



HPE ProLiant Compute

Buyers guide

Navigating the edge: Enable business anywhere

HPE 
GreenLake

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What is the edge?

The edge represents a fundamental shift in how data processing and computing infrastructure are evolving to create new opportunities for businesses. Rather than being located in traditional, centralized data centers, compute is moving closer to where the data is generated and needed. According to the Linux® Foundation, by 2028, most businesses will have embraced edge computing as a core part of their IT strategies. So, what exactly is “the edge”?

The edge is where people, places, things — and all their data — intersect. And as people and things generate massive amounts of data, you need to be able to act on that data in real time.

The edge encompasses a wide range of Internet of Things (IoT) devices and computing environments from operational technology (OT) to IT, including:

- Smartphones and other smart devices
- Embedded sensors and actuators
- Security cameras
- Remote or branch office locations
- Medical equipment
- Small local or regional data rooms
- Industrial robots

All of these devices are essential edge computing tools for business accessing and generating new data that can be harness to deliver a competitive advantage.

The takeaway? Edge computing is not just a trend but an integral part of everyday business. It's a strategic imperative for businesses looking to harness the power of data in our rapidly evolving digital world.



The benefits of edge computing

Organizations seeking to implement new, digitally enhanced business operations, create new customer experiences and drive engagement, implement new digital-first processes in the field or expand to new regions can accelerate their modernization with edge computing rather than relying on traditional data processing.

Three key benefits of edge computing:

Lower response times and latency

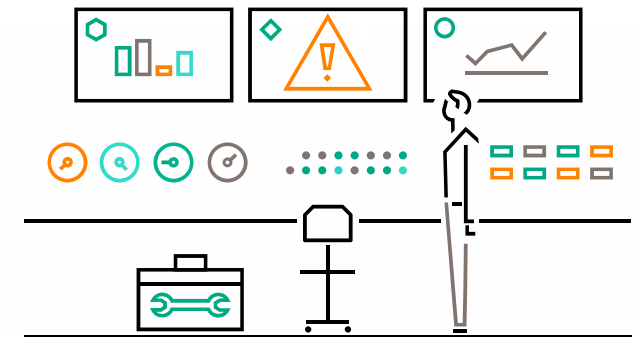
Contrary to traditional data processing, where data is sent to the cloud or main data center for processing, data is stored and processed on edge devices, reducing latency and improving response times. AI/ML applications for inferencing, which depend on immense amounts of data, function better in edge compute environments due to this improved latency and response time.

Lower bandwidth utilization and connectivity costs

Traditional data processing requires the constant transfer of data to the cloud or main data center. This data transfer requires network connectivity and bandwidth, with increased bandwidth needed for the growing amount of data produced by devices. By processing data on edge devices, edge computing lowers bandwidth utilization and connectivity costs, allowing growing businesses to expand to additional locations with a lower TCO.

Higher reliability

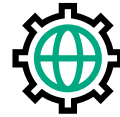
By enabling independent, autonomous processing with redundant solutions at any edge location, the dependence on central connectivity for core business operations is reduced. This isolation minimizes costly interruptions and utilizes wireless and wired connectivity in the event of a natural disaster.



Industry examples at the edge



Retail



Manufacturing



Transportation



Healthcare

Computer vision AI

Loss prevention

Implementing AI at the edge with computer vision enables retailers to reduce inventory shrinkage and lower their cost of operations.

Quality control

Using AI-based video at the edge, manufacturers can improve quality inspection processes, reduce defects, and improve customer satisfaction while minimizing scrap.

Traffic analysis

AI-enhanced traffic video helps to optimize transport routes, promote public transportation, and support decision-making for law enforcement.

Worker safety

Using intelligent video, hospitals can identify objects, like medical equipment and face coverings, and people, like doctors and patients, and use these inputs to identify and rectify unsafe situations.

Data management and analytics

Inventory forecasting

Edge computing helps retailers predict demand and optimize inventory levels by processing data from various sources, including sales history, weather forecasts, and market trends. This enables more accurate inventory ordering and reduces carrying costs.

Predictive maintenance

Anticipate machine failures with the power of data analytics, enabling timely maintenance to prevent potential breakdowns. Leverage edge computing to process data close to the end device, reducing data transportation expenses and guaranteeing dependable data accessibility.

