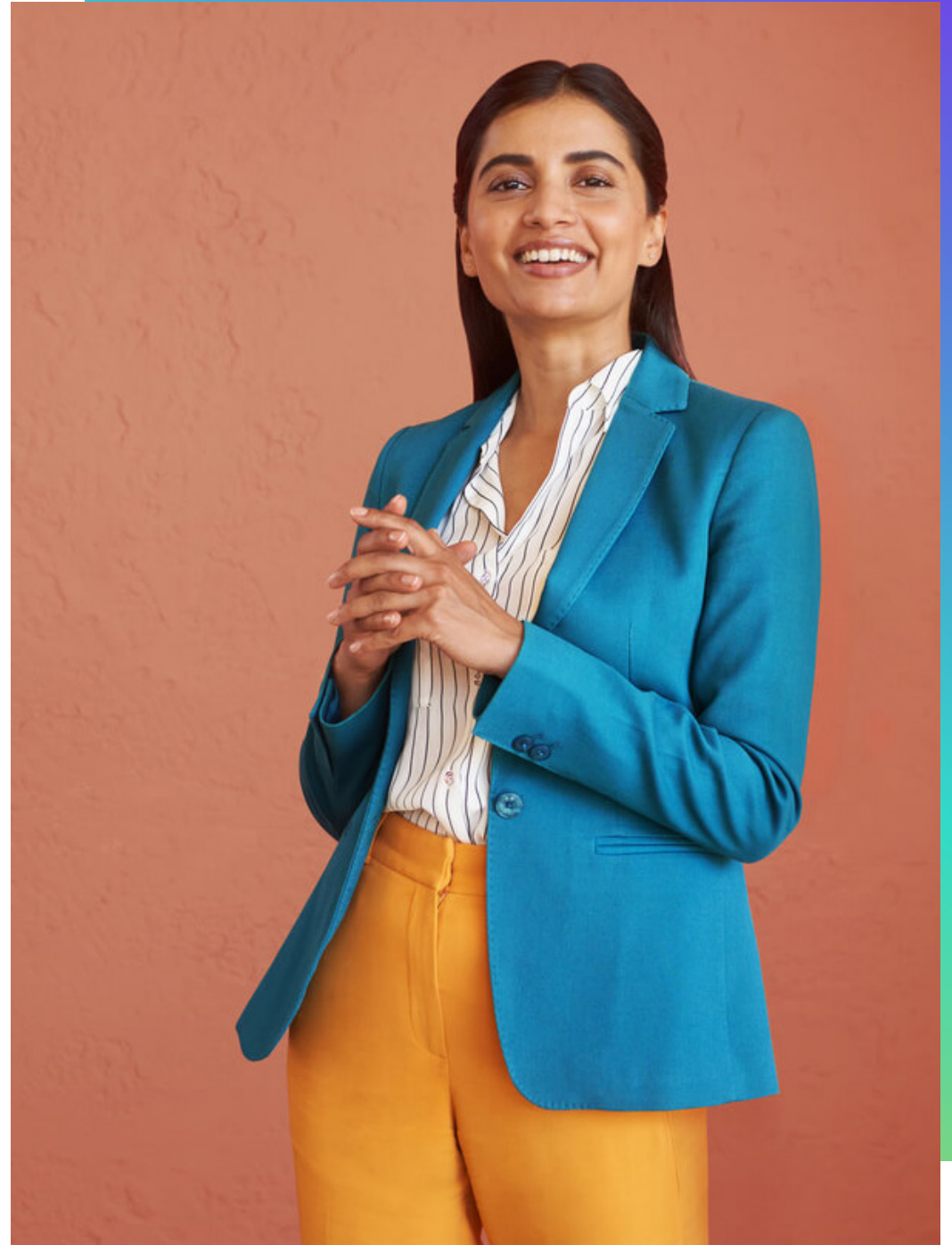




# Power new ways of working with secure, scalable VDI

Get started >



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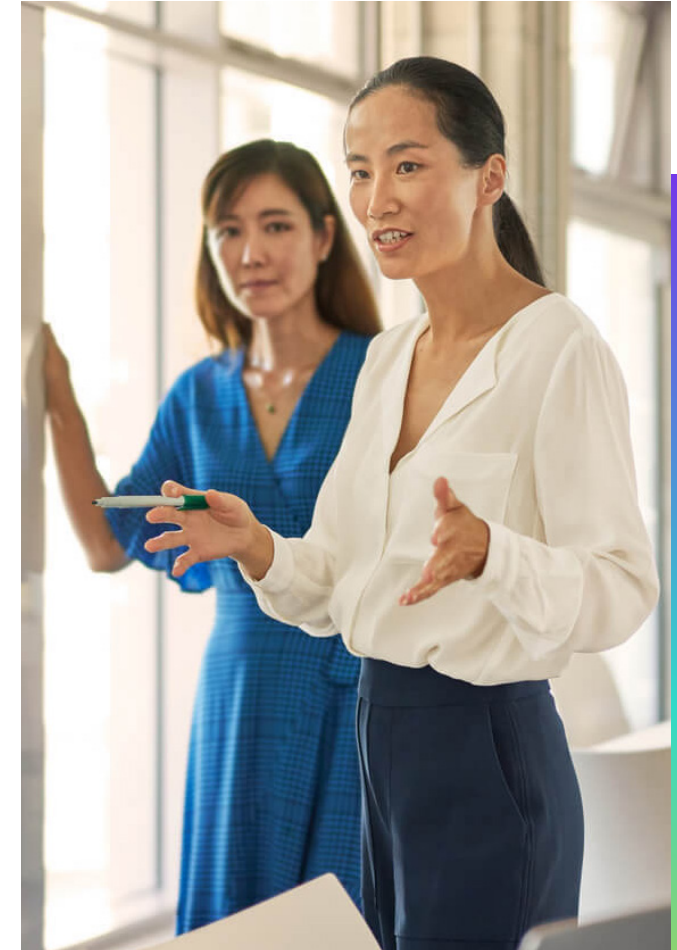


## Why do organizations choose VDI

Many factors drive increased levels of virtual desktop infrastructure (VDI) adoption. The most obvious is the growth of remote and hybrid working models—organizations and their IT leadership have had to pivot quickly to support the users' needs regardless of the location while ensuring productivity and security for the business.

Virtual private networks (VPNs) are one approach. They work well for some users and applications, delivering the connectivity, security, data, and resources they need to perform. But in complex environments with diverse workforce demands, VPN performance lags, creating inefficiencies due to bandwidth bottlenecks and traffic backhauling. Moreover, many