UNIVERSITÉ LAVAL PROVIDES SHARED IT SERVICES AND BECOMES A COMMUNITY CLOUD PROVIDER WITH VMWARE NSX

UNIVERSITÉ LAVAL

INDUSTRY
EDUCATION

LOCATION
QUEBEC CITY, CANADA

KEY CHALLENGES
- Build a public cloud offering to serve the extended community.
- Ensure security for cloud customers and the university's underlying network.
- Enable clients to independently manage their virtual data centers with agility.

SOLUTION
U-Laval used excess data center capacity and VMware technologies, including VMware NSX network virtualization, to deploy an affordable and secure public cloud offering. U-Laval offers clients of its Cumulus community cloud an easy-to-use, cost-effective, and secure alternative to managing their own infrastructures.

BUSINESS BENEFITS
- Cost-effective agility helps customers keep pace with their changing needs.
- Improved security options use micro-segmentation and distributed firewalling.
- Community cloud service adds revenue stream without new staff.

With a Software-Defined Data Center (SDDC) approach, Université Laval (U-Laval) has transformed into an IT service broker, offering its departments a cloud-based alternative to managing their own IT infrastructures, as well as serving the extended community with a public cloud. The addition of VMware NSX® network virtualization enables U-Laval to deliver isolated environments to different tenants on the same infrastructure, with fast provisioning and low costs. This allows U-Laval to offer regional municipalities, public sector entities, and school boards in Quebec an affordable and secure data center as a service.

Located in Quebec City (recognized by UNESCO as a World Heritage Site), Université Laval is one of the oldest centers of education in Canada. The French-language public research university serves more than 45,000 students and has almost 10,000 employees in 60 departments, with 17 faculties that provide 500 programs of study, including 80 that students can complete online.

The Challenge

Université Laval has long been committed to providing the best possible technology services to students, faculty, and staff. By 2010, the university had 60 departments that mostly ran their own servers. That's when U-Laval began an ambitious data center modernization program. René Lacroix, chief information officer at Université Laval, wanted a simplified infrastructure enabled by an SDDC that would help departments increase IT efficiency, improve security, and reduce costs.

Lacroix decided to build a new data center dedicated to virtualized cloud services for internal users that would offer virtual machines, storage, Web hosting, and backup as a service. With 2 megawatts of power and limited square footage, the facility would require a solution that could offer maximum compute density on a minimal hardware footprint. Guillaume Moutier, now director of architecture office, was put in charge of the project.

At the top of Moutier's concerns was data security. The university manages private and confidential data from thousands of students, faculty, and staff, in addition to research data and other intellectual capital. It was imperative that this data remain secure at all times.

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"Organizations are struggling to keep up with the growth in data, inadequate or obsolete infrastructure, and rapid changes in technology. With the Software-Defined Data Center infrastructure we've built, and leveraging the security, automation, and multitenancy capabilities of VMware NSX, we have gone to market with a solution that cost-effectively addresses these issues."

GUILLAUME MOUTIER
DIRECTOR OF ARCHITECTURE OFFICE
UNIVERSITÉ LAVAL

VMWARE FOOTPRINT
• VMware NSX
• VMware vSphere Enterprise Plus
• VMware vCloud Air Network

PLATFORM
• Cisco Nexus 7000 and Juniper QFX switches
• HP and IBM servers
• IBM and EMC storage

Moutier needed a compelling IT offering that would enhance the university's objectives and not inhibit them. "We had to convince internal users that our IT offering will save them time and save them money," explains Moutier.

After the new data center was in full operation, providing services to internal users, Moutier expanded his strategy. As an educational institution funded by the government of Quebec, Université Laval is required to share resources and knowledge with other public organizations. Moutier thought he could use excess data center capacity to offer a public cloud service. He knew he wouldn't be able to add new staff to support this, so automation and ease of use would be essential.

The Solution

Moutier decided to build U-Laval's SDDC on a VMware vSphere® foundation, with the VMware NSX platform for its public cloud offering. The NSX solution provides the capability to programmatically create, provision, snapshot, delete, and restore sophisticated software-based networks on top of the university's existing Cisco and Juniper hardware. Moutier believes that the integration of NSX network virtualization inside the university's current infrastructure is key to the project's success.

The opportunity to sell external cloud services materialized when Quebec City decided to externalize some of its workloads and came knocking. But Moutier realized that transitioning to serve external customers requires support. The university then took advantage of VMware expertise as it became a VMware vCloud® Air™ Network service provider.

NSX network virtualization and the vSphere solution along with the VMware vCloud Air public cloud platform deliver virtual data centers with self-service provisioning to external customers, while EMC provides data storage and backup solutions tightly integrated with the VMware platform. The solution automates the delivery of network services and provides fully isolated environments from a multitenant virtualized data center. "VMware NSX and vSphere were key to achieving an independent and autonomous solution," says Moutier.

Moutier and team completed a successful pilot project with Quebec City in 2014, launching one of the first 50 VMware NSX production deployments and proving that they could deliver services to external customers. They have since extended the services, added service-level agreements, and named their community cloud service Cumulus and are expanding their client base.

Business Benefits

The NSX network virtualization platform enables U-Laval to extend its highly efficient and secure IT services to external organizations.

Service to the Community and New Revenue Stream

The Cumulus public cloud, built on VMware technology, offers the community an affordable hybrid cloud solution that is essentially a virtual data center as a service. Following the pilot project with Quebec City, U-Laval has grown its Cumulus and vCloud Air Network client base, recently adding the Ministry of Tourism.

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Self-Service Capabilities

The NSX solution makes the university's clients more agile through the automated provisioning of network services. This gives customers the ability to manage their own networking and provides them with the scalability and flexibility they need to support their changing requirements. Moutier is proud of Cumulus' self-service capabilities. "The Ministry of Tourism migrated all their virtual machines, about 80, from various suppliers, and they recreated a complicated network," he says. "They never called us once for help."

Improved Security

U-Laval offers security options with the micro-segmentation and distributed firewalling capabilities of NSX, enabling external customers to extend their existing IT security solutions. Security is now built into the fabric of U-Laval's infrastructure and Cumulus public cloud.

Cost-Savings

"Organizations are struggling to keep up with the growth in data, inadequate or obsolete infrastructure, and rapid changes in technology," says Moutier. "With the Software-Defined Data Center infrastructure we've built, and leveraging the security, automation, and multitenancy capabilities of VMware NSX, we have gone to market with a solution that cost-effectively addresses these issues." The automation and ease of use of the solution also enables the Cumulus offering to grow without adding any new staff.

Looking Ahead

The success of the Cumulus community cloud has made the university an exemplary model for the sharing of resources and knowledge that Quebec's public funding requires. U-Laval plans to grow its Cumulus cloud service as well as continue expanding services to the university, including a more robust disaster recovery solution.

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