

Citrix helps UVMHN manage a meteoric rise in telehealth visits

Delivering a better technology experience

Several years ago, when the IT team at University of Vermont Health Network (UVMHN) started a consolidation project combining two technology siloes – one a VMware stack, and the other based on Citrix, the group had no idea how the world would change. A number of mandates were in place based on the hospital system's business climate at the time. Among them were: standardize on one electronic health record (EHR) platform; reconcile finances associated with technology; consolidate physical resources such as software, hardware and storage; deploy a single digital workspace infrastructure; and provide the technology tools that knowledge workers need on a day-to-day basis.

Ultimately, the team wanted to deliver a better technology experience to its constituents – one that would free clinical employees to concentrate on the core competency of patient care, and also address the needs of non-clinical employees. Those administrators would get technology that could enable them to more easily – and more securely – accomplish day-to-day tasks such as patient registration and management, billing, insurance claims, and more.

Citrix Virtual Apps and Desktops a better fit

The goal for UVMHN was to simplify the environment as much as possible by standardizing on one platform for app and desktop virtualization. The team determined that Citrix Virtual Apps was the best fit for their organization's app virtualization needs. Hence, the team decided on an on-premises [Citrix Virtual Apps and Desktops](#) solution, eventually replacing VMware Horizon with Citrix Virtual Desktops.

Today, the team has completely replaced VMware Horizon. Its full Epic roll-out will be accomplished on Citrix and Epic technologies. Now, the IT team is charged with supporting only one digital infrastructure. Additionally, the design to transition UVMHN's mostly-on-premises digital technology infrastructure to the cloud is now complete.



Industry

Healthcare

Location

Vermont, USA

Citrix Products

- [Citrix DaaS](#)
- [Citrix Workspace](#)
- [Citrix Endpoint Management service](#)
- [Citrix Gateway](#)

Moving to the cloud with mobile device management

In the past, UVMHN's infrastructure was entirely on-premises. Today, mobile device management (MDM) is being handled in the cloud with [Citrix Endpoint Management \(CEM\)](#). All of UVMHN's managed mobile devices are being managed from [Citrix cloud services](#). Citrix cloud services simplify the delivery and management of Citrix technologies, helping IT extend existing on-premises software deployments or move 100 percent to the cloud.

The team has not implemented Citrix Virtual Apps and Desktops in the cloud yet; however, they are planning to deploy a hybrid configuration that will leverage this Citrix cloud-based solution, which is known as [Citrix DaaS](#). Today, UVMHN has the full Citrix Virtual Apps and Desktops on-premises version.

Four hospitals in the health network are now live on the Epic electronic medical records (EMR) platform, with additional phased roll-outs currently underway. Right now, the number of concurrent connections in the virtual desktop environment is approximately 4,000 across the four hospitals that are live. When it comes to virtual apps, there are roughly 3,000 concurrent connections.

[Citrix ADC](#) and [Citrix Gateway](#) also are part of the mix. In addition to CEM, the cloud components included in the solution are Citrix Cloud and Microsoft partner offerings including Microsoft Azure and Microsoft Office 365. The team already has integrated Citrix Cloud with its Azure environment for authentication.

Cloud-based CEM also delivers access on users' dedicated devices

The Citrix Endpoint Management service is integrated with Microsoft Intune to manage and deliver Microsoft Office 365 apps, internal apps, and Citrix Virtual Apps and Desktops in one secure container. This gives end users the ability to securely access the hospital environment on their own dedicated devices – the same ones they use for personal activities. Endpoint Management keeps organizational data and apps separate in their own containers, apart from users' personal data.

Telehealth with iPads: a significant new capability for stakeholders

Citrix Gateway and multifactor authentication (MFA), enable secure access to the digital environment for UVMHN's growing remote workforce. Because the technology was already in place prior to the onset of the coronavirus pandemic, the IT team was able to focus its efforts on supporting a rapidly skyrocketing remote patient requirement: the need for better telehealth capabilities.

“During the height of the crisis, UVMHN's need for telehealth visits increased exponentially from roughly 100 visits per week to approximately 7,000. We were able to use the Citrix technology tool set to cost-effectively deploy centrally managed, secured devices to accommodate a number of unique telehealth use cases,” says Lisa Pratt, Enterprise Architect.

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When the pandemic hit, the UVMHN telehealth group was already working on various telehealth technology pilots; the groundwork had begun to make this remote capability more mainstream across the hospitals. However, when the business disruptions associated with the pandemic started, UVMHN did not have the hardware and technology necessary to deliver what was needed to support the massive increased need for telehealth.

The virtual desktop environment ran on Dell Wyse thin clients running the Dell Wyse ThinOS, which at that time, did not yet have the ability to support teleconferencing apps like Teams and Zoom. Anyone who was trying to use the thin clients for Zoom visits or Microsoft Teams meetings experienced problems with the audio and video components of those virtual meetings. Either they didn't work at all, or when they did, the performance was so poor that the technology wasn't usable.

