US Hyperscale Data Center Market - Industry Outlook & Forecast 2025-2030

Market Report | 2025-10-15 | 236 pages | Arizton Advisory & Intelligence

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Report description:

The U.S. hyperscale data center market is expected to grow at a CAGR of 7.47% from 2024 to 2030.

U.S. HYPERSCALE DATA CENTER MARKET TRENDS

Liquid Cooling Solutions For AI/ML Workloads

-Liquid cooling offers several advantages over traditional air-based systems, particularly in terms of efficiency, sustainability, and performance. Unlike air cooling, which struggles to release the heat generated by today's powerful AI and ML chips, liquid cooling uses circulating fluids to remove heat directly from the source, providing faster and more effective cooling. This is essential for keeping AI-driven data centers running smoothly, as even brief periods of overheating or downtime can lead to costly disruptions and equipment damage.
-In March 2025, Crypto and AI data center company IREN announced its plans to develop a 75 MW AI data center in Texas. They are planning to deploy a new 75 MW liquid-cooling data center for AI/high-performance computing at its Childress site in Texas. It will be designed to support 200 kW per rack via direct-to-chip cooling for NVIDIA's Blackwell GPUs.
-Microsoft continues to integrate direct-to-chip liquid cooling and research microfluidic technologies to enhance energy efficiency in its data centers, driven by increasing demands from AI workloads. These innovations aim to optimize server layouts, reduce water consumption, and increase rack power density while enabling higher compute power per sq ft. This shift supports the goal of Microsoft to become water-positive by 2030, amidst rising water usage across its global operations.

Growth in Artificial Intelligence (AI), Machine Learning (ML), and Automation

-The U.S. remains the global leader in AI and ML adoption, with hyperscale cloud providers, enterprises, and government-backed initiatives driving massive investments in next-generation digital infrastructure. AI workloads, including generative AI, large language models (LLMs), and HPC, fuel demand for hyperscale campuses and specialized GPU clusters across the country.
-In August 2025, Vantage Data Centers unveiled its record-breaking $25 billion Frontier Campus in Shackelford County, Texas. The

site is likely to host 1.4 GW of IT load capacity across 10 hyperscale AI-ready facilities, designed to power the next wave of generative AI deployments.
- In August 2025, Applied Digital invested $3 billion to develop Polaris Forge 2, a 280MW AI and HPC-focused data center campus in Harwood, North Dakota. The project, designed with liquid cooling technology and backed by Cass County Electric Cooperative, reflects the shift of the company from cryptomining to AI infrastructure, with advanced negotiations underway with a US-based hyperscaler.
- In July 2025, TCDC closed on 235 acres in Ector County with an option for 203 more, positioning the site for a 250MW AI data center scalable to over 1GW. The facility is likely to integrate natural gas engines and potential carbon capture systems, with the first phase scheduled for 2026.
- In July 2025, the Department of Energy (DOE) designated four Federal sites, including Idaho National Lab, Oak Ridge, Paducah, and Savannah River, for future AI data centers and power infrastructure. Solicitations for private partners will launch this year, with selections expected by year-end.
- In July 2025, Google Public Sector secured a contract worth up to $200 million with the U.S. Department of Defense to provide AI infrastructure, including TPUs and secure cloud services. OpenAI, Anthropic, and xAI also received awards under the same program to support advanced AI for national security.

U.S. HYPERSCALE DATA CENTER MARKET SEGMENTATION INSIGHTS

- U.S. data centers are rapidly scaling server infrastructure to handle the explosive growth of AI, cloud computing, and HPC workloads. Hyperscale operators and enterprises are increasingly deploying energy-efficient, high-density servers to reduce power usage while maximizing performance. In May 2025, Oracle invested $40 billion to purchase around 400,000 Nvidia GB200 GPUs for OpenAI's Stargate data center campus in Abilene, Texas. The chips will power one of the largest AI-focused facilities in the world, part of a $500 billion multi-campus project aimed at delivering over 1GW of capacity per site.
- Given the cost-effectiveness of diesel generators compared to alternatives, they remain the most widely used power source in data centers. Major hyperscale operators using HVO for generators include Compass Datacenters and Vantage Data Centers. Other operators like Digital Realty are increasingly turning to HVO as a cleaner and more sustainable alternative to conventional diesel for backup generators.
- Liquid-based cooling encompasses chilled-water systems, direct liquid cooling, and immersion cooling technologies. Widely used in HPC environments, liquid cooling replaces air with water or other coolants to absorb and remove heat more effectively from electronic devices, providing better temperature control and efficiency. In January 2024, Aligned Data Centers launched DeltaFlow, a new liquid cooling system and technology. This technology is designed to support high-density compute requirements and workloads of up to 300 kW per rack.