organizations need greater security and application performance than VPNs can deliver. With a VPN, data needs to be transferred over to the user's end-point device, where it can be left uncontrolled and vulnerable to getting lost, stolen, or compromised. Another drawback is that applications must be installed and configured on the end-point device, with the type of end-point device limited by the platform and the ownership.

For these organizations, VDI is a better solution. It compartmentalizes everything performed within the virtual environment, allowing a much higher level of security. Because data and applications remain in secure data centers, and nothing but desktop image pixels are transmitted over the internet to end-user devices, VDI is the preferred solution where data integrity and other security concerns are paramount.



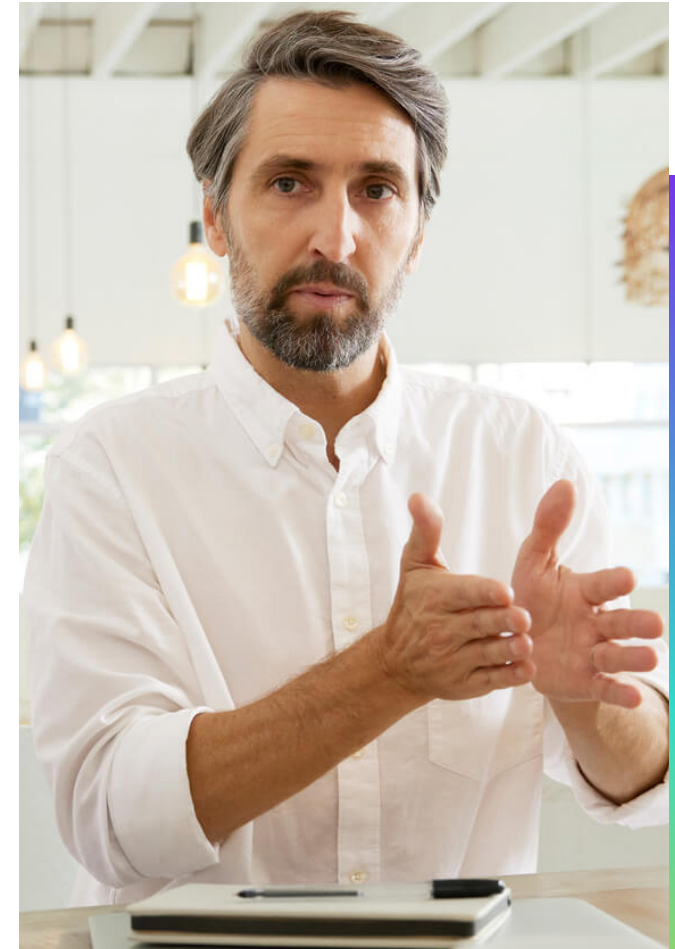
> [What makes a successful VDI roll-out . . .](#)



