Lenovo Client Virtualization Solutions for

VMware Horizon

Transform desktops into secure, digital workspaces that can be delivered on demand

Meeting the Needs of the Mobile Workforce

Industries as diverse as healthcare, finance, government, retail, and education have the common requirement to support and secure a mobile workforce. Organizations often have a dispersed workforce using many PCs, laptops, and mobile devices distributed to field offices and remote locations. Client virtualization is a powerful solution to meet the need for flexibility and global availability of compute resources, while managing data security and compliance on mobile devices.

Lenovo Client Virtualization Solutions for VMware Horizon help your organization meet these business requirements by centrally managing the desktop image within the corporate IT environment rather than at the remote worker or office location. With user data, user profiles and application data files on centralized servers, data center security and manageability are extended down to the user resources. Users have anywhere, anytime, secure access to data and applications from any device, including tablets and smartphones.

Deliver Secure Desktops While Cutting IT Costs

VMware Horizon provides a streamlined approach to deliver, protect, and manage Windows and Linux desktops and apps while containing costs. It supports a consistently rich end user experience for office workers, mobile workers and even 3D developers across devices, locations, media and connections.

Horizon is tightly integrated with VMware's Software-Defined Data Center, which includes vSphere, vSAN and NSX. This integration provides a seamless turnkey solution, allowing IT to dynamically allocate resources with virtual compute, virtual storage and virtual networking to simplify management and drive down costs.

Reduce day-to-day operations costs with a single platform that allows you to extend virtualization from the data center to your devices. A unified version of all software across your desktops provides maintenance and services savings, and unauthorized downloads of software or malware are prevented with controlled boot images.

Highlights

- Delivers, protects and manages virtual desktops and apps while providing end users access anytime, anywhere, across any device

- Enables a scalable solution for a few hundred to several thousand users to meet current and future needs

- Supports a wide variety of VDI usage models from typical office users all the way up to high-end 3D rendering power users

- Optimize cost and performance with ThinkAgile VX configurations that have been verified by Intel via the Intel Select Solution program

Simplify Solutions Infrastructure with ThinkAgile VX

VMware Horizon has been certified on several Lenovo servers, including the Lenovo ThinkAgile VX Series. ThinkAgile VX Series are VMware vSAN-based hyperconverged servers with compute, storage and virtualization co-located on a single node. The VX Series enables you to dramatically simplify your server, storage and virtualization deployments and pool your resources into a single virtualized infrastructure for more flexible and efficient utilization and management.

If you currently have a client virtualization solution in a 3-tier architecture, switching to a hyperconverged architecture can reduce your cost per virtual machine. While requiring a dedicated server in a 3-tier environment, VMware Horizon could be one of many workloads supported on a hyperconverged server, thus increasing utilization of your server resources and lowering your total cost of ownership.

ThinkAgile VX systems arrive with the hardware configured, software installed, and the option of having Lenovo Professional Services to integrate it into your environment. VX systems are available in several models, supporting SMB through mission-critical enterprise applications. Each is preconfigured, pretested, and optimized to provide the simplest way to bring a new VMware hyperconverged environment online. If you have an existing VMware environment, the VX Series can integrate into it easily.

ThinkAgile VX integrated systems include VMware software licenses and ThinkAgile Advantage Services, which deliver proactive, solution-oriented support for your systems. This includes end-to-end case management and problem resolution, with a dedicated Lenovo phone number for expedited response. Lenovo ThinkAgile Advantage services extend these benefits with 24x7 support, allowing your IT team to focus on developing proficiencies that give your business a competitive edge. It's an efficient way to keep your investment working for you, with minimal disruption to your staff resources.

For customers who prefer to provide their own VMware software licenses and/or deployment services, Lenovo offers another choice: the ThinkAgile VX Certified Nodes, which include ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution.

All ThinkAgile VX systems include powerful lifecycle management capabilities via vSphere Lifecycle Manager (vLCM). vLCM speeds deployment, simplifies patching and updating software, and offers task automation. This enables you to free up valuable personnel for more productive tasks.

