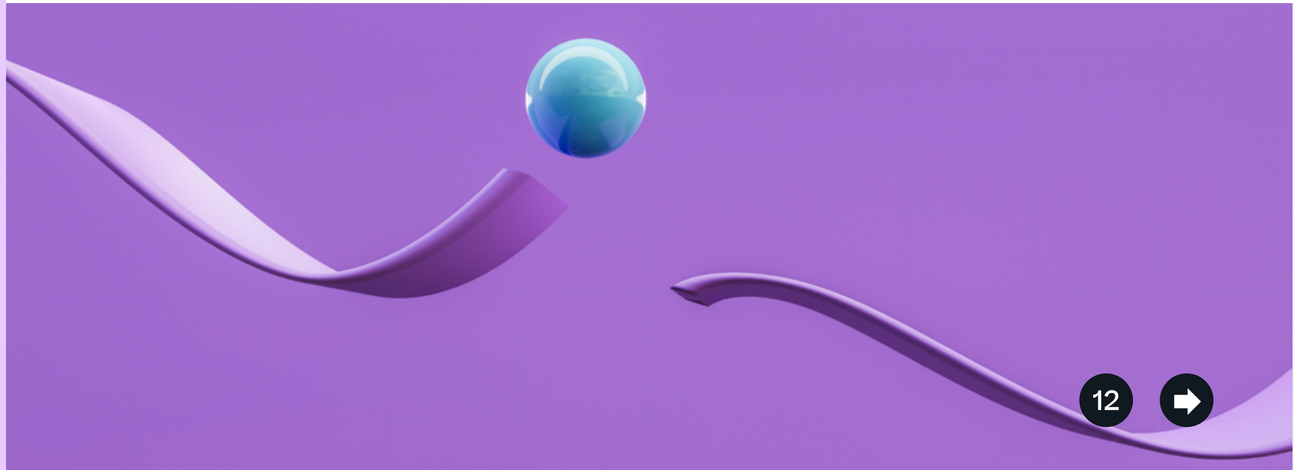
In an evolved cloud state, storage, data, and application services are abstracted across your hybrid multicloud environments for consistency. **This means that you can streamline and unify operations everywhere**—a huge weight off overwhelmed IT teams trying to manage the chaos without enough of the right people to do the work.

By eliminating obstacles like complexity, lack of observability, and security vulnerabilities – and making sure that experiences are consistent in clouds and on premises – you can break down silos that stymie innovation, add unnecessary costs, and unnecessarily expose data to security threats.

In an evolved cloud, you get unified CloudOps, FinOps, SecOps...all the Ops. You integrate disparate hybrid multicloud environments with a single SaaS-delivered global control plane for centralized management. You get better visibility and control, and more opportunity for automation of your data and resources. And you can activate services on demand, with just a few clicks, to support data protection, governance and compliance, scale, cost optimization, and portability consistently across your footprint. You get the flexibility to change or reallocate resources dynamically, as your needs change, reducing the need for environment- or cloud-specific skills.

Intelligent automation

Unifying operations is a huge step forward. But you also need to employ AI-powered automation—an important evolved cloud element. Automation takes the burden of manual tasks and processes off IT teams so they can shift their focus to more valuable efforts. You don't have to relentlessly watch for security threats or try to manually optimize cloud costs to avoid a big bill at the end of the month.



4 Think green

Half of CEOs surveyed see sustainability as a top priority, and 80% think that sustainability will drive improved business results in the next 5 years[3]. Green makes good business sense, and in the evolved cloud it's not relegated to an afterthought—you can actually tackle sustainability goals in IT with tangible actions.

Continue migrating to public clouds
Moving from on-premises data centers to public cloud can dramatically reduce your environmental footprint. Massive hyperscale campuses are much more efficient and have a much smaller carbon footprint than on-premises data centers. The big cloud providers have invested a lot in meeting and exceeding sustainability standards. Amazon Web Services and Azure have both pledged to use 100% renewable energy by 2025, and Google Cloud has already declared itself carbon-neutral and pledges to run on 100% carbon-free energy by 2030[4].

The fact remains, data centers consume a great deal of energy and resources. You probably already have some initiatives in place to address energy and emissions in your data center. You may be conserving energy by using air containment and liquid cooling and using green computing practices to reduce your data center's carbon footprint. **Addressing stored data can also make a difference**; 10% to 15% of your data center's energy alone is used to store data[5]. And as the amount of data generated worldwide grows, hybrid multicloud complexity results in greater energy consumption and carbon emissions follow.

Getting data sprawl under control is huge part of an evolved cloud. If you're trying to meet net-zero and sustainability goals, you need to go beyond greenwashing by taking advantage of the efficiencies offered by the major public cloud providers and getting better at optimizing and storing data. If you've been holding off migrating workloads because of concerns about interoperability and complexity, evolved cloud minimizes those barriers.

Automate to go green and save green
Automation takes sustainability even further. By continuously automating optimization of your infrastructure based on application needs, you not only lower costs but also your carbon footprint. You gain complete visibility into utilization and energy consumption for emissions-based decisions and policies, which can help you make the right decisions based on your sustainability objectives.

