Lenovo Validated Designs

for ThinkAgile HX Appliances

Deliver greater reliability and simplify the modern datacenter

Simplify Solutions Infrastructure

Lenovo and Nutanix share a common vision of delivering an invisible infrastructure that does not demand significant time and resources to deploy and maintain. This frees IT to focus on delivering applications and drive innovation, greater efficiency and agility for their business. This is in contrast to how they are currently managing their current complex infrastructure.

The Lenovo ThinkAgile HX Series Nutanix Appliance is simple to deploy. With compute, storage and virtualization co-located on a single node, the Lenovo ThinkAgile HX 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. Plus, it scales rapidly to meet the growing needs of your business. Lenovo designs its platforms with open standards, enabling easy integration with third-party partners for best-in-class offerings.

The Lenovo ThinkAgile HX Series appliances are available in five families that can be tailored to your needs:
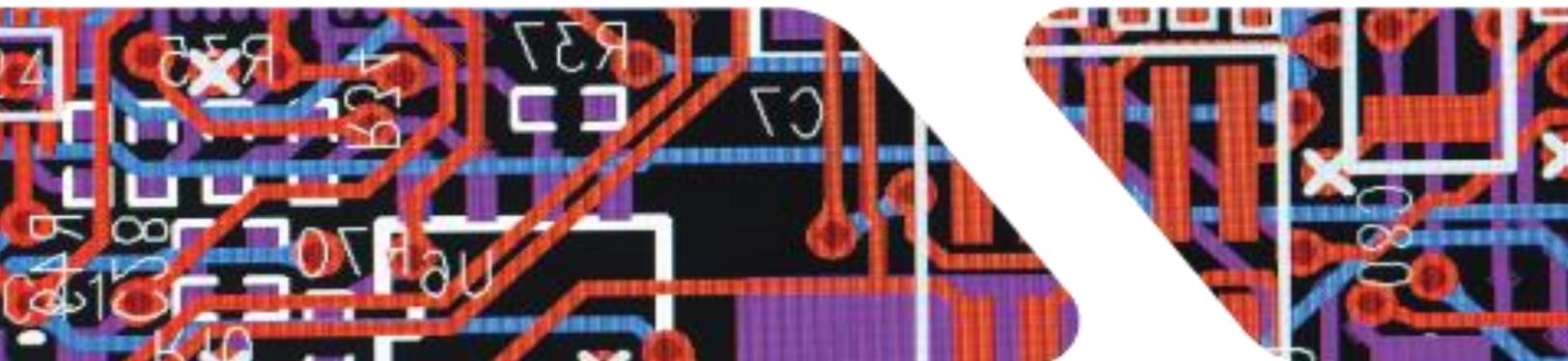- ThinkAgile HX1000 Series: optimized for remote office, branch office (ROBO) environments
- ThinkAgile HX2000 Series: optimized for small and medium business (SMB) environments
- ThinkAgile HX3000 Series: optimized for compute-heavy environments such as VDI and virtualized workloads like web servers
- ThinkAgile HX5000 Series: optimized for storage-heavy workloads such as file servers, Splunk and data center backups
- ThinkAgile HX7000 Series: optimized for high-performance workloads such as Microsoft Exchange, Microsoft SharePoint and databases like Microsoft SQL Server
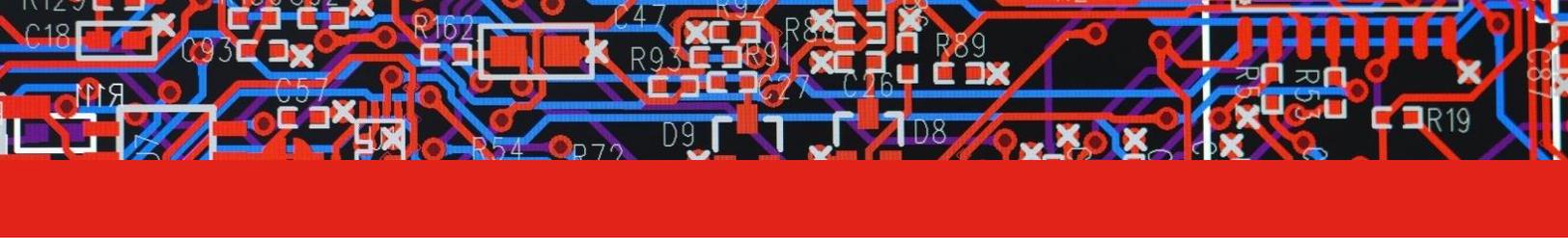
While starting with as few as three nodes allows you to keep your acquisition costs down, the Lenovo ThinkAgile HX Series appliances are capable of immense scalability as your needs grow. The rich suite of workloads supported on the Lenovo ThinkAgile HX appliances are detailed herein.

