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Pathways to the cloud

A quick guide for higher education institutions

Choosing your path to the cloud

If you're like most college leaders, you're under great pressure to modernise campus systems; to create a seamless constituent experience; to remove barriers to efficiency and innovation; and to increase student and institutional success with fewer resources.

Achieving these goals requires a technology foundation that looks quite different than it did a decade ago. For many institutions, the cloud is a key part of that foundation.

Cloud technology offers a number of benefits:

- **Agility:** Upgrades and innovation are available immediately, lowering the disruption of large annual release cycles, speeding time to value, and making you more nimble and responsive to change.
- **Scalability:** The pay-as-you-go model allows you to scale up during periods of peak activity and scale down to conserve resources at other times on the academic calendar.
- **Integration:** Data, workflows and applications can be seamlessly integrated in the cloud—connecting people and campuses.
- **Security:** Many cloud vendors can provide far greater security and disaster recovery than institutions can afford on their own.
- **Cost-efficiency:** Large infrastructure, capital and labour costs go down for most institutions and IT staff can focus on strategy, not servers.
- **Improved constituent experience:** Students and teaching and administrative staff have better access to data and services in the cloud, providing a modern experience that aligns with the mobile, social, on-demand world they've become accustomed to.

While all of these benefits make cloud an attractive model, it's important to realise that **cloud is not an all or nothing, one-size-fits-all proposition.** There are more options available today than ever before, allowing you choose your own path and pace.

This guide is designed to help you understand your choices and chart a path to the cloud that meets your strategic needs.

Contents

Making sense of the jargon

All you really need to know about SaaS, PaaS, IaaS and other four-letter words

How and when to leverage cloud technology is one of the most important conversations you can have right now. It's tough to weigh the options if you don't speak the language of cloud.

To help frame your discussion, here is a brief overview of common terms and concepts, as well as how they relate to each other and to your business.

Cloud models

As-a-service

Delivering software, technology services and even hardware "as-a-service" is touted by many as a cornerstone of modernisation.

So what does it mean? When you see "SaaS," "PaaS," IaaS" or any other "_aaS," it indicates subscription technology that is available anytime, anywhere "as a service" from a public cloud. Think Amazon or DropBox.

The thinking goes: Why own, manage, modify, maintain and support an application (whether for personal banking or student recruiting) if you can get the latest and greatest offering on demand, while staying focused on your end goals?

You do give up some control with this model. The reason as-a-service technology is always up to date, and always delivering new innovations, is because everything is standardised.

However for more and more customers, the tradeoff is worth it. By effectively outsourcing your hardware and software, you can achieve a number of benefits.

Key benefits of as-a-service model

1. **scale resources up and down as needed**
2. **leverage technical expertise**
3. **access innovation more quickly and efficiently**
4. **focus on your core mission**

XaaS (everything as a service)
X=everything/anything

Most common offerings:

- **SaaS (software-as-a-service):** Software hosted and maintained by vendor and delivered over the Internet via subscription
- **IaaS (infrastruture-as-as-service):** Hardware, including servers, storage and networks, owned and managed by vendor and made accessible to customers on demand via Internet
- **PaaS (platform-as-as-service):** Operating system/middleware hosted by vendor on which customers can develop and manage their applications over the Internet

Private cloud (hosting)

For institutions looking to maintain a bit more control over their applications and data, there is private cloud. With this model, you retain your licensed software but host it in a dedicated cloud environment with minimal or no shared infrastructure.

With this model, you get the main benefits of cloud—agility, mobility, security—but also greater control over upgrades, governance and customisations.

Hybrid

This is the way most of higher education is going right now. In a hybrid approach, you take advantage of cloud where it makes sense for your business (either SaaS or private cloud), while also keeping certain solutions on premise (either indefinitely or while you prepare for additional moves to the cloud.)

For example, an institution might adopt a SaaS solution for recruiting in order to take advantage of modern workflows, services and analytics; keep its licensed LMS but migrate it to a private cloud to improve integration and accessibility; and keep its ERP on premise, while developing a roadmap for phased migration.

Public vs. private cloud
Choosing your house and your neighbors

Moving to the cloud is much like moving to a new town. You have to choose where and how you want to live—in a single family home (private cloud) where you control your environment or an apartment with many tenants sharing services to save costs (SaaS).

A quick jargon decoder to help you with this discussion:

Public cloud

The hardware—servers, storage, computing power—is owned and operated by your cloud provider and shared by multiple customers. This shared infrastructure enables customers to take a lower-cost, pay-as-you-go approach to managing IT services. Most "as-a-service" technology is provided through a public cloud.

The public cloud offers different living arrangements:

Single-tenant: Each customer has their own instance of a software application and their own database. Think of it like a planned community where the homes were designed by one architect, but each home has dedicated utilities and the owner can make some customisations to the design and running of the house.

Multi-tenant: Multiple customers share the same instance of the software application and database. The instance is typically divided (a.k.a. striped) to prevent companies from accessing each other's information. Think of it like a high-rise apartment building where the units are partitioned, but connected by the same hallways and utility lines, and any customisation would be costly if not prohibited.

