E-BOOK

Are you ready for the cloud?
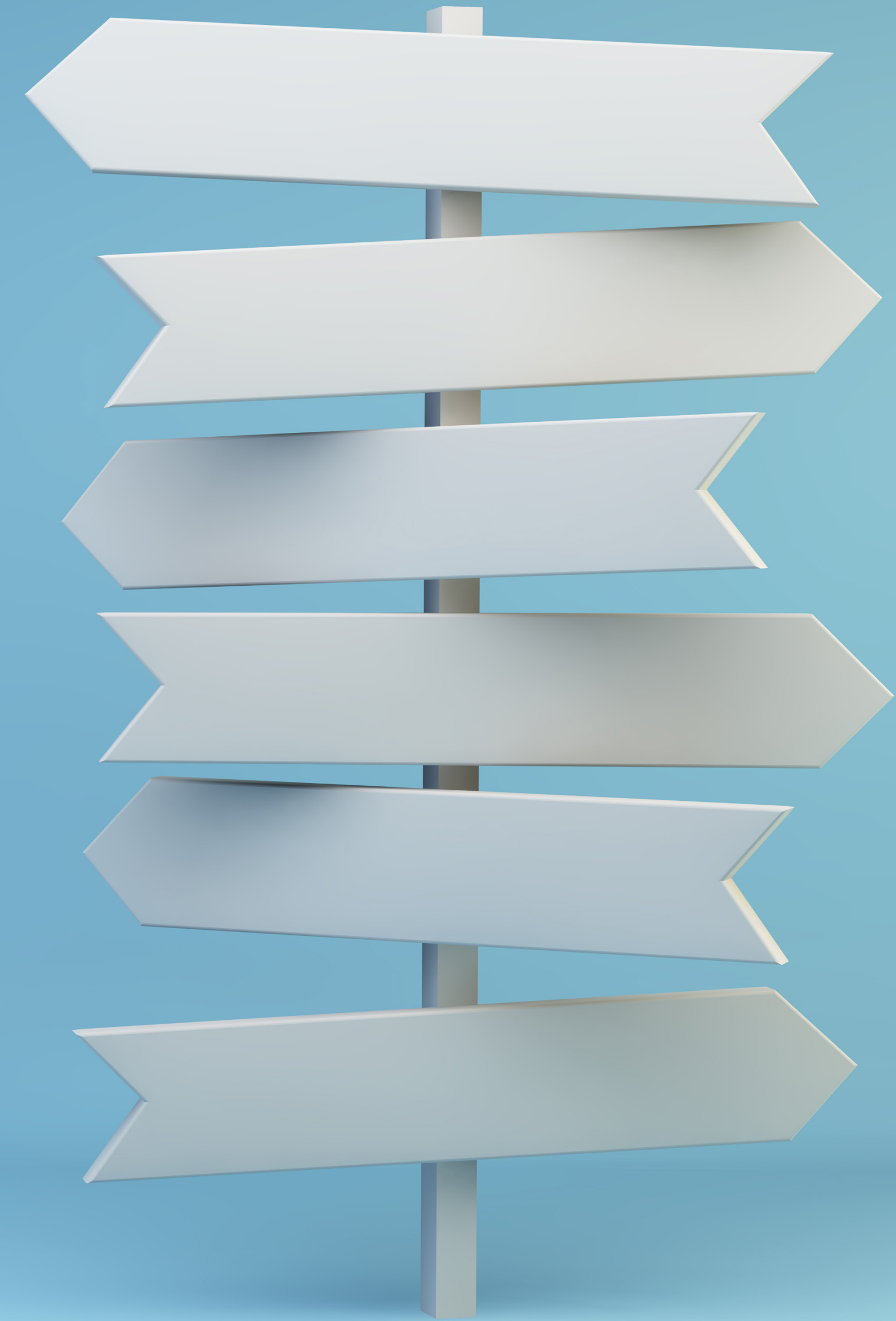
Prepare your infrastructure for moving data-intensive VMware workloads to the public cloud.

