



Five Things to Know about Mastering the Cloud

A Guide for K-12 and
Higher Education Institutions

vmware®



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Consistent infrastructure and consistent operations wherever workloads are deployed



15 years into the cloud era — what's next for education?

Cloud computing burst on the technology scene in the 2000s with big promises to drive greater efficiency and equitable access to resources.

However, the forward march towards the cloud by institutions ranging from K-6 to university has been at times uneven, and with good reason. Concerns about security and the privacy of student data, existing data center investments, technology silos, and resource constraints can all serve as a brake on cloud migration plans. Along the way, the conventional wisdom shifted from the dream of one simple, unified cloud to a hybrid cloud reality. Not every workload belongs in the public cloud. One-way migration has become two-way movement as workloads are re-assessed and repatriated.

At the same time, the technology needs of education institutions continue to evolve. Curriculum standards and policy priorities are constantly changing, a focus on 21st-century skills has ushered in a sea change in classroom approaches, students expectations are ratcheting up, and access to education has come under increasing political and social scrutiny.

Educational technologists are modernizing operations while working to bring a new generation of applications and services to students, instructors, and administrators. These solutions tightly integrate technology and information in ways that help institutions support learning in new ways without sacrificing privacy, security, or budgetary responsibilities.

New fundamentals

A more flexible and agile vision of the cloud is emerging.

One that will help institutions solve problems ranging from streamlining testing procedures to enabling real-time collaboration across campuses. And, as K-12 and higher-education institutions confront demographic shifts and structural challenges, they are looking to the cloud to help them:



Build faster from application to infrastructure. Institutions need to be able to ideate, iterate, and evolve technology solutions nimbly. This gives them the freedom to try and the flexibility to scale when they get it right. It also means embracing cloud-native strategies where appropriate for creating tools and experiences.



Sense wider with the help of new networks and the rise of intelligent endpoint sensors. It's not merely an Internet of Things, but a connected intelligence that can drive everything from smart campus infrastructure to interactive learning.

¹ Higher Ed's 2020 Trend Watch and Top 10 Strategic Technologies
<https://library.educause.edu/resources/2020/1/higher-educations-2020-trend-watch-and-top-10-strategic-technologies>



Solve deeper by deploying advanced machine learning and artificial intelligence. Imagine being able to consume millions of data points in an instant, search for patterns and dependencies, and then drive action. That would enable institutions to be predictive, not just proactive, in ways that improve both administrative efficiency and learning outcomes.



Collaborate better with other organizations at all levels with common tools and data sets. It's essential to enable departments and institutions to overlap without overcomplicating.

These fundamentals can only be achieved through a new vision of the cloud. Flexible, multi-everything, easily managed. In this vision, the cloud doesn't constrain strategic thinking – it gives leaders the confidence to innovate in ways that count.

A Strategic Blend

Higher-education professionals listed the blended data center as a top strategic technology in a recent EDUCAUSE survey.¹

- 1) Uses of APIs
- 2) Institutional support for accessibility technologies
- 3) Blended data center (on-premises and cloud-based)

03

The application imperative: full-cycle consistency

In a software-defined world, ideas comes to life through applications.

Whether it's a student-facing interface or critical administrative tool, an institution's priorities live and breathe in the software it creates. Traditionally, software lifecycles have been constrained by infrastructure choices. This meant building applications for very specific environments, with each variable adding to the cost and complexity.

The cloud solves for this by giving developers and operations teams a "bubble of consistency" that enables them to focus on writing code, not configuring for environments. This portability enables development of new solutions without creating new technical debt.

- **Build and test** applications once using the very best development tools for the job
- **Manage** applications using common tools and interfaces that leverage existing skillsets
- **Scale** applications up and out, extending reach and functionality

- **Share** solutions across departments or institutions
- **Secure** applications, users, and information to exacting privacy and security standards

It is this consistency, the single lens and lever, that is so critical to educational IT success. It's where development and operations meet, and where the cloud can help institutions stretch to meet changing needs with responsible use of resources.

