



The A to Z of Managing a Hybrid Cloud

A collection of blogs about how VMware Cloud on AWS and VMware Aria uniquely accelerate innovation

Table of contents

The Need to Boost a Hybrid Cloud	3
Hybrid Cloud is breaking promises	3
How applications benefit from the hybrid cloud approach	4
The role of cloud management	5
Key takeaways	6
Enable Low-Cost Migrations to VMware Cloud on AWS.	7
Challenges of Cloud Migration	8
How to Ease the Cloud Migration Journey with VMware Aria	8
Benefits of VMware Aria and VMware Cloud on AWS	9
Seamlessly Extend Your Data Center to VMware Cloud on AWS	10
Extending Your Data Center	10
Challenges of Extending Your Data Center to Cloud	11
How To Manage Extending Your Data Center to Cloud	11
Manage Application Modernization with VMware Aria	13
Application Modernization Use Cases	13
Challenges to Application Modernization	14
How to Ease Application Modernization with VMware Aria	14
Benefits of Application Modernization	15
Business Outcomes Delivered by VMware Aria	16
Why vRealize Cloud Management is Unique	16
Summary	16

With the cloud becoming the optimal choice for progressive enterprises, there's always doubt about what a hybrid cloud will prove to be.

In this playbook, we decode the fine details about managing a hybrid cloud and how VMware Aria cloud management makes it simpler, which we first shared as a blog series. From migrating to the cloud to seamlessly extending your data center and modernizing apps, make the most of this unique solution.

If you're ready to start, read the [complete eBook](#) or start a [Hands-on Lab](#).

The Need to Boost a Hybrid Cloud

Hybrid Cloud is Breaking Promises

Enterprises want the benefits of hybrid clouds, such as increased efficiency, flexibility, speed, and agility, and they want it today (maybe even yesterday). Yet, without consistent infrastructure and management across on-premises and cloud environments, hybrid cloud adoption may be easier said than done as IT teams are struggling with:

- **Decreased agility** – 7.4 years to refactor and migrate 100 apps to the cloud ([report](#))
- **Increased risk** – 90 percent reported skills shortages in cloud-related disciplines ([report](#))
- **Higher costs** – \$1M cost to move 1,000 workloads from one cloud to another ([whitepaper](#))

Reasons for Slow Cloud Adoption in the Enterprise



Poor Agility

7.4 years to refactor and migrate 100 apps to the cloud



High Risk

90% of teams have skills shortages in cloud-related disciplines



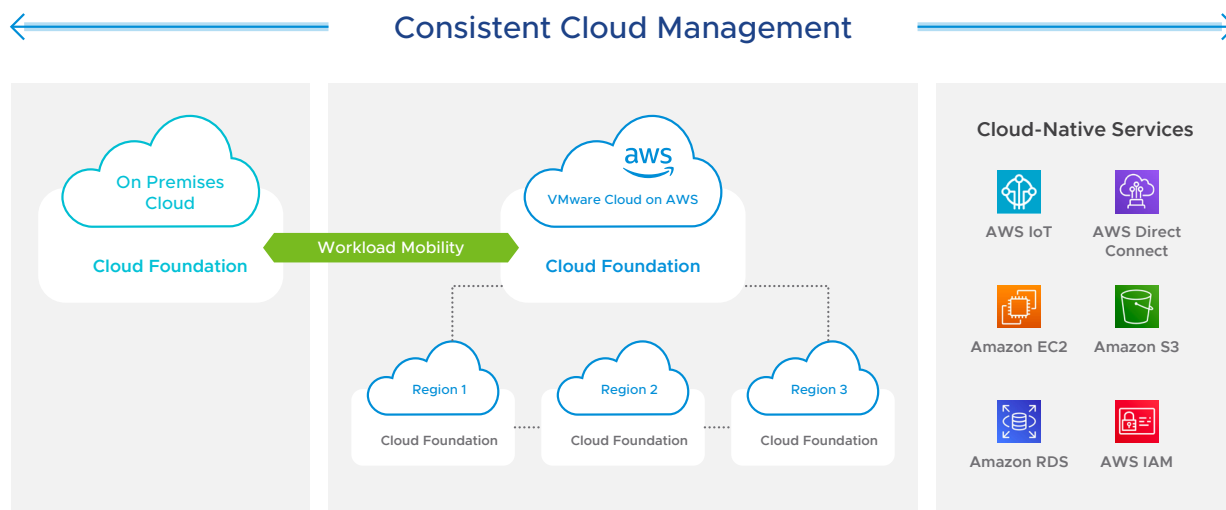
High Cost

\$1M cost to move 1,000 workloads from one cloud to another

Some cloud adoption plans never gain traction due to these obstacles. Other cloud adoption plans move forward, but slower than anticipated because organizations get stuck on the following:

- Which applications to put into the cloud
- Inefficiencies of fragmented infrastructure
- Lack of single-pane-of-glass visibility
- Resource shortages managing inconsistent operations across clouds

In all cases, organizations and IT leaders are disappointed, and you might even say discouraged, because the expected cloud gains they expected materialized. The scenario is dramatically different in those that adopt [VMware Cloud on AWS](#) with VMware. VMware Cloud on AWS provides consistent infrastructure across a hybrid cloud environment so that customers can accelerate their hybrid cloud journey with minimal costs and risks involved. And with VMware Aria cloud management support, you get consistent operations for your apps, infrastructure, and platform services across VMware Cloud on AWS and on-premises environments.