"Engineering a solution to this problem was going to take time that we just did not have due to the pandemic. We needed to think outside the box to develop a solution that could meet the immediate need and be deployed quickly," says Pratt. "Thankfully we were able to leverage our existing Citrix Cloud environment to meet this need for our staff and patients. Centrally managed iPads with the combination of Citrix Endpoint Management in the cloud and Apple Business Manager were easily configured and deployed for a number of critical telehealth use cases," she continues. "Acquiring a sufficient number of iPads to meet the growing demand became the bigger challenge with this solution," notes Pratt.

Anyone in the organization could use or share this solution. IT professionals were able to quickly deploy fully managed devices, locked down to the use of just a few required apps.

"We already had the connection between Citrix and Apple Business Manager in place. That meant that we could take iPads out of the box, enroll them in our system, and assign them to end users in no time at all," notes Pratt. "This allowed us to accelerate the delivery of highly effective telehealth services.

"The team also used the devices in skilled nursing facilities. They connected patients back to providers at the hospital to alleviate the need for the clinicians to go into those facilities during the height of the pandemic," shares Pratt. "Not only were the iPads to connect patients to providers, but also to connect patients to their families, which became critical during end-of-life care. Additionally, the iPads were used to connect providers to COVID-19-positive patients in hospital rooms. This limited exposure for providers," she explains.

"This has been a group effort. The Citrix Customer Success Team has been crucial to our success. We feel like they have gone to bat for us in ways that were above and beyond what is normally done for clients. These individuals are the reason why we have Citrix Cloud. They have helped us set up a hybrid environment between Citrix Cloud and our on-premises environment."

**Lisa Pratt
Enterprise Architect
University of Vermont
Health Network**

An iPad-based solution that has evolved with time

“We’ve now begun to shift our focus back to providing telehealth to clinical staff on their thin clients,” Pratt describes. “We’re giving people the ability to join Epic-based telehealth meetings from Dell Wyse thin clients, but now running IGEL OS. Using the same Dell hardware, the IGEL OS capitalizes on the Citrix HDX optimization technology,” she explains. “We purchased IGEL knowing it was part of the Citrix Ready Marketplace and that we could partner with Citrix on the HDX optimization for video conferencing,” she clarifies. “Now, providers have the capability to conduct Teams and Zoom meetings directly from the desktops they work on in their offices or exam rooms.”

Citrix is there during business disruptions

The Citrix environment also provides significant back-up capabilities for UVMHN during business disruptions. The health network has two geographically dispersed data centers. The environment is configured in an active/passive way. If there is a disruption in one data center, for example, and it brings down that data center, the team turns everything on in the other data center, or vice versa. It’s ‘like-for-like’. While there is a cost impact to having the hardware in the background to support the environment, the IT team sees the trade-off as worthwhile. “In our environment, at any given time, we have double the capacity we need,” notes Pratt.

Citrix Endpoint Management was the first step in the organization’s cloud transition

As the organization eyes the future, the team has begun working on its next key initiative, integrating its telehealth environment directly with the Epic EHR platform. Deployment of connectivity from the patient chart in Epic to the telehealth program has begun and rollouts are still underway. This configuration provides both the patient and the provider with a way to seamlessly join the telehealth meeting directly from the electronic health record -- from any device, anywhere. Offloading the processing of the video and audio of Zoom meetings to the local endpoint by leveraging Citrix HDX Optimization and the Zoom VDI plugin is key for this integration.

Citrix and a return to in-person patient visits

As the pandemic has ebbed and flowed and vaccinations have become more prevalent, a hybrid work model has emerged for many employees. This is a mix of remote and on-site work in order to accommodate patients who feel the need to visit clinics in person rather than through virtual meetings.

The UVMHN team anticipates that telehealth visits will decrease as patients return to in-person visits. However, for the foreseeable future, many patients’ families will still have significant challenges to address before returning to some semblance of normalcy. Among them are children unable to return to school, or employment that has morphed or changed. Moving forward, telehealth will continue to play an important role at UVMHN by providing patients with more accessible access to healthcare.

Work from home and hybrid work are here to stay

“In our own organization, we now look at work from home as a big thing. Our future technology choices will be made accordingly,” says Pratt. “Whether it is considering non-persistent desktops, app layering, or remote VDA, we are starting to look at all of those options in order to make our employees’ lives easier,” she says. Pratt adds that in Vermont, the pool of talent is tighter due to the state’s size. When jobs can be configured to support hybrid or remote work models, it really expands the talent base.

One final thought: it takes a village

Lisa Pratt offers a final comment about the progress that her team has made. “This has been a group effort. The Citrix Customer Success Team has been crucial to our success,” she says. “We feel like they have gone to bat for us in ways that were above and beyond what is normally done for clients. These individuals are the reason why we have Citrix Cloud. They have helped us set up a hybrid environment between Citrix Cloud and our on-prem environment,” she concludes.

For her, it is clear that virtual and socially distant medical care is here to stay. It’s also clear that Citrix will be in the mix for years to come.

Enterprise Sales

North America | 800-424-8749

Worldwide | +1 408-790-8000

Locations

Corporate Headquarters | 851 Cypress Creek Road, Fort Lauderdale, FL 33309, United States

Silicon Valley | 4988 Great America Parkway, Santa Clara, CA 95054, United States

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