■ NetApp

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NetApp

All aboard

It's no longer a matter of if but when you will move your VMware workloads to the cloud. But the cloud is not a destination—it's a journey. And although the journey is different for every organization, the reasons for wanting to move VMware workloads to the cloud fall into three main categories:

• Modernize your virtual data center

• Accelerate applications

• Build a hybrid multicloud environment

Along the way, you'll face a number of challenges. How do you avoid replatforming or rearchitecting your applications? Reduce the cost of running VMware workloads in the cloud? Enhance IT efficiency? Accelerate new application value?

Preparing your applications and infrastructure for the cloud at each milestone along your journey will make it easy to move to a hybrid multicloud solution when the time is right.
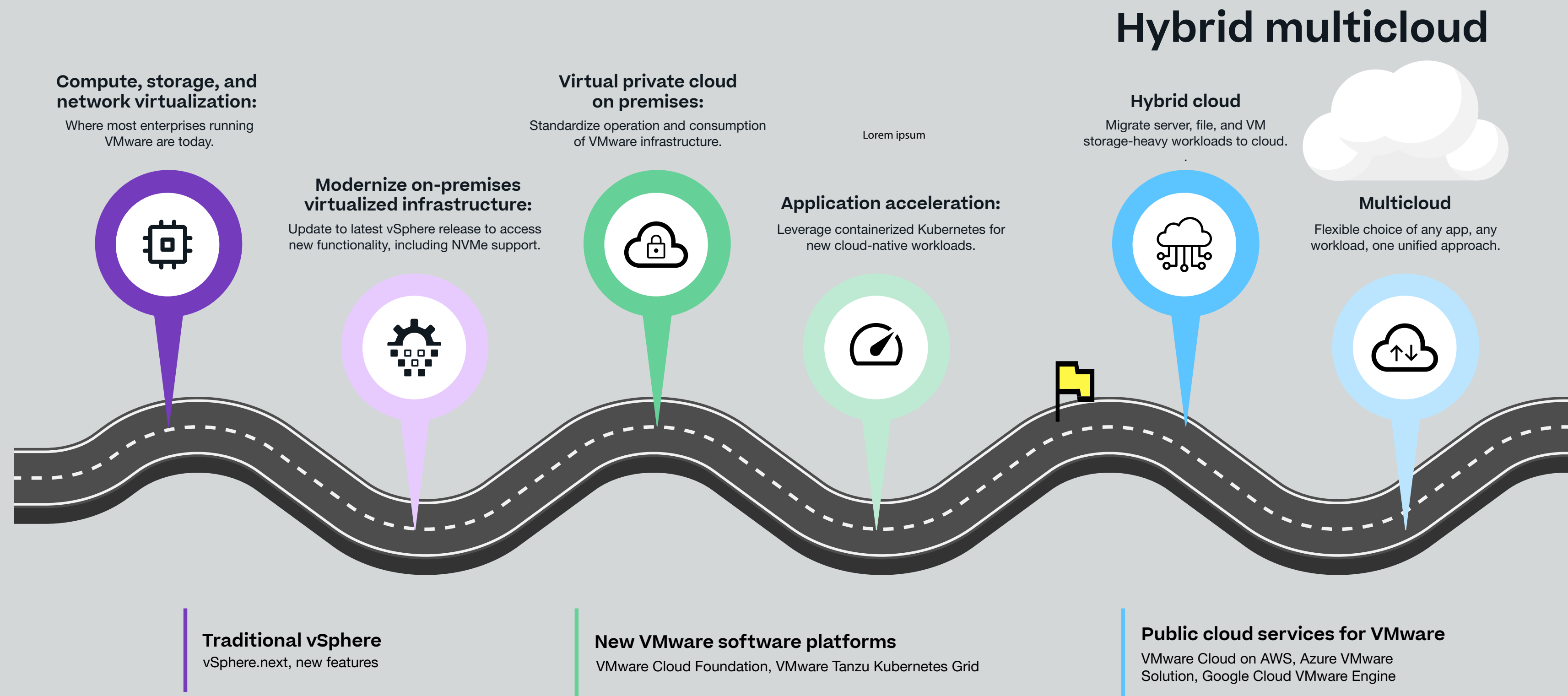
NetApp and VMware have you covered

With more than 20 years of joint development, NetApp and VMware have a common vision: Modernize data centers and integrate cloud. Here's how our joint solutions can help you get where you're going.