In this chapter, you will learn how to navigate through your hybrid cloud options to:

- Reduce concerns about common challenges that organizations face when navigating their cloud journey
- Expand upon three key initiatives and the options that are uniquely designed to simplify the cloud complexity
- Discuss organizations that are choosing VMware Aria cloud management with VMware Cloud on AWS and why

How Applications Benefit From a Hybrid Cloud Approach

As global workloads continue to grow, organizations recognize the value of integrated public cloud and on-premises infrastructure. And they are rapidly moving to VMware Cloud on AWS to gain a unified infrastructure framework that bridges the gap.

“Organizations can spin up a VMware Cloud on AWS SDDC in 17 Global AWS Regions in under two hours and scale capacity within minutes on average.”

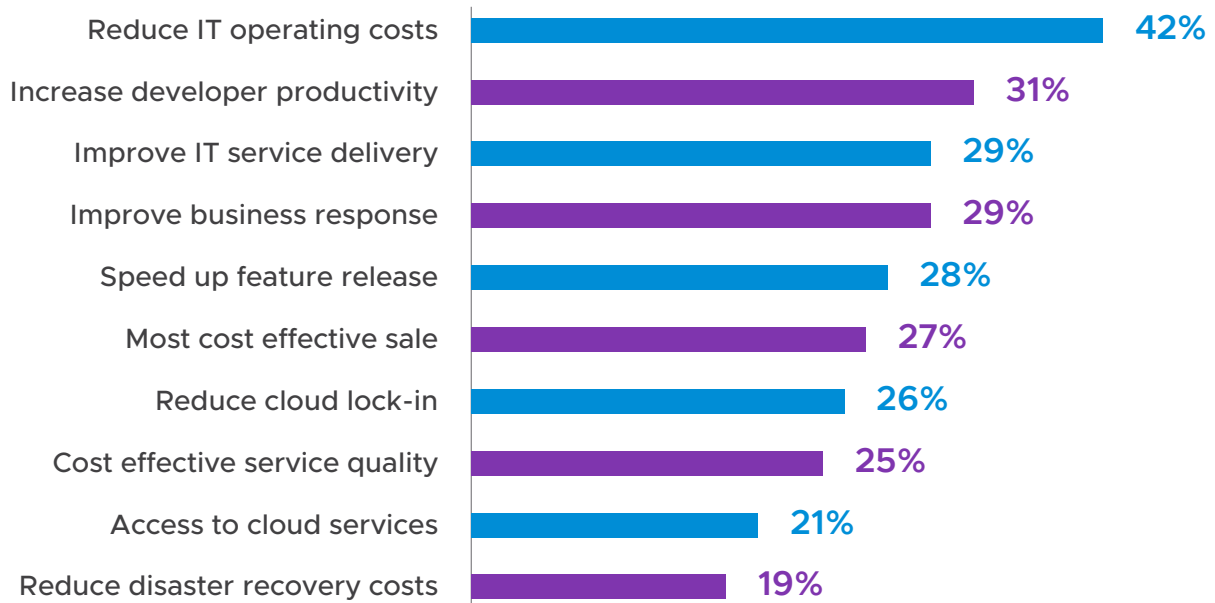
With VMware Cloud on AWS, IT and operations teams continue to add value to their organizations as they can:

- Run, manage, secure, and protect production applications in a hybrid IT environment
- Accelerate cloud migrations from months and years to days and weeks
- Innovate and respond faster to changing business demands
- Use familiar skills, tools, and processes for managing cloud environments
- Flexibly choose where to run apps based on business needs
- Leverage established onsite enterprise security, governance, and operational policies

The Role of Cloud Management

IT teams are pairing VMware Cloud on AWS and VMware Aria cloud management to get the best out of both environments. In a [recent podcast](#), you'll hear a discussion of the VMware strategy in more detail. You'll hear about how organizations achieve efficiency and agility and goals for consistent operations across on-premises and cloud environments—all while utilizing their existing teams, tools, and processes.

In addition, in a [recent survey](#) conducted by Management Insight Technologies, organizations shared the capabilities that would be most helpful in operationalizing their hybrid clouds. Respondents overwhelmingly favored a consistent management plane across all of their infrastructure silos.



That insight points to the role of cloud management—specifically a single management model—becoming more widely understood as the best way for organizations to achieve various cloud transformation goals. We know you have options, and in this playbook, we shall share the reasons why organizations are moving to VMware Cloud on AWS and how VMware Aria cloud management uniquely helps them at each step of the way to reduce cloud complexity for three key initiatives, including:

1. Cloud Migration
2. Data Center Extension
3. App Modernization



This playbook delves into the details of the cloud management capabilities for the three key initiatives. Check out the video demos that expand on customers who are using the technology today, and to start, here is an overview of how VMware Aria cloud management fits with VMware Cloud on AWS.

