



# Unlock Your Data Center's Potential

Introducing a new generation of Lenovo 1P and 2P servers

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[Lenovo.com/systems](http://Lenovo.com/systems)



## Overview

Each year, the demands placed on data centers increase significantly. Ever more data needs to be processed faster than before. This explosion of data requires servers with quicker processors, more memory, larger storage capacity, and the ability to do everything in the Cloud with high performance.

This data influx also requires a more secure infrastructure to safeguard data and maximize uptime. Flat budgets demand reduced expenses for energy, deployment, maintenance, etc., resulting in a lower TCO.

As a result, many—if not most—mainstream and entry servers that are three years or older are unable to meet these requirements.

For this reason, Lenovo announces a new generation of single- and dual-processor servers and solutions designed to handle the demands of today's data center—and tomorrow's—across many workloads.

New and refreshed servers:

- Lenovo System **x3250 M6** rack server (new)
- Lenovo System **x3650 M5** and System **x3550 M5** rack servers
- Lenovo ThinkServer **RD450** and ThinkServer **RD350** rack servers
- Lenovo **TD350** tower server
- Lenovo Flex System **x240 M5** blade server
- Lenovo NeXtScale System **nx360 M5** dense rack server

Refreshed solutions and software:

- Lenovo Cloud Reference Architecture for **VMware Software Defined Data Center**
- Lenovo Cloud Reference Architecture for **Red Hat Enterprise Linux OpenStack Platform**
- Lenovo **XClarity** management software

These and other Lenovo servers and solutions offer a number of advantages for customers:

- **High reliability and customer satisfaction** — Lenovo servers have consistently ranked as the industry's most reliable<sup>1</sup>, as well as achieving the highest customer satisfaction rating<sup>2</sup>. That's an unbeatable combination of quality, reliability, and customer service.
  - **Customer-driven innovation** — Features such as light path diagnostics, extensive Predictive Failure Analysis (PFA), TruDDR4 memory, direct water cooling, Lenovo AnyBay, and Lenovo AnyFabric contribute to tangible customer benefits in performance, reliability, serviceability, and manageability.
- Secure supply chain**— For maximum protection, security should be integrated and embedded by default. Improved security reduces threats, which increases data center reliability and availability and protects you from the enormous costs of a security breach. Lenovo employs rigorous business processes, product design, and supply chain controls to ensure that our products meet the most stringent customer requirements.
- **Low energy costs** — Lenovo servers use many energy-efficient components to keep your energy costs down, including 80 PLUS Titanium and Platinum power supplies, SSDs, low-voltage components (including processors, TruDDR4 memory, VRMs, and others), etc. Some NeXtScale servers offer direct warm water cooling for massive data center energy savings.
  - **High-temperature operation** — All Lenovo servers support continuous operation at 35°C/104°F, and some even as high as 45°C/113°F, to further reduce your data center energy costs.
  - **XClarity software** — Now available on the majority of Lenovo servers, this simple-to-use, yet powerful graphical systems management suite can save you time and money. The optional XClarity Energy Manager helps you maximize server density within a given power envelope.

## New System x3250 M6

This single-processor powerhouse packs enterprise class management, high-availability and security features into a tiny 1U form factor, making it ideal for SMBs, growing businesses, remote offices, and retail. The x3250 M6 offers a choice of the latest Intel processors (from Celeron to Pentium to Xeon E3-1200 v5 series)—for up to 107 percent more Virtual Machines and 30 percent better performance than the previous generation.

Plus, get up to 64GB of lightning-quick, low-latency 2133MHz TruDDR4 UDIMM memory for a robust system capable of powering workloads such as infrastructure and point of sale. You

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<sup>1</sup> Annual [ITIC 2015-2016 Reliability Survey](#), July 2015.

<sup>2</sup> Quarterly [TBR Customer Satisfaction Survey](#), January 2016.

also get storage flexibility with up to 24TB of capacity from four 3.5-inch hard disk drives (HDDs) or eight 2.5-inch HDDs/solid state drives (SSDs) in simple-swap or hot-swap formats. More information: [x3250 M6](#).