A successful VDI implementation:

- Enables end-user productivity—working from anywhere using any device
- Secures company data and applications
- Improves ROI
- Simplifies IT management
- Delivers inherent security
- Optimizes network traffic
- Reduces distributed maintenance and administration expenses
- Minimizes license operating expenses of a distributed environment
- Supports diverse workloads, from demanding power users to task workers
- Facilitates remote/distributed workforces

But there's a lot to know before you get started. This buyer's guide can help you understand the challenges and potential while reviewing what you need to know as you embark on your VDI journey.



## Understanding employees and their needs

Scaling and configuring your VDI solution—software and hardware—is not just about the number of users you need to support but also the types of users, their workloads, and the applications they need to use. Hewlett Packard Enterprise classifies users into three broad categories, each defined by their responsibilities and the compute resources they need.

### Task workers

Light task workers typically use a limited number of low-compute-intensity applications for limited, repeatable tasks. For example, typical task workers might include retail employees, call center operatives, or healthcare workers—with the latter frequently using desktops almost exclusively to engage with electronic medical record (EMR) platforms such as Epic or Cerner.

### Knowledge workers

Knowledge workers, such as accountants, HR officers, sales managers, and marketing executives, predominantly use office productivity applications such as Microsoft Office, Teams, and Zoom, as well as SaaS apps such as Salesforce.

### Power users

Artists, analysts, designers, and scientists typically consume the most resources, using graphics-intensive software such as CAD, geosciences, financial modeling, or computer-generated imagery (CGI) applications that require significant CPU and GPU resources.

Your VDI configuration should ultimately be based on a clear view of your user base—how many users align to each of these broad categories. With this information, HPE can help you define the right quantity and type of resources to support your VDI architecture.

In addition, this understanding of your users can be useful in deciding whether a hybrid environment suits you. Such an approach might combine VDI approaches for some of your users and other options—such as VPN—for others. This is particularly relevant as specific applications, particularly in the typical knowledge worker's stack, may perform better outside of a VDI environment.



## Persistent versus non-persistent desktops

VDI administrators confront an important issue—whether to deploy persistent or non-persistent desktops. Both have advantages and disadvantages, with implications for manageability, performance, and user experience.

With **persistent desktops** in VDI, each individual user is assigned a particular virtual machine (VM) in which apps are installed and data created and stored across the session. This VM becomes unique to the user, like a dedicated laptop or a workstation, but sharing, reassigning, and making it available becomes a tedious task for the IT department.

In other words, persistent desktops are easy to implement, but they may become a burden for an IT department in the long term, as IT must manage all the individual images and profiles while provisioning the necessary resources to store them.

In a **non-persistent desktop** approach, user-specific data (files, links, bookmarks, and environment settings) are isolated from a virtual desktop and stored in a separate container. As a result, a user can connect to any available desktop from the assigned pool. User-specific data and files are attached to that desktop during the login, establishing a consistent digital workspace environment.

Each desktop VM boots from a “golden image” prepared and tested by a VDI admin. At the end of the session, all unsaved changes are flashed, and the desktop returns to the clean, pristine state without any traces of the previous session. This significantly simplifies management for IT departments, as they can effectively coordinate all their users’ desktops by managing only the golden desktop images, which are replicated across users in operation.



> Which is right for you ...



## Which is right for you?

Determining which option to use depends on several factors. For example, the scale of the VDI deployment may dictate which option works best. Smaller deployments may work well with persistent desktops, with limited management load. But with large numbers of users, it may be more important to simplify management through a non-persistent desktop model. Another factor that may influence the decision is the applications themselves. Some applications cannot be separated from the desktop layer, thus requiring installation in a persistent desktop image rather than functioning in an isolated application layer.



## Lifecycle management considerations

Defining objectives and priorities ahead of a VDI deployment is an important step. While it is common for an IT manager's approach to evolve as users are onboarded and the system scales, the zero-touch management end-state is the goal for many VDI administrators. Infrastructure priorities are also essential to establish the right choice of provider and specifications that can help ensure an agile, scalable, and secure backbone for your VDI solution.