- 1. Cloud Migration** – A customer may have applications on-premises and want to move them from VMware vSphere/ VMware Cloud Foundation into VMware Cloud on AWS with this initiative. VMware cloud management can accelerate the application migration by providing full visibility into component dependencies, costs, compliance, network requirements, and the security posture, so migrating applications is simpler. The customer could start with discovering applications and mapping dependencies with [VMware Aria Operations for Network](#).
- 2. Data Center Extension** – You may be an organization that has standardized on a hybrid cloud strategy for the foreseeable future, and you know that some workloads will live on-premises and others in the cloud. Or you might have run out of space in your current data center and want to put either new workloads in VMware Cloud on AWS or move existing ones to it to make space on-premises. VMware Aria cloud management can help operationalize a hybrid cloud strategy providing consistent operations across clouds with self-service automation, governance, and operations across the hybrid cloud. Organizations can start with [VMware Aria Automation](#) and [VMware Aria Operations](#).
- 3. App Modernization** – Organizations are also tasked with building and maintaining the Kubernetes infrastructure, and with VMware Aria cloud management, customers can provide a modern and agile environment for developers. This would include self-service automation for both Kubernetes and VMs, streamline the developer experience with Infrastructure-as-a-code, and incorporate best practices from the DevOps world into traditional infrastructure & operations processes. Customers could start with VMware Aria Automation.

Key Takeaways

To sum up, how to boost managing your hybrid cloud with VMware Aria and VMware Cloud on AWS, there are a few takeaways to leave you with:

- You can bet heavily on the cloud without committing 100 percent to the cloud
- Organizations are simplifying environments and eliminating complexity, thus becoming more efficient and achieving productivity gains and cost savings
- Lead with optimizing your private cloud infrastructure and operations together with public cloud automation and capacity rightsizing by using vRealize Cloud Management with VMware on AWS to drive both IT agility and business agility
- Redirect your focus from managing clouds to what matters most: building and delivering applications and services that differentiate your business

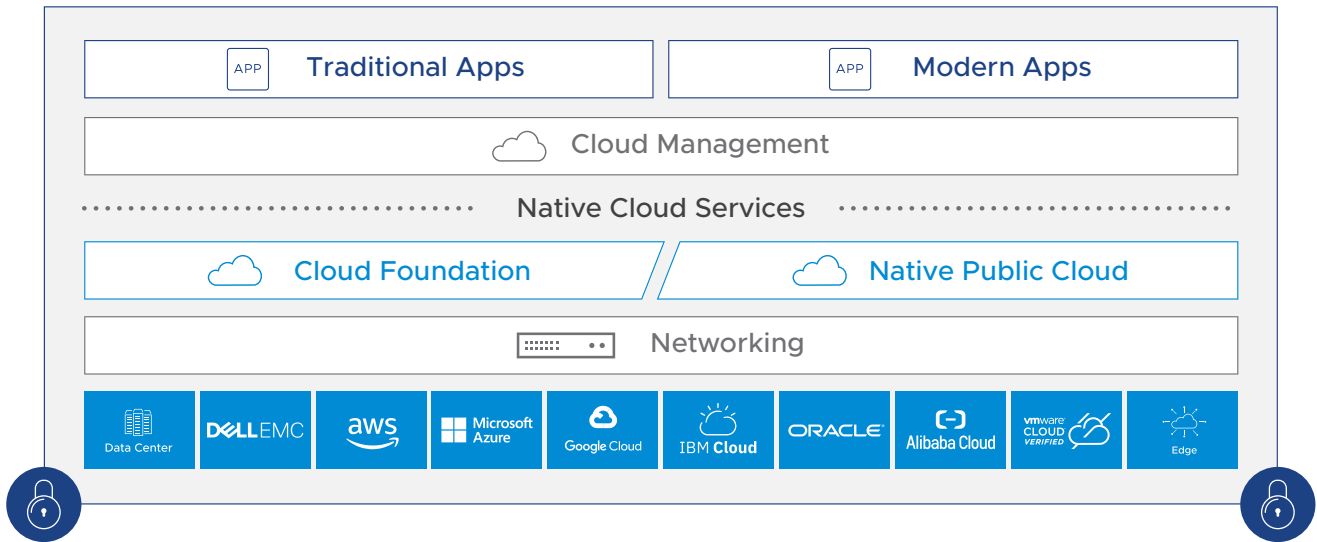
As we move further into this playbook, let us deep dive into the cloud migration initiative to analyze how VMware Aria cloud management can help you safely, securely, and rather quickly migrate your applications to VMware Cloud on AWS.

[Try it with Hands-on Labs >>](#)

Enable Low-Cost Migrations to VMware Cloud on AWS

When it comes to reducing the complexity, cost, and risk of cloud migration, a combination of skills and the right set of tools are needed. Let's start with how cloud adoption is happening fast.

VMware Cloud Multi-Cloud Services for Any App



According to the **2020 State of the Cloud Report**, more than 9 in 10 enterprises (93%) have a multi-cloud strategy and nearly 9 in 10 enterprises (87%) have a hybrid cloud strategy.

Basically, what it comes down to is the need for greater agility and access to the latest innovations that have driven cloud infrastructures to become increasingly attractive to organizations. Enterprises are migrating to the cloud to support their business growth, drive digital transformation, improve development cycles, and optimize costs. In addition, organizations are conducting a cloud migration to VMware Cloud on AWS without having to re-architect applications for the following reasons.