Highlights
- Simplify your IT infrastructure -- Allow your infrastructure to disappear into the background rather than demand significant time and resources
- Manage both cloud-based and traditional enterprise applications as a unified public cloud service
- Deploy virtual desktops in under 30 minutes, easily managed from the virtualization console
- Enables database consolidation and delivers extreme performance for Microsoft SQL server applications

Microsoft SQL Server OLTP

As one of the fastest growing database platforms, Microsoft SQL Server deployments are becoming increasingly critical to organizations. They are used in everything from departmental databases to business-critical workloads, including enterprise resource planning, customer relationship management and business intelligence. At the same time, enterprises are virtualizing SQL Server to consolidate their datacenter footprint, control costs and accelerate provisioning. These trends of delivering SQL Server databases as dynamic, virtualized services make it essential to select the right server and storage architecture.

Database performance has long been the primary criteria for selecting infrastructure. Multicore processors and large system memory capacity have now moved the performance conversation away from compute to the storage system.

Storage solutions that support virtualized SQL Server VMs need to handle a dynamic mix of transactional (OLTP) and analytical (OLAP) databases, along with their unique storage I/O profiles and active data sets. This requires efficiently delivering random and sequential read/write at high performance, across sizable amounts of active or hot data.

The Lenovo ThinkAgile HX7520 delivers a turnkey infrastructure solution for Microsoft applications. Run Microsoft SQL Server alongside other virtualized applications and benefit from:

- Higher performance and scalability: Start small and scale databases as your needs grow, but without the concessions of traditional infrastructure.
- Improved availability: Keep key applications protected and running with frequent, easy-to-restore backups and affordable, simple disaster recovery.
- Reduced operational complexity: Leverage simple, consumer-grade management, VM-centric operations and unprecedented insight into application and storage performance.

VMware Horizon Virtual Desktop

Whether you are planning to deploy hosted shared or virtual desktops, or virtualize your end-user applications, Lenovo can help you succeed. Using the Lenovo ThinkAgile HX3320 and VMware Horizon for your client virtualization architecture, you can deliver an excellent experience for a diverse mix of users spread across different locations, even at scale.

With Lenovo and VMware, you can start small with initial deployments for one hundred end users or less and linearly scale to tens of thousands of users without any upfront costs, additional performance overhead, or complex management. This removes a major hurdle facing most VDI projects today—taking desktop and application virtualization from the limited pilot deployments for a select few users to production, where it is expected to handle up to a thousand times more users, while maintaining an excellent user experience.

Accelerate the journey to application and desktop virtualization with Nutanix and VMware:

- Start small, without the upfront costs, and scale only as needed
- Ensure success with low risk using user-based sizing and validated designs
- Deliver an excellent user experience, regardless of scale or deployment type
- Lower acquisition and ongoing costs for all end users

By converging storage and computing in a highly distributed architecture, the Lenovo ThinkAgile HX3320 eliminates the restrictions of traditional storage infrastructure. It delivers storage and compute performance and capacity for both persistent and non-persistent desktops required by VMware Horizon.