## Refreshed Servers

Although the following servers aren't new to the portfolio, each has been enhanced with the latest technologies, including up to two Intel Xeon E5-2600 v4 processors (up to 44% faster than v3 and up to 22% more cores), and 2400MHz DDR4 memory (12% faster than 2133MHz DDR4). In addition, some models now support Non-Volatile Memory express (NVMe) SSDs and more GPUs, for even greater workload performance.

### System x3650 M5 and x3550 M5

Our best-selling workhorse servers, the x3650 M5 and x3550 M5, deliver world-class performance and industry-leading reliability and security. Both servers support 1.5TB of Lenovo TruDDR4 memory for running dozens of virtualized applications.

Storage capacity has increased to 120TB (using 8TB HDDs) in 28 drive bays internally for the 2U x3650 M5 (including eight front-mounted high-IOPS NVMe PCIe SSDs). It also supports up to four GPUs for accelerated performance and 3D graphics.

The x3550 M5 offers the same performance, reliability, and security, but in a 1U package. It now supports up to 46TB in 12 drive bays, along with 2 GPUs.

Support for 80 PLUS Titanium power supply units (up to 96% efficient); low-voltage processors, memory, and other components, as well as energy-saving SSDs, contribute to tremendous energy savings. Designed for maximum uptime, these servers are ready for any enterprise two-processor workload from infrastructure basics to big data and analytics to database and virtual desktop.

With [six new world records](#), the enhanced x3650 M5 delivers faster performance than any competitive 2-socket rack server across virtualization, database, HPC, and high frequency trading workloads. More information: [x3650 M5](#) and [x3550 M5](#).

## Flex System x240 M5

Flex System is the highest capability blade system in the industry, offering the greatest combination of features and performance. It delivers performance, capacity, management simplicity, and networking flexibility, to help you keep operating costs down without sacrificing performance, reliability, or security.

The half-wide Flex System x240 M5 Compute Node supports up to 1.5TB of TruDDR4 memory. It also offers versatile high-performance storage options, such as dual 2.5-inch NVMe PCIe SSD drives and mirrored SD cards for hypervisor boot.

For workloads that require a balance of memory, processor, and I/O bandwidth—such as virtualization/VDI, Cloud, and databases—the x240 M5 delivers the flexibility to optimize individual resources to adapt to meet your workload's needs. More information: [x240 M5](#).

## NeXtScale System nx360 M5

The powerful dense NeXtScale System supports a broad range of workloads, including HPC (such as modeling and simulation), Cloud, and Big Data/analytics. It comprises powerful compute, storage, and acceleration nodes in an energy-efficient, no-frills 6U 12-bay nx1200 enclosure.

Each half-wide 1U nx360 M5 node now supports up to 1TB of TruDDR4 memory at GA<sup>3</sup>, and 44 processing cores. The nx360 M5 can be configured with either four storage bays and one PCIe slot, or two storage bays and two PCIe slots. New x16 ML2 slots support InfiniBand and Ethernet adapters for increased I/O flexibility.

NeXtScale WCT ([water-cooled technology](#)) models include direct warm water cooling. Sealed channels circulate room temperature water throughout the system and then out of the server. This provides greater system cooling, lower energy costs, and requires no data center chillers—not even system fans!—for quieter, more efficient cooling. More information: [nx360 M5](#).

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<sup>3</sup> 1TB support available in 2Q/2016; 512GB at General Availability.

## ThinkServer RD450 and RD350

The 2U RD450's highly flexible design makes it perfect for infrastructure, collaboration, and line-of-business applications, as well as web serving or hosting, Cloud and storage. The RD450 now supports up to 1TB of DDR4 memory (double that of the previous generation), and up to 64TB of internal storage.

This server is ideal for small-to-medium sized businesses because of its large, cost-effective storage capacity. Dual SD card options are also available to support hypervisor booting. The ThinkServer RD450 2.5-inch configuration leverages the same Lenovo AnyRAID design as the RD650 and RD550, for extreme configuration flexibility.

The RD350 uses the same technology as the RD450, but in a 1U package, supporting the same processors and memory capacity and up to 32TB of internal storage. More information: [RD450](#) and [RD350](#).

## ThinkServer TD350

The powerful TD350 tower server enables you to achieve high performance and massive storage capacity without the need to invest in a rack infrastructure. It supports up to 1TB of DDR4 memory, and up to 120TB of internal storage capacity.