- **Application-specific** – Move specific applications to the cloud due to specific business needs or move enterprise applications such as Oracle, Microsoft, SAP, etc., to the cloud.
- **Application modernization post-migration to the cloud** – Utilize cloud-scale infrastructure and services to extend the value of existing enterprise applications or build new modern applications.
- **Datacenter-wide evacuation** – Consolidate data centers and move completely to the public cloud.
- **Infrastructure refresh** – Refresh infrastructure due to hardware end of life, infrastructure software upgrade, etc., and leverage the opportunity to move to the public cloud.

Challenges of Cloud Migration

During this transition, your organization might undertake several migrations, post-migration, and modernization challenges that could increase the time, risk, and costs associated with the successful completion of these types of projects. In addition, organizations might face these challenges:

- Need for re-architecting or re-factoring applications to suit public cloud infrastructure
- Service disruptions due to downtime associated with migrating and modernizing mission-critical applications
- Learning curves and investments associated with skillset, tools, and process and governance changes needed to manage disparate cloud infrastructures
- Ensure post-migration application performance, resiliency, and scale requirements are met while optimizing resource management
- Lack of integration abilities to easily and seamlessly leverage CI/CD methodologies, application catalogs, and native cloud services to enrich enterprise applications due to a fragmented technology ecosystem
- Wastage of current IT investments while modernizing applications

How to Ease the Cloud Migration Journey with VMware Aria

VMware Cloud on AWS solves migration and modernization challenges by delivering a hybrid cloud service, and when paired with VMware Aria cloud management, the two can speed up and ease your migration to the cloud.

VMware Aria is extensible with many integrations and provides native support across hybrid clouds for consistent management. If you have applications on-premises and want to move them to VMware Cloud on AWS, VMware Aria cloud management is the best solution to meet your hybrid cloud management needs. VMware Aria helps accelerate the application migration by providing complete visibility into component dependencies, costs, compliance, network requirements, and the security posture, so migrating applications is more straightforward. As a bonus, IT teams enjoy consistent operations after migration.

VMware Aria includes comprehensive capabilities for its cloud migration initiative:

- **Assess and inventory infrastructure.** Appropriately sized VMware Cloud on AWS hosts and plan which VMs to exclude. In addition, learn all about the Cloud Migration Assessment tool by reading our VMware Aria Operations [release blog](#).
- **Conduct pre-migration cleanup.** Right-size and reclaim resources as well as baseline performance before migration. Then further optimize after the cloud migration. For more details, read our blog about [Rightsizing VMs with VMware Aria Operations](#).
- **Discover applications and map dependencies.** So you can build migration waves for VMware HCX. VMware Aria Operations for Network (formerly vRealize Network Insight Cloud) can discover and lay boundaries around the applications and help plan the migration. With a fling script, VMware Aria Operations for Network can pass that information to VMware HCX to group migration waves to migrate multiple applications. For more details, read our blog about [Integrating VMware Aria Operations for Network with VMware HCX](#).
- **Migrate using VMware HCX.** Move applications seamlessly between environments at scale and avoid the cost and complexity of refactoring apps. [Learn more about VMware HCX](#).
- **After the migration, verify health and performance.** The application health is directly related to the health of the network to ensure that latency and other health metrics are in check. Take a minute to [watch this video](#) about what VMware Aria Operations for Network can do to manage networking and security with VMware Cloud on AWS.
- **Enable end-to-end network visibility and troubleshooting.** There are capabilities in Assurance and Verification that reduce the time to troubleshoot networks and improve application performance. To learn more about how it works, read the eBook [Proactively Manage Your Network with Business Intent](#), and discover three use cases, including topology visualization, troubleshooting, and proactive problem detection.

- **Set up cloud constructs and automate provisioning with cloud-agnostic templates.** Then provide your users with a self-service portal. For more information, read the blog about [how VMware Aria Automation can create VMware Cloud Templates](#) for Smart Infrastructure-as-Code.
- **Ease Day 2 operations.** VMware Aria Operations offers automated workload balancing, capacity optimization, and compliance. In addition, you can conduct bill analysis, cost optimization, and pricing. Plus you can monitor and troubleshoot across on-premises and VMware Cloud on AWS. To see this in action, you can [view three videos](#) from Cloud Field Day 9 about operationalizing VMware Cloud on AWS with VMware Aria cloud management, including planning and migrating, managing applications, and self-service hybrid cloud.
- **Enjoy event and log analytics for all your infrastructure.** VMware Aria Operations for Log (formerly vRealize Log Insight Cloud) manages massive amounts of data and helps you gain operational visibility and rapid troubleshooting across the VMware Cloud on the AWS environment. [Read the blog](#) about the newest capabilities with VMware Aria Operations for Log for more information.

Don't stop here, though. The most crucial thing everyone forgets about cloud migrations is discussed in our [podcast](#). The item is integral to migration planning and ensuring your network is not forgotten. Here is a hint – it's VMware Aria Operations for Network, and here's what it can do (of which some is mentioned above) and expanded upon in the podcast:

- Identify traffic flows between systems to understand your dependencies fully.
- Help plan your networking requirements. Understand how much bandwidth is needed.
- Get a full understanding of the network topology and know your connections between on-premises and cloud. And analyze from where consumers are accessing your services.
- Develop a firewall rule plan. Traffic flows and port information are readily available in VMware Aria Operations for Network and can even be exported for automated firewall configuration.

