Leica Geosystems constructs with HPE Moonshot

Industry
Surveying

The challenge
• Local workstations for construction with Siemens NX
• Complex system management
• No access for external partners to the CAD environment and current design data
• Complex network infrastructure through decentralized computers
• Improvement of the energy balance

The solution
• New centralized infrastructure based on HPE Moonshot
• Two HPE Moonshot chassis with redundant power, cooling, and network components
• 55 Moonshot cartridges
• Desktops and applications are delivered via Citrix® virtual apps and desktops
• Easy deployment of the operating system and application stack via Citrix Provisioning Services

IT matters
• Stable, high-performance CAD design environment directly from the data center
• Centralized management console for the entire environment
• High data security through central data storage within in-house data center
• High scalability—simply plug in additional Moonshot cartridges as needed
• Very easy maintenance of operating system and applications through single-image approach

Business matters
• External partners have easy access to the design environment and data
• Significantly reduced space requirements in the data center

Leica Geosystems AG, a leading provider of measurement solutions and part of Hexagon, has replaced local workstations used for compute-intensive CAD applications with a central solution based on HPE Moonshot. Centrally in the data center, two Moonshot chassis with a total of 55 Moonshot cartridges provide internal employees and external partners with impressive computing power for 3D design with Siemens NX. This is possible because every user has a Moonshot cartridge with its own CPU and GPU. Thanks to HPE Moonshot, Leica Geosystems AG was able to significantly reduce system management efforts and improve international team collaboration.

Customer profile
Leica Geosystems AG—the world’s leading provider of measurement solutions
Leica Geosystems AG manufactures precision measuring instruments for construction surveying, geodesy, aerial photography, and photogrammetry. The company emerged from Wild Leitz AG, which in turn emerged from a merger of the long-standing companies Wild Heerbrugg, Leitz Wetzlar, and the geodesic division of Kern & Co. AG.

Leica Geosystems has been part of Sweden’s Hexagon Group since 2005. Leica Geosystems develops, manufactures and markets optical, mechanical, electronic and electro-optical devices, instruments and systems. These core activities are complemented by the development of software and applications as well as repair, consulting and project management services. The company is based in Heerbrugg, Switzerland, in the canton of St. Gallen near the border with Austria.
The Hexagon Group employs approximately 20,000 people in 55 countries and operates on all continents. The company has its own computer center at its headquarters in Heerbrugg.

**Initial situation**

Decentralized workstations, no access for external partners Leica Geosystems uses Leica Geosystems uses NX CAD software from Siemens PLM Software to develop its precision measuring instruments. The development process involved the close and early integration of external development partners and suppliers. The high computing power required for development was previously provided by several decentralized HP Z600 and HP Z400 workstations. External developers and suppliers were provided with appropriately configured workstations and, in some cases, with laptops.

Over time, a complicated and heterogeneous IT environment developed, and management of this environment resulted in considerable workloads.

A further disadvantage was that external partners in team projects could not access the design data stored at the headquarters from outside, or could only do so with great technical effort. As several workstations approached end-of-life, Leica Geosystems' IT team decided to realign its development IT. The aim was to deliver a high-performance CAD environment that could be reached from anywhere and be managed efficiently and centrally. Furthermore, compact hardware measurements and top energy efficiency were part of the requirement specifications.

**Solution**

Centralized infrastructure with HPE Moonshot and Citrix virtual desktops

In collaboration with HPE Pointnext, the IT managers at Leica Geosystems went through several technology scenarios. They finally decided on a centralized, data center-based IT infrastructure using HPE Moonshot and Citrix virtual desktops to provide the virtualized desktops and applications.

HPE Moonshot combines the advantages of IT centralized in a data center with the performance of powerful local workstations.

Unlike centralized solutions with hypervisor layers, Moonshot provides each user with a ‘published desktop’ with its own powerful GPU and integrated SSD in the data center. Thanks to this innovative concept, users hardly have to share any resources and also have sufficient computing power for performance-hungry applications.

A Moonshot infrastructure consists of a chassis into which cartridges are inserted via plug and play. Each chassis holds a maximum of 45 cartridges and has all components for management, power supply, cooling, and network pre-installed. The Moonshot desktops are published at Leica Geosystems via Citrix virtual apps and desktops for employees and external partners, with the deployment of the operating system and application stack handled centrally via Citrix PVS with a golden master image. After the successful POC, the solution was transferred to production.

“With HPE Moonshot, internal and external collaborators have access everywhere to a high-performance CAD construction environment.”
– Marco König, IT System Engineer—Infrastructure Hexagon Geosystems Services AT GmbH
High-performance CAD environment now universally available

The new Moonshot solution solves the existing problems and makes everyday work much easier for system administrators. Marco König from Leica Geosystems: “With the centralized system architecture based on HPE Moonshot, we can provide our employees with high-performance CAD workstations independent of location and time. Each individual user benefits from the undivided computing power of a Moonshot cartridge in the data center, guaranteeing even our construction partners in Scandinavia smooth and stable work with the centralized IT system. Today, we can grant external partners precisely controlled access to our design data, hugely simplifying teamwork. We did not have to buy all these advantages with complex, space-consuming hardware in the data center. The Moonshot chassis is extremely compact and does not require any complex network installation.”

Hannes Töfferl, Head of Application & Data Center Technology at Leica Geosystems, speaks of another important advantage: “Administration and maintenance of the systems has become much simpler. The integrated management console gives us a very good overview of the entire landscape at all times. Updates and new applications are now available almost at the push of a button due to the single-image approach. And if we need to provide an additional internal or external CAD workstation, we simply push an additional Moonshot cartridge into the chassis—the scalability is phenomenal and you don’t have to buy expensive ‘reserve performance.’ The only space for improvement I see is in storage read/write speed.”

Leica Geosystems has been full of praise for the collaborative work done with HPE. Marco König: “HPE Pointnext provided us with amazing support both during planning and implementation. When it came to technical questions, we always had a direct line to the relevant specialists and were able to solve problems very quickly.”

Leica Geosystems is currently also using part of the Moonshot infrastructure to process flight image data. Each photo flight generates around 150 GB of image data. This can now be processed very efficiently, distributed across several Moonshot cartridges.

Thanks to Moonshot, Leica Geosystems can process 40 image data processing jobs simultaneously.
Customer at a glance

Hardware
• 2 x HPE Moonshot 1500 chassis
• 55 x 210x HPE ProLiant m710x Moonshot server cartridges
• 2 x 45Gc Switch and 6SFP+ uplink modules

Partner services
• Advice/support for system architecture, together with HPE
• Ongoing consulting for expansion
• Support in the event of problems

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Learn more at hpe.com/us/en/servers/moonshot

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“The simple administration of the centralized infrastructure in the data center sustainably reduces workloads and costs.”

– Hannes Töfferl, Head of Application & Data Center Technology Hexagon Geosystems Services AT GmbH