AMD

Windows Server 2025 + AMD EPYC™ 4005 Series Server CPUs
for small businesses and remote/branch offices

BUILD THE RIGHT FOUNDATION FOR WINDOWS SERVER 2025

MAXIMIZE YOUR POTENTIAL THIS REFRESH CYCLE

INTRODUCTION

WHEN AGING SERVERS JUST STOP MAKING SENSE

THE PROBLEM

For organizations relying on just a few servers, **the platforms often become inefficient long before they become unusable**. Patch and reboot windows get harder to schedule. Storage slows under mixed workloads. Virtual machines and infrastructure services fight for the same limited compute headroom.

The environment still runs—but it can be harder to secure, tougher to scale, and more expensive to support than the value it returns. Before you know it, years have passed since the last upgrade, and your new server isn't so new anymore.

THE MODEL FOR SMALL BUSINESSES AND REMOTE/BRANCH OFFICES

For small business and remote/branch office environments, a single server might support file services, authentication, backup, line-of-business apps, light database activity, and a multiple VMs. This type of workload consolidation can **work well when server resources match application environments**. It might not work so well when the box is short on memory bandwidth, storage responsiveness, or CPU headroom.

One complicating factor is that as your business grows, your workloads often do, too. More customers, more transactions, more data—this **growth is good for business, but it demands more of your hardware**.

REFRAMING THE REFRESH

Windows Server 2025 is available and can benefit your business today.
The question is not whether your aging server can run it. The real question is:

Can your current server platform support a trusted, efficient, and reliable environment—both now and throughout the next Windows Server refresh?

WINDOWS SERVER 2025

COMBINING THE HARDWARE AND SOFTWARE CONVERSATIONS

Windows Server 2025 is built for stronger security, better resiliency, hybrid capability, and newer workloads. Some of its biggest advantages show up at the platform layer, not the operating system (OS) layer. That's exactly why the hardware underneath it matters:

STORAGE

Optimized NVMe handling can reduce legacy I/O overhead and let the OS work more directly with modern drives.

CONNECTIVITY

Modern networking technologies help protect file-server access across remote/branch office connections.

LICENSING

Windows Server 2025 requires a minimum of 16 core licenses per server, with additional cores licensed as needed in 2- or 16-core increments.

The OS upgrade will struggle to deliver on its promises if the server underneath is memory-bandwidth constrained, short on PCIe® throughput, or sized wrong for the workload.

THE TAKEAWAY

With some previous Windows Server editions reaching support end dates or changing service levels in late 2026 and early 2027, your next upgrade may be closer than you think. Evaluate a platform refresh alongside Windows Server 2025 to get the most out of it.

FIT FOR PURPOSE

BALANCING YOUR BUSINESS NEEDS IN THE RIGHT SERVER PLATFORM

Small business and remote/branch office deployments tend to share the same shape: multiple concurrent workloads (file services, Active Directory, backup, VMs), burst-heavy storage demand, limited maintenance windows, and constrained power and cooling.

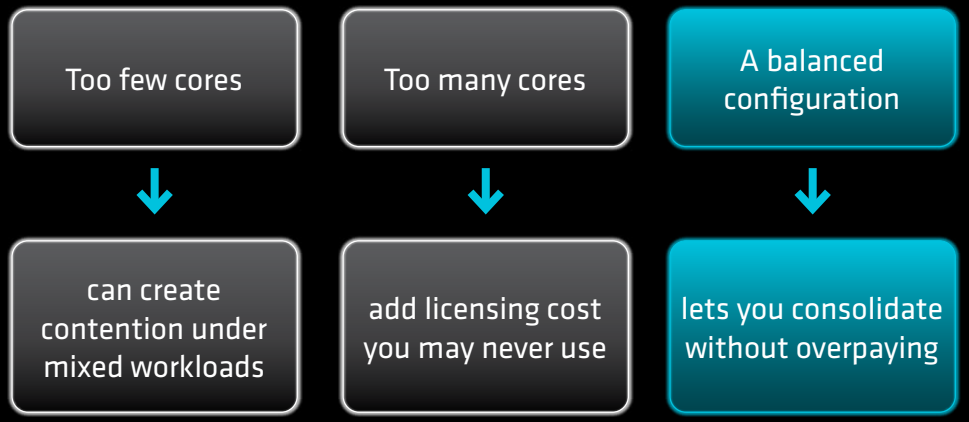
That points to a clear set of requirements:

- Enough CPU concurrency to avoid contention under mixed load
- Enough memory bandwidth and cache to stay responsive when services compete
- Modern storage paths, especially NVMe, to clear I/O bottlenecks

...all inside a power and operational footprint that fits where the server actually lives.

WHY "MORE CORES" ISN'T NECESSARILY BETTER

Core count interacts directly with licensing, workload density, and growth headroom.



This is where the **16-core, single-socket** design offers an advantage. It can carry common workloads, map cleanly to the Windows Server 2025 licensing baseline, and avoid unnecessary scale-out complexity.

