

Case Study

NATO Operations in Northern Europe Rely on Secure, Resilient PCoIP Zero Clients

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JAN-ARVE HANSEN IT ARCHITECT NEC CCIS SYSTEM SUPPORT CENTER (SSC) NORTH ATLANTIC TREATY ORGANIZATION (NATO)



Northern European Command – Command and Control Information System (NEC CCIS) is an AIR C2 system with land and maritime functionality supporting operations at more than 40 European NATO sites. The NEC CCIS System Support Centre (SSC) develops and maintains custom software applications for the NEC CCIS while ensuring compliance with NATO and national operational and technical requirements.



AT A GLANCE

Situation

- Multi-national strategic operations support
- Kolsås, Norway
- 21 employees, supporting base of 3,000+ application users

Challenges

- Secure, resilient access for remote, distributed user base
- Increasing end-user and IT productivity
- Scalability across multiple sites, with central management

Solution

- Virtual desktop infrastructure
- Teradici® PCoIP® Zero Clients

Results

- Ease of deployment, configuration: Compared to traditional workstations, zero clients speed set-up.
- Elimination of OS on desktops: Simplified support of desktops; faster OS updates (data center).
- **Boosted security:** Pixel-only downloads (no eavesdropping); no local hard drives.
- **Scalability:** Central support team can manage growing base of application users; hardware acceleration options available, if needed.

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Besides producing custom command and control applications for NATO, the System Support Center (SSC) in Norway recommends and deploys the application delivery platforms. Local administrators manage the infrastructure and applications at each NATO site. Several years ago, a new release of an application for planning, tracking, and controlling tactical operations (primarily for Air Force units) called for a Windows-based client. To support the end users in 35 different locations, SSC evaluated VMware virtual desktop infrastructure and various remote desktops. Besides finding a desktop that could be efficiently supported without over-burdening SSC, the primary challenges included:

- **High security**: At many locations, security requirements included rigorous lockdown procedures for any system with local storage.
- **Productivity**: Even leaving the room for a few minutes meant that an employee had to remove the hard drive and place it in a safe. Starting up each morning, or whenever an employee returned to the office during the day, was a time-consuming unlocking, installing, and start-up process.
- **Performance**: Providing a high-end computing experience called for the ability to rapidly display and update maps on the remote desktops.
- **Connectivity**: The project plan aimed to protect investments in existing fiber connections to desktops and the devices connected to the existing endpoints. This initially called for USB capabilities, and as the project evolved, support for a smart card reader.

Initial testing with RDP fell short in terms of performance. Attending VMworld in San Francisco gave the SSC engineers a chance to look at alternative PCoIP solutions, with the hope that streaming pixels to remote displays would address multiple challenges. They left the first meeting with a leading client vendor feeling encouraged; the vendor was willing to work with them to produce a client that could meet their needs.

Two minutes later, when they passed the Teradici booth, some PCoIP clients caught their attention. Still hoping to find a perfect client for their application, they asked about the hardware being demonstrated.

"When Teradici showed us an existing product – a stateless zero client without local storage – we were really excited," said Jan-Arve Hansen, IT architect at the SSC. "Plus, when we asked about connectivity, Teradici told us that the zero client vendor supported redundant fiber connections. So we never had to follow up with the other client vendor, or wait for a solution to be developed. The zero client we needed was already available."

Zero clients were ordered and evaluated by a small group of users at a Norway air station. During testing and development, the zero client vendor also helped SSC address a requirement for a smart card reader. The clients that were eventually recommended to all NEC CCIS sites, which were based on first-generation Teradici PCoIP technology, were introduced gradually starting with a deployment of 40 clients at a main air station in Norway.



"The main requirement was to replace physical workstations," explained Hansen. "With Teradici PCoIP Zero Clients, we are able to give employees virtual access to their desktops from anywhere on the premises. The users are happy with the application performance and the overall desktop experience.

"In fact, the zero clients eliminated the need for security practices that were very cumbersome and inconvenient for the end users. Since the new PCoIP zero clients have no local storage, as soon as a session is disconnected, the client is no longer classified. Employees don't have to worry about locking doors or removing and locking up hard drives. This has turned out to be a very important feature for the users who work on highly classified projects and activities."

The new zero clients have made it possible to support the application – and access to other sensitive content – at more sites. Even those without nearby safes can now install a zero client for highly secure remote desktop access.

As word spread through NEC CCIS, the technology team at the SSC received many requests for help deploying VDI and zero clients at their sites. "The demand was there before the first actual deployment," said Hansen. "Our goal of keeping VDI within the same budget as traditional workstations and servers made the solution very popular with the system owners as well as the end users."

The NEC CCIS sites now enjoy second-generation Teradici PCoIP technology.

Approximately half of the 700 workstations in the northern Europe NATO command sites have been replaced with virtual desktops on zero clients. The SSC team enjoys the simpler support, and finds that the end users also appreciate that changes are introduced without any major interruptions of their work.

"Without VDI and zero clients, the end users would be offline for much longer times whenever we had to reinstall the OS or install a major update," said Hansen. "Now, updates are prepared and deployed with just a quick logoff/logon for the users. This is a big benefit compared to a traditional workstation environment. For new deployments, the zero clients also make life easier for everyone. We added a new site a few weeks ago – all new hardware. The administrators at the site got everything deployed in just two days. This included a complete virtual infrastructure – VMware View, a VMware VSAN, VDI servers, and 25 zero clients. In the past, this would have taken two weeks instead of just two days."

Based on the working relationships formed with Teradici and VMware, the SSC solution architects are confident that they have standardized on a desktop solution that can easily evolve and scale as needed.

"We've been working with Teradici since 2009 – it has been very helpful that they keep us informed about PCoIP technology. It helps us stay ahead and plan for the future. For example, Teradici helped us evaluate the PCoIP Hardware Accelerator, in case we need to offload PCoIP processing in the future. We don't need it today, but as we migrate to new versions of Windows that require more resources it is good to have something at our disposal if any end users report performance issues. Having these options and regular communications with Teradici have been great benefits for us."



Products used

PCoIP Zero Clients

Virtualization platform

VMware Horizon View