	What we're doing	How you benefit
Modernize virtual data center	Integrating NetApp® software and platforms with vSphere/VCF and industry-leading technologies such as NVMe.	Enhance virtual data center performance, scale, protection, and cost efficiency under a centralized point of VMware control.
Accelerate applications	Integrating NetApp Astra™ with VMware Tanzu to enable efficient, persistent, protected storage for Kubernetes.	Manage Kubernetes workloads with traditional virtual machines under a common management framework at lower cost.
Build a hybrid multicloud	Integrating our respective cloud services across AWS, Azure, and Google Cloud so customers can seamlessly use any cloud they want.	Cost-effectively manage workloads across clouds with consistent operations and without refactoring apps.

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You are here

Wherever you are on your cloud journey, NetApp and VMware have the solutions and cloud expertise to help you reach the cloud. Decades of co-development and continued joint integration enable you to build a future-ready platform to guide you on your journey

Hybrid multicloud

Compute, storage, and network virtualization:
Where most enterprises running VMware are today.

Modernize on-premises virtualized infrastructure:
Update to latest vSphere release to access new functionality, including NVMe support.

Virtual private cloud on premises:
Standardize operation and consumption of VMware infrastructure.

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Application acceleration:
Leverage containerized Kubernetes for new cloud-native workloads.

Hybrid cloud
Migrate server, file, and VM storage-heavy workloads to cloud.

Multicloud
Flexible choice of any app, any workload, one unified approach.

Traditional vSphere
vSphere.next, new features

New VMware software platforms
VMware Cloud Foundation, VMware Tanzu Kubernetes Grid

Public cloud services for VMware
VMware Cloud on AWS, Azure VMware Solution, Google Cloud VMware Engine

Virtualize compute, storage, and network resources

If you're just starting out on your cloud journey, you're not alone. According to an IDC report, only 2% of European enterprises have moved their data-intensive, storage-demanding workloads to the cloud.[1]

Chances are, you've optimized your virtualized applications for performance, efficiency, and cost savings across your on-premises compute, storage, and network resources. But now what?
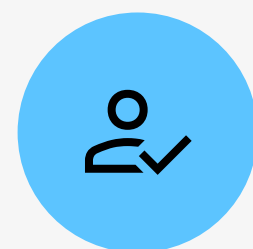
When it comes to taking the next step and moving those data-intensive workloads to the cloud, there are several roadblocks that can get in the way.
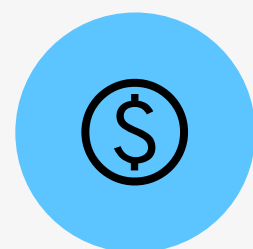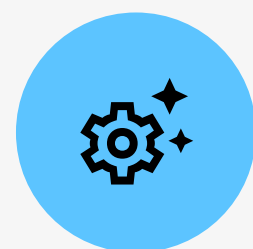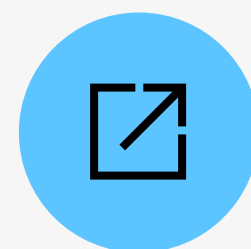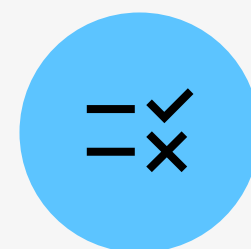
| Expensive | Operational inconsistencies | Different skill sets and tools required | Disparate mangement tools and security controls | Inconsistent application SLAs | Incompatible machine formats |

Next steps

If your cloud journey is still in the planning phase, don't worry—that's a great place to be when you have NetApp and VMware on your side. The foundation you've worked so hard to build can now be leveraged to move to the cloud.

