



Red River



**EMPOWERING HIGHER
EDUCATION WITH THE CLOUD**



The higher education community is finally recognizing the benefits and potential of cloud computing. But transitioning to the cloud from an already-organized IT architecture can be challenging. Stakeholders within a higher education environment have varying priorities and needs. Each college within a university may have its own sets of disparate legacy platforms and applications for administration, academics, and research. Individual departments may have already adopted cloud applications of their own volition. This patchwork quilt adds to the complexity of a true digital transformation into the cloud.

Today, we face massive opportunities to modernize the higher ed ecosystem within a secure, efficient cloud environment. How can we make these transitions effectively within the complexities of our current IT environments in higher education?



THE STATE OF CLOUD IN HIGHER ED

Higher education has finally embraced the cloud. Increasing adoption of software as a service (SaaS) platforms is fueling a projected growth of cloud computing in higher education from \$2.2 billion in 2020 to upwards of \$8.7 billion by 2027. That's a 22% compound annual growth rate (CAGR) over seven years. But this shouldn't be surprising.

Cloud computing for higher education took off during the pandemic as colleges and universities expanded their e-learning offerings. As the United States emerged from the pandemic, colleges and universities have realized that online and remote offerings created the flexible educational options that their students demanded. But that's not the only benefit of cloud migration. On-premises architectures can be resource intensive and often strain capital expenditures (CapEx). At the same time, a recent rash of cyber breaches illustrates that the data stored by educational institutions remains a prime target for bad actors.

Fierce Education suggests cloud-based services will continue to expand this year. They say, "With the help of the Cloud, online education platforms can handle vast amounts of video content, 3D modeling and more, making it easy for students to share their work... as well as accessing limitless video lectures."



While this is an exciting time to consider these and other cloud benefits, learning institutions need help creating a comprehensive cloud strategy. It's not just the legacy platforms and dozens of applications; it's also that most colleges and universities already function with a mix of on-premises and public cloud architectures. At the same time, higher ed institutions need more technical resources to untangle this snarl.

Most higher ed institutions will end up with a multi-cloud environment consisting of public and private clouds as well as Software-as-a-Service (SaaS). By creating a comprehensive multi-cloud strategy, institutions can leverage the best of all these platforms while eliminating technology sprawl which leads to ballooning costs. However, as challenging as it may be, this also can lead to some serious benefits. What are those benefits, and how can we finally achieve them?



BENEFITS OF THE CLOUD FOR HIGHER EDUCATION

Cloud computing offers numerous benefits for higher education institutions. One of the primary advantages is the ability to access cloud resources – for instance, virtual machines – on demand. This accessibility means that institutions can quickly scale up their cloud resources when needed and then eliminate the resource when they don't. With cloud, you only pay for the resources that you are using.

For example, if a university needs training labs for 200 students, it would require on-premises hardware provisioning to handle the maximum load. However, when the need is less than maximum load, perhaps on nights or weekends, that hardware is sitting idle.

Alternately, cloud services can scale as required and drop back down when resources are no longer needed. Higher education institutions only pay for their cloud resources as they are consumed and can give the institution far greater flexibility to scale upwards should they need to add labs or for a project based work.

Another benefit of cloud computing is project collaboration and resource sharing. With cloud-based tools, students and faculty can collaborate on assignments, share research data, and conduct group projects. This collaboration can enhance students' learning experience, as they can work with others in real time, regardless of location.



Cloud computing also offers the potential for greater flexibility in the delivery of courses. With cloud-based learning management systems (LMS), institutions can offer online courses accessed from anywhere with an internet connection. This flexibility helps colleges and universities reach a broader student audience, including those who cannot attend classes on campus.

Finally, the cloud offers different options for cybersecurity when compared to traditional on-premises architectures. Cybersecurity is a massive concern for colleges and universities, which have quietly struggled with ransomware attacks. The cloud offers robust security measures, with dedicated teams who work to ensure data safety. Cloud computing also provides a centralized management system for data and applications, which allows more control and visibility over information access and usage. Finally, data backups and constant upgrades help mitigate real-time risk and ensure industry-specific compliance with evolving privacy requirements

With these benefits, cloud migration is a logical, measured choice for university architectures. So, what's holding us back?

THE CHALLENGES OF CLOUD MIGRATION IN HIGHER EDUCATION

The cloud is changing the job description of our IT teams. The public cloud opens our IT infrastructures to self-service, freeing higher education tech teams from the roles of maintenance to innovation. It's a significant shift, but, like all evolutions, it can be messy:

- **Legacy Systems:** Higher education institutions juggle a plethora of platforms and subsystems, from LMS platforms and Student Information Systems (SIS) to customer relationship management (CRM) platforms, IT service management (ITSM), HR, finance and more.

