The high cost of doing nothing
Why it's time to modernize your infrastructure

Lenovo | AMD

Embrace the new era of IT with Lenovo and AMD

With many servers ranging from three to five years old[1], many organizations feel a performance and efficiency pinch in their data center.

Aging servers often struggle to support everyday business processes, let alone emerging technologies such as edge devices, and compute-intensive workloads like AI and virtualization. Without a server refresh, it's easy to fall behind the competition. Organizations need to ensure their data centers deliver performance, scalability, and flexibility from edge to cloud.

Maintaining out-of-date infrastructure is costly and time-consuming—and it becomes increasingly unsustainable over time. There are hidden costs to consider too: the longer you maintain outdated servers, the more you're likely to spend on energy, software licenses, compatibility workarounds, service and more.

The solution is infrastructure modernization—replacing outdated data center technologies with more powerful, optimized servers and processors that can support your needs now and in the future.

If you're looking for innovative server technologies that will enable you to modernize, you're in the right place.

When modernizing your IT infrastructure, there are four key areas where your business can benefit: **High Performance, Security and Reliability, Simplified Management,** and **Energy Efficiency.**

Let's explore each benefit in more detail—and see how Lenovo and AMD technologies can help transform your data center and take your organization into the new era of IT.

Build a compelling business case

To realize the full strategic benefits of a modern data center, you'll need a clearly defined roadmap for your modernization initiative. In this ebook, we outline the technologies that make Lenovo and AMD the right choice for your new infrastructure—and the benefits they offer.

Performance: Achieve more, work faster, spend less

Servers from five years ago often struggle to keep up with the demands of today's complex workloads, let alone handle the rapid advances in AI and other resource-intensive technologies.

Containerization, virtualization, edge computing, and cloud-native applications all require huge amounts of processing power. But with compute demands growing all the time, it's important to identify which servers and processors will continue to meet your needs for years to come.

Lenovo servers with AMD processors are powerful, flexible, and energy efficient[2]

Modernization isn't just about following traditional refresh cycles and replacing old servers with new ones. It's about choosing infrastructure components that are highly powered, flexible, and energy efficient. And it's about choosing components that offer more value through higher performance in a smaller footprint, allowing you to reduce rack space or expand your capacity.

Lenovo V3 servers with AMD processors offer up to 123% performance improvement over the previous generation.[3] Lenovo servers with AMD processors offer an improvement of up to 98% in memory streaming bandwidth for Lenovo V3 AMD servers using DDR5 over Lenovo first generation AMD servers using DDR4.[4]

Lenovo servers with AMD processors also deliver up to 88% better performance for virtualization applications than the previous generation.[5] And PCI Gen 5 doubles the rate of data transfer to help you make the most of your automation, machine learning and AI inferencing work.[6]

Lenovo servers with AMD processors offer industry-leading performance per watt[7]

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Security and reliability: A worry-free modern infrastructure

When you're working with older infrastructure, components can fail, which makes downtime inevitable—and hugely disruptive as your team works to get your systems back up and running.

Eventually, many IT strategies devolve into constant data center firefighting with too many resources spent trying to maintain older servers.

Leading reliability and security with Lenovo ThinkSystem and ThinkAgile

#1 in reliability for 9 years.[8]   **#1 in security for 4 years.[9]**

The other constant battle for your IT team? Maintaining security in the data center. Without the frequent updates and patches that come with modern infrastructure, the gap between your business and the latest security protocols widens over time.

New threats emerge every day, leaving your data center vulnerable to increasingly sophisticated methods of cyberattack and data breach.

The monetary costs associated with security failures can be enormous: the FBI recently reported that the estimated money lost through recorded cybercrime incidents grew almost 50% in 2022, rising from $6.9 billion in 2021 to $10.3 billion in 2022.[10] What those figures can't account for is the cost of damage to your reputation—a breach can alienate customers and partners and cause them to seek out your competitors instead.

From design and development to shipping and deployment, we follow strict protocols and implement security measures at every stage of the process; it's what we call our Secure Development Lifecycle. For example, we vet all intelligent component manufacturers through our Trusted Supplier Program, so we're confident in the security of each server from the moment it's built.

Our ThinkSystem and ThinkAgile servers with AMD EPYC™ processors also feature dedicated security measures that protect against attacks, monitor your systems for tampering, and respond to any hacking attempts, including:

- **Lenovo System Guard,** which monitors a server's internal hardware inventory to detect unexpected deviations from a trusted snapshot.

- **AMD Infinity Guard,** a suite of security measures built in at the silicon level for comprehensive, multi-layered defenses, which includes Secure Memory Encryption and AMD Secure Boot.[11]

- **Immutable Hardware Root of Trust,** an embedded, silicon-based chip that helps ensure that the server can only be booted with trusted firmware.

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Simplified management: Migrate and maintain your infrastructure with ease

As data centers grow and change, they become more complex. And that means there are more tools, more software, and more management requirements to consider every time you want to make a change or an addition.

Modernization gives you an opportunity to consolidate, centralize and simplify management for your data center—even if you're operating in a mixed-processor environment.