Fleet management

GPS data, vehicle diagnostics, and driver behavior information are processed locally to monitor vehicle locations, fuel consumption, engine health, and driver safety. This enables more efficient route planning, maintenance scheduling, and compliance monitoring.

Processing patient data

Healthcare facilities process patient data securely on-site with edge computing resources.

Running applications to support day-to-day operations

Remote branch offices

Food retailers are leveraging point-of-sale servers to help manage local orders coming from the web.

Medical imaging

Edge computing accelerates the processing of medical images, such as X-rays, MRIs, and CT scans. Radiologists can review and interpret images faster, leading to quicker diagnoses and treatment decisions.

[> Read RaceTrac's story ...](#)



Customer story — RaceTrac

RaceTrac is raising the bar for roadside experiences by understanding its customers better. With a “Store of the Future” initiative, the Southern US gas station chain is modernizing its approach to deliver a 360-degree view of its 12-state business needs. By enabling data analytics at the edge at 750 roadside pit stops, RaceTrac is leveraging insights to offer personalized store experiences with the goal to keep customers coming back.

“We did a bake-off between five different manufacturers in a 30-store pilot program, and determined, based on performance and scalability, that HPE ProLiant servers were going to be the platform of choice for all of our nearly 800 stores,” — Jay Richardson, director of guest-facing technology for RaceTrac.

HPE ProLiant is now deployed across all 750 RaceTrac locations, with 24x7 uptime, a marked improvement from the recurring hardware failures. Data also reaches headquarters in minutes instead of hours, enabling executives to make real-time decisions.

Objectives	Results
Stop recurring downtime at retail stores.	24x7 uptime maximizes sales and boosts customer service.
Do more with data by analyzing it faster for real-time insights.	Data insights at speed (20 minutes vs. 24 hrs) for real-time business decisions.
Modernize and standardize aging in-store technology.	An edge platform that scales to encompass initiatives in artificial intelligence (AI) and beyond.

[Read the story](#)



Lifecycle essentials

77%

of organizations perceive their edge computing workloads as critical or highly critical, impacting people's safety and business operations.¹ However, deploying IT at the edge can create management complexities, physical security concerns, and integration headaches if organizations don't carefully consider their technology providers, their end-to-end capabilities, and their solution longevity.

Lifecycle considerations:

Zero-touch management and autonomous operations: The nature of edge computing means you will have servers and devices distributed across many locations and are unlikely to have IT professionals readily available at all those locations. This makes easy installation, central provisioning tools, and administrative interfaces crucial.

Security: Hardware-based security is critical as security is only as strong as the layer below the point of attack. Edge devices offer bad actors and cybercriminals additional entry points into an organization's information and systems. By investing in a technology partner who values zero trust security, organizations can take better steps toward protecting their key asset — data.

Integration: Businesses investing in edge computing need a future-proof solution that will integrate with their main data center, support OT applications long-term, and scale with their business. While many OT companies are adding containers, AI, databases, and cloud solutions to their offerings, this can create complexities and add costs when organizations need to replicate data to their main data center for corporate use.

¹ ["Market Analysis Perspective: Worldwide Edge Trends and Strategies,"](#) IDC, September 2023.



HPE ProLiant Gen 11 advantage

Accelerate your data-first modernization at the edge with compute engineered for your hybrid world. HPE ProLiant Gen11 edge solutions simplify management and operations with distributed environments in mind, offer a zero trust approach to security, and provide industry-leading performance and efficiency for your most demanding workloads at the edge.

Intuitive cloud operating experience: Simplify the way you control compute from edge to cloud. Transform business operations and pivot your team from reactive to proactive with global visibility and insight through a unified console.

- Modernize lifecycle management with cloud simplicity.
- Unify compute management with a centralized console for self-service operations.
- Automate tasks for efficiency, reducing manual effort in deployment, and achieve seamless, simplified support and lifecycle management.
- Securely bring cloud agility to distributed compute infrastructure.

Trusted Security by design: Protect your infrastructure, workloads, and data from threats to hardware and risks from third-party software with a trusted edge-to-cloud security posture built on an HPE compute core hardened through a proven, zero trust approach to security.

- Industry-leading security innovation
- Extended protection to partner ecosystem
- Expanded trusted supply chain security

Optimized performance for your workloads:

Deploy solutions seamlessly while achieving optimal performance for demanding applications that require the most advanced graphics and data acceleration. Address a new wave of data center needs with an open approach that delivers efficiencies for cloud-native workloads at scale. Achieve advantageous efficiencies spanning operational and performance economics to power your apps and accelerate innovation everywhere your data lives.