Institutions must evaluate all their platforms and applications to determine what can easily shift to the cloud, what might need to be replatformed, and what might need a modernization either prior to or after migrating to the cloud.

- **Data Security:** Data security is a primary concern for higher education institutions. They must protect data from unauthorized access, IT breaches and cyberattacks. Institutions must determine their security posture and ensure they are able to protect their cloud environments utilizing best practices like encryption at rest and in transit and least privilege access to data.
- **Integration:** Higher education institutions often have multiple systems that need integration with cloud platforms. Integration can be challenging, as different tools may have varying data formats and protocols. Institutions must evaluate the integration requirements for each system and determine the best approach for integration.
- **Cost:** Many higher education institutions are motivated to move to the cloud to realize a cost savings. Building a business case for a cloud migration often includes a return on investment (ROI) analysis. Additionally, higher education institutions need to ensure they have proper reporting and alerting in place to control costs.
- **User Acceptance:** The reality is that cloud migration is as much about people as it is technology. Cloud migration can impact how users interact with applications and data. IT teams may experience resistance to change, decreased productivity and increased training requirements. Institutions must communicate the benefits of cloud migration to all end-users and provide adequate training to ensure a smooth transition.

Within the big picture complexities of transformation to a cloud architecture, there exist micro-decisions, such as which SaaS options will replace legacy on-premises software. For example, higher ed institutions might adopt solutions like Oracle PeopleSoft or Ellucian Banner for SIS or Brightspace and Moodle for their LMS needs. It's tricky to discern which SaaS application is best and which integrates the best within the new cloud ecosystem.



Cloud migration does provide some immediate benefits, such as consumption-based billing. Educational institutions can receive economies of scale discounts for applications that run for an extended period. Alternatively, when functioning within hybrid environments, the cloud can handle peak usage, such as during registration, while the remaining on-premises applications can manage non-peak use. Through this elastic approach to resources, educational institutions can ensure that all students and faculty can get what they need without costly up-front investments. The idea is to increase the efficiency of all systems and applications, leveraging the cloud appropriately for maximum benefits to reduce the strain on CapEx.

But most higher education organizations need help with internal human resources to handle their disparate IT systems. When migration becomes imperative, exploring the big-picture idea of integrated cloud deployment across the organization is difficult. Higher education institutions have spent an enormous amount of time and money architecting their current systems. How can they untangle this Gordian Knot to take full advantage of the cloud?

AWS AND THE MIGRATION ACCELERATION PROGRAM FOR HIGHER EDUCATION

One of the most popular and powerful cloud ecosystems is Amazon Web Services (AWS), it's no wonder that it's one of the major options higher education institutions consider when looking for their full cloud transition. AWS offers a broad suite of services and features that education institutions can take advantage of, including:

- **CDN:** AWS enables some best practices for colleges and universities. For example, AWS easily supports a robust content delivery network (CDN) for students. The CDN can store data, materials and videos in a low-cost but highly reliable service. Because the CDN is in the AWS cloud, videos are cached to avoid the latency issues commonly experienced with servers in an on-premises data center.
- **Contact Center:** AWS has a feature rich cloud contact center offering (Amazon Connect) that is a highly cost-effective option for the higher education community. It's fairly easy to set up and it offers native cloud scalability for supporting as many end-users as necessary to reach your service goals.
- **Disaster Recovery:** Ransomware is a big concern right now for colleges and universities. While no industry is immune from ransomware attacks, the AWS Elastic Disaster Recovery (AWS EDR) can mitigate the attack by relaunching unencrypted versions of your servers from the cloud to help you avoid paying ransom or experiencing downtime.

Beyond ransomware, disaster recovery features can help ameliorate the impacts of increasingly common extreme weather like hurricanes or fires, and are often key in helping businesses meet compliance obligations.

- **VDI:** Virtual Desktop Infrastructure, or VDI, allows computer instances to be spun up and delivered remotely to an end terminal like a laptop, tablet or mobile device, or a desktop PC. Sometimes referred to as Desktop-as-a-Service, this is very useful for things like allowing end-users to mimic a much more powerful device (such as for lab work) or simply keeping proprietary and sensitive information from physically leaving a location.

AWS offers two primary forms of VDI – AppStream, which streams desktop applications to a web browser, and WorkSpaces, which offers full virtual machines (VMs).

Built on the experience of migrating hundreds of customers to the cloud, AWS has developed an accelerated migration process that can be geared toward higher education institutions. Red River is an approved AWS partner authorized under the Migration Acceleration Program (MAP).



MAP is a comprehensive cloud deployment funding program with a proven set of best practices and guidelines to simplify a complex migration process.