### Zero-touch management

The ideal outcome is an environment manageable with a zero-touch approach. That means creating a golden image virtual desktop on which every virtual desktop is based. By ensuring that the golden image is automatically updated, the fundamental integrity of the entire virtual desktop environment is maintained with little manual effort or risk of error. Further, in the event of an issue at the golden image level, the administrator can simply roll back to the previous version—minimizing impact on the business.

[> Infrastructure selection . . .](#)





## Infrastructure selection

In addition, a key element of any VDI implementation is ensuring your infrastructure is appropriate to the demand. From traditional compute to hyperconverged and composable solutions, HPE provides infrastructure configurations that work seamlessly with a wide range of VDI delivery platforms—including Omnissa Horizon, Citrix Virtual Apps and Desktops, and HP Anyware (Teradici) products—to enable the performance, security, and manageability of VDI architectures.

By intelligently incorporating software-defined infrastructure into your data center, we offer an extensive portfolio of virtual applications and digital workspace solutions that can support a limited number of workers and scale to support thousands. These virtualization solutions feature high-performance HPE platforms, including HPE ProLiant Gen11, with industry leading security innovation to help protect and enable a changing workforce.

HPE ProLiant Gen11 provides the security, manageability, world-class performance, and versatility demanded by VDI environments. Ultra-scalable CPU architectures and significantly increased GPU density deliver the performance power users need—including even industry-specific certified solutions. And they are engineered with a Zero Trust Security approach that hardens your compute core against threats on hardware and firmware to third-party software risks.



## Operating model

The process of VDI adoption includes an essential decision point—whether to plan, provision, and acquire or adopt an as-a-service model incorporating significant management and operational support. HPE supports both approaches.

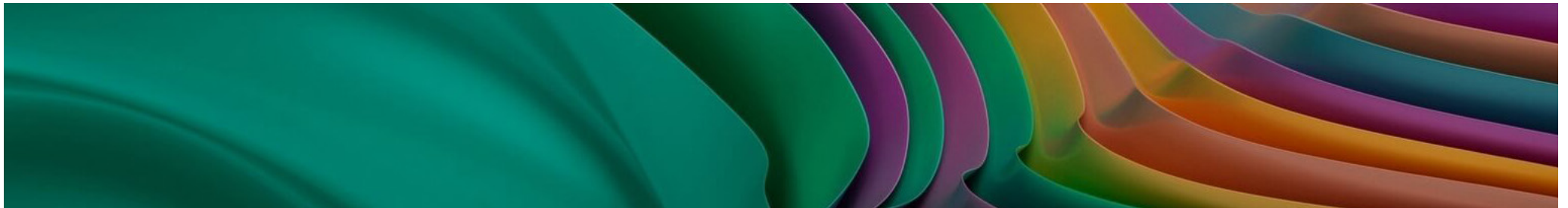
HPE offers a range of infrastructure and services to help organizations harness the power of VDI. With extensive experience built on best practices, partnerships, and the expertise to manage the full lifecycle of your VDI solution, HPE can help optimize your virtual desktop services of all sizes and demands.

Defining those demands—and the infrastructure necessary to support them—is an essential starting point. No two VDI environments are the same: Understanding types of workloads, application stacks, performance requirements, user counts, ISV selection, processor preference, and other variables is critical. And then translating these needs into a solution design is its own challenge.

Fortunately, HPE is here to help. Your traditional-purchase VDI journey will include engaging with:

- Professional Services for solution design, migration planning, and solution deployment services to streamline your VDI deployment
- Advisory Services to assist with the rationalization of applications, workloads, and images to determine readiness

[> More on as a service . . .](#)



## As a service

With HPE GreenLake for VDI, you can deliver secure and scalable VDI performance on infrastructure that's delivered as a service. In this approach, HPE provides a fully managed and supported VDI environment while maintaining it over time. HPE deploys the required hardware and software in your data center using HPE ProLiant servers, HPE Alletra dHCI, or HPE SimpliVity hyperconverged systems, helping to ensure security and giving you full control over the environment.

As demand for resources grows, HPE can stand up additional resources in the data center ahead of the need, with images configured to suit user categories. With the HPE GreenLake cloud, organizations can avoid high up-front costs, speed time to value, and scale seamlessly to align resources with demand.