NetApp can help you tear down the roadblocks and get VMware workloads to the cloud economically by decoupling compute and storage—any workload, any cloud, one unified approach.

Learn more

→ NetApp and VMware: A unified approach to hybrid cloud

→ Top 10 reasons: Why NetApp for VMware environments

→ Your future-ready platform is here today

Modernize your on-premises digital foundation

Your next step in getting closer to the cloud is to modernize your on-premises virtualized infrastructure. Modernizing your infrastructure enables you to create a true, unified hybrid cloud environment in which you get the same operational experience on premises and in the cloud.

With NetApp and VMware, you can start simple and grow fast in the cloud. Upgraded NetApp AFF and FAS systems running the latest version of NetApp ONTAP® data management software enable you to gain as much performance as possible, with the ability to test out the cloud. For an ultramodern infrastructure, you can upgrade to a VMware with NVIDIA AI Enterprise solution. Built on a FlexPod® converged infrastructure, you'll get a high-performance, cloud-ready AI solution.

To help you manage your hybrid cloud, NetApp offers a comprehensive suite of applications:

- **Cloud Insights.** Monitor, troubleshoot, and optimize cloud storage across your VMware stack.
- **Cloud Data Sense.** Discover, map, and classify your data.
- **Cloud Manager.** Streamline management with a single, unified management interface.

Next steps

✓ Update to the latest version of vSphere.

✓ Update to the latest version of ONTAP to access new functionality, including NVMe support.

✓ Upgrade your hardware to be cloud ready.

✓ Move to all-flash storage so that you can have consistent enterprise-class management on premises and in the cloud.

✓ Dip your toes into cloud data services such as Netapp Cloud Insights and Cloud Data Sense.

Learn more

→ ONTAP tools for VMware vSphere

→ NetApp and VMware solutions

→ Cloud Insights

→ Cloud Data Sense

→ Cloud Manager

Build an on-premises virtual private cloud

Building a virtual private cloud is an important step in your journey to the cloud. With an on-premises virtual private cloud you can experiment with how the public cloud will work best for your business. It's a starting point for testing out the cloud for your less-critical files, applications, and workloads. It also gives you an opportunity to try use cases like Dev/Test in the cloud.

NetApp and VMware make building a virtual private cloud easy with integrated solutions that are designed for simplicity, without sacrificing value. A data fabric powered by NetApp lets you put your data wherever you want. And you get the same rich data management capabilities across any environment, including data visibility and insights, data access and control, and data protection and security.

Next steps

✓ Update to the latest version of vSphere to access new functionality, including NVMe support.

✓ Deploy VMware Cloud Foundation.

Learn more

→ NetApp and VMware Cloud Foundation made easy
Part 1: Getting started

→ NetApp and VMware Cloud Foundation made easy
Part 2: VCF and ONTAP principal storage

→ NetApp and VMware Cloud Foundation made easy
Part 3: VCF and Element principal storage

→ NetApp and VMware Cloud Foundation made easy Part 4: ONTAP tools for VMware and supplemental storage

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Accelerate applications

Enterprise applications such as Oracle, SAP, and SQL are the engines that run your business. The cloud gives you an easy way to modernize your application infrastructure without the capex investments and management skills needed for on-premises solutions.

Today, it's no longer a question of if you should move these applications to the cloud. The real question is how to most effectively move them to the right cloud solution.

With containers and Kubernetes, you can give your critical applications the infrastructure they deserve, without adding complexity to the mix. NetApp and VMware solutions are fully integrated with Kubernetes to make getting your enterprise applications to the cloud easier and pain free.

Next steps

✓ Leverage containerized Kubernetes for new cloud-native workloads.

✓ Deploy VMware Tanzu.

Learn more

→ Webinar: Kubernetes, VMware, and NetApp—A match made in container heaven

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Ready when you are

With preparations in place, you're set to move your data-intensive VMware workloads to a hybrid multicloud environment whenever you're ready.