GEOGRAPHICAL ANALYSIS

- By 2030, the U.S. hyperscale market is expected to reach an area of 32.15 million square feet, experiencing steady growth over the forecast period. The cost of acquiring land in the U.S. is projected to keep rising, especially in key hyperscale markets such as Northern Virginia, Dallas, and Silicon Valley, where demand for data center capacity far outpaces available supply.
- In August 2025, a former golf course in Dauphin County was sold for $45.6 million to Harrisburg I, LLC, which plans to develop the 250-acre site into a data center campus. The project is expected to deliver tax benefits to the community, though it still requires approvals for power, water, and infrastructure before operations can begin by 2027.
- Southeastern U.S. at present dominates the data center market in the U.S., followed by Midwestern U.S., Western U.S., Southwestern U.S., and Northeastern U.S. It accounts for over 11% of the overall data center investments, which highlights its stronghold in the sector. The country witnesses billions in investments from several operators.
- The availability of land is the central factor shaping hyperscale growth. Northern Virginia remains the largest hyperscale hub, but grid congestion and land scarcity are slowing down expansion. This has redirected large-scale projects toward Texas, Arizona, and Oregon, where both land and renewable energy capacity are abundant.

-The scale of new projects has led to a surge in joint ventures between hyperscale operators, REITs, energy developers, and private equity funds. Firms such as CloudHQ, STACK Infrastructure, and Vantage are developing multi-GW campuses in collaboration with utilities to secure long-term power supply. At the same time, infrastructure funds like Blackstone and Brookfield are expanding their data center portfolios through acquisitions and build-to-suit financing. This consolidation of capital and expertise is enabling operators to overcome land, power, and cost constraints, ensuring that the US continues to lead global hyperscale expansion.

U.S. HYPERSCALE DATA CENTER MARKET VENDOR LANDSCAPE

-The U.S. hyperscale data center market has the presence of prominent operators such as Apple, AWS, Aligned Data Centers, CloudHQ, Digital Realty, Equinix, EdegeConnex, Google, Flexential, Meta, Microsoft, STACK Infrastructure, Switch, Vantage Data Centers, and several others.
-Hyperscale operators like Meta (Facebook), Google, Microsoft, AWS, and Apple continue to contribute to over 40% of the total investments in the market. The competition among these operators in acquiring land, power, and capacity in colocation facilities is currently at an all-time high.
-The entry of new players into the market, including companies like Colovore, CloudBurst Data Centers, Crane Data Centers, Edged Energy, NE Edge, Rowan Digital Infrastructure, Quantum Loophole, Tract, is likely to disrupt the market, raising the level of competition.

The report includes the investment in the following areas:

Segmentation by Infrastructure
-IT Infrastructure
-Electrical Infrastructure
-Mechanical Infrastructure
-General Construction
Segmentation by IT Infrastructure
-Server Infrastructure
-Storage Infrastructure
-Network Infrastructure
Segmentation by Electrical Infrastructure
-UPS Systems
-Generators
-Transfer Switches & Switchgear
-PDUs
-Other Electrical Infrastructure
Segmentation by Mechanical Infrastructure
-Cooling Systems
-Racks
-Other Mechanical Infrastructure
Segmentation by Cooling System
-CRAC & CRAH Units
-Chiller Units
-Cooling Towers, Condensers & Dry Coolers
-Economizers & Evaporative Coolers
-Other Cooling Units
Segmentation by Cooling Technique

-Air-based
-Liquid-based
Segmentation by General Construction
-Core & Shell Development
-Installation & Commissioning Services
-Engineering & Building Design
-Fire Detection & Suppression
-Physical Security
-DCIM/BMS Solutions
Segmentation by Tier Standards
-Tier I & Tier II
-Tier III
-Tier IV
Geography
-Southeastern U.S.
-Western U.S.
-Midwestern U.S.
-Southwestern U.S.
-Northeastern U.S.