The Lenovo solution for VMware Horizon on Lenovo ThinkAgile VX is an Intel® Select Solution. Intel Select Solutions are workload optimized configurations engineered to satisfy software, system, and solution performance standards and streamline deployments. Key benefits of investing in an Intel Select Solution from Lenovo include:

- Simplified evaluation. New workload integration and the transition to software-defined infrastructure are two areas where IT managers spend more and more time and money sorting through endless options, searching for optimal solutions. Intel Select Solutions are tightly specified in terms of hardware and software components to eliminate guesswork and speed decision-making.

- Fast and easy deployment. With pre-defined settings and rigorous system-wide tuning, Intel Select Solutions are designed to increase efficiency in IT's testing process, speed time to service delivery, and increase confidence in solution performance.

- Workload-optimized performance. Intel Select Solution configurations are designed to deliver to a performance threshold for the workload, and are built on the latest Intel architecture foundation including the recently-launched Intel® Xeon® Scalable platforms.

Powered by Lenovo

Reference architectures also exist for VMware Horizon with the following Lenovo ThinkSystem and ThinkAgile servers:

- ThinkAgile HX hyperconverged appliances with Nutanix software

- SR630 V2/SR650 V2 - 1U and 2U, 2-socket servers, respectively, that provide extensive flexibility to fit almost any customer environment

- SR645/SR665 - 1U and 2U, 2-socket servers, respectively, that provide good cost/user. The SR665 supports up to 6 NVIDIA GPU modules for power users employing 3D rendering or medical imaging applications

- SD530 - A dense 2U configuration that supports up to four 2-socket servers

- SN550 - A compute node that is part of the Flex System blade server

All Lenovo ThinkSystem and ThinkAgile servers are high performance systems, regularly holding numerous world performance benchmarks. Engineered for always-on productivity, ThinkSystem servers are consistently ranked high in x86 server customer satisfaction and #1 in x86 server reliability.

ThinkAgile VX

ThinkSystem SR665 / SR650 V2

ThinkSystem SR645 / SR630 V2

Optimized Configurations

Lenovo has designed and tested several configurations of VMware Horizon on ThinkAgile VX. These configurations are optimized for performance and scalability. They can be used as is, as building blocks for larger installations, or as a base from which customizations can be made. The current Solution IDs include:

Solution ID	Supporting
SID0000234	200 Office Workers
SID0000235	150/50 Office/Knowledge Workers
SID0000236	160 Power Users

These recommended configurations can be found on Lenovo's Data Center Configurator tool at dcsc.lenovo.com. Just select "Deployment Ready Solutions" and then "Client Virtualization".

"The [Lenovo] solution has been pivotal in transforming our IT department from cost a center into a profit center. We are now empowering our IT team to spend 90% of their time on what really matters: delivering value to our customers."

Matthew Day, CIO, Langs Building Supplies

Complementary Software

Lenovo offers a wide range of complementary software offerings for your VMware Horizon environments.

Data can be backed up with Veeam® Availability Suite™. Veeam Agents for Microsoft Windows and Linux work with Veeam Availability Suite to deliver comprehensive backup and recovery for ALL workloads — virtual, physical and cloud — with a single management console.

The delivery of graphics-rich desktops and workstations is facilitated by NVIDIA® virtual GPU (vGPU) software in conjunction with NVIDIA GPUs. Today's digital worker requires more graphics-intensive applications and operating systems to be productive. Windows 10 provides a rich, immersive experience and is the most graphically intensive operating system to date. NVIDIA GRID software is designed to deliver Windows desktops and applications at full performance while NVIDIA Quadro Virtual Data Center Workstation (vDWS) software allows users to access their professional graphics applications with full features and performance from any device, anywhere.

Lenovo XClarity™ Administrator is a centralized resource management solution that is aimed at reducing complexity, speeding response, and enhancing the availability of Lenovo server systems and solutions.

It captures industry-leading proactive platform alerts, enabling administrators to migrate workloads or replace failing components without incurring downtime.

XClarity Administrator enjoys tight integration with VMware vCenter through the XClarity Integrator for VMware vCenter. Administrators can view, monitor, and manage Lenovo infrastructure from the vCenter management console and vSphere web client. The XClarity Integrator for VMware vCenter also speeds Day 1 provisioning of new Lenovo systems into production, simplifies ongoing administration, and increases workload uptime in clustered environments by eliminating system maintenance windows and dynamically initiating workload migration based on user-defined system events.

Sukhoi Civil Aircraft virtualized all 1,400 desktops using VMware Horizon. Now, the company can manage all virtualized resources centrally and keep a tighter control on security.

