

Cloud to Edge Datacenter Trends

IDC's *Cloud to Edge Datacenter Trends* research offers a comprehensive overview of the market forces and technologies shaping enterprise and service provider datacenter investments. As vital infrastructure for generative AI (GenAI), digital transformation, and resilient business operations, datacenters function as the digital economy's manufacturing hubs, warehouses, and distribution centers. This research highlights the evolution of datacenters to accommodate new, demanding workloads and technologies in core, cloud, and edge environments. Concurrently, datacenters face growing demands for high efficiency to meet sustainability goals and deliver favorable business outcomes. These facilities' design, deployment, and management are undergoing significant transformations to address the need for efficient and resilient IT services across all locations. IDC's research delves into the changing demands on datacenter resources, forecasts facility trends, and anticipates market growth. It also analyzes the challenges enterprises and service providers encounter in managing and optimizing datacenter resources and their strategies to enhance performance and efficiency.

MARKETS AND SUBJECTS ANALYZED

- Worldwide and U.S. datacenter census, new build, and retrofit forecasts
- Worldwide and U.S. datacenter energy consumption, IT power, and carbon emissions forecasts
- How business needs and digital transformation initiatives are shaping datacenter strategies
- Liquid cooling market forecasts and adoption by method (i.e., direct to chip, immersion) and market
- Decision processes and criteria for deploying workloads across a hybrid multicloud architecture
- Decision process and criteria for choosing datacenter providers
- Impact of high-performance computing and new artificial intelligence (AI) workloads on datacenter resources
- Market shifts between enterprise and service provider datacenters
- Adoption of high-density racks to support HPC and GenAI
- Power scarcity and strategies to mitigate such as microgrids and location strategies
- DCIM and smarter datacenter technology adoption trends
- Strategies for deploying and managing edge resources
- Using predictive and proactive maintenance to transform datacenter management
- Adoption of modular, containerized, and micro datacenters

CORE RESEARCH

- U.S. and Worldwide Datacenter Installation Census and Construction Forecast
- IDC TechScape: Sustainable Datacenter Technologies
- U.S. and Worldwide Liquid Cooling Forecast
- Market Analysis Perspective: Cloud to Edge Datacenters
- Key Findings from the Datacenter Operational Survey
- Datacenter Energy and Carbon Emissions Projections

In addition to the insight provided in this service, IDC may conduct research on specific topics or emerging market segments via research offerings that require additional IDC funding and client investment. To learn more about the analysts and published research, please visit: [Cloud to Edge Datacenter Trends](#).

KEY QUESTIONS ANSWERED

1. How are business and IT changes reshaping datacenter investments and operations strategies?
2. How many datacenters are there worldwide and in the United States?
3. What are the energy consumption and carbon emissions from datacenters, and how are they progressing to net-zero targets?
4. How will artificial intelligence, machine learning, high-performance computing, and software-defined IT impact datacenter critical infrastructure?
5. To what extent is power scarcity affecting the datacenter industry?
6. What investments are being made to improve datacenter efficiency and drive sustainability initiatives?
7. How are smarter datacenter technologies supporting remote monitoring and operational efficiency?
8. What are the key challenges in operating datacenters and the strategies to overcome them?

COMPANIES ANALYZED

This service reviews the strategies, market positioning, and future direction of several providers in the datacenter market, including:

ABB, Aligned Energy, AWS, AMD, AT&T, Broadcom, Cisco, Compass Datacenters, CoreSite, CyrusOne, Dell Technologies, Digital Realty Trust, Eaton, EdgeConneX, Equinix, F5, Flexential, Fujitsu, Google, Hewlett Packard Enterprise, Hitachi, Huawei, IBM, Intel, Legrand, Lumen, Meta, Microsoft, NetApp, NTT, Oracle, Panduit, QTS, Rackspace, Raritan, Rittal, Schneider Electric, Siemens, Verizon, and Vertiv.