VENDORS LANDSCAPE
IT INFRASTRUCTURE PROVIDERS

-Arista Networks
-Atos
-Broadcom
-Cisco
-DataDirect Networks
-Dell Technologies
-Extreme Networks
-Fujitsu
-Hewlett Packard Enterprise (HPE)
-Hitachi Vantara
-IBM
-Intel
-Infortrend technology
-Inspur
-Lenovo
-MiTAC Holdings
-Micron technology
-NetApp
-Nimbus Data
-Oracle
-Pure Storage
-Seagate Technology
-QNAP Systems
-Quanta Cloud Technology (Quanta Computer)

-Supermicro
-Synology
-Western Digital
-Wiwynn (Wistron Corporation)

KEY SUPPORT INFRASTRUCTURE PROVIDERS

-ABB
-Caterpillar
-Cummins
-Delta Electronics
-Eaton
-Legrand
-Rolls-Royce
-Schneider Electric
-STULZ
-Vertiv

OTHER SUPPORT INFRASTRUCTURE PROVIDERS

-Airedale
-Alfa Laval
-Asetek
-Bloom Energy
-Carrier
-Condair
-Cormant
-Cyber Power Systems
-Enlogic
-FNT Software
-Generac Power Systems
-Green Revolution Cooling (GRC)
-HITEC Power Protection
-Johnson Controls
-KOHLER
-KyotoCooling
-Mitsubishi Electric
-Natron Energy
-NetZoom
-Nlyte Software
-Rittal
-Siemens
-Trane (Ingersoll Rand)
-Yanmar (HIMOINSA)
-ZincFive

KEY DATA CENTER CONTRACTORS

-AECOM
-Arup
-Ames Construction
-Barge Design Solutions
-Burns & McDonnell
-Corgan
-Clayco
-DPR Construction
-Fortis Construction
-Holder Construction
-Haydon
-Jacobs
-KDC
-Kiewit Corporation
-Lewis Michael Consultants
-Morgan Construction
-Morgan Corp
-Page
-Rogers-O'Brien Construction
-Rosendin Electric
-Syska Hennessy Group
-Turner Construction

OTHER DATA CENTER CONTRACTORS

-AlfaTech
-BlueScope Construction
-Brasfield & Gorrie
-Black & Veatch
-Balfour Beatty
-CallisonRTKL
-Clark Construction Group
-Climatec
-Clune Construction
-EMCOR Group
-EYP MCF
-Fitzpatrick Architects
-Fluor Corporation
-Gensler
-Gilbane Building Company
-Gray
-HDR
-Hensel Phelps
-HITT Contracting
-Hoffman Construction
-JE Dunn Construction

-JHET Architects
-kW Engineering
-Walbridge
-WSP (kW Mission Critical Engineering)
-Linesight
-M+W Group (Exyte)
-McCarthy Building Companies
-Morrison Hershfield (Stantec)
-Mortenson
-Pepper Construction
-Rosendin
-Ryan Companies
-Salute Mission Critical
-Sheehan Nagle Hartray Architects
-Skanska
-Southland Industries
-Sturgeon Electric Company
-STO Building Group
-Sundt Construction
-Suffolk Construction
-The Mulhern Group
-The Walsh Group
-The Weitz Company
-TRINITY Group Construction

KEY DATA CENTER INVESTORS

-Apple
-Amazon Web Services
-CyrusOne
-DataBank
-Digital Realty
-Equinix
-Google
-Meta
-Microsoft
-NTT DATA
-Vantage Data Centers

OTHER DATA CENTER INVESTORS

-Aligned Data Centers
-American Tower
-AUBix
-Centersquare
-CloudHQ
-Cologix

-Compass Datacenters
-COPT Data Center Solutions
-Corscale Data Centers
-Core Scientific
-DartPoints
-DigiPower X
-DC BLOX
-EdgeConneX
-EdgeCore Digital Infrastructure
-Element Critical
-Flexential
-Fifteenfortyseven Critical Systems Realty (1547)
-HostDime
-HUT 8
-H5 Data Centers
-Iron Mountain
-Netrality Data Centers
-Novva Data Centers
-PowerHouse Data Centers
-Prime Data Centers
-PheonixNAP
-QTS Data Centers
-Sabey Data Centers
-Skybox Datacenters
-Stream Data Centers
-STACK Infrastructure
-Switch
-T5 Data Centers
-TierPoint
-Yondr Group
-365 Data Centers
-5C Data Centers

NEW ENTRANTS

-Ardent Data Centers
-Colovore
-CloudBurst Data Center
-Crane Data Centers
-Edged Energy
-NE Edge
-Quantum Loophole
-Rowan Digital Infrastructure
-Tract
KEY QUESTIONS ANSWERED:

1.How big is the U.S. hyperscale data center market in terms of investments?

2.What is the growth rate of the U.S. hyperscale data center market?
3.How many MW of power capacity is expected to reach the U.S. hyperscale data center market by 2030?
4.What is the estimated market size in terms of area in the U.S. hyperscale data center market by 2030?
5.Which region holds the most significant U.S. hyperscale data center market share?

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