With Lenovo ThinkSystem and ThinkAgile systems using AMD EPYC™ processors, transitioning can be as fast or as slow as you need, with the ability to steadily migrate and manage different x86 processor types—both old and new—side by side.

Our automated migration processes, including the VMware Architecture Migration Tool (VAMT), make it simple for you to shift your virtual machines between servers with minimal disruption

For organizations that want an even simpler approach to modernization, we have the perfect solution. Lenovo TruScale is our as-a-Service delivery model, designed to take the complexity out of provisioning, upgrading, and managing your infrastructure.
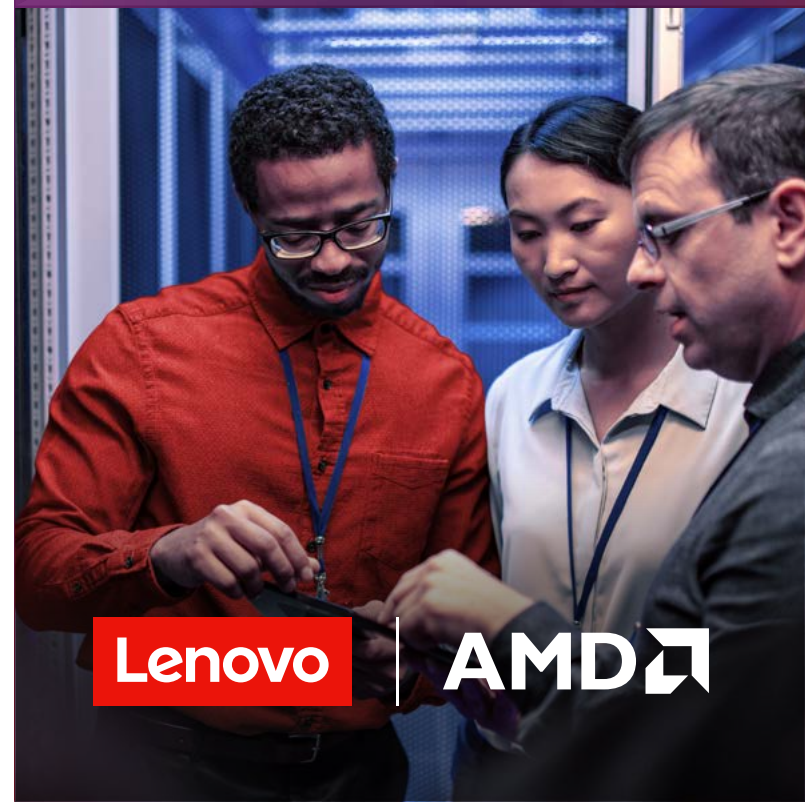
It offers pay-as-you-go access to some of the most powerful, reliable, and secure servers on the market. You'll never have to worry about having enough capacity or power to handle your workloads; TruScale ensures you always have the right size IT infrastructure, with easy routes to scale up and down as needed. You get the added advantage of consistently deploying the latest hardware, combined with reduced risk, and lower total cost of ownership and management overhead.[11]

We'll simplify the process of retiring your hardware too; Lenovo Asset Recovery Services securely and responsibly recycle your old hardware, with a hardware-agnostic buyback program to help simplify your refresh cycles.

Lenovo XClarity Administrator

Providing simple, centralized resource management from a user-friendly virtual appliance for web and mobile, XClarity Administrator allows you to monitor performance, push updates, manage data storage and more. It can support multiple generations or types of x86 servers—so you can handle a mixed environment just as easily as a single-server infrastructure.

From a single XClarity Administrator instance, you can manage up to 1,000 devices, giving you fully centralized oversight of your infrastructure, from edge to cloud.

Efficiency: Advance your sustainability goals with modern infrastructure

With organizations laying out ambitious decarbonization and energy-saving targets, leaders are on the hunt for ways to reduce energy usage and costs. And all eyes are on power-hungry data infrastructure.

Modern servers tend to be more efficient than their predecessors—but choosing technologies purpose-built with sustainability in mind helps ensure you're maximizing efficiency in your data center.

Lenovo and AMD are pioneers in helping customers advance their sustainability goals through initiatives such as Lenovo's Product Attribute to Impact Algorithm Project and AMD's Data Center Sustainability initiatives.

This dedication is reflected in our products. For example, servers using Lenovo's 5th generation Neptune Liquid Cooling capture up to 100% of the heat generated.[12]

Our Titanium Power Supplies are up to 94% efficient; combined with Neptune Liquid Cooling, you can increase your power efficiency by up to 40%[13]

You don't need to dial down performance to increase efficiency with Lenovo and AMD.

Our highly performant Lenovo Think System, ThinkAgile and ThinkEdge servers with AMD EPYC™ processors can help you consolidate older servers to accomplish the same amount of processing with fewer servers.[13]

What about the shipping and logistics?

We've made changes to the way we ship our hardware to increase efficiency in our supply chain. We offer rack-integrated shipping for our servers, cutting down on the amount of packing materials required (and reducing integration time for you.)