TruScale IaaS: OpEx vs. CapEx

Lenovo TruScale Services allow you to have your VDI infrastructure on-premises with a "pay for use" cloud subscription instead of an outright purchase. This allows you to better tie your VDI expenses to your business use.

Lenovo TruScale removes layers of administration and management from stretched IT teams. It also creates opportunities to implement new solutions, with cloud-like functionality and flexible, pay-as-you-go, as-a-service models.

Services include assessment, design, configuration, installation, cloud deployment, data migration, concierge/tech desk services, maintenance, metering, service portal, security and compliance, upgrades, renewals and old tech retirement.

End-to-End VDI Solution

Completing the Lenovo end-to-end client virtualization solution for VMware environments are the endpoints. From devices to desktops, Lenovo helps businesses access the data needed to make informed decisions. Lenovo offers a wide range of PCs, tablets, thin clients and smartphones for end user access. The portability, versatility and lightweight features of Lenovo thin clients allow for deployment across the organization, especially where space is at a premium.

Lenovo streamlines device deployment and management with Lenovo Terminal Manager (LTM™). LTM is a browser-based solution for managing groups of thin clients. Whether you operate in a simple or complex environment, you can streamline the management of multiple hosted desktops all from one place. LTM's web-based console allows IT administrators to freely access it from any device that can connect to the server, as well as pushing through certificates and software packages. LTM also simplifies the ability to rapidly deploy additional devices, scaling to thousands of connected devices.

Have legacy devices in your environment? You can convert them to thin clients with Lenovo Fusion Desktop. You can even temporarily convert laptops and other devices with a USB port to a thin client with Cloud Desktop on the Go. The memory stick solution will force the device to boot from it when connected. When the memory stick is removed, the laptop will return to booting off its hard drive.
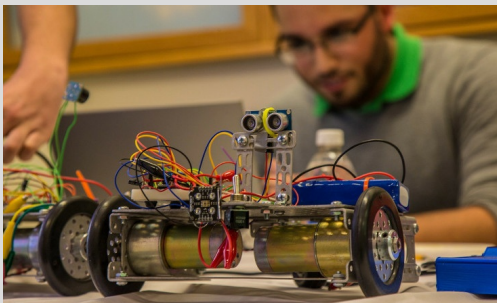
Tying It All Together

To have a successful VDI implementation, it is important to know which users will be accessing what applications, how they normally use those applications, the time of day the users normally work, and other factors.

Lenovo Professional Services conduct hundreds of VDI implementations a year and have extensive expertise in VDI across multiple industries. To make sure customers understand the necessary steps in a successful implementation, Lenovo offers a complimentary **VDI Workshop** for qualified customers. The workshop is a white-boarding session led by Lenovo Principal Consultants to help you on your journey of achieving desktop virtualization. This workshop can be held on-site or remotely.

If you have an existing VDI environment, Lenovo Professional Services offers two new services that can be utilized remotely.**VDI Architecture Jumpstart Services** provide a VDI architect to review your current VDI strategy or VDI environment to make adjustments to accommodate larger volumes of employees, and **VDI Residency Services** provide access to a VDI engineer to provide guidance around the assessment, design configuration, validation and knowledge transfer needed in expanding your current VDI environment.

Regardless of your current environment, Lenovo Services is a true business partner that will take you from where you are, to where you want to be. At every stage, you'll get our expertise and services to help you.

"Thanks to the Lenovo ThinkAgile VX HCI solution, we are now running highly demanding applications such as Autodesk AutoCAD smoothly in virtual desktop environments, contributing to better experiences for our learners."

Margherita Rabaglia, Headteacher, Istituto di Istruzione Superiore, C. E. Gadda

Why Lenovo

Lenovo is a leading provider of data center infrastructure solutions. We partner with you to identify, design, install and support the solution that best ensures your organization's needs are met throughout the IT lifecycle. Lenovo complements a portfolio of leading x86 infrastructure with a full range of storage, software, and comprehensive services that provides excellent performance, reliability, and security for your IT environment from the edge to the cloud.

For More Information

To learn more about Lenovo solutions for VMware Horizon, contact your Lenovo sales representative or Business Partner or visit the Client Virtualization solution page.

Lenovo provides a complete end-to-end VMware VDI offering with end points, servers, software and services

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