Two enterprise-class M.2 SSDs are available as an additional internal option for secure booting. Plus, the TD350 runs with library-quiet acoustics (37dB), ideal for office-friendly environments. These features deliver terrific value for your business.

You can expand from 5 non-hot-swap SATA drives and 2 built-in NIC ports to 32 hot-swap drives, hardware RAID, and multiple 10Gb NIC ports in a snap. Your growing business can invest in the TD350 to support simple file/print with applicable hosting, and then easily scale to support more complex business analytics and large databases. More information: [TD350](#).

## Refreshed Solutions and Software

While not new to the portfolio, the following have been enhanced with new software capabilities to provide increased function and a better customer experience.

### Lenovo Cloud Reference Architecture for VMware Software Defined Data Center

This reference architecture brings state-of-the-art Private Cloud capability to the small, medium and enterprise data center. It enables you to turn up new services faster and with less effort.

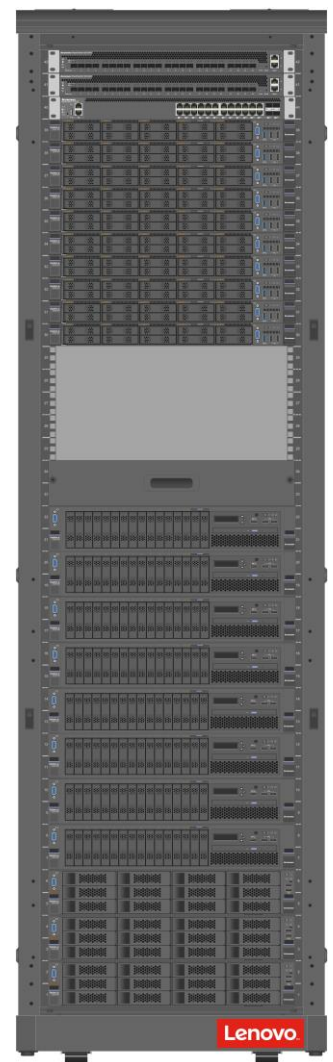
The architecture draws together virtualized server, storage, and networking elements, enabling businesses running VMware vCloud Suite to respond quicker to customer demands and spend more time on innovation for the next generation of applications. Integrated with a choice of either Lenovo Flex System or x3650 M5 and x3650 M5 servers, some of the enhancements include:

- Support for vSphere 6.0 U1a and NSX 6.2
- Support for Lenovo XClarity Administrator Integrator for VMware vCenter, vRealize Orchestrator, and vRealize LogInsight
- Support for Lenovo Networking Integration plug-ins for VMware vRealize Orchestrator and vRealize LogInsight
- Support for Compute cluster to use VSAN with NSX multitenancy

More information: [here](#).

### Lenovo Cloud Reference Architecture for Red Hat Enterprise Linux OpenStack Platform

The Lenovo Cloud Reference Architecture for Red Hat Enterprise Linux OpenStack Platform on proven System x3650 M5 and x3550 M5 servers now supports OpenStack 7. This solution enables you to quickly and easily deploy your virtualized infrastructure with optimized, prevalidated



configurations. Its documented and tested architecture enables tailored interoperability with your systems environment and facilitates reduced complexity and maintenance costs for easier adoption of OpenStack technology. More information: [here](#) and [here](#).

## **XClarity Management Software**

XClarity simplifies systems management with automated discovery, monitoring, configuration, updating, and power usage optimization. It now supports all Lenovo dual-processor servers, including ThinkServer systems, plus Lenovo RackSwitch infrastructure. A new option for mobile management enables anytime, anywhere access from mobile devices. Other new features include integration with enterprise single sign-on (SSO) and multifactor authentication, plus vRealize Orchestrator plug-in integration with Lenovo-specific provisioning tasks and actions. XClarity reduces deployment steps by 75% and deployment time from 60 minutes for non-managed systems to six minutes, freeing up valuable IT administrator time. More information: [XClarity](#).

## **Summary**

The Lenovo server portfolio, which is the industry's most reliable and has the highest customer satisfaction rating, has been refreshed and expanded with the most innovative technologies the industry has to offer.

Contact your Lenovo representative, Lenovo business partner, or go to [www.lenovo.com](http://www.lenovo.com) for more information about these and other Lenovo products.



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