- Expect more from your infrastructure, with up to 99% higher performance than previous generations.
- More graphics capabilities than ever before with 33% more high-performance GPU density per server compared with previous generation servers.

> [Solution ecosystem ...](#)



Ecosystem

HPE has a strategic portfolio of alliance partners to complement your edge computing deployments. Quickly optimize for all your workloads and deploy your edge solution with confidence.

VMware® ECS

The VMware Edge Compute Stack platform delivers the power of edge computing with flexible infrastructure, AI for IT operations (AIOps), and seamless cloud integration.

→ [Learn more](#)

Red Hat® OCP

Red Hat OpenShift® Container Platform is a consistent hybrid cloud foundation for building and scaling containerized applications. Available on HPE Synergy, it's an out-of-the-box container solution that takes only hours to deploy yet brings immediate value to your business.

→ [Learn more](#)

SUSE® Rancher

Deploy, operate, and securely manage your Kubernetes clusters at scale with SUSE Rancher, available through HPE.

→ [Learn more](#)

Microsoft Azure Stack HCI

Ready-to-go, validated solution configurations based on HPE ProLiant Compute and components which are tested, optimized, and validated with Azure Stack HCI OS to deliver reliable solid performance and high availability.

→ [Learn more](#)



Edge-optimized platforms

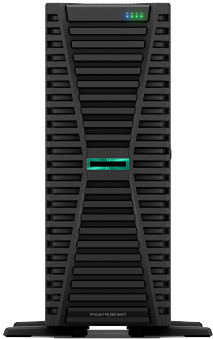


HPE ProLiant DL320 Gen11

The HPE ProLiant DL320 Gen11 server with 4th Generation Intel® Xeon® Scalable processors is a 1U 1P server with a unique compact design and workload-driven modular design that is purpose-built for edge computing.

Feature	Specifications
Processor	4th Generation Intel Xeon Scalable processors
GPU support (front loaded)	Front loaded — up to 4 single-wide or 2 double-wide GPUs
Cores	8 to 32 cores, depending on processor
Memory	Up to 2 TB of DDR5, up to 4800 MT/s
Drive count	Up to 4 SFF NVMe/SAS/SATA or up to 8 EDSFF E3.S 1T NVMe SSD Up to 12 LFF or 10 SFF drivers with up to 153.6 TB NVMe SSD total disk space
Boot options	Optional internal RAID 1 M.2 NVMe (hot-pluggable) 2x SATA/NVMe M.2 connector (onboard)
I/O	Embedded 2x 1GbE networking ports Up to 2 x16 PCIe Gen5 Up to 1 x16 OCP slot
Management	HPE iLO 6
Chassis depth (GPU front end)	30.4" / 772 mm

[> more ...](#)



HPE ProLiant ML350 Gen11

The HPE ProLiant ML350 Gen11 server with 4th Generation Intel Xeon Scalable processors is a powerful 2P tower server solution that supports a wide range of workloads at the edge.

Feature	Specifications
GPU support	Up to 8 SW or 4 DW
Processor	4th Generation Intel Xeon Scalable processors
Cores	8 to 60 cores, depending on processor
Memory	Up to 32 DIMMS, DDR5 up to 4800 MT/s
Drive count	Up to 12 LFF HDD/SSD; SAS/SATA Up to 24 SFF HDD/SSD; SAS/SATA/x1 NVMe Up to 12 EDSFF 3.S 1T or 6 EDSFF 3.S 2T Up to 8SFF x4 NVMe SSD
Boot options	Optional Hot-pluggable RAID 1 M.2 NVMe External access
I/O	Up to 10 PCIe Gen5 slots Up to 2 x16 OCP slots
Management	HPE iLO 6
Chassis depth (GPU front end)	28"

> Edge-ready solutions . . .



Edge-ready solutions

The Schneider Electric and HPE partnership helps you effectively manage IT at the edge. The edge-ready solutions:

- Meets the compute requirements of any small environment
- Can be mounted on a wall to save space
- Is customizable by a global network of channel partners

From grocery stores to hospitals, Edge in a Box delivers resilient power, ultra-low-latency connectivity and secure, on-premises server and data storage at the edge. Businesses that leverage the Schneider Electric and HPE alliance for edge solutions see a quick ROI, accelerated deployments, and fully managed infrastructures that give them peace of mind and a clear path into the digital future.

