

Donna Freddolino: Hello and welcome to the Plante Moran podcast series on cloud strategies for higher education. This is Donna Freddolino, and I'm joined today by Plante Moran colleagues who work closely with higher education institutions. With me are Alex Brown, Sri Chalasani, and Kyle Macyda. These are all part of our information technology and cybersecurity practices and bring a lot of useful insight and information to our podcast series today. As a team and also individually, we're frequently asked to give observations or talk about background and trends related to how higher ed institutions can make good use or best use of cloud solutions and infrastructure. We sat down and we prepared some of our thoughts to present those through this series, organizing it into four topical areas that you can listen to.

First, we're going to cover understanding and planning your cloud strategy, and other podcast topics are going to cover our take on cloud providers and implementation projects, moving through operational activities including service level agreements, metrics, and how to manage or work with cloud providers, and finally some of the special issues related to cybersecurity in the cloud. This really comes out of a lot of what we're hearing and seeing through campus engagements and just talking with people. We see there's just a bunch of questions that they have, and maybe what we can do to get us started is, Kyle, you can maybe outline some of those and we can all just chat about them a bit.

Kyle Macyda: Yeah, absolutely. I think one of the first questions we hear is, "What's driving interest in the cloud?" Is that looking at and proving student outcomes? Are we trying to leverage cloud for research innovation? Are we just trying to save money by efficiency of infrastructure or staff? Really, that combined with trends. Institutions don't want to be behind the curve so a lot of them are often looking at, "What are those trends?" both good and bad. Is it providing efficiency, or are there trends that are focused around cybersecurity and privacy, and what are those trends? How do they adapt and consider those? How can they understand their options?

There's a lot of different things that you can do with the cloud, and institutions struggle with, "How do I see what's out there and how do I know what to pick or what not to pick? How do I plan for that?" Because the cloud it's more than just a technology, it's a strategy, so you have to try to accurately plan and make sure you've got enough runway for that. Lastly, how do they stay educated and up to date on everything? Things change so quickly. Should they be going to the cloud? How do I know? What information can I use to help make these decisions? We see this a lot.

Donna Freddolino: I think the business model and a changing business model for higher education is such a key driver in this. With the soaring cost of student debt into the trillions of dollars now and also the expectations of all of our stakeholders for a

cost-competitive degree program. We are getting a lot of pressure on the IT side of the business to reduce cost, and that leads I think to looking at infrastructure as a way of trying to do some cost containment and some cost control. That's some of the background to the desire to look at cloud computing, but a lot of people throw that term around and I think they don't really necessarily understand what that is.

Kyle Macyda: No, there's lots of flavors of cloud. Lots of flavors.

Donna Freddolino: You got to help us out there.

Sri Chalasani: When you look to try to define a cloud it is a very nebulous term, because many people have many definitions. If you ask 10 people they'd probably have 10 definitions, and probably from their perspectives they're probably right. Coming up with a universal definition of the cloud is a little bit of a challenge, but having said that probably from the broadest sense a cloud can be viewed as a system, an application, or a process that an organization such as a higher ed could use as a utility but it is managed and provided by somebody else. At the highest level that's what a cloud is, and from there you can take multiple variations of that whether you're trying to leverage an application, a system, a process, or a system of processes there. They have multiple definitions there.

When you look at the cloud itself it is a virtual entity. At least that's from my point of view. We look at cloud as a totally virtual entity. It is a collection of physical systems, applications, processes, and often people that are often packaged together and provide you a service that you are essentially a user of a utility. Now, once when you take it one step further down then you can look at: What are the different types of cloud models? Well, you have a private, public, and a hybrid models. When you say public it is really a physical system that is logically divided so that multiple people can use it, so you have multiple tenants leveraging the resource.

Kyle Macyda: Is that like an apartment complex or something, right?

Sri Chalasani: Apartment complex, absolutely. There will be some common systems, your cooling and heating systems could be common, but you all have your own spaces in there. That is a public. The private is like you're owning your own home. You're the only tenant in that home and everything is secure, private, and you're the only person there. Then you got the hybrid model which is a combination of the public and the private so you can look at it as a condo model where you have your private space and your public spaces where there are certain systems that are exclusive for you and certain systems that you're leveraging more common resource.

Going one step deeper into what are some of the key characteristics of the cloud, there are really five key characteristics. One is the on-demand capabilities, meaning that as a user I should be able to turn up or turn down

whichever service I want. The elasticity meaning that for the types of services I have prescribed I should be able to burst, meaning that if I have especially in higher ed where we see this happening.

Donna Freddolino: I'm thinking registration. I'm thinking those two weeks.

Kyle Macyda: Yeah, enrollment comes to mind, yeah.