Private cloud

The hardware—servers, storage, computing power—is dedicated entirely to one customer and hosted either on-site or in the cloud provider's data center. It delivers the agility, scalability and efficiency of public cloud, but also provides greater levels of control and security for customers with strict data, regulation and governance obligations.

The single tenant life is more accessible than ever

A decade ago, multi-tenancy was the norm, because it wasn't possible to update thousands of customers independently and still achieve cost efficiencies and scale. However, that's changing.

Modern hosting makes it possible to offer single tenancy—and the security and personalisation it affords—at scale. Even with dedicated software and databases for each customer, automation tools are making cloud computing, upgrades and innovation faster and more efficient than ever before.

Once you've mastered all the jargon, it's time to have a meaningful conversation about cloud—and, first and foremost, how different models can best advance your institution's strategic goals.

Deployment models

As-a-service

What is it?

Customer accesses application, data or service via a public Web portal through a subscription

Benefits

- Always on latest version of software
- Seamless upgrades
- Continuous innovation
- Ability to scale resources efficiently using pay as you go model

Private cloud

(hosting)

What is it?

Customer hosts its licensed software in private cloud and accesses through VPN

Benefits

- Ability to leverage cloud benefits—agility, mobility, scale, innovation—while maintaining some control over upgrades and modifications
- Security, disaster recovery outsourced to experts, lowering risk
- IT shifts from maintenance to strategic priorities

On premise

What is it?

Applications and data deployed in on-campus server rooms and managed by on-site IT staff

Benefits

- Complete control over upgrades
- Ability to fully customise applications

Hybrid

A hybrid of on-prem and cloud deployments allows an institution to find the point along the spectrum between flexibility and control that meets their needs.

What to move when

How to size up each application and develop a plan

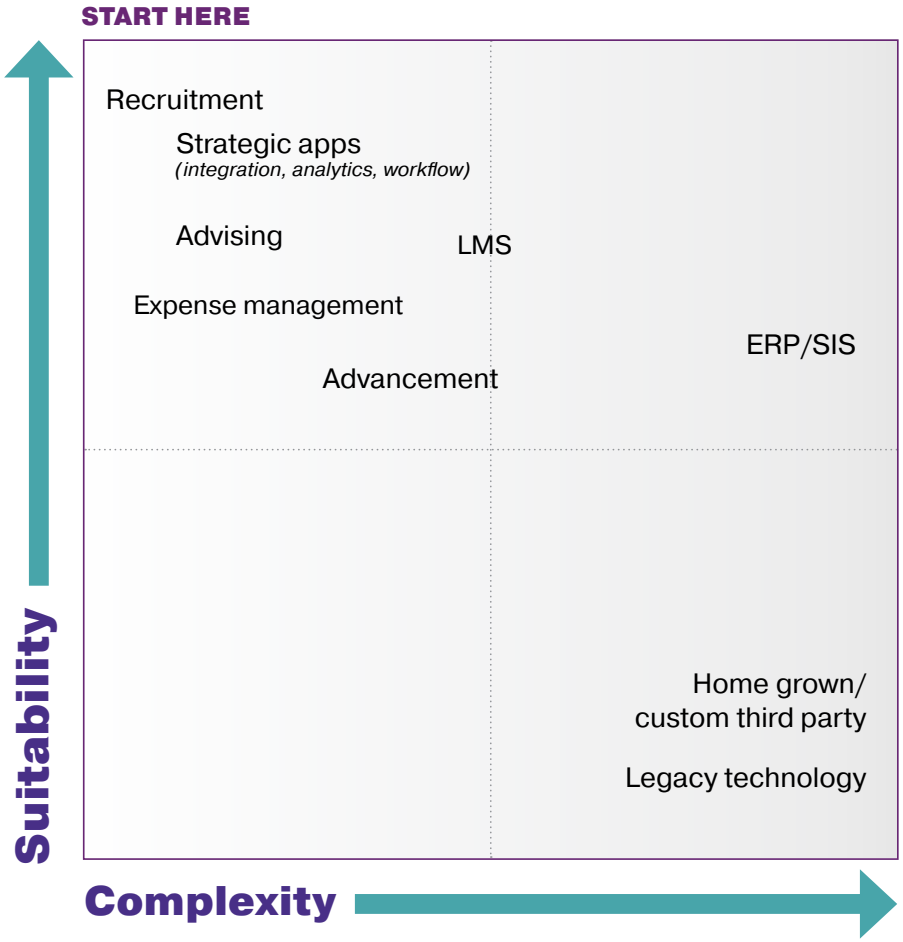
Cloud is no longer “if” but “when” for most higher education institutions. That doesn’t mean you have to move everything and certainly not all at once.

So how do you decide what to move first?

The answer will be different for every institution, but a good approach is to start with low complexity, high suitability applications:

- **Low complexity:** As you build internal support for cloud, it’s important to make sure the institution’s first migration experience is a good one. So start with less complex applications—those with the least connections to other applications and workflows.
- **High suitability:** Some apps are better suited to leverage cloud benefits than others. Focus on applications in most need of improved scalability, agility and user experience. In other words, places where you’ll see the most value.