A Modern Cloud Foundation Xavier University of Louisiana

has weathered hurricanes and other natural disasters while advancing educational opportunities for its more than 3,000 students from Louisiana, 40 other states, and 15 countries. With a small IT staff taxed by disaster recovery challenges, data security vulnerabilities, and heavily manual refresh and update cycles, Xavier chose to leapfrog ahead in its infrastructure modernization with VMware® Cloud Foundation™. Deployment took just three weeks, and enabled Xavier University to trim its physical IT infrastructure 90% while refocusing valuable IT expertise from administrative tasks to more strategic projects.²

² Xavier University of Louisiana Modernizes with a Robust Cloud Foundation
<https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/casestudy/vmw-xavier-university-of-la-case-study-en.pdf>



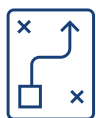
04

A crooked, narrow path

While understanding the challenges of cloud computing is simple, realizing them isn't as straightforward.

It's one of the reasons public cloud and everything-as-a-service are so attractive – you can offload worry and workload at the same time. But school or campus decision-makers don't have the same freedom and flexibility as their private-sector peers.

This rigidity, combined with compliance and security concerns, makes institutional migration more complex. And, critically, the challenge extends well past technology:



Existing investments in hardware and software guide decision-making. Rip-and-replace solutions, be they hardware or software, are simply too costly for most institutional challenges.



Interdepartmental or intercampus collaboration around critical services can make moving, changing, or replacing the technology behind these services potentially very disruptive.



Technology silos and shadow IT operations can create entrenched inefficiencies, both in terms of infrastructure and organizational behavior.



Increased scrutiny on data security and privacy is a major consideration in cloud strategies, even as hybrid- and multi-cloud environments become standard.



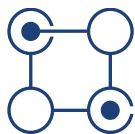
Surprise costs are a risk, given evolving cloud economics and the potential for opaque service terms

The challenge for institutions is to find solutions that bridge existing infrastructure and what comes next in order to unlock the power of the cloud to better serve students, educators, and administrators.

Your key to success: VMware® Cloud Foundation™

Consistent infrastructure and consistent operations wherever workloads are deployed.

As schools and campuses build their modern, multi, hybrid clouds, unification and consistency present a challenge. By deploying VMware® Cloud Foundation™ (VCF) everywhere, you can manage infrastructure and applications in the cloud, with the same tools, teams, skills, policies, and standards that you use today in the data center – leveraging your institution's existing investments to unlock what's next.



Converged performance

VCF enables converged performance inside the software-defined data center while also bringing storage, compute, and network together in building-block modularity that makes your services easier to build, run, extend, and secure. The ability to take small but powerful steps forward, each driven by these blocks, is critical to helping your institution find its own modernization pace.

Want to get started today?



To learn more about how VMware can help your institution make your next cloud step count, visit us online at <https://www.vmware.com/solutions/industry/education.html>



Consistent DevOps

You trust your team to move your institution forward, and they trust VMware for the same reason. You get a single operating model for all of your applications, based on the most proven and widely deployed cloud infrastructure in the world. Use the VMware tools and infrastructure your team already trusts to migrate applications freely between environments – without the cost, complexity, or risk of refactoring apps.



Real elasticity and choice

VCF enables institutions to quickly scale on demand. In the past, this meant inefficient use of resources or unanticipated expenses in a public cloud. Whether you need to keep up with enrollment periods or quickly spin up a new computer lab, VCF enables workloads to be brought into the cloud on an as-needed basis. This maximizes both efficiency and economics, making the very best use of both your time and your institution's budget. It also gives decision-makers the confidence of real stability. Providers may come and go, but decoupling applications from infrastructure means no downtime, disruption, or lock-in, no matter where your cloud roadmap takes you.



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