



Case Study

Federation of Students Delivers a “Wow” VDI User Experience While Increasing Server Densities by Leveraging Cost-Effective PCoIP Hardware Accelerators

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BRAD KRANE
DIRECTOR OF IT

FEDERATION OF STUDENTS, UNIVERSITY OF WATERLOO

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Since 1967, the Federation of Students has been the voice of undergraduate students at the University of Waterloo. The organization initiates on- and off-campus programs that serve, empower, and represent students. It operates seven commercial services, nine student-run services, and oversees 200 student organizations and Orientation Week.

AT A GLANCE

Situation

- Federation of Students, University of Waterloo
- Waterloo, Ontario, Canada
- 70 employees

Challenges

- Poor high-definition video performance and playback
- Eliminate sluggish, choppy performance of desktop applications
- Reduce CPU load on servers while ensuring an uninterrupted VDI experience

Solution

- Teradici® PCoIP® Hardware Accelerators (Model: APEX 2800 LP)
- Teradici PCoIP Management Console
- Dell PowerEdge R720/30 servers
- VMware Horizon® (with View)
- Dell Wyse P25 Zero Clients
- PCoIP Software Clients for Mac and Windows

Results

- **Superior quality viewing experience:** improved video performance from fewer than 20 frames per second to consistent, 30-frame-per-second video delivery
- **Cost-effective:** avoided purchasing additional CPU cores and achieved higher performance for less cost
- **Reduced CPU load:** increased server density by 50 percent, and lower CPU loads also reduced power and cooling requirements
- **Better resiliency:** if a host goes down, remaining servers continue to deliver high VDI environment performance

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“Even with four more cores, we wouldn’t have had the same level of improvement as we did with the Teradici PCoIP Hardware Accelerators, and the cards were inexpensive for the value they delivered.”

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The Federation’s Director of IT, Brad Krane, knew that Virtual Desktop Infrastructure (VDI) would greatly simplify desktop administration for staff computers. First however, he had to deliver convincing application and video performance for end-users. With 45 full-time and approximately 30 part-time staff, that wouldn’t have been easy.

“In IT, we wanted to reduce the amount of time spent updating desktops, deploying new users, and remediating viruses and malware,” said Krane. “VDI offered significant time savings, as well as the potential to reduce server CPU cycles with their associated power and cooling requirements. But we also wanted to deliver an outstanding user experience for our staff.”

- Graphic designers produce and edit marketing videos, which require high responsiveness and performance. High-definition (HD) video playback worked acceptably on a small screen but ran poorly on full screens.
- Full-screen video consumed significant CPU power. “CPU usage was always at least 75 percent and was often pegged at 100 percent,” said Krane.
- Application use was sluggish. Designers are heavy users of Photoshop, Adobe Flash, YouTube, video editing, and other graphics-intensive applications and services. Dragging and dropping items was choppy and slow in the Windows environment. Krane hoped to offload normal Windows workloads to improve usability.

The Federation already had virtualized almost all of its servers with VMware software, and it chose VMware Horizon (with View) for its VDI deployment.

Thanks to its partner, Root Cellar Technologies, the Federation identified the perfect solution for improving the end-user experience. Root Cellar Technologies specializes in delivering efficient, secure methods of storing, managing and using critical business information. The firm had superb VDI experience and recommended Teradici PCoIP Hardware Accelerators for Federation servers.

The only product of its kind, PCoIP Hardware Accelerator reduces CPU overhead by dynamically offloading the most active displays to maximize computing capabilities where they are most needed. The Federation also chose the PCoIP Management Console to manage firmware updates on its PCoIP Zero Clients.

In just two days, Krane had installed the PCoIP Hardware Accelerators in his servers. “I could have done it easily in one day if I hadn’t had so many other things that needed to be done,” he said. “We were up and running quickly – it was that easy.”



Krane saw an immediate – and significant – performance improvement. “The overall performance increase was instant. Video and Windows performance was 100 times better,” he said. “The Teradici PCoIP Hardware Accelerators also dropped our CPU usage by at least half. I was very happy.” Users now experience perfect audio and video synchronization with few – if any – dropped frames. Prior to the PCoIP Hardware Accelerators, video performance rarely achieved 20 frames per second. Now, video performance hits 30 frames per second and stays there.

Products used

Teradici® PCoIP® Hardware Accelerators
(Model: APEX 2800 LP)

Teradici PCoIP Management Console

Dell PowerEdge R720/30 servers

VMware hypervisors

VMware Horizon® (with View)

Dell Wyse P25 Zero Clients

PCoIP software clients for Mac and
Windows

Virtualization platform

VMware Horizon (with View)

Windows performance improved significantly as well. Now users have consistent, highly responsive VDI desktops with a smooth video viewing experience, even when dragging and dropping windows. “After we deployed the PCoIP Hardware Accelerators,” said Krane, “users said ‘Wow! What did you do?’ That’s one of very few times in IT that I’ve ever heard that.”

The PCoIP Hardware Accelerators allowed Krane to avoid purchasing additional CPU cores. “Even with four more cores, we wouldn’t have had the same level of improvement as we did with the PCoIP Hardware Accelerators, and the cards were not expensive.” The cards also increased server density by 50 percent. Even if a host goes down, the remaining servers continue to deliver high VDI environment performance without a hitch. And as CPU usage dropped, so did server power and cooling requirements.

The PCoIP Management Console has simplified PCoIP Zero Client management for Krane. Only one configuration is needed, and the Zero Clients are put on the network and perform instantly. “The PCoIP Management Console is a really nice way to manage our Zero Clients. We use it for firmware updates and we gather logs from PCoIP Zero Clients for troubleshooting and ongoing monitoring.”

According to Krane, convincing staff to adopt the VDI environment would have been much more difficult without the great user experience enabled by the PCoIP Hardware Accelerators. “I always recommend the PCoIP Hardware Accelerators to colleagues and peers considering VDI,” said Krane. “Yes, they could achieve similar results with more CPUs, but performance still won’t be as good and it will cost much more. For the best experience, just go to PCoIP solutions.”