With NetApp and VMware solutions, you can move your VMware workloads to any of the three major public cloud providers (AWS, Azure, or Google Cloud), without the time, cost, and complexity of having to refactor your applications before migrating to the cloud.
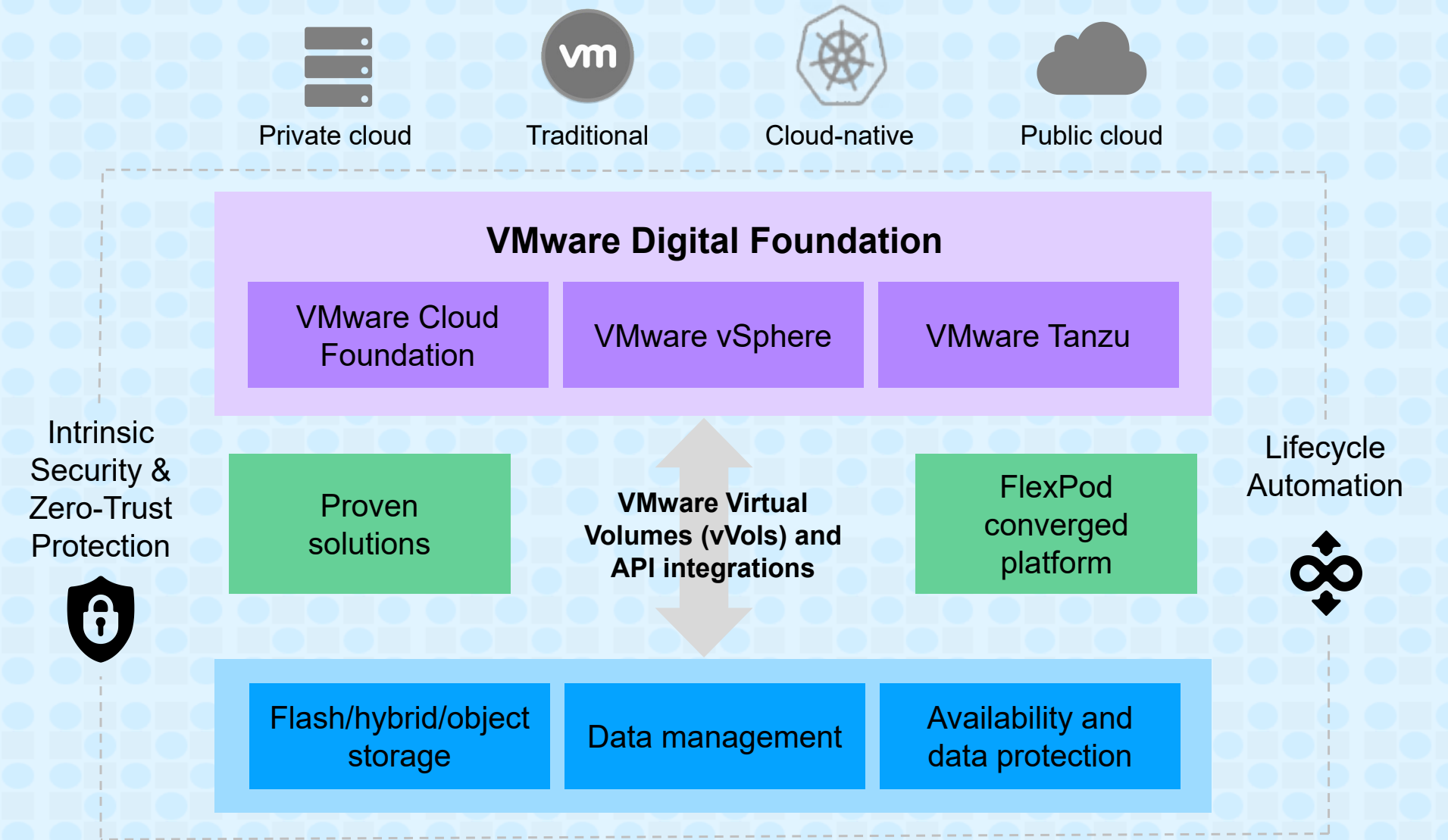
New and differentiated integration for hybrid multicloud
As design partners, NetApp and VMware are making it easy to migrate your data-intensive workloads to the cloud.

