

The Challenge of Migrating Higher Education Applications to the Cloud



Student experience in a digital-first world

Today's tertiary students are raised in a digital-first world. New working models established for teachers means work is split across in-class and virtual environments offering a blended learning experience. Students see value in this setup too – 69% of college students feel digital learning technology helps their focus and 81% find it helpful in improving their grades ([McGraw Hill](#)). Deeper integration is therefore required between departments to create a seamless and personalized experience for students and teachers alike. As such, digital transformation in the education sector has shifted from an objective to a strategic imperative.

To capitalize on digital transformation, institutions are taking advantage of cheaper, faster IT that optimizes infrastructure and operations costs by consolidating data centre infrastructure. The need for greater agility and global deployment has driven the public cloud to be an increasingly attractive solution, to gain the flexibility and speed required to respond to changing needs, accelerate innovation and align costs to usage requirements.

But before reaping the benefits of public cloud, higher education organisations need to successfully move there. The education sector is still hampered by technological challenges – traditional infrastructure, limited financial resources, siloed IT systems and poor network security – all limiting them from easily undergoing digital transformation.

The first step toward rectifying is often the hardest, which is making the decision to move to the cloud at all. Before the decision is made, higher education providers must first understand the challenges of achieving this and make an informed decision when choosing the right solution to fit their individual needs.

In this paper, we will explore the challenges the higher education sector face when it comes to migrating applications to the cloud and look at the benefits digital transformation can offer education institutions to meet the demands of digital native students.

Why migrate to the cloud?

To talk about why cloud, we must first talk about innovation. For students and educators that demand greater personalization and access to learning resources – anytime, anywhere, on every device – IT innovation is critical.

Currently, most students and faculty staff rely on traditional teaching resources, learning platforms, and campus operations, but these still depend heavily on traditional applications to run critical processes. As a result, academic institutions incur more maintenance costs and exposure to risks than necessary.

For more efficient application and infrastructure deployment, monitoring, and maintenance, educational institutions are relying on intelligent operations management and automation. But whilst producing the ideas is a good first step, being able to successfully execute and scale ideas will be what sets them apart to deliver exceptional student experiences, and attract new students each year.

This is only possible with hybrid cloud adoption.

Hybrid cloud infrastructure in the education sector offers the ability to improve efficiencies in knowledge delivery to students. By adopting hybrid cloud infrastructure, education providers create more flexible teaching structures for students and lessen the demand on educator's schedules through e-learning platforms which can be accessed at home or on-premises, with a consistent, reliable and highly-available hybrid cloud environment.

What's more, migrating to the hybrid cloud gives educators the ability to develop, deploy, test and evaluate new tools to deliver highly engaging digital experiences to students, akin to those they will be used to from the private sector. It also allows the sector to scale when required. With huge upticks in demand around exam season or the start of a semester, for example, cloud computing gives education providers the ability to scale to ensure they can meet increased demand.



What is holding the education sector back?

1. Adapting people and process:

People and processes must change and adapt to develop new skillsets and tools for public cloud environments. Acquiring cloud skills disrupts current operational effectiveness due to the increased burden of hiring, training and retraining the appropriate talent. Resistance from existing employees threatened by change, can limit the effectiveness of cloud adoption.

2. Re-architecting applications to run in public clouds:

Existing applications running in on-premises data centers are not designed to run on public cloud infrastructure. Most applications must be rearchitected, machine formats converted, and everything must be thoroughly revalidated. Networks need to be integrated and reconfigured, and storage must be migrated and conformed to capabilities available in the public cloud.

3. Resiliency of mission-critical applications:

Mission-critical applications must meet the same or better performance and availability requirements after migration as before. Applications that have relied on infrastructure to provide desired level of resiliency need to be re-implemented to provide built-in resiliency. All mission-critical workloads need to be thoroughly re-tested in the public cloud environment to ensure that desired availability targets are met.

4. Cost, time and risk:

Migrating applications to the cloud is complex, and the rework required to make the leap can be costly and time-consuming. The effort required to migrate applications to cloud is often underestimated, resulting in projects that run over time and budget, or underdeliver in achieving the goals. Cloud-migration projects can drain resources and budgets from other critical IT activities, increasing the risk to support of ongoing business objectives.

5. Security and governance:

Organisations give up a certain degree of control over their infrastructure in public cloud. Security policies and practices must be updated to conform with this new model. The differences between on-premises and public cloud infrastructure limits the reuse of established security and governance procedures and tools. Public cloud infrastructure has different consumption patterns. New governance models need to be established to control how cloud resources are acquired.

So, while operating across hybrid cloud environment, organizations need consistency across all layers of their infrastructure and operations with a reliable set of tools, workflows, configurations, and policies to operate infrastructure and applications across the data center, cloud, and edge. A true hybrid cloud should deliver the ability to work consistently across on-premises and cloud environments, enabling educators to deliver innovative applications and services, without compromising on cost efficiency or security.

VMware Cloud on AWS provides educational institutions' IT teams an on-demand, scalable hybrid cloud service that enables them to seamlessly extend, migrate, and protect their infrastructure in the cloud. And once in the cloud, they can start their application modernization journey with minimal disruption. With the same architecture and operational experience on-premises and in the cloud, IT teams can now quickly derive instant business value through the AWS and VMware hybrid cloud experience. Higher education institutions also benefit from hardened security and production-grade capabilities required to run highly sensitive workloads such as workloads with protected student data. It accelerates their digital campus journey and delivers exceptional experiences to students, faculty members and school staff by transforming IT into a center of innovation that contributes to school-wide operational excellence.

There is also a level of familiarity with VMware Cloud on AWS so there is no requirement to invest in new skills or training to take advantage of public cloud capabilities. The consistency in the tools, workflows, configurations and policies means students and teachers can very quickly reap the benefits of specialised apps available on any device. You can also experience seamless migration to the cloud that is fast, cost effective and low risk. Apps can be migrated live without the need to be redesigned, resulting in no downtime or disruption to the day to day running of the organisation.

A digitally transformed future

Fortunately for the education sector, these challenges are not insurmountable. Organisations within the sector are more than capable to adapt and commit to cloud migration, if they choose to make the leap.

West Windsor-Plainsboro Regional School District in the US is one of those organisations. With ~10,000 staff and students to serve and struggling with running apps on traditional on-premises infrastructure, whilst having the pressure to reduce spend on IT, the organisation turned to VMware Cloud on AWS to help them move their workloads from on-premise to the cloud. The result included reduced hardware replacement costs by ~75% as they were able to rely less on physical hardware, faster speed of disaster recovery operations and improved preparedness to respond to surges in usage. During the pandemic specifically, school activities were conducted from home and teachers were able to successfully deliver uninterrupted virtual teaching services to students. One of the key benefits for the school is the flexibility of the platform, enabling them to move apps from point A to point B by rapidly scaling their IT infrastructure in the cloud.

The final objective has to be to provide a seamless, personalised and easy learning and teaching experience for those in the education sector. Whether it's in a virtual classroom or not, being able to manage changing needs, volumes and apps quickly and scale where needed, is critical. Adopting a cloud solution is the future of education and will give you the opportunity to transform the way in which you deliver best in class services to staff and students.

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





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