SINGLE SOCKET, ON PURPOSE

Don't dismiss single-socket systems as entry-level. In the small business and remote/branch office setting, they're frequently more efficient: less platform complexity, no NUMA tuning, simpler deployment and support, and lower system cost. With powerful memory and I/O, a single node can handle consolidated needs. Scaling up intelligently beats scaling out prematurely.

AMD EPYC™ 4005 SERIES SERVER CPUs

ARCHITECTURE ENGINEERED FOR THE JOB

A FOUNDATION FOR GROWTH. SECURITY FEATURES FROM SILICON TO OS. RIGHT-SIZE PERFORMANCE.

AMD EPYC™ 4005 Series Server CPUs are designed specifically for small businesses and remote/branch offices, delivering the right combination of performance, affordability, ease of use, and security capabilities.

The need	How EPYC™ 4005 Series Server CPUs rise to the challenge
Headroom for growth	Up to 16 cores per socket and 32 threads, **aligned to the Windows Server 2025 16-core licensing baseline**
Modern, built-in security features	Robust AMD "Zen" architecture with silicon-level security features from AMD Infinity Guard[1]
Responsiveness under mixed load	DDR5 memory with large L3 cache
No storage bottleneck	PCIe Gen 5 bandwidth for high-speed I/O
Office-friendly deployment	Low thermal design power (TDP) for quiet, cool operation where there's no dedicated space

< ARCHITECTURE ENGINEERED FOR THE JOB

AMD EPYC™ 4005 SERIES SERVER CPUs

- Well-suited for baseline (16-core) Windows Server 2025 deployments
- Demonstrated performance advantages for Windows Server 2025 environments in third-party testing
- Enable compact, low-noise power envelopes, making them ideal for offices, retail sites, and branch locations
- Add AMD Infinity Guard silicon-level security features including Secure Memory Encryption, aligning with Microsoft's Zero Trust security model[2]

THE PROOF

VALIDATED ON A REAL-WORLD SYSTEM

WINDOWS SERVER 2025 DATABASE RESULTS

Against a legacy server, an AMD EPYC™ 4545P solution delivered up to

↑3x

the database transactions per minute[3]

—the kind of jump that shows up as shorter waits at the register, faster lookups, and quicker end-of-day reports.

Head-to-head with current-generation Intel, an AMD EPYC™ 4545P system delivered up to

↑42% more transactions per minute + **↑41%** more new orders per minute

at ~51% CPU utilization (vs. ~90% on the Intel system), which means capacity for additional apps and headroom for future growth.[4]

See the full methodology, configurations, and competitive results in the Principled Technologies report →

NEXT STEPS

CHECKLIST BEFORE YOU BUY

1 Does an upgrade introduce software advantages our current hardware can't fully leverage?

2 Is our current environment limited by CPU contention, storage latency, or patching inefficiency?

3 Is our business exposed to risk from security gaps in the aging platform?

If the answer to any of these questions is "yes," maximize the benefits of a Windows Server 2025 upgrade with a hardware refresh. Take the next steps:

- ☐ Size the server to licensing alignment and workload shape—not just to habit.
- ☐ Investigate workload consolidation onto fewer, better-balanced nodes.
- ☐ Consider evaluating a **single-socket, 16-core** AMD EPYC™ Server CPU alongside the usual options.
- ☐ Review the third-party benchmark data before you decide.

SUMMARY

START FRESH WITH YOUR REFRESH

When it's time to upgrade—especially with end-of-life dates and service changes quickly approaching—Windows Server 2025 is more than a replacement cycle. It triggers an opportunity to correct platform inefficiencies, leverage high-performance hardware, and pay for exactly what you need.

For small business and remote/branch offices, the right solution is one that helps secure your environment and balances the needs of your workloads, storage responsiveness, licensing costs, and deployment constraints.

Refresh with AMD EPYC™ 4005 Series Server CPUs

1. GD-183A: AMD Infinity Guard features vary by EPYC™ Processor generations and/or series. 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 http://www.amd.com/en/products/processors/server/epyc/infinity-guard.html
2. GD-183A: AMD Infinity Guard features vary by EPYC™ Processor generations and/or series. 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 http://www.amd.com/en/products/processors/server/epyc/infinity-guard.html
3. E4K-036: Data provided by Principled Technologies, June 2026, source: https://www.principledtechnologies.com/AMD/EPYC-4545P-SMB-competitive-0626.pdf . Results not independently verified by AMD. MSSQL TPROC-C Workload is derived from TPC-Benchmark™ Standard, and as such is not comparable to published TPC-C™ results. TPC Benchmark, and TPC-C are trademarks of the Transaction Processing Performance Council.
4. E4K-036: Data provided by Principled Technologies, June 2026, source: https://www.principledtechnologies.com/AMD/EPYC-4545P-SMB-competitive-0626.pdf . Results not independently verified by AMD. MSSQL TPROC-C Workload is derived from TPC-Benchmark™ Standard, and as such is not comparable to published TPC-C™ results. TPC Benchmark, and TPC-C are trademarks of the Transaction Processing Performance Council.

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