Enabling Higher Education's Journey to the Cloud

Simplify the Infrastructure, Secure the Network, and Deliver an Open, Converged Framework

Challenge

To make a smooth journey to the cloud, colleges, universities, and research institutions must understand how the potential challenges of network security, availability, and reliability can affect objectives like student engagement while decreasing costs in delivering a next-generation learning experience.

Solution

Juniper Networks offers cloud-enabled solutions that are simple, open, and smart. Designed to help institutions of all sizes and types build clouds that are uniquely adaptable, intelligent, and scalable, Juniper Networks enables a seamless transition to the cloud.

Benefits

- Juniper's cloud infrastructure drives application and service agility, improves the student-learning experience, and lowers the costs required to support institutions objectives.
- The solution makes the transition to the cloud smooth and successful.
- Juniper helps companies maintain flexibility and freedom of choice.

The Challenge

We've entered a time of transformation. The status quo no longer works. We're seeing new digital learning and research models, new ways to engage students, and new ways for those students to connect and collaborate with educators, as well as innovative research to research collaboration—all enabled and even driven by the cloud.

We're also seeing technological transformation, where innovation trends—such as mobility, big data, and especially cloud computing—are driving institutions to reimagine the infrastructure required to deliver next-generation learning.

Make no mistake—the cloud is here to stay. It's not just a critical success factor for higher education. Many companies and industry verticals are moving to cloud-based applications and infrastructure to gain competitive advantages and differentiation.

Many institutions are turning to cloud technologies and services to drive down costs and increase service agility. Others are looking to profit directly from the evolution to the cloud by offering cloud-based products and services. But for most institutions, the move to the cloud is a journey that happens over time. And regardless of how an organization is looking to use the cloud, some fundamental questions need to be answered.

- What types of applications and services can most benefit from being moved to the cloud and why?
- Who is in charge of procuring and managing cloud applications and technologies—IT or other departments?
- What type of technology should be used to build your cloud(s)?
- Should you leverage open source software or rely on commercial solutions?
- How do you keep a handle on costs if you have a hybrid infrastructure that includes public and private clouds, as well as on-premise resources spread across multiple data centers?
- How can you leverage the cloud to increase revenues?
- And a question that might not be immediately obvious: What network infrastructure should you put in place to support your cloud initiatives?

Without the right network infrastructure in place, the journey to the cloud can be a daunting one. Networks that are proprietary, complex, and static might not be able to handle the increased demands of a cloud-enabled IT or business strategy. They might even be roadblocks on the journey to the cloud. Rigid proprietary networks, for example, can result in technology lock-ins that can force network rip-and-replace for every industry transition. At the other end of the spectrum, individual point products that are only loosely integrated can add to the overall complexity of the cloud environment.

The answer is an open ecosystem that gives you the flexibility to attain agility, reduce costs, and increase revenues as you leverage your cloud infrastructure.

The Juniper Networks Cloud for Higher Education Solution

Juniper Networks is here to help you as you progress through your cloud journey. We have built a comprehensive reference architecture tailored to the requirements in higher education. We build some of the world's largest service and content providers networks. This experience translates well for us to help higher education build the next-generation digital learning networks of the future.

The cloud is central to the transformation of the next-generation learning experience. From public to private to hybrid, colleges and universities are adopting cloud technologies as their primary operating model, making the campus network the critical on-ramp to student engagement, learning management, and other critical ERP applications—deployed in private clouds, on-premise data centers, or hosted in remote locations.

Network virtualization is also transforming information technology in higher education, offering a springboard to the flexibility and agility of the cloud. With virtualization, the network can evolve into new deployment and management paradigms, with campus networks reaping the benefits of centralized visibility and control.

Three-Pronged Approach

Juniper Networks® Connected Campus is based on a three-pronged approach—simplifying the infrastructure; securing the network; and delivering an open, converged framework that ensures best-in-class deployments. Based on Juniper switching and security solutions—including unified threat management, next-generation firewalls, and malware detection and eradication tools, as well as best-in-class wireless LAN (WLAN), UCC, and network solutions through an Open Convergence Framework—Connected Campus offers all the essentials an expanding college, university, or research institution needs to support its operations today while preparing it to embrace the future.