The Lenovo ThinkAgile HX3320 can be used to deliver even higher performance using all flash server based SSDs. Additionally, the Lenovo ThinkAgile HX3520-G can be employed. It features two NVidia M60 GPUs that can be used in virtual GPU (vGPU) mode under VMware ESXi. These GPUs provide accelerated graphics for video or 3D and an improved experience for the most demanding end users and graphical applications.

Citrix XenDesktop Virtual Desktop

Desktop virtualization and application virtualization have emerged as powerful tools to address a variety of IT challenges. These include growing end-user support costs, servicing remote and branch offices, improving information and application security and tackling initiatives such as BYOD and teleworking. Successful deployments of desktop and application virtualization always start with choosing the right solution from the right partners.

Using Lenovo ThinkAgile HX3320 running Citrix XenDesktop® for your client virtualization architecture, you can deliver an excellent end-user experience for a diverse mix of users spread across different locations, for hundreds to tens of thousands of end users. Accelerate the journey to application and desktop virtualization with Nutanix and Citrix:

- Get started in a fraction of the time, without the upfront cost, and seamlessly scale infrastructure as needed
- Ensure success with minimal to no risk with VDI Assurance and validated designs
- Create desktops with pre-assigned Nutanix service levels through Citrix XenDesktop Studio using the Nutanix plug-in
- Lower acquisition and ongoing costs by as much as 50% and run VDI alongside other workloads

The jointly validated converged infrastructure eliminates the risk in deploying persistent and non-persistent virtual desktops from pilot to production at scale. Getting started with Citrix XenDesktop and the Lenovo ThinkAgile HX3320 is quick and easy. With the Lenovo ThinkAgile HX3320, the award-winning Citrix XenDesktop is up and serving desktops in just a few hours, without introducing complex storage configuration or network integration issues. Once deployed, compute and storage infrastructure can easily be scaled with the patented Nutanix Acropolis Distributed Storage Fabric. You can start small with initial deployments for one hundred end users or less and linearly scale to tens of thousands of users without any upfront costs, additional performance overhead, or complex management.

The Lenovo ThinkAgile HX3320 can also be used to deliver even higher performance using all flash local SSDs. The Lenovo ThinkAgile HX3520-G features two NVidia M60 GPUs that can be used in virtual GPU (vGPU) mode under VMware ESXi. These GPUs provide accelerated graphics for video or 3D and an improved experience for the most demanding end users and graphical applications.

Microsoft Exchange Server

Email has become one of the fastest growing critical workloads in today's information rich organizations. Microsoft Exchange deployments are now considered to be mission critical, requiring careful planning, deployment and management to ensure high performance, availability and easy scalability. With the Lenovo ThinkAgile HX7520, IT managers can finally deliver highly scalable and responsive Microsoft Exchange services with large mailboxes without the excessive costs and complexity of traditional shared SAN and NAS storage systems.

The Lenovo Converged HX7510 removes the complexities of managing separate storage, server and virtualization environments, eliminating the need for dedicated resources. With this platform, your Exchange installations can co-exist with other enterprise applications in the same environment, resulting in superior resource utilization. Lenovo eliminates the need to overprovision isolated silos of storage, delivering the predictable, consistent performance and faster time-to-value your organization needs.

Radically simplify the deployment of virtualized environments. You can quickly and easily spin up systems in less than a day without complex storage or network planning. The Lenovo architecture provides the many benefits web-scale technologies bring to enterprise virtualization environments, including live VM migration, high availability (HA), distributed resource scheduling (DRS) and fault tolerance. The Lenovo Converged HX7520 keeps Microsoft Exchange available and running by delivering the flexibility needed to deploy and manage Microsoft Exchange deployments in both Database Availability Groups (DAG) configurations, as well as in traditional non-HA Exchange deployments. This architecture provides enterprise levels of resiliency – starting with the data (tunable redundancy and integrity checks), to the nodes (non - disruptive upgrades and data path redundancy) and to VM level (snapshots and metro-availability) improving disaster recovery and ensuring business continuity across your IT environment.

