



## Engineering Company Mobilizes Mission-Critical Applications and Improves Collaboration Through VDI and PCoIP Hardware Accelerator

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BENOIT NOTERIS  
HEAD OF INFRASTRUCTURE, IT DEPARTMENT  
CSD MANAGEMENT SA

### CSDINGENIEURE+

VON GRUND AUF DURCHDACHT

CSD ([www.csd.ch](http://www.csd.ch)) is a leading engineering consultancy firm. Its professional engineering teams develop solutions across a broad range of disciplines, including construction, the environment, water, and energy. The company has 30 branches in Switzerland, Belgium, Germany, Italy, and Lithuania, which provide local service to customers in government, real estate, and industry.

#### AT A GLANCE

##### Situation

- Engineering consulting services
- Liebefeld, Switzerland
- 700 employees

##### Challenges

- Increase enterprise mobility through Virtual Desktop Infrastructure (VDI) deployment
- Standardize desktop images to simplify management
- Deliver complex engineering, video, and visualization applications with excellent performance and responsiveness
- Maximize WAN bandwidth utilization in spite of large file sizes

##### Solution

- Teradici® PCoIP® Hardware Accelerators for HP DL380 Gen8 Rack Servers (Model: APEX 2800 LP)
- VMware Horizon® (with View)

##### Results

- **Performance:** accelerated application performance and mouse responsiveness to be indistinguishable from locally hosted applications
- **Bandwidth savings:** gained ability to send large files faster without having to add WAN bandwidth
- **CPU effectiveness:** offloaded CPUs and maximized compute performance, enabling CSD to operate using 8-core servers instead of 12-core servers
- **Simplified mobility and collaboration:** by enabling engineers to work remotely with easy access to high-performing complex applications



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**CSD Engineers is known for innovation in engineering. The company develops new ways of tackling a broad range of construction and environmental challenges, making it a valuable partner to its clients.** CSD engineers often work onsite at client locations, and multidisciplinary teams collaborate across multiple locations. Mobility is a priority and a long-term strategy for CSD, so the company needed a way to improve remote productivity for its mobile engineers.

- Change control had become increasingly difficult. Recently, CSD has grown from 400 to 700 people. Laptops and workstations are assigned to new employees, but over a period of several months, vendors' systems changed, and it became nearly impossible to ensure that everyone had the same systems and current software versions.
- CSD manages more than 300 engineering applications alone, including AutoCAD®, drawing, GIS, and visualization tools. These applications are highly complex and difficult to deliver remotely with ongoing high performance and responsiveness. In addition, engineers share plans, satellite imagery, and topology maps, resulting in files that range up to 800 MB in size.
- Employees' tower workstations and laptops across 30 locations are connected over a WAN that imposes a 20 MB limit on file sizes. Huge files were consuming WAN bandwidth during collaboration and the IT team had to constantly monitor bandwidth usage in order to manage telecom costs.

The IT organization decided to deploy a Virtual Desktop Infrastructure (VDI) to improve enterprise mobility, endpoint manageability, engineering collaboration, and make large file transfers a thing of the past. With VDI, the IT team could house all applications in the data center instead of having to physically install and maintain them on laptops and workstations. Files stay in the data center and are visualized remotely.

“We wanted to achieve the best possible application and video performance for users,” said Benoit Noteris, Head of Infrastructure for CSD. “At the same time, we wanted to minimize the impact of VDI on our compute CPUs. It was a tall order, and we looked for a partner to help us.”

**Choosing the right partner was critical.** The CSD IT team conducted a six-month evaluation process to identify the right partner. CSD wanted a partner with deep VDI experience and the ability to think creatively in order to successfully deliver virtual engineering applications.

“We wanted a local partner that would bring us great ideas,” said Noteris. “Bechtel was ideal.” Bechtel is a leading IT services company that provides IT strategy consultation, hardware and software delivery, and project planning and coordination. Together, CSD and Bechtel developed the VDI architecture and performed the deployment. “We chose Teradici for their PCoIP Hardware Accelerators because they would allow us to save CPU cycles and bandwidth,” said Noteris.



The complete CSD VDI deployment includes:

- **Teradici PCoIP Hardware Accelerators for HP DL380 Gen8 Rack Servers (Model: APEX 2800 LP):** deployed on HP blade servers with VMware Horizon on ESXi 6.0 hypervisors to optimize performance under high workloads. The Teradici PCoIP Hardware Accelerator enables the servers to maximize processing, increasing server consolidation ratios.
- **NVIDIA GRID K1 and K2 technology:** As the Nvidia GRID GPU generates significant pixels, the Teradici PCoIP Hardware Accelerator maintains a smooth user experience smooth by increasing the frames per second delivered to the remote end point.

“Teradici PCoIP Hardware Accelerators for CSD’s HP DL380 Gen8 Rack Servers were a unique solution,” said Thibaud Lenik, Solution Architect at Bechtle AG. “The cards were easy to install – having the PCoIP capabilities embedded in the cards greatly simplified setup, tuning, and testing.”

#### Products used

Teradici® PCoIP® Hardware Accelerators for HP DL380 Gen8 Rack Servers (Model: APEX 2800 LP)

NVIDIA GRID K1 and K2

HP DL380 Gen8 rack servers

VMware hypervisors

#### Virtualization platform

VMware Horizon® (with View)

**After the initial deployment and some fine-tuning, many engineers use the VDI environment every day.** “We deployed VDI to ourselves in the IT department, first,” said Noteris. “That way, we could work out the deployment details without affecting our users. Once we centralized data in the data center, we could begin centralizing users.” Next, the IT team migrated the CSD Finance, Human Resources, Quality Assurance, and Marketing departments to VDI. Engineers were the final group to be migrated because their work is mission-critical and cannot be disrupted. Noteris chose a group of 40 engineers as the first to migrate to the VDI environment. Half of the desktop profiles are the regularly used engineering applications, and the other half is VDI access to company data. The IT team also allocated a maximum of 5 MB of WAN bandwidth for administrative users and a maximum of 20 MB of WAN bandwidth for CAD users.

“We were able to optimize application responsiveness so that mouse usage for remotely hosted drawing applications is indistinguishable from locally hosted applications,” said Noteris. “Our young engineers love the VDI environment. Our long-term goal is to persuade our experienced engineers to adopt the VDI platform.”



CSD has achieved numerous benefits from the VDI environment. The PCoIP Hardware Accelerators enabled CSD to avoid immediately upgrading its WAN bandwidth by improving bandwidth utilization for visualization of large files. Now, specialized engineers can work in remote locations and feel like they are at the main office. Surprisingly, even heavy users are not hitting their bandwidth limits. The PCoIP Hardware Accelerators enabled CSD to use servers with 8-core CPUs, instead of 12-core CPUs, for a significant cost savings. At the same time, ultra-fast CPU speeds accelerate calculations in engineering software, which is a critical capability for motivating users to adopt the VDI environment.

The VDI environment is expected to reduce management time, once it is completely deployed, and to extend the lifespan of applications and workstations for additional operating and capital expenditure savings. Noteris and his team also use the PCoIP Software Statistics Viewer to analyze network logs and visually illustrate usage.

“The Teradici solution is well worth it,” said Noteris. “Compared to the performance improvement, bandwidth savings, and CPU savings that we have gained so far, our overall investment in VDI is low. And further, we expect to reap even more from simplifying mobility and collaboration for all of our engineers – which is our primary objective.”

