



PCoIP Zero Clients, Hardware Accelerators, & GPUs Match Graphic-Intensive Workloads for 2D/3D CAD

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LEAD IT SPECIALIST - INFRASTRUCTURE
CAMPUS COMPUTERSYSTEME CUSTOMER
(CONSTRUCTION INDUSTRY SOLUTION PROVIDER)

Campus Computersysteme supports medium-sized enterprises in the field of IT consulting and service since 1991. The company helps clients plan and realize infrastructure solutions on the basis of virtualization, with core competencies in storage and backup, networking, security, and performance optimization.

AT A GLANCE

Situation

- Service provider; construction industry (customer specializing in mineral/cement solutions)
- Copenhagen, Denmark
- Customer: 15,000+ employees in more than 50 countries

Challenges

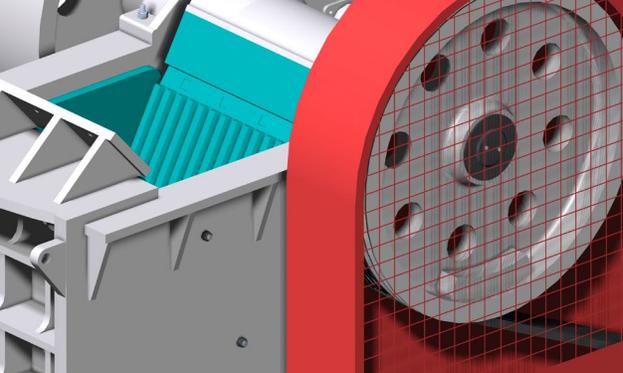
- Gaining the benefits of VDI without sacrificing user experience with 2D/3D CAD applications (AutoCAD, SolidWorks)
- Maximizing client-server ratios (optimizing CPU overhead on the hosts)
- Reducing the burden on IT teams at sites around the world

Solution

- Virtual desktop infrastructure (VMware® Horizon View™)
- Teradici® PCoIP® Zero Clients and PCoIP Software Clients
- Teradici PCoIP Hardware Accelerator cards and NVIDIA GRID K2 technology

Results

- **Simplicity:** new VDI endpoints (zero clients; software clients) can be deployed in minutes instead of hours (PCs)
- **Performance:** the most demanding image encoding tasks are offloaded from the CPU; users get the full potential of the GPU experience
- **Ergonomics:** quieter, cooler operation improves office environments
- **Security:** zero clients keep content in the data center



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BRIGITTE ALLIS
HEAD OF SALES
CAMPUS COMPUTERSYSTEME GMBH

The engineers at a major European consultancy act as a one-source solution provider for some of the world’s most challenging construction projects. The IT team and the company’s technology partners equip them for success, and make sure that the engineering workstations and infrastructure are optimal for the extremely dynamic project teams and requirements. When interest in more agile virtual desktop solutions grew, the technology team collaborated with Campus Computersysteme to evaluate and test virtual desktop infrastructure (VDI), PCoIP Zero Clients, and PCoIP Software Clients. The challenges of introducing a new desktop solution included:

- **End-user acceptance:** Remote sessions had to deliver an equivalent experience for 2D and 3D engineering applications (AutoCAD, SolidWorks).
- **Performance:** Initial tests showed that graphics-intensive workloads put too much overhead on host server CPU resources (up to 80-percent utilization).
- **Avoiding IT complexity:** The growing business continually pressured the highly distributed IT staff, and called for a desktop solution that could significantly reduce administration time.

Existing relationships and satisfaction with VMware and Dell gave the solution provider a solid starting point, and the VDI experts at Campus Computersysteme provided advice based on experience gained in previous zero client deployments.

“Campus Computersysteme collaborated with us every step of the way, starting with a pilot test they set up at their site,” said the client’s lead IT specialist for infrastructure projects. “This was our first experience with Dell Zero Clients, which included Teradici PCoIP technology.”

