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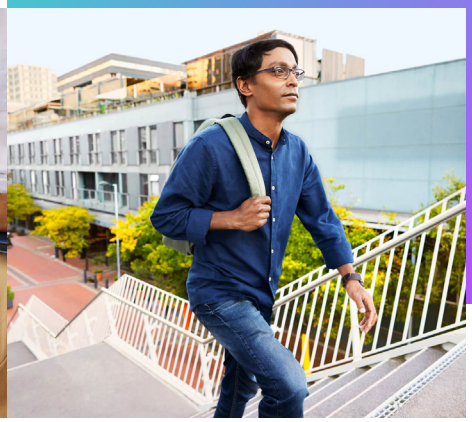

Empower innovators to work from anywhere — securely and efficiently

Virtual desktop infrastructure solutions for engineering and 3D design leveraging HPE ProLiant Gen11 servers and 4th Gen Intel® Xeon® Scalable processors

Better support for remote and hybrid working models

As an ever-increasing number of research and engineering organizations adopt remote and hybrid working models, traditional virtual private networks (VPNs) struggle to provide the necessary connectivity, security, data, and resources CAD/CAM/CAE[1] users and applications require. This problem is exacerbated when you consider that product design and development teams often include individuals from numerous companies operating in diverse locations around the world. For these teams, VPN performance often lags, which creates bandwidth bottlenecks and traffic backhauling — creating overall inefficiencies that directly impact productivity and user experiences.

Data security is another area where VPNs can fall short. With VPNs, data must be transferred from the data center to each user's end-point device, which can be lost, stolen, or otherwise compromised — putting the data on the end-point device at risk. In addition, applications must be installed, configured, and maintained on each end-point device, creating significant management complexity.

Today, many research and engineering organizations are replacing aging VPN environments with virtual desktop infrastructure (VDI) — knowing that VDI is designed to support the increasingly hybrid and remote workforce. With VDI, each user's work is completed on the server, not on an individual workstation. Only session image pixels are transmitted over the internet to end-user devices — with all data and applications remaining secure within your data center. This way, VDI not only ensures data integrity, but also streamlines and centralizes environment configurations and application management.

[1] Computer-aided design/computer-aided manufacturing/computer-aided engineering (CAD/CAM/CAE)

4th Gen Intel Xeon Scalable processors — Offering leading performance with built-in accelerators

- Redefining performance to improve performance across your VDI landscape, as well as AI, data analytics, networking, storage, and HPC.
- Speeding data movement, encryption, and compression for faster networking and storage.
- Making the best use of CPU core resources, built-in accelerators can result in more efficient resource and power utilization, helping you achieve sustainability goals.
- Using in Intel Software Guard Extensions (Intel SGX), Intel Boot Guard, and other hardware-enabled security features to help bring a zero trust security strategy to life, while unlocking new opportunities for business collaboration and insights — even with sensitive or regulated data.
- Offering choice and flexibility, no matter the deployment path — on-premises, hybrid cloud, network, or edge.

To better support your diverse working models — while also enhancing security and streamlining management — HPE offers a portfolio of high-performance VDI solutions that run on HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors. These advanced solutions compartmentalize every action performed within the data center-hosted virtual environment, with a virtual machine (VM) dedicated to each CAD/CAM/CAE user.

Whether your organization is new to VDI or ready to update an existing VDI environment, HPE and Intel® can design and deliver a tailored solution that:

- Facilitates remote/distributed workforces, enabling people to work from anywhere using any device
- Supports better end-user productivity
- Secures your company data and applications
- Improves your return on investment (ROI)
- Simplifies IT management, with servers, storage, and applications remaining in the data center
- Delivers inherent security
- Optimizes network traffic
- Reduces distributed maintenance and administration expenses
- Minimizes licensed operating expenses of a distributed environment
- Supports diverse workloads from demanding CAD/CAM users to task workers

VDI for engineering and 3D workloads — what is it all about?

Maintaining the productivity of artists, analysts, designers, and scientists requires intensive utilization of CPU and GPU (graphical processing unit) resources. These individuals create massive amounts of data while using graphics-intensive software such as CAD/CAM/CAE, 3D modeling, financial modeling, or computer-generated imagery. As such, servers equipped with a high-performance CPU with a high core count — as well as a scalable I/O subsystem for advanced GPU accelerators — are needed to run each high-performance session in the VDI environment.

Projects to design and build aircraft, satellites, cars, trains, and other complex products often involve multiple teams from companies in geographically diverse locations in different time zones. VDI solutions centralize each project's compute resources, applications, and data to enable effective collaboration, security, and consistency, while also serving each user with a virtual desktop tailored to their particular requirements and preferences. This approach eliminates the need to deploy applications remotely and download/upload data, thereby securing your IP from unauthorized proliferation or commodification. VDI also enables centralized data to be constantly checked for consistency and protected by routine backups.

In addition, when delivering a VDI session to workers in different time zones, you can reuse the same compute resources for different users at different times. Doing so avoids waste created by idle resources, as well as enables you to recompose and reuse resources in different silos when a project is complete or priorities change.

Compute platform of choice for today's VDI

HPE VDI solutions that utilize the latest Intel processors are designed to modernize, secure, and power very demanding CAD/CAM/CAE and 3D workloads. These solutions can support IT requirements that vary wildly between organizations and industries. And because all these solutions run on HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors, you can trust them to deliver the flexibility, speed, simplified management, security, and control you need to drive your business forward.

HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors are engineered to unlock more value from your data, power insights, and drive innovation across edge to cloud. Designed for today's hybrid computing environments — with up to 50% more cores, faster memory via DDR5, 2x I/O bandwidth, and more GPUs — these future-ready servers deliver:

- **Optimized performance for your workloads.** Get the performance you demand to accelerate any CAD/CAM/CAE workload running in your VDI environment. Achieve cost efficiencies and performance economics to power your apps and accelerate innovation.
- **Intuitive cloud operating experience.** Simplify the way you control compute from edge to cloud with a cloud operating experience created by HPE GreenLake Compute Ops Management. Transform business operations to pivot your team from reactive to proactive with global visibility and insight through a unified console.
- **Trusted security by design.** Protect infrastructure from threats to hardware and reduce risks from third-party software and other devices through HPE's focus on security advancements that are built into our DNA. Silicon root of trust from HPE, our fundamental approach to security which provides zero trust architecture at the silicon level, combined with hardware- and software-assisted security features of 4th Gen Intel Xeon Scalable processors provide peace of mind for organizations using HPE servers.

Why 4th Gen Intel Xeon Scalable processors for VDI?

With 4th Gen Intel Xeon Scalable processors, you get more from your infrastructure with high density for VMs, containers, and functions — resulting in efficient and scalable thin client and VDI implementations. Your VDI can perform even better when combined with other Intel technologies for the data center. For exceptional storage performance, Intel Virtual RAID on CPU (Intel VROC) eliminates the need for a RAID host bus adapter (HBA)[2] and can help support more VDI instances by boosting VM storage performance with Intel VMD Direct Assign.

What is zero-touch management and provisioning?

Automation is the key to zero-touch management and resource provisioning. By ensuring that the VDI golden image is automatically updated in your data center, the fundamental integrity of your entire virtual desktop environment is maintained with little manual effort or risk of error. In the event of an issue at the golden image level, an administrator can simply roll back to the previous version of the golden image, thereby minimizing the impact on your business.[3]

[2] See (N63) at intel.com/processor claims: 4th Gen Intel Xeon Scalable processors. Results may vary.

[3] "Zero-Touch Provisioning Overview," Aruba, 2018.

An added benefit of HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors is simplified management and maintenance; in fact, VDI solutions delivered as a service from HPE GreenLake require no dedicated IT staff. Designed to help you reach a zero-touch management end state for your VDI environment, HPE ProLiant Gen11 servers are the perfect solution for smaller organizations with minimal in-house IT support. And because these servers are inherently scalable, they can help ensure an agile, scalable, and secure backbone for your VDI solution.



Get to know HPE ProLiant Gen11 servers for CAD/CAM/CAE and 3D workloads

Table 1. HPE ProLiant Gen11 servers for VDI workloads

	 **HPE ProLiant ML350 Gen11 Server**	 **HPE ProLiant DL380a Gen11 Server**
Description	Powerful tower server with optional tower-to-rack conversion kit. Delivers exceptional compute performance, security, reliability, and expandability for demanding CAD/CAM/CAE and 3D workloads. Scales and adapts to any environment to accelerate business growth.	2U rack-optimized server with advanced scalability for GPUs, industry-leading security innovation, and simplified control designed to enhance the performance of your CAM/CAM/CAE, 3D, and graphics-intensive applications and accelerate any enterprise-level VDI workloads.
Processor	4th Gen Intel Xeon Scalable processors	4th Gen Intel Xeon Scalable processors
Cores available	8 to 60 cores	8 to 56 cores
Memory	Up to 8 TB with DDR5 SmartMemory	Up to 3 TB with DDR5 SmartMemory
EDSFF support	Up to 12 EDSFF E3.S 1T NVMe SSDs	Up to 8 EDSFF E3.S 1T NVMe SSDs
I/O expansion slots	2 to 10 PCIe Gen5 (2 OCP 3.0)	Up to 4 x 16 PCIe Gen5 slots Up to 2 x 16 OCP slots
Management	HPE iLO 6	HPE iLO 6

Delivering benefits that count

Every high-performance CAD/CAM/CAE solution built on HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors can deliver benefits that count.

Table 2. Benefits of HPE ProLiant Gen11 servers with 4th Gen Intel Xeon Scalable processors

Flexibility	Zero trust security	Cost optimization
Choose from flexible options for various form factors that fit the needs of diverse VDI deployments across industries.	Protect apps and data with the silicon root of trust from HPE — the HPE fundamental approach to security that provides a zero trust architecture at the silicon level and ensures all server essential firmware is free from malware or compromised code.	Eliminate siloed investments on workstations dedicated to one person or one project. Optimize ROI with flexibility to share highly secure data center resources and enable your innovators to work from anywhere.

Elevate your compute experience with HPE GreenLake

HPE GreenLake brings the cloud experience — self-serve, pay-per-use,* scale up and down, and managed for you — to apps and data everywhere, in edges, colocations, and data centers. HPE GreenLake enables you to free up capital, boost operational and financial flexibility, and free up talent to accelerate what's next for you.

HPE offers the flexibility to purchase and run HPE ProLiant Gen11 servers with the latest Intel processors on-premises or through the HPE GreenLake edge-to-cloud platform. With HPE GreenLake, you get pay-as-you-go convenience and public cloud flexibility, together with privacy, performance, and control of your environment.

In addition, you can take advantage of HPE GreenLake for Compute Ops Management to streamline compute management — securely and seamlessly. The solution offers real-time views of your entire server estate, as well as rapid bulk actions to quickly provision additional data management workloads. You can also count on automated firmware updates with an as-a-service model that provides a consistent experience that remains up to date with new features.

Learn more at

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* May be subject to minimums or reserve capacity may apply or reserve capacity.

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