Benefits of VMware Aria and VMware Cloud on AWS

Organizations are experiencing these types of outcomes:

- **Save time:** Reduce migration effort from multiple months to weeks and bring innovation faster to the market with modern applications
- **Simple and Consistent:** Gain consistent operations without the need for staff retraining or revamping of operational processes by reusing familiar skills and tools
- **Cost-effective:** No application re-factoring or re-architecting is needed during migration
- **Low risk:** Migrate live without retrofit, run your applications on familiar and proven VMware environments combined with the global AWS footprint, reach and scale
- **Accelerate innovation:** Modernize IT infrastructure and applications with quick and easy access to the latest capabilities to seamlessly automate, provision, and operate a hybrid cloud environment
- **Gain operational excellence:** Improve visibility and application performance with self-service application and infrastructure provisioning while applying AI technologies to continuously optimize performance, workload placement, utilization, and costs
- **Improve control:** Reduce costs and mitigate risks through unified operations and governance

No matter where your organization is in the cloud journey, you can accelerate innovation with VMware Aria and VMware Cloud on AWS. Let us move to [the data center extension initiative](#) and how VMware cloud management can help ease your journey to VMware Cloud on AWS.

[Start with the PathFinder Learning Journey >>](#)

Seamlessly Extend Your Data Center to VMware Cloud on AWS

The public cloud is a goldmine, and while one can continue to benefit from data center investments, most enterprises are looking at the advantages public cloud offers – something that cannot be cost-effectively delivered with today's traditional data center environment. The winning combination of VMware Aria cloud management with VMware Cloud on AWS is helping customers operationalize a hybrid cloud strategy and receive consistent infrastructure and operations with self-service automation, governance, and operations.

In recent research conducted by Management Insight Technologies, respondents said:

"A single management model helps reduce IT operating costs, increases developer productivity, improves IT service delivery and business response, and speeds up the feature releases."

Extending Your Data Center

If you are investigating your options for this initiative, you'll want to listen to [this podcast](#) about managing your data center extension to VMware Cloud on AWS with VMware Aria cloud management.

Here are some examples of why organizations want to adopt cloud beyond their data center perimeter.

- **Expand footprint or to new locations:** Obtain capacity for new projects to support the business, or expand into new geographies, by extending the data center to the cloud instead of building new data centers or investing in over-provisioning of existing resources
- **Access capacity-on-demand:** Handle unplanned, temporary, or seasonal capacity needs without having to build larger, permanent on-premises infrastructure that would be capable of always handling the maximum volume of traffic while also incurring the capital expense of maintaining the spare capacity
- **Provide flexible test, development, lab, or training environments:** Reduce the strain of on-premises resources for application updates, service pack installs, and test sandboxes by moving them to the public cloud instead of continuously creating and destroying environments
- **Extend application modernization to your premises:** Flexibly develop new cloud applications that need to integrate with on-premises applications or extend on-premises applications to access native cloud services
- **Enable remote workforce:** Enable remote workers and alleviate travel restrictions by provisioning Virtual Desktop Infrastructure in the cloud

In addition to these use cases, the Enterprise Strategy Group conducted research known as the Hybrid Cloud Trends Survey, and respondents said this:

86% of organizations expect to extend or re-use existing on-premises security and governance tools, practices, and policies as they adopt public cloud services

Challenges of Extending Your Data Center to Cloud

The examples listed above are all excellent reasons to extend your data center and adopt a hybrid cloud approach. Although you probably already know that integrating the public cloud with your existing data center infrastructure can be challenging. Organizations might face many technical, process, and skill differences required to leverage both environments simultaneously. This means you should consider the following:

- Mismatched architectures between on-premises and cloud environments
- The need to re-architect and refactor applications for public cloud infrastructure
- Incompatible hypervisor, networking, storage, and management stacks
- Differences in operational model and inability to leverage established on-premises governance, security, and operational policies
- The complexity of using multiple management tools to manage on-premises and cloud environment
- Increased costs, risk, and complexity of hybrid cloud management
- Inability to leverage different tools, IT skill sets, operating and security models
- Disruptions in business processes and operations due to a lack of efficient IT troubleshooting mechanisms for a hybrid cloud environment

How To Manage Extending Your Data Center to Cloud

VMware Aria cloud management can help you manage to extend your data center to the cloud as it covers the spectrum of IT operations, from design to the migration of applications. For example, teams may want to resize and standardize existing applications before moving them to the cloud. In cases where they are deploying new applications in the extended data center, teams may wish to set up controls and resource limits before they provision and deploy new applications.

Respondents to the Enterprise Strategy Group research said:

54% of IT managers and executives view public cloud management of infrastructure services as more complex than on-premises. And 3/4 of respondents prefer an integrated hybrid cloud management solution from a single vendor.

