

FEBRUARY 2025

The Sustainability Impact of HPE ProLiant Compute Gen12 Servers

Tony Palmer, Practice Director

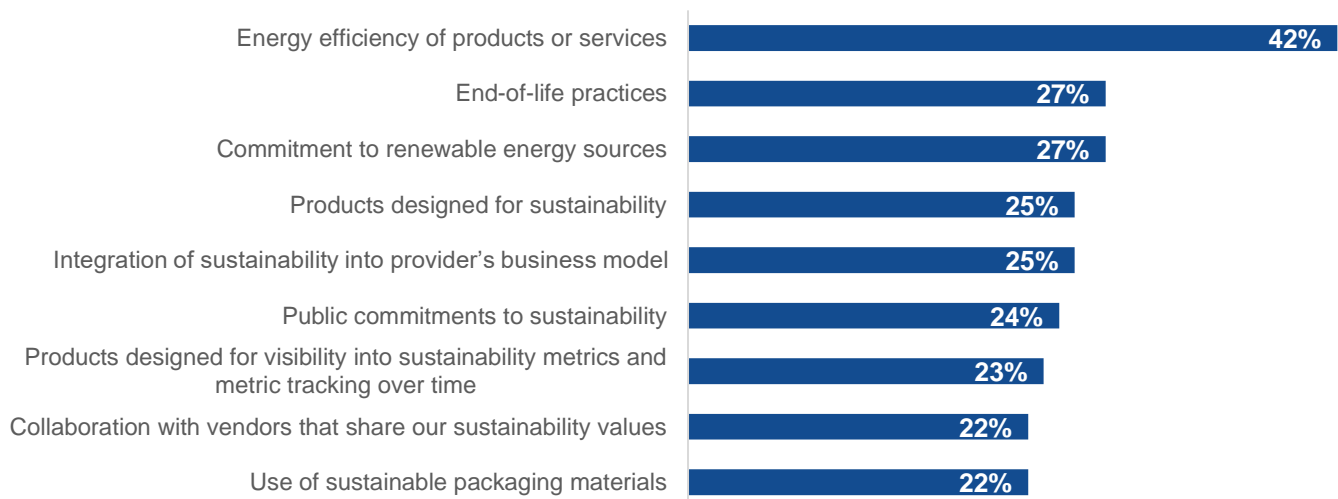
Sustainability Challenges

Organizations increasingly face societal pressures to make concrete commitments concerning carbon emissions, and sustainability has become a top priority for optimization. According to research from Informa TechTarget's Enterprise Strategy Group, a majority of organizations indicated sustainability has an above-average (51%) or higher (20%) impact on strategic planning, a clear indication that it is a mainstream and crucial corporate objective.¹

Well over 90% of enterprise IT buyers reported that the sustainability profile of IT suppliers affects product and vendor selection. The wide majority (83%) of organizations agreed that sustainability is increasing as a purchase factor when evaluating IT suppliers, and 78% said that if two products under consideration were similar in price and functionality, they would be more likely to choose the sustainable option.

Figure 1. The Sustainability Checklist: What Matters to IT Buyers?

What are the most important features, capabilities, or attributes related to IT-driven sustainability that your organization considers when evaluating technology vendors and service providers? (Percent of respondents, N=435, five responses accepted)



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

¹ Source: Enterprise Strategy Group Research Report, [The State of IT-driven Sustainability](#), October 2024. All research in this Technical First Look is from this research report.

This Enterprise Strategy Group Technical First Look was commissioned by HPE and is distributed under license from TechTarget, Inc.

Energy efficiency of products and services (42%) is positioned firmly atop the list of differentiators buyers use when selecting sustainable solutions. Full asset lifecycle sustainability, from design to packaging and IT asset disposition, also figure heavily in product favorability.

In many industry sectors, IT expenditures can claim a large investment. In these same sectors, IT infrastructure such as compute, storage, and network resources can be a large source of carbon emissions.

Against this backdrop, recent Enterprise Strategy Group research found that 56% of organizations surveyed reported that IT was a leader in driving sustainability initiatives in their firms, followed by executive functions (39%) and dedicated environmental, social, and governance executive teams (32%).

Clearly, achieving sustainability goals is a key initiative for most major organizations, and IT technology and operations should be considered one of the most straightforward paths to achieve that result. Executive commitment to sustainability creates strategic alignment between IT and the business, with executive support making the transitions easier. It also raises the profile of sustainability initiatives in IT.

HPE ProLiant Compute Gen12 Servers

HPE ProLiant Compute Gen12 rack and tower servers are the latest generation of powerful, secure, efficient, and optimized computing solutions designed for hybrid-cloud environments. They can be deployed in private clouds, multiple data centers, and at the edge and can be configured to meet the needs of any workload with the benefit of embedded security and manageability. HPE ProLiant Compute Gen12 servers offer intuitive, cloud-based management that provides visibility and consistent control across the entire deployment. As an alternative operating model, HPE ProLiant Compute Gen12 servers are available in a cloud-like consumption model of on-premises infrastructure through HPE GreenLake.