The purpose of MAP – and the role of AWS partners like Red River – is to assist organizations in preparing for, planning and executing their migration to AWS, accelerating their digital transformation at scale while saving significant amounts of time and money. With MAP, higher education organizations can launch an integrated cloud architecture at approximately half the average cost of a standard migration.

There are three steps to the MAP methodology:

1. Assess
2. Mobilize
3. Migrate & Modernize



ASSESS

The MAP cloud migration roadmap for colleges and universities begins with the Assess step, which is designed to create a positive case for change in the organization.

During this process, Red River will assess your current environment and applications, identify dependencies and potential issues and create a detailed migration plan. This will include a Migration Readiness Assessment (MRA) that analyzes the organization on multiple levels: people, operations, governance, security and more.

This phase will include things like multiple briefings and workshops for key stakeholders and employees, Immersion Days where team members can get hands-on time with AWS services, and a Total Cost of Ownership (TCO) report analyzing expected costs for the migration, deployment and operation of the AWS environment.

In this phase, Red River will ensure that leadership teams are in alignment and close any gaps between intention and readiness to migrate.



MOBILIZE

In the Mobilize step, Red River will help an organization prepare to make its cloud migration. This can broadly be divided into four parts:

- Portfolio
- People
- Platform
- Migrate

A full discovery phase will ensure that all data and apps are accounted for. Red River will help the organization develop a step-by-step road map to integrated cloud migration and deploying and optimizing the new environment. Key individuals with important skills and AWS knowledge will be identified to help with the human element of a migration. Red River will also help set up the “landing zone” for the migration, including taking care of security and compliance matters. Additionally, pilot workloads are identified and are migrated with the purpose to validate workloads’ base functionality and readiness of the landing zone to support workloads’ operations.

If all goes well, the Mobilize step will be the deepest and most involved, because it will set things up for the eventual migration as smoothly as possible.



MIGRATE & MODERNIZE

In this final step, the actual AWS migration is executed following the plan developed in earlier phases. This step has three components:

- Migrate
- Operate & optimize
- Modernize

Data and apps are migrated in waves rather than all at once, to minimize work disruption and ensure that errors can be noticed and dealt with easily.

Following a successful migration, the Red River will help an organization operate and optimize their AWS environment. This includes things like cost optimization and capacity planning, performance optimization and ensuring security best practices are widespread and adhered to. Red River will also provide ongoing support and guidance as needed.

Lastly, Red River can help modernize an existing AWS environment as needed – including infrastructure, services, resources and more. This is part of the ongoing service that an AWS partner can offer in perpetuity.

Throughout the entire process, Red River works closely with the customer to ensure that their migration to the cloud is successful and that they achieve their desired business outcomes. The AWS MAP program also enables AWS partners like Red River to utilize AWS tools, resources, and expertise to help higher education clients accelerate their migration and minimize risk. All told, leveraging AWS MAP can save new AWS clients up to 70%.



RED RIVER: SOLVING THE CHALLENGES OF CLOUD MIGRATIONS FOR HIGHER EDUCATION

Red River is a proven technology solutions provider and integrator for higher education institutions seeking to benefit from the cloud. We have a proven track record of customizing these deployments to maximize your benefits, which include:

- Lowered costs before, during and after cloud deployment.
- Post-migration increased staff and student productivity.
- Improved operational resilience at all levels of the organization.
- Increased organizational agility in the cloud.

Red River is a well-respected partner of the higher education community. Our deep relationships with cloud providers like AWS as well as over 200 original equipment manufacturers (OEM) allow us to help our customers get better contract terms and pricing.

For higher education organizations at any stage of their cloud journey, Red River offers the processes, relationships, experience and tools you need to be successful. Talk with our team today about how we can help your organization leverage the cloud and digitally transform into a more agile modern organization.

Red River has been serving clients in the commercial, federal and SLED markets for more than 25 years. Red River's cloud practice has built on that foundation and is uniquely positioned to get clients to the cloud.

Red River's greatest asset has always been and continues to be our people. We have a dedicated cloud design engineering team specifically built around AWS cloud assessments, migrations and modernization efforts. With our practice area focused on cloud, our team provides subject matter experts on core technologies and leverages that knowledge into the creation of solutions that meet our customers' business objectives.

If you are interested in learning what Red River can do for you, please contact us at cloud@redriver.com.



ABOUT RED RIVER

Red River brings together the ideal combination of talent, partners and products to disrupt the status quo in technology and drive success for business and government in ways previously unattainable. Red River serves organizations well beyond traditional technology integration, bringing 25 years of experience and mission-critical expertise in security, networking, analytics, collaboration, mobility and cloud solutions. To learn more, visit redriver.com.