If you're someone who wants to extend data centers running modern or new applications affordably, VMware Aria cloud management includes comprehensive capabilities for Day 0, Day 1, and Day 2 actions, including the following:

• Day 0: Plan and Assess

- Discover apps and map dependencies. For end-to-end network visibility and troubleshooting, [watch the Application Discovery Integration with VMware Aria Operations for Network](#) and read our whitepaper on [Gaining Application Visibility](#).
- Establish controls with resource limits per project/user group. In this blog about [New Resource Limits in Cloud Assembly](#), you will see methods for controlling CPU, memory, and storage utilization within a Cloud Zone that is assigned to a Project.
- Automate provisioning and apply governance. VMware Aria Automation (formerly vRealize Automation) crosses on-premises and VMware Cloud on AWS and sets up a self-service portal. Learn more about a modern self-service hybrid cloud with DevOps in VMware Aria Automation with the [VMware Cloud on AWS solution brief](#).

• **Day 1: Migrate and Monitor**

- **Monitor** the state of the VMware SDDC and cloud objects from applications to infrastructure with built-in and custom dashboards. In this video, you can see more about how to use a [custom ROI dashboard](#) that covers the total cost of ownership, potential savings, and optimization costs with VMware Aria Operations. And see all the rest of the videos in our “[Dashboards Made Easy](#)” series.
- **Build** provisioning templates to deploy, configure, orchestrate, and onboard your workloads, apps, VMs, Kubernetes clusters, and namespaces for consistent automation. Learn more in this blog about [Integrating Tanzu Mission Control with VMware Aria Automation Custom Resources](#). Plus, you will find this blog interesting about [DevOps for Infrastructure](#) – Iterative Blueprint Development with GitOps.
- **Automate** compliance checks for VMs, Host, vCenter, and vSwitches based on today’s latest industry standards, such as PCI, HIPPA, DISA, FISMA, ISO, and CIS, with six out-of-the-box templates. Also, consider creating your own custom compliance templates as discussed in this webinar about [Data Center Security and Automating Compliance with VMware Aria Operations](#).

• **Day 2: Operationalize**

- **Troubleshoot** your hybrid cloud’s performance, bottlenecks, metrics, events, logs, and flows. In this video, you can [learn more about proactive intelligence and troubleshooting](#) with VMware Skyline and VMware Aria Operations so the environments you manage stay stable, resilient, and secure. Also, read more about customers who used VMware to solve real problems with [Troubleshooting Workbench](#). In addition, see how to gain unified visibility across VMware Cloud on AWS by monitoring logs in real-time, securely, and efficiently in this [VMware Aria Operations for Log on VMware Cloud on AWS Overview](#).
- **Optimize** your environment by reclaiming wasted resources. With VMware Aria Operations, you can see which VMs are identified as reclaimable and, which, if addressed can free up capacity to run additional workloads that provide business value. The system automatically identifies powered-off and idle VMs, VMs with old snapshots, and orphaned disks. Read more in this overview blog [Managing Your VMware Cloud on AWS with VMware Aria Operations](#). If you are curious, check out the eBook – [Want to Cut Risks to Your Business? Go Zombie Hunting!](#) to learn about research that says zombies exist in enterprises at levels up to 45% and how you can find them with vRealize Cloud Management.
- **Rightsize virtual machines** (VMs) provide actionable recommendations for addressing oversized and undersized VMs. This improves performance and optimizes capacity by focusing on resource usage analysis based on historical trends. To learn more about how to do this in your hybrid cloud environment, read our blog [Rightsizing VMs with VMware Aria Operations](#).

You can see that VMware Aria cloud management offers a lot to help optimize your hybrid cloud environment. If you’re interested in seeing all these capabilities in action, take a look at three videos from [Cloud Field Day 9](#). You might even want to try the capabilities yourself in [our hands-on lab](#).

In the last chapter of our playbook, let us discuss app modernization with VMware Cloud on AWS. Meanwhile, you can [request a demo](#) to see more.

Manage Application Modernization with VMware Aria

Modernizing apps is in the present and is traversing into the future. Let us understand how to manage your application modernization initiative on VMware Cloud on AWS with VMware Aria cloud management by looking at why others are taking on this initiative, several challenges to be aware of, and how VMware is best suited to help you achieve your business outcomes. We're seeing a trend of organizations moving quickly to introduce next-generation applications and services to boost their customer experience. In fact, of the organizations VMware has studied this year:

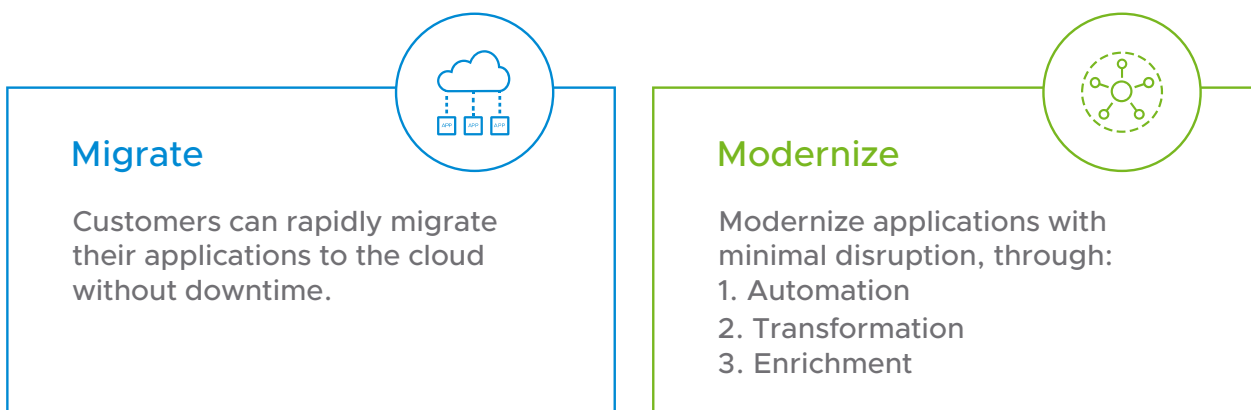
90% of executives say they are prioritizing legacy application migration and modernization

