

Horizon on VMware Cloud on AWS Buyers Guide for Higher Education

AT A GLANCE

VMware Horizon® on VMware Cloud™ on AWS delivers a robust, feature-rich cloud platform for virtual desktops and applications. It combines the capabilities of the VMware Software-Defined Data Center, delivered as a service on AWS, with the market-leading capabilities of VMware Horizon for a simple, secure, and scalable solution.

Cloud computing has become a key component to modernizing applications and driving digital transformation. The as-a-service global compute capability is also a driving force behind the ubiquity of the public cloud. The availability of public cloud resources enables organizations to become agile and quickly respond to ever-changing conditions on a global scale. All this with a predictable operating costs model.

Many organizations are embracing the public cloud, either as a primary deployment environment or as a resource on which to run select workloads and use cases to complement their on-premises data center as part of a hybrid cloud strategy. Hybrid clouds deliver flexibility and enable key use cases such as disaster recovery, data center extension, all the way up to full migrations out of on-premises data centers.

When architecting a cloud strategy for desktops and applications, customers need to be careful in their approach, in order to realize the agility, flexibility, and cost efficiencies that are offered by moving to the public cloud. This paper's goal is to help our customers understand the key factors they need to consider while undertaking a cloud strategy for their desktops and applications—from identifying high-level goals and use cases, to building a business case and planning how to deliver the user experience your end users expect.

\$53 billion

CLOUD COMPUTING REVENUE

in higher education market is expected to reach \$53 billion by 2027.¹



HORIZON: KEY BENEFITS**Seamless hybridity**

Easily access a desktop or application in the nearest site/pod with Cloud Pod Architecture.

Intrinsic security

Implement a comprehensive and consistent end-to-end security solution across the hybrid cloud, from the data center to the cloud.

Simplified management

Leverage enterprise-grade capabilities and management tools of Horizon that admins enjoy in their on-premises environments, such as real-time, one-to-many image provisioning and zero downtime updates.

On-demand desktops

Deliver personalized, non-persistent desktops and applications in less than two seconds and destroy again at logoff, freeing up capacity and saving cost.

Factors to consider for a virtual desktop and application cloud strategy

Factor #1: Identify high-level goals and potential use cases

There are many possibilities and options for cloud deployment, so it is important to understand strategic goals and what the organization is trying to achieve. Organizations usually look to the cloud as a utility-based resource to enhance services to end users; or to offload management. The overarching goal may be to increase agility and response to business demands or to improve resiliency by using the cloud to deliver a robust disaster recovery and business continuity solution. Perhaps the organization wants to move everything to the cloud and outsource performance and reliability of the data center to the public cloud. There are several common use cases for hybrid cloud strategies for desktops and applications:

- 1. Co-locating desktops and applications with data center workloads**
 When data center workloads move to the cloud, desktops and applications follow because co-locating latency-sensitive apps with data center workloads optimizes user experience. This co-location also cuts down on egress costs for applications that require excessive bandwidth or data.
- 2. Disaster recovery business continuity**
 It is important to have a good disaster recovery and business continuity solution in place to avoid disruption to the business. Instead of spending considerable time and money to build a second data center that ideally won't even be used, organizations have found that it makes sense to leverage the public cloud as part of a robust disaster recovery and business continuity solution.
- 3. Outsource infrastructure management**
 As your organization grows, data center capacity must grow along with it. This leads to a decision: either continue to build on-premises infrastructure or extend into the cloud. Organizations look to the public cloud because it delivers infrastructure-as-a-service, which offloads management and allows them to refocus on strategic initiatives to drive topline growth.
- 4. Data center extension**
 Many higher education organizations have spikes of demand requiring extra capacity for a short time. This could include seasonal demand or event-based capacity needs such as tax season or the passing of a new law that spurs action. Or perhaps there is a need for capacity to handle daily peaks caused by boot storms or something similar.

Factor #2: Choose your cloud

Choosing which cloud to deploy in largely depends on the use cases being pursued and characteristics of the on-premises environment. With the adoption of a hybrid cloud strategy, higher education is recognizing that having the same architecture on-premises and in the cloud is paramount. Having consistent infrastructure and operations across on-premises and cloud, reduces complexity and management burdens. This level of infrastructure consistency allows them to move easily between private and public cloud resources, providing flexibility and a cloud future with no "dead ends" or lost investments.

If an organization is inclined to migrate data center workloads in the cloud, it makes more sense to use the goals and requirements of those workloads as a basis for the choice of cloud. That is a different discussion from virtual desktops and applications,

HORIZON: USE CASES**Outsource data center management**

Expand into the cloud for quick time to value and streamlined operations.

Disaster recovery

Seamlessly extend your on-premises desktop workloads to VMware Cloud on AWS.

Data center extension

Leverage cloud capacity on-demand.