→ [Learn more about the partnership](#)



Next steps

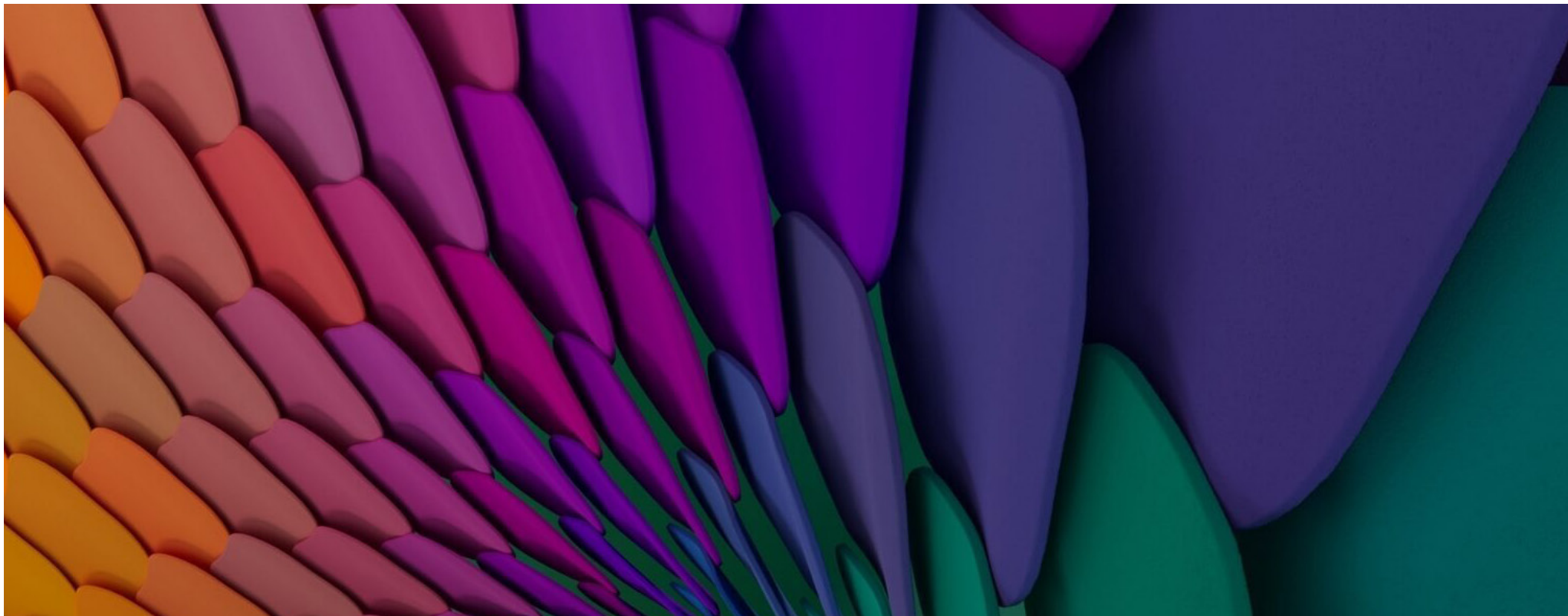
No matter what workloads you're deploying at the edge, HPE is your trusted partner in delivering experience, technology, partnerships, and as-a-service delivery to help you build and deploy edge computing solutions to meet your organization's requirements. As you develop your edge strategy or re-evaluate and expand existing deployments like [RaceTrac](#), HPE is here to help you create a competitive advantage and turn your data into intelligence.

Explore the ways HPE can help you connect your edge and open new opportunities:

- **HPE ProLiant** is secure, efficient, optimized, and engineered for hybrid environments. Delivering an intuitive cloud operating experience, trusted security by design, and optimized performance for your workloads at the edge.
- **HPE GreenLake for Private Cloud Enterprise** offers edge computing built for the distributed enterprise. Bring compute closer to your data with a managed private cloud that's easily scalable across thousands of locations to support your edge workloads outside the data center.
- **HPE Advisory and Professional Services** leverage experts to design and deploy solutions tailored to your organization's needs.
- **HPE Financial Services** helps organizations create smarter IT lifecycles while providing financing support and asset management services to help free up capital.

Connect with your sales representative or authorized channel partner to discuss your edge strategy and dive deeper into edge solutions from HPE.





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