With 34 manufacturing sites located across 10 markets, we also reduce the distance our servers need to travel when they're ready to ship to customers.

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Now's the time to modernize

Many leaders hesitate to modernize their infrastructure due to the CAPEX involved—and that's understandable. But by avoiding that initial expenditure, you face dramatically rising OPEX costs throughout the remaining lifetime of your servers, while performance, productivity and competitive advantage likely continue to dwindle.

The Lenovo and AMD infrastructure portfolio is ready to deliver for this new era of IT. Our ThinkSystem and ThinkAgile servers with AMD EPYC™ processors help transform data centers and enable businesses to work faster and more efficiently—whatever their workloads.

Let's talk about your data center

Lenovo's modern server infrastructure, powered by AMD processors, is designed to be cloud-enabled, reliable, secure, easy to manage, energy efficient, and performant—all backed by global services, support, and a world-class technology partnership.

Together, we can take your organization into the future with an infrastructure that handles everything from general business processes to complex and compute-heavy workloads.

Through our wide network of experienced channel partners, we can guide you through the design, provisioning, implementation, and management of a refreshed, modern data center, confident that every server matches your organization's needs.

If you're ready to take a step into the new era of IT and modernize your infrastructure, reach out to our team today to discuss your challenges and start building your roadmap.

Get in touch now

1   https://venturebeat.com/data-infrastructure/data-centermodernization-the-heavy-and-rising-cost-of-doing-nothing/

2   https://lenovopress.lenovo.com/lp1145-lenovo-thinksystemcontinues-to-lead-the-industry-in-performance

3   Lenovo SR675 V3 with two 2.55 GHz AMD EPYC 9684X processors achieved a SPECrate®2017_fp_base score of 1570 compared to 702 for the Lenovo ThinkSystem SR665 with two 2.20 GHz AMD EPYC 7773X processors. See https://www.spec.org/cpu2017/results/res2023q3/cpu2017-20230828-38895.html and https://www.spec.org/cpu2017/results/res2022q3/cpu2017-20220704-32171.html for complete details. Results are current as of Oct 18, 2023. See http://www.spec.org for additional information. SPEC®, SPEC ACCEL®, SPEC CPU®, SPEC MPI®, SPEC OMP®, SPEC VIRT_SC®, SPEC VIRT®, SPEChpc™, SPECjbb®, and SPECpower_ssj® are trademarks of the Standard Performance Evaluation Corporation (SPEC).

4   Based on Lenovo internal testing comparing the memory bandwidth of Lenovo ThinkSystem V3 servers with AMD 9004 Series processors (12 channels of DDR5 @ 4800) to Lenovo ThinkSystem servers with AMD 7004 Series processors (8 channels of DDR4 @ 3200).

5   VMmark 3.1.1 results, as of 10/18/23. Two Lenovo ThinkSystem SR665 V3 servers, each with two AMD EPYC 9654 processors, scored 40.66 @ 42 tiles. See https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2023-06-13-Lenovo-ThinkSystem-SR665V3.pdf for further details. Two previous generation Lenovo ThinkSystem SR665 servers, each with two AMD EPYC 7763 processors, scored 21.58 @ 24 tiles. See https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-05-04-Lenovo-ThinkSystem-SR665.pdf for further details. To find out more about VMmark, visit https://www.vmware.com/products/vmmark.html. VMware® and VMmark® are trademarks or registered trademarks of VMware, Inc. VMware VMmark is a product of VMware, Inc.

6   https://www.techtarget.com/searchstorage/definition/PCIe-SSDPCIe-solid-state-drive

7   Lenovo's SR665 V3 holds the #1 place on the industry standard SPECpower_ssj2008 performance/watt efficiency benchmark, as of 17Oct2023. 34,597 overall ssj_ops/watt. See https://spec.org/power_ssj2008/results/res2023q4/power_ssj2008-20230926-01323.html for result details. See http://www.spec.org for additional information. SPEC®, SPEC ACCEL®, SPEC CPU®, SPEC MPI®, SPEC OMP®, SPEC VIRT_SC®, SPEC VIRT®, SPEChpc™, SPECjbb®, and SPECpower_ssj® are trademarks of the Standard Performance Evaluation Corporation (SPEC).

8   Among all x86 servers. https://lenovopress.lenovo.com/lp1117-itic-reliability-study

9   Among all x86 servers. https://www.lenovo.com/us/en/resources/data-center-solutions/analyst-reports/itic-global-server-hardware-security-survey-2022/

10 https://www.ic3.gov/Media/PDF/AnnualReport/2022_IC3Report.pdf

11 AMD Infinity Guard features vary by EPYC™ Processor generations. Infinity Guard security features must be enabled by server OEMs and/or Cloud Service Providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at https://www.amd.com/en/technologies/infinity-guard. GD-183

12 https://lenovopress.lenovo.com/lp1161-thinksystem-sr655-server

13 https://lenovopress.lenovo.com/lp1161-thinksystem-sr655-server

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