NetApp is the first and only partner chosen to certify, integrate, and become supported for use as an external supplemental datastore with VMware Cloud Services and your cloud of choice.

VMware uses NetApp systems and software to design and develop the next-generation platforms. NetApp builds direct API-level integration between the data fabric management plane and the VMware software control plane—across vSphere, VCF, Tanzu, and VMware Cloud—to support both traditional and new Kubernetes-native workloads.

Data fabric powered by NetApp

Private cloud	Traditional	Cloud-native	Public cloud

VMware Digital Foundation

VMware Cloud Foundation	VMware vSphere	VMware Tanzu

Intrinsic Security & Zero-Trust Protection

Proven solutions	VMware Virtual Volumes (vVols) and API integrations	FlexPod converged platform

Lifecycle Automation

Flash/hybrid/object storage	Data management	Availability and data protection

With NetApp and VMware hybrid multicloud solutions you can build a data fabric that enables you to easily move your data and applications among cloud and on-premises environments as needed, with a unified, consistent operational experience no matter where your data resides.

Take the lead with NetApp and VMware

NetApp and VMware continue to invest in the comprehensive joint engineering necessary to deeply integrate our solutions from the point of design to the point of delivery. It's hard work, but someone's got to do it.
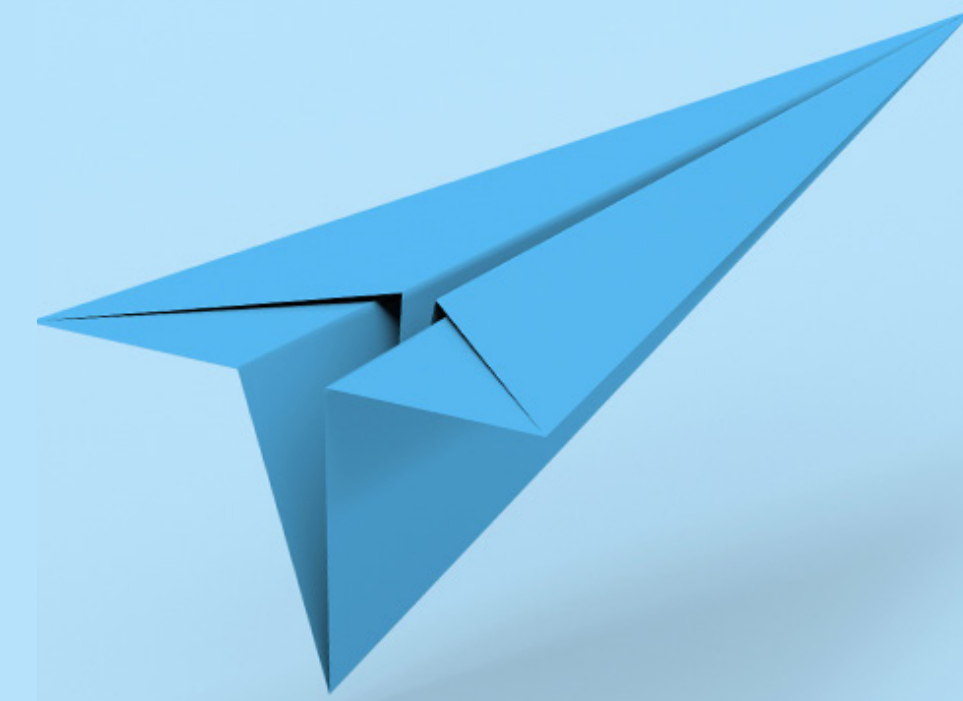
VMware Cloud (VMC, AVS, GCVE)
Integrated use of NetApp Cloud Volumes ONTAP (performance, efficiency, protection) across the VMware hybrid cloud.
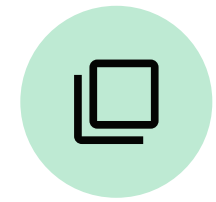
VMware Tanzu
First-class disk and persistent datastore support using vVols, VMware CNS on NFS, and VMFS.