Security and Management

HPE ProLiant Compute Gen12 servers not only offer considerably higher performance density than previous generations, but they are also significantly more power-efficient and secure, so organizations can address existing and new workloads—from traditional production workloads like VDI to leading-edge AI applications—with cost savings from lower power and cooling requirements without compromising performance or productivity.

Security is top of mind with built-in HPE iLO silicon root of trust. HPE iLO is a remote server management tool that enables customers to securely configure, monitor, and update HPE servers. HPE iLO 7 protects servers from manufacturing to end of life using the Security Protocol and Data Model (SPDM) certification and provides compliance readiness for future quantum-computing attacks.

HPE Compute Ops Management is designed to simplify enterprise operations with proactive and predictive automation from the data center to the edge. Compute Ops Management is a single management solution powered by AI-driven insights, which enables operators to react more quickly with greater control across the compute lifecycle—from forecasting energy costs to managing a global server footprint to quickly pinpointing problem areas through dashboards, intelligent alerts, and a global map view of status and activity for all servers.

First Look

Enterprise Strategy Group completed a technical analysis of the latest HPE ProLiant Compute Gen12 servers. Our goal was to validate and model the overall business impact of running workloads on Gen12 servers compared with previous-generation technologies. In this first look, we examined multigeneration consolidation based on power and performance efficiency. When considering consolidation, it's important to consider that:

- HPE ProLiant Compute Gen12 servers deliver a considerable performance advantage over previous generations.

- Older server generations like Gen8 and Gen9 are reaching end of life and are no longer receiving security updates, exposing customers to potential risks.
- HPE has a substantial install base of millions of Gen10 servers that could benefit from upgrading.
- The new Gen12 processors include security features to protect against quantum computing threats. As quantum computing technology develops, these protections will be a requirement.

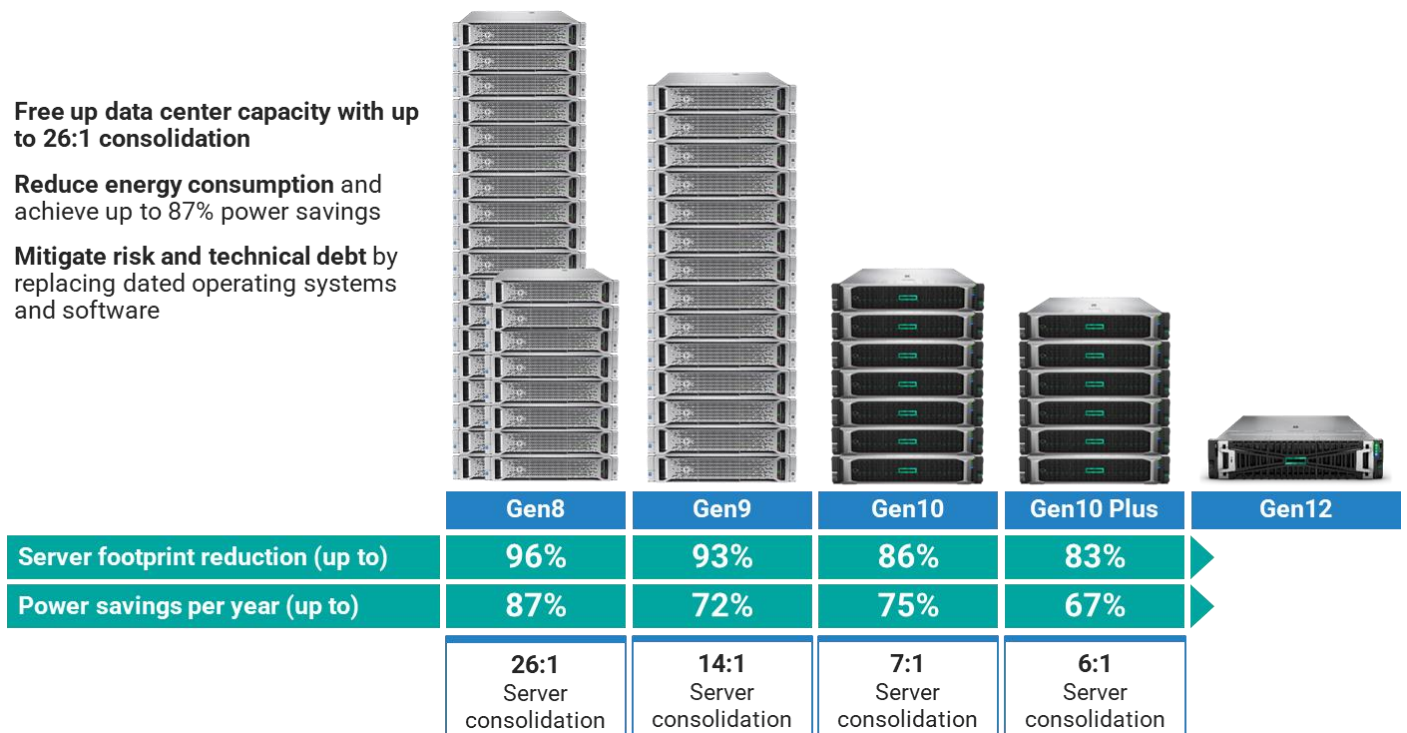
Power and Performance Efficiency

To validate the power-performance efficiency of HPE ProLiant Compute Gen12 servers, we examined the results of testing published by the Standard Performance Evaluation Corporation (SPEC). SPEC is a performance standardization body with more than 60 member companies that produces realistic, standardized performance tests across numerous system performance disciplines.