[3]IBM Institute of Value, Sustainability Ranks Among Highest Priorities on CEO Agendas, Yet Lack of Data Insights Hinders Progress, https://newsroom.ibm.com/2022-05-10-IBM-Study-CEOs-Feel-Pressure-to-Act-on-Sustainability-and-See-Business-Benefits,-Yet-Hindered-by-Challenges

[4]Spiceworks, Now and forever, the sustainability battle between the big three of cloud

[5]Energy Innovation, How much energy do data centers really use?

5 Ditch tools that create lock-in

In the evolved cloud, you must move beyond the cloud-specific and on-premises tools that came in the box. It's like taxes—when you were a teenager slinging ice cream at your first job, taxes were fairly easy, and you could use any basic service. But as an adult your finances became more complex, and you needed better tools. This is especially relevant if you're a hybrid multicloud warrior. You need to avoid solutions and environments that lock you into using specific clouds. **An evolved cloud state enables you to do you**—but not every vendor is ready to deliver that experience.

That's where NetApp comes in.

Why NetApp is the right partner in the evolved cloud

We decided to keep it at five steps, but a sixth could be to choose a partner that knows how to deliver cloud's full potential. We help you take disruption in stride and turn it into powerful innovation—just like we've done ourselves for 3 decades. Now, we're leading cloud's next evolution by creating a better hybrid multicloud experience—because cloud should work for everyone.

The NetApp® portfolio of storage, data, and application services is built for the evolved cloud and delivers a unified hybrid multicloud experience with built-in data protection no matter what your environment looks like. Unlike our competitors, we don't lock you into walled gardens or platforms. And we don't tell you which clouds you can or can't use.

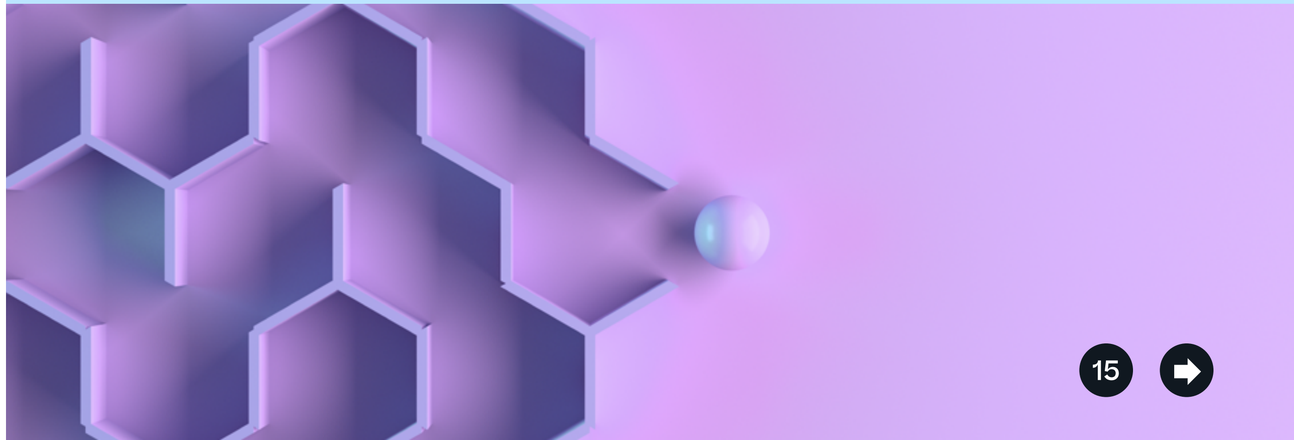
NetApp delivers cross-environment visibility, application-driven automation, and continuous optimization through its cloud storage heritage, bolstered by the acquisition and integration of industry-leading CloudOps technologies. We simplify management of your hybrid multicloud environment with common storage, data management, and security foundations. Our technology removes complexity and keeps everything optimized for cost, risk, efficiency, and sustainability.

NetApp Blue XP™ offers unified hybrid multicloud operations with a single control plane and set of APIs. SaaS-delivered storage and data services offer integrated monitoring and protection, powerful automation, and flexible consumption options.

Unify your operations →

Spot by NetApp makes CloudOps easier with infrastructure automation to improve performance and continually optimize costs. Easily adopt open-source cloud-native database technologies and migrate quickly from older platforms.

See what's possible →



Why Logicalis + NetApp Hybrid Cloud?

Data is the new driver of growth and change. As a NetApp Partner, Logicalis enables data-driven digital transformation by making it easier to deploy new business services, whether they are on-site or in the cloud. The team delivers deep experience in storage technology, tools that manage all your cloud storage needs, and an a la carte service menu for maximum flexibility.

About Logicalis

Award-winning Logicalis US works alongside our customers to recommend, plan, and implement a digital transformation strategy that aligns with their business goals. Through our consulting and managed services and with our longtime strategic partners, we then deliver custom security, network, collaboration, cloud, and data center solutions.

As Architects of ChangeTM, we help our customers to deploy and adopt technologies that engage their employees and customers, optimize and manage IT operations for improved agility and cost savings, and employ emerging technologies that deliver innovative outcomes.

Logicalis US is part of the Logicalis Group, which has more than 6,500 employees and annualized revenues of $1.5 billion, from operations in Europe, North America, Latin America, Asia Pacific and Africa.

Contact your Logicalis Account Executive or fill out a form by clicking "Contact Us."

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LOGICALIS
Architects of Change

NetApp

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