Sri Chalasani: Registration or you have a lot of research data where you need a massive amounts of computer power, of storage power to quickly crunch data. You put that into a-

Donna Freddolino: I don't want to buy-

Sri Chalasani: You don't want to buy that, you want to rent all that computing space. You do that for a short period of time and then you're done. The next one is a measured service meaning that I should only be charged for what I'm using. Again, it goes to that operational versus capital. You are only paying for what you use as opposed to building it and then hoping that you'll use it someday.

Donna Freddolino: Amortizing that over time, right?

Sri Chalasani: Exactly.

Donna Freddolino: It's a huge layout I think for many institutions.

Sri Chalasani: Then the fourth one is really from a broadband network access because a lot of things that we're talking has to have broadband access, meaning that high-speed network access. The final piece is resource pulling, giving us the ability to change the types of resources we pull in out of our cloud model.

Kyle Macyda: So you have some flexibility as opposed to traditional where you buy something and you have it. You've got that Chevy truck and you always use that truck for everything when you might need a small sedan or something.

Donna Freddolino: Fundamentally, what this all comes down to is a really different way of conducting our business, and I hear so many times the concerns expressed on campus about the control that they have today when they have it all behind locked doors, when the only staff that touch that system are their team members, and really believing that that is the only way in which they can truly achieve the level of security that they're looking for. I guess this is where we'd really turn to you, Alex, because this is your area of specialized expertise, and I'm sure you are participating in these conversations as well and teasing the reason for why people should at least contemplate cloud and how to approach that in the best way possible.

Alex Brown: No, absolutely. We talk a lot to our clients about the security end. Really, at the end of the day it comes down to we find the biggest challenge is planning security up front. A lot of clients look at, as Kyle and Sri had talked about, the capability model and they type of cloud, but security becomes the afterthought. Who's going to have rights to it, or even the level of type of roles I want to issue with that. By far, the key part component is the planning for it. How am I going to manage the right role or access, and what type of vendor privileges am I going to allow? Sri had talked about the different tenant aspects. Well, do I have my data park right next to an illegal gambling site on the same tenancy model? Thinking through the type of questions to put into the vendor contract from who has rights on that side and what permissions am I going to allow?

On the internal side we look at security and say, "You know, hey, what are my policies to enforce that type of security? Am I going to have to revamp a lot of my security policies and procedures?" Absolutely. It's a new technology and those considerations usually get lost along the way in terms of that type of planning aspect. The other thing too is from a security activity and logging. "Who has and what are they doing?" type of model. Do we have the audit trails in place? Have we established a type of tracking? What type of monitoring, reporting capability from the security side are we going to include? Then, I think the other thing too is in securing the integrity of the data as we move it across, so we have the security cloud and the virtualization that's great and we're migrating. How do we ensure that that integrity model is capable of protecting that transition?

A lot of that is all part of the context of thinking through as we look at, in addition to what Kyle and Sri have said, the capability or the type, how are we going to protect the data? Again, it's the old analogy of if it were your child, who am I turning my child over to from a virtual standpoint? This is their data, so who am I turning my data over to? Do I know how it's protected? Do I know who has it? Do I know what they're doing with it? Is my data onshore or offshore? Those key questions.

Kyle Macyda: You would have this conversation early in the planning process-

Alex Brown: Absolutely, yeah.

Kyle Macyda: -when you're mapping what applications and systems are going to the cloud. Security should be part of that dialog, right?

Alex Brown: It should absolutely walk hand-in-hand with the vendor contract, exactly.

Sri Chalasani: That's probably one of the biggest barriers at least people see as barriers to the cloud computing environment is security. It's always used, rightfully so, as a, "We don't trust the cloud enough to be secure." You're seeing that with the proper due diligence the cloud is a fairly safe environment.

Alex Brown: With the proper due diligence it definitely is a value source. Again, we used it in the example of for the right reason, for the right purpose it is definitely a valuable resource, but once again, with that thought being upfront, right? When we planned it out it tends to be more effective. When we leave or don't consider certain elements we allow for gaps, we allow for holes, we allow for things to happen. Much like any other application that we're installing we have to think it through from a security standpoint.

Donna Freddolino: What I hear you saying is really with the right protections-

Alex Brown: That's correct.

Donna Freddolino: -thought of up front, and I think that sets a great tone for this first session which has really been on high level issues associated with understanding and planning. I know we'll come back to much more detail about cyber as we continue through this series, but we really want to thank everyone for listening today. This has been our first in a series of podcast topics covering cloud and cybersecurity for higher education. We hope that you'll continue to listen to the rest of the series and we appreciate your listening.

Announcer: Thank you again for joining us today, and for more information on higher education please visit HigherEd.PlanteMoran.com. Thank you.