The image at right shows the type of applications and services that tend to fall in different areas on the suitability/complexity spectrum.



Assessing the best strategy for each application

Identifying your quick wins—your low complexity/high suitability applications—is a great first step. Eventually you should evaluate your entire portfolio and determine a cloud strategy for each application. There are many options, but following are three that apply most often to higher education institutions:

1 Option 1: Replace

- **What is it?** Replacing a licensed application with cloud-native, subscription software (SaaS).
- **Why would you choose it?** If you can provide a superior experience with cloud software, it may make sense to switch, rather than modify and host your existing application in the cloud.
- **Example:** Switching to a subscription-based portal that users can access anytime, anywhere through the internet instead of being bound by a private network.

2 Option 2: Revise

- **What is it?** Modifying a licensed application so that it's optimised for cloud.
- **Why would you choose it?** You want to take advantage of cloud capabilities while retaining a certain level of control and governance.
- **Example:** Removing heavy customisations to a recruitment application and hosting it in a private cloud to improve scalability.

3 Option 3: Rehost

- **What is it?** Hosting an application in the cloud without making changes to its architecture.
- **Why would you choose it?** You have specific business requirements and customisations you cannot modify, but want the cost and security benefits of cloud hosting.
- **Example:** Migrating an ERP to a private cloud to leverage state of the art security and disaster recovery services, while retaining business-critical customisations.

Most institutions choose a mix of software-as-a-service (option 1) and application hosting (option 2). They key is to find the mix that offers the quickest path to the highest value.

5 tips for a smooth cloud migration
Ready, set, go live

Cloud migration should be relatively painless. The key is to plan, plan and then plan some more.

Your plan will be as simple or complex as the cloud services you've chosen. There are certain steps you can't ignore if you want to minimise cost to the institution and disruption to users.

Here are 5 tips for a smooth migration:

1 **Get your house in order**

Name any application and chances are it's connected to something else. Start by conducting a comprehensive audit of your existing architecture and carefully map every element to the new cloud environment. Map related workflows as well, and streamline wherever possible. Make sure you're running the latest version of all software.

Don't forget to think ahead. For example, when Virginia State University was planning its cloud migration, it added provisions to accommodate new applications and functionality already planned for the future. Dr. Weldon Hill, Provost and Vice President for Academic Affairs, explained, "We are making sure that technology will enable, not limit, us wherever we need to go long term."

2 **Figure out which customisations are, and are not, critical to your business**

Every software customisation increases cost and complexity. In a recent white paper, Ovum reported that: "Analysis of customer environments prior to major upgrades by a major ERP vendor has confirmed that often, one-third of the customisations have been superseded by standard functionality built into the upgraded product, one-third are no longer being used by the business, and only one-third are delivering ongoing benefits to the organisation."

Customisations that are business critical are worth the price. But the promise of cloud is automation and extensibility. If you've made modifications on top of modifications over the years, take the time to assess which are worth preserving and which no longer warrant the tradeoff.

3 **Get everyone on board**

There are business processes behind every piece of technology—and people behind those processes. If you don't engage users institutionwide from day one, you'll pay for it later. Create a multidisciplinary planning and transition team. Understand user needs. Manage expectations. Get users excited about cloud benefits. In return, you'll get the cooperation you need during testing, training and future upgrades.

Sometimes teaching and administrative staff have concerns about security in the cloud. Make sure to emphasise that the leading cloud providers have far greater security and disaster recovery than most institutions can manage on their own.

4 Make sure sufficient technical support is in place

Keep in mind: you're not just moving data. You're managing an array of variables: security, authentication, integration with third-party software, compatibility, testing, monitoring—and just as important, maintenance and growth over time. If you don't have the expertise in house, make sure your cloud provider or another third party stands ready to fill the gap.

For example, when the University of Arkansas System eVersity, an entirely online university with an IT staff of one, decided to build a cloud-first, cloud-only institution, they outsourced their technical support to allow staff to focus on their core mission.

5 Go live with confidence

If you've planned for the contingencies, the transition should not have a significant impact on daily operations—except for the improved user experience, which everyone on campus will appreciate.

Waukesha County Technical College (WCTC) in Wisconsin recently migrated its ERP and other systems to the cloud. They're often asked for cloud advice, and their suggestion is to start small. Before migrating the institution's main systems, data center, and portal to the cloud, WCTC tested the waters by implementing individual SaaS (software-as-a-service) applications. Evaluating service and managing expectations at a smaller scale prepared them to do so at the ERP level.

Can't keep a good plan down

Ignoring any of these five steps can be costly in terms of downtime, lowered productivity, user acceptance and expensive fixes. However, if you build a good plan—including assessing your existing architecture, getting current, managing expectations and putting the right people in charge—the transition should go smoothly.

Learn more

For more information to help you chart your path to the cloud—including case studies and blogs by other higher education institutions—visit **www.ellucian.com/emea-ap/Insights/Pathways-to-the-Cloud**.

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