Co-location

Place desktops and hosted app servers with workloads and data in the cloud to improve performance and security posture.

and here is a [buyer's guide](#) to help you with that. As mentioned earlier, it is related and important because generally, desktops and applications should be co-located with data center workloads.

Hybrid use cases for desktops and applications will require a solution that delivers seamless interoperability between on-premises and cloud deployments to help achieve business outcomes. For example, for a disaster recovery (DR) use case, if there is such an event, end users must be able to access a desktop in the cloud within a specific amount of time defined by Service Level Agreements (SLA). And if your use case relies on on-demand capacity, then you will also need non-persistent desktops and applications that can be provisioned on-demand.

To get this level of control and interoperability, on-premises deployment needs to be taken into consideration. The tools and features available to help you achieve the outcomes you are looking for are going to be key.

Factor #3: Build a business case

Higher education organizations need to build a business case that identifies the business outcomes they want to achieve with their end-user computing cloud strategy. This alignment with outcomes will help attain executive sponsorship and buy-in from relevant stakeholders to secure prioritization and funding for the initiative.

The business case must reflect the goals of the organization, but there are common themes that propel the deployment of desktops and applications in the cloud: topline growth enabled by faster time to value, ability to respond to rapidly changing business needs, strengthened security, lower operational costs, and a drastic reduction in up-front budget. Return on investment is also a key component of any cloud adoption, as it allows organizations to right-size their data center for typical usage instead of peak demand, which can obviously overflow into the cloud by leveraging on-demand capacity. This way, organizations can run fragmented peak demand in the cloud, paying only for what they use. Use of the cloud also drastically reduces spend on hardware and operations when building their on-premises data center.

And if your organization intends to run smaller, project-based workloads in the cloud, you may be able to sidestep the business case process altogether. For these smaller projects, costs to run compute in the cloud can be paid out of budgets that don't require up-front capital and the corresponding approval process.

Factor #4: The desired user experience

It is important to understand what kind of experience you want to provide your end users and how you architect that solution to deliver the intended results. Here are some factors to consider:

1. How long can end users wait to get access to a desktop or published applications?
2. Do end users need access to their apps and data? Is it okay if users are over- or under-provisioned, and what are the implications of that?
3. Do end users need their profile to follow them (networks, printers, policy, personalization)? What are the implications if they don't?
4. What kind of policy should be implemented? Does one size fit all, or should policy be contextual?
5. Do end users expect an experience identical or similar to their primary desktop, or is it okay to deliver a vastly different experience?

RESOURCES

Learn more about Horizon on VMware Cloud on AWS service at the [Horizon on VMware Cloud on AWS website](#)

Review the [Horizon on VMware Cloud on AWS Solution Brief](#)

Watch informative demos, overview videos and webinars, and hear from our customers: [VMware Cloud on AWS on YouTube](#)

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For example, let's assume an organization has a disaster recovery use case and they want to set up a secondary site in the public cloud. They will need to segment their users and define the service level each group needs to receive. Some end users may need to be able to access a desktop and all their apps and data in just a few hours, while others can wait up to 24 hours or more. Non-persistent desktops would be an ideal fit for this application since the desktops or RDS (Remote Desktop Services) hosts can be provisioned on the fly and destroyed again at logoff. To accomplish this, these non-persistent desktops will need to quickly pull together a complex array of information – user identification and authentication as well as corresponding apps, data, settings, and policies. It is a non-trivial process which can deliver a robust, cost-efficient solution, but it requires powerful management tools to get the results you are looking for.

Factor #5: Day 2 operations

Day 2 operations are critical to achieving outcomes. Much can be achieved if you have enough resources, but will it meet your cost objectives? This is why it is so important to have the right tools and features to achieve desired outcomes. Of course, managing your environment will be closely tied to the end-user experience you are tasked with delivering. Here are some factors to consider with Day 2 operations:

1. What steps do I need to take to set up a secondary desktop for a new user?
2. What steps do I need to take to update the operating system or application? How will I do this at scale? Will it be easy to ensure that everybody is getting security updates asap?
3. Do I have to manage my primary and secondary desktops separately?
4. How can I provide seamless access to apps and data to end users?
5. How can I implement consistent settings and policy across clouds?
6. How can I provision all the right apps to the right people, at scale, on secondary desktops?
7. What kinds of use cases will my primary and secondary desktop architectures support?
8. How can I ensure intrinsic security across clouds?
9. How many tools and vendors must I use to implement my solution, and will they all work seamlessly together?

Conclusion

As higher education institutions make the move to reap the benefits of the public cloud, they discover that to achieve their goals, managing and maintaining cloud and hybrid environments efficiently and effectively further adds to the complexity. If you're considering the public cloud to deliver virtual desktops and applications, understand the challenges, and choose the right solution to fit your business's needs.

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1. Absolute Market Insights, "Cloud Computing in Higher Education Market 2019-2027", December 2019.