Deliver predictable performance and scalability. The Lenovo Converged HX7520 with web-scale architecture scales performance and capacity separately within each node and intelligently places data to deliver consistent performance. Data is tiered across local and remote SSDs and HDDs for reduced latency and faster delivery of Exchange data. This appliance deduplicates data in the performance tier, enabling larger working sets and greater mailbox density. Auto-discovery and quick addition of new nodes enables non-disruptive scaling of Exchange deployments, providing a cost-effective, pay-as-you grow model.

VMware Hybrid Cloud

Virtualized speed and scalability are vital to meeting ever changing business needs and maintaining an edge in the market. VMware vCloud Suite provides a comprehensive software platform needed to build and run either a private or hybrid cloud infrastructure. This solution delivers virtualized infrastructure services for compute, network, security, and availability. Deployed on the ThinkAgile HX3000 platforms, these services include built-in intelligence to automate the on-demand provisioning, placement, configuration and control of applications that are based on defined policies.

The Lenovo Validated Design for VMware vCloud Suite is a solution with best practice documentation – including requirements, architectural overview, operational model, performance and sizing information, and bill of materials configurations – to jump start businesses to a well-orchestrated private or hybrid data center. Integrating, configuring, and testing end-to-end software and hardware technologies means administrators can spend less time worrying about infrastructure and focus more on enabling innovation.

With this solution based on a reference architecture and deployed on ThinkAgile HX3000 platforms, it provides all the components needed to build and run a vRealize Hybrid cloud. This approach delivers an infrastructure with built-in intelligence to automate provisioning, placement, configuration, and control of apps for an end-to-end infrastructure based on defined policies. Business can transform their data center infrastructure into an agile and resilient cloud, delivering the features of an enterprise public cloud. With VMware vCloud Suite combined with Lenovo ThinkSystem products and services, Lenovo can deliver a leadership hybrid cloud solution with the flexibility and virtual machine orchestration that enable businesses to:

- Transform their internal IT into an agile and resilient cloud, delivering the features of public cloud within the walls of the enterprise
- Deliver a hybrid cloud solution with flexibility, automated provisioning and virtual machine orchestration
- Rapidly scale on demand with VMware vRealize integrated with Lenovo XClarity software

Bottom Line

The ThinkAgile HX Series, powered by Intel® Xeon® processors, enables you to simplify your IT infrastructure and drive down costs, through the combination of preloaded easy-to-use software on powerful, extremely reliable hardware. All ThinkAgile HX Series models are backed by world-class Lenovo services and support.

The perfect complement to the HX Series, Lenovo Services guarantee a superior service experience. Providing outstanding value while supporting your uptime requirements, Lenovo Services offers choices to match your workload requirements ranging from base warranty extensions to same day committed repair, as well as hard drive retention, installation and customized service options. Investing in Lenovo Services guarantees genuine Lenovo quality parts, as well as reliable and consistent service from highly skilled, trained and certified technicians and access to Lenovo global remote and field support teams.

Simplify your IT infrastructure with Solutions delivered on the Lenovo ThinkAgile HX Appliance

Why Lenovo

Lenovo is a leading provider of x86 servers for the data center. Featuring rack, tower, blade, dense and converged systems, the Lenovo server portfolio provides excellent performance, reliability and security. Lenovo also offers a full range of networking, storage, software, solutions, and comprehensive services supporting business needs throughout the IT lifecycle. With options for planning, deployment, and support, Lenovo offers expertise and services needed to deliver better service-level agreements and generate greater end-user satisfaction.

For More Information

To learn more about the Lenovo ThinkAgile HX appliances and the solutions supported on these appliances, contact your Lenovo Business Partner or visit:

Lenovo Solutions
Lenovo ThinkAgile HX Appliance