Application Modernization Use Cases

Let's start by looking at why an organization would consider an application modernization initiative. Most organizations have a significant investment in their existing application portfolio, and these "legacy" applications are some of the most mission-critical applications. This means that few companies want to or can retire these applications and start over because the costs, productivity losses, and other issues are too significant. Therefore, application modernization is the most realistic approach for many organizations to realize the advantage of newer software platforms, tools, and architectures.

In addition, organizations are conducting an application modernization initiative in these ways.

- **Application modernization:** Utilize cloud-scale infrastructure and services to extend the value of existing enterprise applications or want infrastructure and operations to be consistent with their on-premises environments for compatibility.
- **New application build-out:** Build new applications using native AWS services while leveraging infrastructure and operations that are consistent with their on-premises VMware vSphere environments.
- **Hybrid applications:** Build hybrid applications to span data center, cloud, and edge—or a combination of these.



Challenges to Application Modernization

Teams need to provide an avenue for modernizing existing enterprise applications and delivering new applications. The cloud is playing an essential role in helping technology teams do so. Although, in order to pivot quickly, application developers must be able to work efficiently and without barriers on resources and platforms. In addition, organizations might face some of these challenges that you'll want to take into consideration.

- Lack of easy application portability between on-premises and public cloud environments leading to increased cloud migration costs, time, and risk
- Disparate tools and security controls to manage on-premises and public cloud environments with a consistent set of policies
- Multiple operating models, processes, and lack of self-service automation to manage complex and diverse environments consistently
- Wastage of current IT investments while modernizing applications
- Skill shortage in application development/delivery and infrastructure teams to develop for and operate in the cloud
- Disruption to existing business processes and operations due to potential for application downtime during modernization
- Inability to easily and seamlessly leverage CI/CD methodologies, application catalogs, and native cloud services to enrich enterprise applications due to a fragmented technology ecosystem

How to Ease Application Modernization with VMware Aria

To overcome these challenges that could increase the project's cost, risk, and time, VMware Cloud on AWS and VMware Aria cloud management can help ease the pain. With VMware Cloud on AWS, customers can migrate applications to the cloud fast and cost-effectively with minimal risks involved. And once in the cloud, they can start their modernization journey with minimal disruption to their business. For example, for companies tasked with building and maintaining Kubernetes infrastructure, VMware Cloud on AWS delivers enterprise-ready Kubernetes runtime environments with VMware Tanzu Kubernetes Grid and unified management of those environments with VMware Tanzu Mission Control.

On top of that, VMware Aria cloud management provides modern and agile tools for developers. It speeds developer-ready infrastructure with self-service automation for both Kubernetes and VMs, streamlines the developer experience with Infrastructure as Code (IaC), and incorporates best practices from the DevOps world into traditional infrastructure and operations processes. This way, your talented staff is writing code for next-generation applications without waiting on IT.

To speed and simplify application modernization, vRealize Cloud Management includes these capabilities:

- **Enable application discovery**, dependency mapping, and network Day 2 operations and troubleshooting. You will see a trend in this five-part series that this is a crucial step and VMware Aria Operations for Network is the best for end-to-end network visibility and troubleshooting. See more in this video about [Application Discovery Integration](#) and read our whitepaper [Gaining Application Visibility](#).
- **Conduct Kubernetes to infrastructure inventory**, monitoring, logging, capacity optimization, planning, troubleshooting, and compliance. To learn more, view this video about [Using VMware Aria Automation to Deploy Kubernetes Clusters into Supervisor Namespaces](#). To see a demo, view this [short video about Kubernetes Monitoring](#) with VMware Aria Operations and Tanzu Kubernetes Grid Running VMware Cloud on AWS.
- **Combine and offer infrastructure objects** with native AWS services (Lambdas, RDS, S3, etc.) in VMware Cloud Template. [Read our blog](#) to learn how [VMware Aria Automation](#) allows you to access native public cloud services to simplify and enhance application modernization.
- **Define and self-serve predefined Kubernetes** resources, such as clusters and namespaces. You can read more about this in our blog [Deploying Helm Charts with VMware Aria Automation](#). It discusses how VMware Aria Automation has native integrations for both Kubernetes and Docker, so you can use these Endpoints and their related Tasks to leverage the power of Helm to deploy applications with a single command.