Simplify the Next-Generation Learning and Research Network

By collapsing core, distribution, and access layers into a single logical platform that can be managed from a central location, Juniper removes operational headaches while providing network agility. A single, easy-to-manage platform lets IT organizations expand access port functionality; protect the edge; and centralize configuration, provisioning, management, policy, and visibility. It all works regardless of the deployment model—physical or virtual, public or private cloud, or traditional IT.

Secure the Next-Generation Learning and Research Network

As the scale and sophistication of threats continues to increase, next-generation security must be built around automated and actionable intelligence that can be shared quickly to reduce risk, protecting the network and its users. Juniper's Software-Defined Secure Network gives you end-to-end network visibility that secures the entire network, physical and virtual. It leverages cloud economics to find and stop threats faster. We deliver building blocks for the Software-Defined Secure Network that combine policy, detection, and enforcement with a comprehensive framework that centralizes and automates security.

- **Policy**—Simplified, centrally managed policies are intelligible for all devices on a heterogeneous network.
- **Detection**—Threat intelligence is aggregated into a common, cloud-based feed that helps policy adapt for your network, based on the latest threat information.
- **Enforcement**—Updated policy is distributed across the network, dynamically, in real time.

The Software-Defined Secure Network becomes a single enforcement domain in which every element becomes a policy enforcement point. This is the future of the secure network.

Open Converged Framework

Juniper Networks Connected Campus helps higher education institutions deploy more agile and high-capacity networks that serve greater numbers of users and support an ever-increasing variety of devices with fewer resources and limited budgets. This comprehensive cloud-based solution is designed to accommodate the emerging IT environment, providing access to corporate resources anywhere, anytime.

By partnering with best-in-class WLAN, unified communications (UC), network access control (NAC), and security vendors through its Open Converged Framework (OCF), Juniper ensures easy access to business resources from any device, in any environment, by offering a consistent user experience and a network that is easy to deploy, operate, and manage—without locking customers into proprietary solutions when converging or upgrading their enterprise network.

For wireless access, Juniper's OCF includes leading WLAN vendors such as Aruba Networks, Ruckus Wireless, and Aerohive Networks, allowing customers to choose between 802.11n or move to more advanced technologies such as 802.11ac and a variety of other management and integration options.

Also, by integrating with collaboration tools such as Microsoft Lync, Juniper helps users work together in real time, sharing and collaborating anywhere, anytime, over a reliable network infrastructure.

Juniper Networks Enables You to Make the Cloud Journey on Your Own Terms

The journey to the cloud doesn't need to be—and in fact, it shouldn't be—disruptive. It can be an evolutionary process, or it can be completed all at once as a leap of faith. It is important to remember that the journey to the cloud can and should be undertaken at your pace, driven by the requirements of your institution.

Regardless of the pace at which your institution adopts cloud services or builds out your own private cloud, you should have one requirement of your network—that it not get in your way. Your network should enable your adoption of the cloud, not inhibit it. While this might seem obvious, not all networks are designed this way. Choosing the wrong network solution might mean a disruptive and costly upgrade cycle at each step of the cloud journey.

Enter Juniper Networks Connected Campus—a common, unified network that supports a diverse set of devices, applications, users, etc., to provide reliable, scalable, secure, and highly available access to resources, whether they reside in the cloud, the data center, or the WAN.

Juniper Networks delivers a broad portfolio of reliable, simple, and smart switching, security, and management solutions that deliver the next-generation learning experience in demand, securely and seamlessly connecting students, faculty, staff, devices, machines, etc., in distributed environments. Connected Campus provides the following:

- A simplified infrastructure is scalable and resilient enough to keep up with the demands of users and cloud applications, as well as a management interface that provides zero-touch provisioning and visibility into network operations, reducing costs associated with today's brittle and complex legacy networks.
- Comprehensive enterprise security provides visibility into the network and the ability to defend against threats in real time via a multitude of sensors and third-party feeds.
- An Open Converged Framework features APIs that integrate with best-in-class technologies such as WLAN, unified communications, or security feeds, as well as offer automation and orchestration capabilities for the future.

Next Steps

For more information about Juniper Networks Connected Campus, please contact your Juniper representative or visit www.juniper.net./education/highereducation.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at Juniper Networks or connect with Juniper on Twitter and Facebook.

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