The evaluations focused on the two most critical requirements: ease of support, and end-user experience. For IT, the benefits of VDI and PCoIP Zero Clients were immediately obvious. “With traditional PC workstations, there is too much work for IT,” explained the IT specialist. “The PCoIP Zero Clients, in comparison, are much faster to deploy – just 10 minutes instead of at least three hours for a PC. And they are easier to manage, with one master image.”

Engineers were included in the initial testing and like IT became champions of the virtual desktop concept. PCoIP Zero Clients became “must haves” and IT was urged to expedite the deployment. But they were adamant that the performance of AutoCAD, drafting software, and other 2D/3D applications on the remote VDI hosts had to provide an equivalent user experience compared to traditional PCs.

The initial performance tests were encouraging. PCoIP Zero Clients delivered better performance for AutoCAD. A closer look, however, showed that the graphics-intensive applications were consuming as much as 80 percent of the VDI servers’ CPU resources.

The IT specialist explained, “For VDI to be viable in our environments, we had to reduce CPU utilization by more than 20 percent. Fortunately, I had read about the combination of Teradici PCoIP Hardware Accelerator cards and GPUs. Again with the help of Campus Computersysteme, we set up a test with both cards added to our VDI hosts. CPU utilization immediately dropped by 25 percent – more than we had hoped. By avoiding the need for more servers, we could afford to move ahead with VDI and zero clients.”



The first virtual desktops were introduced at the customer's site in Germany where the small IT staff had previously been stretched to its limits. The popularity of the virtualized desktops, largely due to anywhere access to remote desktops and engineering applications, has helped IT expand VDI. Four VDI servers now support approximately 100 virtual machines. Each server is equipped with a PCoIP Hardware Accelerator card, and NVIDIA GRID K2 GPUs have been installed in almost half of the servers.

"It is quite easy for our end users to share the PCoIP Hardware Accelerator and GPU resources," said the IT specialist. "It is not necessary that we plan the exact mapping. In shared mode, they are assigned as needed to virtual machines. The configuration is very easy. We equip hosts with two GPU boards, and up to five virtual machines can share each GPU at any point in time."

Today, hundreds of zero clients are in use at multiple sites in Europe and the U.S., and IT has proposed to management that PCoIP Zero Clients become the new corporate desktop standard. Teradici PCoIP Software Clients have also been deployed, and give engineers access to remote sessions from their existing workstations.

Products used

PCoIP Zero Clients and PCoIP Software Clients

PCoIP Hardware Accelerator cards

Virtualization platform

VMware Horizon View

NVIDIA GRID Software

As more zero clients have been deployed, more benefits have been discovered.

"Not only do the new zero clients consume less power, they are very quiet," said the IT specialist. "We never really noticed how noisy PCs can be. But now, in the offices where we have replaced a lot of PCs, our employees are surprised to hear the birds chirping outside their windows. Pretty amazing."

Security has also been improved with the introduction of zero clients and VDI. Sensitive customer design data can remain in the data center, where it can be locked down and better managed by IT. Without local storage, zero clients represent less risk to the company.

For Campus Computersysteme, the lessons learned have also made lasting impressions. "Working with this customer, we saw that the combination of PCoIP Hardware Accelerators and GRID K2 GPUs was right for their engineers and also right for our company," said Brigitte Allis, head of sales, Campus Computersysteme. "Since then, we have deployed both at other customer sites. Zero clients are a big time saver for IT organizations that need to constantly roll out workstations. The complete solution, with accelerators, makes it possible to consolidate a lot of endpoints on each server. Now, in almost all VDI cases, we include the Teradici PCoIP Hardware Accelerator card."

"Overall, our engineers are happy with the flexibility of VDI and zero clients, and for IT the new endpoints represent time and cost savings," said the IT specialist. "Change can be hard, especially for a large global corporation, but this is one change that we consider very successful."