When looking at maximal consolidation opportunities based on performance and power efficiency, we compared results published for Gen8, Gen9, Gen10 (Plus), and Gen12 ProLiant servers. Results were obtained using the SPECrate2017_int_base suite from the SPEC CPU 2017 benchmark. The HPE Power Advisor tool was used to calculate the consolidation ratio and savings when upgrading HPE ProLiant Compute previous-generation servers with Gen12 servers. The SPEC CPU 2017 benchmark measures compute-intensive performance, stressing a system’s processor, memory subsystem, and compiler.

As shown in Figure 2, organizations with populations of previous-generation servers still in service can consolidate their server footprint by up to 26x, while cutting power and cooling costs by up to 87%, by switching to Gen12 servers.

Figure 2. Consolidating With HPE ProLiant Compute Gen12 Servers



Source: HPE and Enterprise Strategy Group, a division of TechTarget, Inc.

As shown in Table 1, the total compute performance measured for HPE ProLiant Compute Gen12 servers ranged from more than 6x that of HPE ProLiant Compute Gen10 Plus servers to more than 26x that of HPE ProLiant Compute Gen8 servers. We rounded the number of consolidated servers down to ensure servers would not be oversubscribed in our model. Power efficiency was calculated by comparing the total thermal design power (TDP) requirements for the consolidated servers to a single Gen12 server. Power savings ranged from 66.7% to 86.9%. In Figure 2, savings percentages were rounded normally.

Table 1. Performance and Power Data

Generation	TDP (Watts)	SPECrate2017_int_base	Consolidation Ratio	Power Savings With Gen12
Gen8	95	37.5	26	86.9%
Gen9	85	66.9	14	72.3%
Gen10	185	139	7	74.5%
Gen10 Plus	165	154	6	66.7%
Gen12	330	996	n/a	n/a

Source: HPE and Enterprise Strategy Group, a division of TechTarget, Inc.

Conclusion

Enterprise Strategy Group has validated how consolidating older servers with HPE ProLiant Compute Gen12 servers can accelerate organizations on their journey to sustainable IT and support their strategic sustainability goals.

- **Server consolidation.** HPE ProLiant Compute Gen12 enable efficient consolidation of older-generation servers, reducing data center footprint by up to 96%.
- **Power efficiency.** HPE ProLiant Compute Gen12 servers demonstrate up to 87% annual power savings compared to previous generation servers.

Sustainability has a major influence on most organizations' strategic planning, and Enterprise Strategy Group believes that modernizing IT with better performing, more energy-efficient servers with a reduced carbon footprint like HPE ProLiant Compute Gen12 servers can have an immediate effect. If your organization is looking for a partner that can deliver truly sustainable IT and accelerate your sustainability journey, with measurable short- and long-term sustainability impact, you should be talking to HPE.

©TechTarget, Inc. or its subsidiaries. All rights reserved. TechTarget, and the TechTarget logo, are trademarks or registered trademarks of TechTarget, Inc. and are registered in jurisdictions worldwide. Other product and service names and logos, including for BrightTALK, Xtelligent, and the Enterprise Strategy Group might be trademarks of TechTarget or its subsidiaries. All other trademarks, logos and brand names are the property of their respective owners.

Information contained in this publication has been obtained by sources TechTarget considers to be reliable but is not warranted by TechTarget. This publication may contain opinions of TechTarget, which are subject to change. This publication may include forecasts, projections, and other predictive statements that represent TechTarget's assumptions and expectations in light of currently available information. These forecasts are based on industry trends and involve variables and uncertainties. Consequently, TechTarget makes no warranty as to the accuracy of specific forecasts, projections or predictive statements contained herein.

Any reproduction or redistribution of this publication, in whole or in part, whether in hard-copy format, electronically, or otherwise to persons not authorized to receive it, without the express consent of TechTarget, is in violation of U.S. copyright law and will be subject to an action for civil damages and, if applicable, criminal prosecution. Should you have any questions, please contact Client Relations at cr@esg-global.com.

About Enterprise Strategy Group

TechTarget's Enterprise Strategy Group provides focused and actionable market intelligence, demand-side research, analyst advisory services, GTM strategy guidance, solution validations, and custom content supporting enterprise technology buying and selling.

✉ contact@esg-global.com

🌐 www.esg-global.com