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Data Center Market in US - Industry Outlook and Forecast 2020-2025

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Abstracts

In-depth Analysis and Data-driven Insights on the Impact of COVID-19 Included in this US Data Center Market Report

The US data center market is expected to grow at a CAGR of over 1% during the period 2019–2025.

A few major criteria for the growth of data centers in the US are the availability of tax incentives, renewable energy sources, and reliable electricity supply. The outbreak of COVID-19 virus has altered the data centers construction in the US, where the opening of several new facilities is likely to be delayed by up to three months. Tax incentives offered by local government agencies are factors encouraging service providers to establish new facilities in the US. Several state and local governments provide investment and sales tax incentives to attract operators. In the US, over 25 states are offering specific tax incentives for the building of new facilities, which include Virginia, Illinois, Ohio, North Carolina, Alabama, New York, Arizona, and Nebraska. In 2019, Indiana, state legislators passed a law that exempts sales taxes on infrastructure and electricity costs for sizable data center construction. Such tax breaks can amount to the saving of $1.75?10.5 million for each qualifying Indiana-domiciled data center. Hence, the availability of several tax incentives from regulatory agencies has been the major driver for hyperscale data center growth in the US.

The following factors are expected to contribute to the growth of the US data center market during the forecast period:

Emergence of Nickle-Zinc & Lithium-Ion Batteries Replacing VRLA in Data Centers

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Increasing Procurement of Renewable Energy

Emergence of QLC NAND Flash Drives

High Increase in Hyperscale Investments

The report considers the present scenario of the US data center market during the forecast period, and it's market dynamics for the forecast period 2020?2025. It covers a detailed overview of several market growth enablers, restraints, and trends. The report profiles and examines leading companies and several other prominent companies operating in the market.

Us Data Center Market: Segmentation

This research report includes a detailed segmentation by IT infrastructure, electrical infrastructure, mechanical infrastructure, general construction, tier standards, and geography. The procurement of ODM servers by hyperscale operators, cloud builders, and other enterprises has offered a significant boost to the server market. Server systems based on x86 architecture dominate the US data center market. Most modern operators are adopting servers that suit their workload requirements. The demand for servers suitable for the cloud environment will continue to grow during the forecast as service providers expand their presence in the US. Servers with multicore processors and memory are expected to grow as the average number of virtual machines per physical servers continue to grow.

The adoption of modular, scalable, and lithium-ion powered systems in the facilities is expected an increment in revenue from the UPS systems segment. Several hyperscale facilities are built to support a critical power capacity of over 15 MW, which is expected to boost the data center power infrastructure procurement. Several facilities are equipped with dedicated UPS systems with a minimum of N+1 power redundancy and flexible design support 2N+1 redundant system installation. The adoption of intelligent rack PDUs supporting up to 20 kW will increase with the use of high-performance computing infrastructure in the US. Diesel generators are more likely to be adopted than any other generators such as biofuel or natural gas. Most facilities are installed with >2 MW capacity per unit. Generators are usually accepted with N+1 redundancy in the region. Also, the facilities currently comprise UPS with N+2 UPS redundancy. Switchgears are commonly adopted with N+1 or 2N redundancy and are providing

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diverse feed to IT rack cabinets in data centers across the region.

Southeastern, Northeastern, Mid-Western, and some parts of Western US states support free-cooling techniques, which reduce the electricity cost by up to 30%. In other states, the operators adopt free-cooling techniques that include chillers with evaporate cooling. Leading data center development destinations such as Virginia supports up to 5,500 hours of passive free cooling methods annually, thereby reducing the adoption of chillers. Alabama and Florida support around 3,500 hours and 3,000 hours of free cooling methods, respectively. In South-Western, Texas supports up to 3,500 hours of passive free cooling methods annually, thereby reducing the use of chillers. Arizona and New Mexico, on the other side, support around 3,500 hours of free cooling methods. Several facilities in the US South Western region that utilize air-cooling chillers and CRAC units.

Ashburn has become a major data center development location. DPR Construction and Jacobs Engineering Group contractor are among the major players in providing construction services in the South Eastern region. The facilities are expected to commit the 100% uptime service level agreement on network and power along with Tier III and IV standards. Several facilities can efficiently manage power, temperature, and environmental conditions via data center monitoring solutions.

Arizona and Texas in South Western have become major data center locations. The monitoring solutions enable facilities to manage power, temperature, and environmental conditions. Several facilities in Mid-Western are constructed with multi-level security cover and equipped with perimeter fencing, anti-intrusion system, dual authentication entry, biometric and color-coded key card security, and interior and exterior video surveillance. There is a growing demand for IP video surveillance systems in the market. In the Western US, operators have adopted real-time branch circuit monitoring for temperature and humidity. The country comprises both brownfield and greenfield projects. Most of the facilities will be constructed according to Tier III standards, aiming to attain LEED and the Uptime Institute certifications.

Small-scale colocation facilities are likely to operate with redundancy in UPS systems and PDU devices. A majority of underdeveloped projects in the US fall under the Tier III category. This trend is likely to continue during the forecast period, with several operators expected to shift to the Tier IV category based on the growth in rack power density and critical applications. Most new facilities are designed to be Tier III standards with a minimum of N+1 redundancy and can be reconfigured with up to 2N+1 redundancy. In 2019, over 50 new facilities were opened in the US, which were Tier III

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designed. Tier IV data centers are equipped with 2N+1 redundancy in the infrastructure that makes the facility fault-tolerant, with UPS systems and PDUs having 2N+2 redundancy.

