VDI, PCoIP, and GPU Technology Enables Anywhere Access to Desktops, Oil & Gas Applications

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AT A GLANCE

Situation
- Oil & Gas
- Staines-upon-Thames, Middlesex (headquarters); Aberdeen (operations office); North Sea (offshore oil platform)
- 220 concurrent users

Challenge
- Cost-effectively deploying and managing desktops for broad use cases (offices, engineers, platform personnel)
- Application delivery (specialized, expensive industry applications requiring high-end graphics)
- Keeping desktop systems up-to-date

Solution
- VMware® Horizon™ View™ Virtual desktop infrastructure
- Teradici® PCoIP® Zero Clients
- Teradici PCoIP Remote Workstation Card
- Teradici PCoIP Hardware Accelerator
- NVIDIA GRID GPUs and software

Results
- Easy deployment: fast out-of-box start-up of PCoIP Zero Clients, by non-technical staff
- Mobility: desktop sessions accessible from home, conference rooms, and on the road (choice of devices)
- Scalable, flexible compute model: shared resources (including GPUs) can be added as needed; easy introduction of cloud and other emerging services
- Efficiency: small IT staff can centrally support multi-site organization (including offshore desktops)

Mark Elvers
IT Manager
Fairfield Energy

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MARK ELVERS
IT MANAGER
FAIRFIELD ENERGY

Managing desktops at three sites sounds straightforward – unless one of the sites is an oil platform in the North Sea. When in-house IT took over management of the platform PCs, the team expanded from one person to two. Even with an extra person, IT still faced the technology challenges of a multi-site, multi-function business:

- **Broad use cases.** Desktop computing solutions had to fit the needs of “typical” office employees, finance and legal teams, industry consultants, and a broad range of oil and gas professionals at headquarters, in addition to an operations office in Aberdeen and an off-shore platform.

- **Work from home.** To avoid supporting employees’ personal computers, the company issued laptops with VPN support. Due to the lack of high-speed Internet connections in many UK homes, accessing applications remotely was often slow and ineffective.

- **Flexible application delivery.** Many Fairfield employees rely on specialized oil and gas industry applications. For geologists, these include Schlumberger Petrel E&P; for reservoir engineers, Petrel, Schlumberger ECLIPSE reservoir simulator, and Sciencesoft S3GRAF; and for geophysicists, IHS Kingdom. The graphics-intensive software requires high-end PCs and GPUs, but employees do not want to be restricted to their main desk for accessing these and other applications.

- **Software updates.** Besides the challenges of resolving application and operating system update issues offshore on the oil platform, frequent Windows updates to conference room PCs were slowing team collaboration and delaying meetings, resulting in reduced employee productivity.

Solving a “boring” problem started a company-wide desktop revolution. Four employees in Aberdeen just wanted a finance application to work better over the WAN.

“Our finance team started in the head office, with an increasing number of people being hired in Aberdeen,” said Mark Elvers, IT Manager, Fairfield Energy. “As the new users were accessing the finance system from Aberdeen, the performance was terrible. We found an easy solution: we moved their PCs to headquarters, close to the finance servers, and we put PcoIP Zero Clients on their desks in Aberdeen. It was a much better user experience, and simpler for our users compared to applications published through a Windows remote desktop. Users struggle to understand why they have a choice between running Excel locally and running it through a terminal server. That’s how it all started – four people in Aberdeen.”

At the time, finance applications were going through major changes. Frequent updates were required, and IT saw the advantages of PcoIP Zero Clients. A single image could be updated and automatically rolled out to all zero clients. The VDI solution was quickly expanded to support the entire finance department.
Another seemingly minor factor also fueled the company-wide desktop revolution: dual monitors. With zero clients, it was easy to give finance team members the dual-monitor desktops they required. As other employees noticed the new zero clients – all with dual monitors – more requests came in for the expanded display option.

“Our previous desktop standard issue could not support a second screen,” explained Elvers. “With new PcoIP Zero Clients, we have an easy way to satisfy user requests. If a user asks for dual screen, we take away their PC and give them a zero client with two screens. They are very happy.”