### Benefits

- Respond quickly to changing business needs with seamless scalability
- Experience no up-front capital expense—per-user, per-month billing includes all VDI hardware, software, installation, and operational and support services
- Avoid lengthy rollouts with quick-to-deploy, pre-configured, and turnkey solutions
- Pay for the resources you consume above a reserve as you consume them based on transparent and easy-to-understand usage metrics

### Getting started with HPE GreenLake

- Start with a one-day, virtual, and collaborative VDI workshop
- Define a solution to meet your needs
- Get the infrastructure in your data center or colocation facility
- Scale seamlessly to meet evolving demands

Whether you choose a purchase or as-a-service model, next-gen HPE Compute delivers an intuitive cloud operating experience, trusted security by design, and optimized performance for hybrid environments.



## Server considerations

HPE provides a broad portfolio of infrastructure to enable your VDI deployment. HPE ProLiant Gen11 Servers are the main building blocks of the solution and are optimized for VDI workloads—serving as a continuous compute resource that threads through any hybrid environment—wherever compute lives (data center, colocation, or edge) and in whatever capacity an organization needs. CPU architectures powered by 4th and 5th Generation Intel® Xeon® Scalable processors and 4th and 5th Generation AMD EPYC™ Processors are paired with up to 33% more GPU density and flexibility<sup>1</sup> than previous generations, giving HPE ProLiant exceptional workload versatility, even for power users with advanced compute demands.

With an intuitive cloud operating experience the HPE ProLiant Gen11 servers are also simple to operate, with location-agnostic, cloud-based compute management helping ensure visibility and consistency despite increasingly diverse compute locations and workloads. It unifies operations across the lifecycle and throughout the environment while empowering security and automation. They combine hybrid flexibility, built-in security, and cloud-native management while driving blazing-fast next-gen performance with the engineering prowess to power insights, innovation, and competitive advantage.

With trusted security by design, HPE ProLiant is engineered with a fundamental security approach to defend against increasingly complex threats through an uncompromising focus on constant built-in security advancements. Protect your infrastructure, workloads, and data from hardware threats to risks from third-party software with a trusted edge-to-cloud security posture built on an HPE compute core hardened through a proven Zero Trust approach to security.



> [Click here for server sizing guidelines . . .](#)

<sup>1</sup> Hewlett Packard Enterprise introduces next-generation compute engineered for a hybrid world | HPE



## Server sizing guidelines

Here's a sample of optimized solutions based on environment size, worker types, and industries:

Virtual desktop sizing example	Use case / Worker type	Call center Retail kiosk Lab technician	Sales/Marketing Finance/Data Nurse/Doctor Office/Collaboration	Designer Engineer Medical imaging Financial trader
	Virtual desktop type	Non-persistent	Non-persistent	Non-persistent/Persistent
	Application stack	4–12 basic apps	10+ Office/Collaboration	10+ graphics intensive
	Virtual cores	2	4	6+
	Virtual memory	6	12	16+
	Workload	Task user	Knowledge worker	Power user with GPU
	Size	Small or medium	Medium or large	Medium or large
Server and CPU Info	Server	HPE ProLiant DL325 Gen11	HPE ProLiant DL365 Gen11	HPE ProLiant DL385 Gen11
	Number of cores	32	64	32
	Number of CPUs	1	2	2
	Number of DIMMs	12 x 64 GB	12 x 128 GB	24 x 64 GB
	Total memory	768	1536	1536
	Target users <sup>2</sup>	120	500	48
	Total system BTU/hr, BTU	1660	3970	5765
Total utilization power (in watts)	485	1165	1690	

<sup>2</sup> The number of user is based on synthetic workload benchmarking and may vary for a specific deployment and workload.



## How we can help

HPE is your trusted partner in delivering experience, technology, partnerships, and as-a-service delivery to help you build and deploy a VDI solution that meets your organization's requirements. As you develop your VDI strategy, or re-evaluate or expand existing deployments, HPE is here to help with cloud economics to enable your workplace of the future.

We customize your experience at any stage of your product lifecycle with services based on individual needs, workloads, and technologies.

- Advise, design, and transform
- Deploy
- Integrate and migrate
- Operate and improve
- HPE Financial Services
- HPE GreenLake Management Services
- IT training and personal development

HPE Education Services delivers comprehensive services to support your people as they expand the skills required for a digital transformation.

Consult your HPE sales representative or authorized channel partner for any additional questions and support options.

[> More resources . . .](#)





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