Market Segmentation by IT Infrastructure

- Servers
- Storage
- Network

Market Segmentation by Electrical Infrastructure

- UPS Systems
- Generators
- Transfer Switches and Switchgears
- Rack PDU
- Other Electrical Infrastructures

Market Segmentation by Mechanical Infrastructure

- Cooling Systems
  - CRAC & CRAH units
  - Chiller Units
  - Cooling Towers, Dry Coolers, & Condensers
  - Other Cooling Units
- Racks

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Others Mechanical Infrastructure

Market Segmentation by General Infrastructure

Building Development

Installation and Commissioning Services

Building Designs

Physical Security

DCIM & BMS

Market Segmentation by Tier Standards

Tier I &II

Tier III

Tier IV

Insights By Geography

Data centers in the South Eastern US are significantly contributing to the market. Overall, the Southeast US data center market witnessed around 50 projects in 2019, which is expected to be operational by June 2020. Several facilities have been developed by colocation service providers with an adaptable power redundancy that can be changed according to the customer's operational requirements. In 2019, the Virginia market witnessed an investment of over $1 billion with the opening of several projects in the region.

Facebook and Apple have observed major investments in New Mexico, Texas, and Arizona. Arizona is found to be a noteworthy US data center market for its retail colocation, wholesale colocation, powered shell, and built-to-suit initiatives. A major

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reason for the growth in Texas region includes the advantage of land acquisitions, robust power grid, competitive power rates, and tax incentives. In the South Western and Mid-Western US, there were about 25 facilities that were opened or under construction in 2019, which is likely to be operational by 2020.

Key Regions

North Eastern US

South Eastern US

Mid-Western US

South Western US

Western US

Key Vendor Analysis

Cummins and Caterpillar have a strong presence in the market. The adoption of lithium-ion batteries, fuel cell technology, natural gas generators, intelligent PDUs, and high-voltage switchgears is expected to grow significantly during the forecast period. Mechanical infrastructure comprises multiple systems that provide sufficient cooling solutions for growing rack power density. The market will witness a high competition in the US as the construction of the data center is growing, and the operators are constantly looking out for energy-efficient cooling systems with low carbon emissions. Vendors are also partnering with modular facility developers and direct liquid cooling providers to increase their revenue, and the trend is likely to continue during the forecast period.

Prominent Data Center Critical (IT) Infrastructure Providers

Cisco

Dell Technologies

Hewlett Packard Enterprise (HPE)

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Huawei

IBM

Lenovo

NetApp

Prominent Data Center Investors

Apple

AWS (Amazon Web Service)

CyrusOne

Compass Data Centers (Root Data Center)

Digital Realty

Equinix

Facebook

Google

Microsoft

NTT Communications (Ragingwire Data Centers)

Switch

Vantage Data Center

Prominent Construction Contractors

AECOM

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Corgan

DPR Construction

Holder Construction

Jacobs Engineering

Syska Hennessy Group

Turner Construction

Prominent Support Infrastructure Providers

ABB

Caterpillar

Cummins

Eaton

Schneider Electric

STULZ

Vertiv

Other Prominent Critical (IT) Infrastructure Providers - AccelStor, Avere Systems (Microsoft), DataDirect Networks (DDN), Fujitsu, Hitachi Vantara, Infortrend Technology, Inspur, Intel, Kaminario, Micron, Mitac Holdings, Nimbus Data, Pivot3, QNAP Systems, Quanta Cloud Technology (Quanta Computer), Samsung, Seagate Technology, SK Hynix (SK Group), Super Micro Computer, Synology, Toshiba, Violin Systems, Western Digital, Wiwynn (Wistron)

Other Prominent Support Infrastructure Providers - Airedale Air Conditioning, Altima

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Technologies (NetZoom), Asetek, Bloom Energy, Condair Group, Cormant, Cyber Power Systems, Data Aire, Delta Group, Euro-Diesel (KINOLT), FNT, Generac Power Systems, Green Revolution Cooling (GRC), HighPower, Hitec Power Protection, KOHLER (SDMO), Legrand, Mitsubishi, MTU On Site Energy (ROLLS-ROYCE POWER SYSTEMS AG), Nlyte Software, Rittal, Trane (Ingersoll Rand), Tripp Lite, ZincFive

Other Prominent Construction Contractors - Balfour Beatty US, BlueScope Construction, Clune Construction, Fluor Corporation, Fortis Construction, Gensler, Gilbane Building Co., HDR Architecture, HITT Contracting, Hoffman Construction, JE Dunn Construction, Linesight, M+W Group, Morrison Hershfield, Mortenson Construction, Rogers-O'Brien Construction, Structure Tone, Walsh Group, Whiting-Turner Contracting

Other Prominent Data Center Investors - Aligned Energy, COPT Data Center Solutions (COPT DCS), CoreSite Realty, Cyxtera Technologies, DataBank, Data Foundry, DC Blox, EdgeCore Internet Real Estate, EdgeConnex, Flexential, Fifteenfortyseven Critical Systems Realty, GIGA Data Centers, H5 Data Centers, Iron Mountain, Quality Technology Services (QTS Realty Trust), Stream Data Center, Sabey Data Center, Stack Infrastructure, T5 Data Centers

Key Market Insights

The report provides the following insights into the US data center market during the forecast period 2020–2025.

1. It offers comprehensive insights into current industry trends, trend forecast, and growth drivers about the market in the US.
2. The report provides the latest analysis of share, growth drivers, challenges, and investment opportunities.
3. It offers a complete overview of segments and the regional outlook of the US data center market.
4. The study offers a detailed overview of the vendor landscape, competitive analysis, and key strategies to gain competitive advantage.

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