VMware vSphere Storage APIs Array Integration (VAAI)
Enables vSphere to leverage NetApp copy and clone offload, and space reservation for thick virtual disk files.
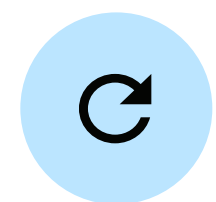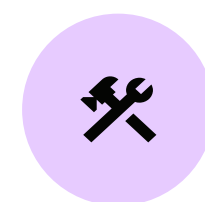
VMware Site Recovery Manager (SRM) plug-in
Uses NetApp Storage Replication Adapter to manage disaster recovery replication and to enable nondisruptive testing of DR replicas.
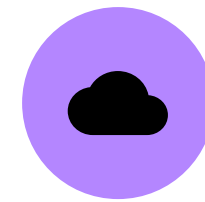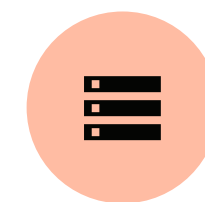
VMware Cloud Foundation
Primary and secondary datastore use of NetApp ONTAP performance, efficiency, and protection on vVols, NFS, and VMFS.
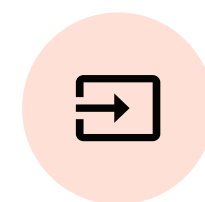
ONTAP Tools for VMware (OTV)
Policy-based management and efficiency for traditional datastores of vVols; copy offload for VM cloning operations.

VMware vStorage APIs for Storage Awareness (VASA)
Simplified provisioning and monitoring of VM storage, including vVols support and storage profiles.

VMware vSphere plug-in
Uses NetApp SnapCenter® to offload and simplify application-consistent data protection and clone management.

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NetApp + VMware—
A winning combination

With more than 20 years of collaboration, NetApp and VMware offer the winning combination for a smooth journey to the cloud. Our solutions integrate easily and are designed for simplicity without sacrificing value—an important feature to keep in mind as you prepare to move your VMware workloads to the cloud.

Together, NetApp and VMware offer:

- Industry-leading virtualization with data protection and security at the foundation
- Efficient, integrated management of VMware datastores to reduce business risk, cost, and complexity
- Secure multitenancy
- Support for all major protocols

Use cases

🛡 Data protection   🌐 Cyber resilience   ☁ Cloud migration

☁ Extend to cloud   ↺ Disaster recovery in the cloud

Simplicity and differentiated value in a single solution

✓ **More VM performance.** Get 2 to 3 times more VM performance at 75% lower latency, using 50% less compute.
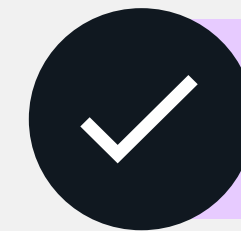
✓ **Lower storage costs.** Get 5 to 30 times lower storage costs on premises. Reduce the cost of running VMware Cloud services by 25%-50%.

✓ **Flexibility.** Choose any storage type, any protocol, any server, and any operating system, with converged deployment options.

✓ **Efficiency.** VMware-native API integration increases the efficiency of your VM and storage teams.

✓ **Protection.** Secure your data with application-aware data protection and Zero-Trust intrinsic security.

Prepare for the cloud with NetApp and VMware today

Get started

→ NetApp and VMware: Sleek, modern, cloud-ready

→ Get started with NetApp and VMware

→ NetApp Professional Services for Hybrid Multicloud

1. IDC Survey Spotlight, <u>What is European Organizations' Attitude Toward Using Public Cloud Services?</u>, January 2022.

About NetApp

In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services, and applications to the right people—anytime, anywhere.

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