- **Iterate closely with developers** by embracing developer best practices in a language everyone understands with infrastructure pipelines, GitOps, and a low-code approach for Infrastructure as Code (IaC). VMware Aria Automation helps with rapid, safe, and consistent delivery of the infrastructure that developers and LOBs need to be productive. To see an example of how this works, [view this demo video](#) about how to deploy, configure, monitor, and remediate a shopping website using DevOps principles.
- **Extend actions to any system** with action-based extensibility (ABX). [Read more in our blog](#) about ABX, event broker services (EBS), and APIs for email customized notifications. It shows a functional base for a variety of deployments, including single or multiple resources, private, hybrid, or public cloud, custom resources, and Kubernetes resources, such as Namespaces.

To expand a bit more, VMware Aria cloud management can enable infrastructure and operations (I&O) teams to transition to DevOps-ready IT and offer developer-friendly infrastructure. Organizations can promote consistent changes and rollbacks across environments and remediate configuration drift toward desired state configurations. They can establish a common collaboration platform between I&O and developers that they can both understand and operate by seamlessly embedding operations in the application release cycles through pipelines; establishing a commonly understood, low-code language; and using a Git-based source of truth across infrastructure and applications.

Benefits of Application Modernization

An application modernization initiative is helping organizations deliver improved digital experiences to win against the competition, as well as serve and retain customers. Specifically, organizations are driving business outcomes, such as increased business agility, innovation, growth, and market differentiation. In addition to these types of business outcomes, VMware Aria on VMware Cloud on AWS is enabling organizations to also experience the following benefits:

- **Low risk / Minimize disruption** – Modernize applications without application downtime and without any disruptions to existing business processes
- **Provide portability** – No wastage of current IT investments while modernizing applications and supporting application portability to optimize the application placement as needed
- **Seamless / Empowered IT** – Reduce complexity with seamless integration with DevOps and automation tools, application catalogs, modern frameworks like containers, and native cloud services
- **Consistent** – Apply the same self-service catalog, content, and policies across private and hybrid cloud environments. Provide centralized and streamlined operations with unified visibility and management across the hybrid cloud environment
- **Fast** – Leverage the same tools, skill sets, and security controls across a hybrid cloud environment that reduces the time required to modernize applications

Plus, organizations can achieve a positive ROI via efficiency, higher productivity, and faster time to value—delivering infrastructure via faster, smaller, more frequent release cycles that allow scalability and reliability. VMware Aria cloud management can enable I&O teams to satisfy developer, SRE, and DevOps engineer iterative development needs with frictionless governance for better software quality and/or customer satisfaction.

We have learned plenty about how VMware Cloud on AWS does wonders. Now that we move into the final chapter, let's discuss why you should consider VMware Aria on VMware Cloud on AWS and what this winning combination can do for your organization that native public cloud providers cannot.

[Get a free trial of VMware Aria Automation >>](#)

Business Outcomes Delivered by VMware Aria

Let's start with the benefit of consistent operations, which VMware Aria provides across private, hybrid, and multiple public clouds. Essential operational capabilities delivered by the same management solution provide visibility, operations, automation, security, and governance to properly manage and operate systems and applications across multiple cloud environments. With consistent operations, you can rest assured your cloud investments are continuously optimized, effectively governed, and highly secure.

In addition to consistent operations, organizations that are on different digital transformation journeys can take advantage of the same cloud management solution to achieve these key business outcomes:

- **Speed up Organization Agility.** Accelerated infrastructure and application service delivery is key to gaining a competitive advantage
 - A provision in minutes, versus weeks
- **Assure Performance.** This is not only for uptime but ultimately creates more satisfied and loyal customers
 - 30% reduced unplanned downtime
- **Optimize Cloud Costs.** The outcome of which is improving the bottom line
 - 25% average monthly savings
- **Lower Risk.** A result of work around strengthening security and streamlining compliance
 - 75% reduced time creating security policies

And there's one more added benefit, **low-to-no training investment** because your staff already knows VMware. Avoid the need to waste IT staff time learning cloud-only capabilities while allowing teams to take advantage of advanced, automated operations that cloud-native management products simply cannot perform.

Why vRealize Cloud Management is Unique

We know you have options, and here are some reasons why VMware Aria has you covered.

- A proven solution from a trusted vendor and market leader
- Multi-cloud visibility across private, hybrid, and public cloud
- Comprehensive capabilities from a common control plane
- Ultimate flexibility to choose SaaS, on-premises, or a combination of consuming both in 1 license
- Broadest ecosystem that is extensible with 220+ integrations
- Lead IT sustainability, helping customers reduce environmental impact

Summary

By simplifying management and eliminating complexity, your organization can become more efficient with VMware Cloud on AWS. You can achieve greater agility at lower costs with reduced risks as you accelerate your business. Best of all, modern cloud management from VMware redirects your IT focus from upgrading and maintaining IT to delivering services and applications that differentiate your organization for a competitive advantage. This is why VMware Aria is unique.

For the complete story, [download our eBook](#), to have all the information from this blog series in one place.

Learn more about [VMware Aria](#) on VMware Cloud on AWS [Pathfinder learning journey](#), try our [VMware Aria hands-on lab](#), or [request a conversation](#) with one of our experts.

VMware uniquely offers our customers the flexibility to choose on-premises and SaaS consumption options, along with a hybrid subscription of both in a single license. It's called [VMware Aria Universal Suite](#). It enables you to adopt a cloud-first model at your own pace while protecting existing investments, flexing for data center extension, and during uncertain cloud adoption schedules.