**VDI and PcoIP expanded into every functional area.** “When we took a closer look at the requirements for working remotely, that’s where we saw a lot of interesting things we could do with PcoIP technology and VDI,” said Elvers.

Employees at home wanted an equivalent experience with their applications. Before the VDI project, employees were given laptops and VPN support. However, opening large files remotely was problematic. Most UK homes are limited to slower ADSL connections. As a temporary work-around, employees were copying company data files to laptops and external USB drives before leaving the office.

“Employees had to remember to copy the data they would need, and take home the software license dongle or establish a VPN to access license servers,” said Elvers. “There were security concerns as well as license management challenges. When you have a software application that costs $250K – and millions of dollars invested in seismic and other data – you just don’t want valuable information assets to walk out the door on someone’s laptop. And if you do let them take data, what happens when changes are made to the main copy while they are working on a copy on their laptop?”

To add to the challenge, many of the company’s oil and gas applications call for high-end 3D graphics. “In the office, we can give users who need them powerful PCs equipped with GPUs,” said Elvers. “But when they are at home, or working somewhere else – how do you handle that? Give them a more powerful – meaning more expensive – laptop? A virtual PC solution, a Teradici PCoIP Zero Client paired with a PCoIP Remote Workstation Card, really works for us. Our employees can run applications remotely, with the applications and data remaining in our datacenter.”
Since the first introduction of remote workstation capability, Fairfield Energy has updated its VMware implementation to support vDGA graphics on virtual desktops. The company’s standard VDI servers have also been expanded to include shared NVIDIA GRID K1 graphics and Teradici PCoIP Hardware Accelerator cards for consistent user experiences.

Users are split into three tiers, based on their preferences and application requirements. Top-tier users have high-end remote workstations, mid-tier users share GPU resources (with the option of a dedicated GPU when necessary), and the rest of the “regular” users are supported on VDI servers without GPUs. All virtual users are supported with PCoIP Hardware Accelerators.

**The flexible infrastructure has changed how Fairfield Energy’s employees work.** PCoIP Zero Clients are on every desk, and in the conference rooms. Employees can move from headquarters to Aberdeen or step into a conference room and their desktop session follows them, and they have a choice of more devices.

“Today, employees can access their desktops from anywhere – an iPad in the airport, a laptop in Hawaii, or their PC or Mac at home. They can get full 3D graphics and enjoy fully hardware-accelerated sessions, which many of our applications require,” said Elvers. “For supporting desktops, the images are easier to keep up to date. Now, when a group starts a meeting in a conference room, they don’t have to wait for 120 Windows updates to install before they can login. They sit down, and their desktop is there on the zero client in the room. They’re ready to go.”

In parallel with the build-out of VDI at headquarters and Aberdeen sites, Fairfield Energy changed their work-from-home system requirements. “We opened it up – employees can now connect from home with whatever they have there,” said Elvers. At the office, every endpoint has been replaced with a zero client. Even the PCs on the platform are now PCoIP Zero Clients.

“Initially, an engineering company managed IT on the platform, but we decided to manage it in-house starting April last year,” said Elvers. “We replaced all 60 endpoints there with all-in-one PCoIP Zero Clients. From a support perspective, it is easy. We can view the remote desktops from headquarters.”
“If they have any sort of hardware issue, anyone can do a self-install. An on-platform medic, cook, steward... Anyone out there can grab a box, and plug in the device. The new device automatically finds the Teradici PCoIP Management Console, which pushes down the latest firmware and applies the profiles – then the user just has to log in. Five minutes at most.”

The simplicity of new PCoIP endpoints was best demonstrated on the day of the platform transition. “Shutting down the platform was out of the question, so we had a very short period of time,” said Elvers. “We did the work for the roll-out on the Sunday prior, and it all went live on March 31, 2014. We distributed the new all-in-one PCoIP Zero Clients; and while we swapped out the servers, many of the users unboxed and plugged in their own desktop system.

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