What is a Data Center?

Data centers are specialized facilities that house servers, networking equipment, and storage systems, enabling data storage, processing, and management. As the backbone of cloud computing, enterprise applications, and digital services, they are essential to modern technology. Supporting industries from social media to banking and AI, data centers provide secure infrastructure that drives innovation and progress.

Key Components of a Data Center

- **Servers:** Powerful computers that handle processing tasks and store data.
- **Storage Systems:** Devices that keep vast amounts of data, such as hard drives (HDDs), solid-state drives (SSDs) and cloud storage.
- **Networking Equipment:** Routers, switches and firewalls that manage data traffic.
- **Cooling Systems:** Air and liquid cooling solutions to prevent overheating.
- **Power Supply:** Redundant power sources, generators and backup batteries to ensure uptime.
- **Security Measures:** Physical and cybersecurity measures to protect data and infrastructure.

Types of Data Centers

Enterprise Data Centers
Owned and operated by businesses or internal use.

Hyperscale Data Centers
Infrastructure operated by, or supporting, cloud providers and Fortune 100 users.

Colocation Data Centers
Third-party facilities where businesses rent space for their servers.

Edge Data Centers
Smaller centers located closer to users to reduce latency.

Sustainability

Through commitment to environmental performance, climate resilience, data transparency, stakeholder and employee engagement and sustainable design, data centers can provide solutions that meet the needs of today's data center users.

Economic Impact

The U.S. data center industry total* annual economic contributions between 2017 and 2023

2.9 to 4.7 million annual jobs

Each direct job in the data center industry supports **more than 6 jobs** elsewhere in the U.S. economy. The total job contribution grew by **60 percent between 2017 and 2023.**

$209 to $404 billion annual labor income

Total national labor income contribution grew by **93 percent between 2017 and 2023**. Labor income earned directly from the **data center industry grew by 144 percent** over the same period.

$355 to $727 billion in annual GDP contribution

Total contribution to **GDP grew by 105 percent between 2017 and 2023**. The growth rate in GDP for the U.S. economy was only **about 41 percent** over the same period.

*Total contribution includes direct, indirect and induced contributions. Direct contributions are those occurring directly within the data center industry. Indirect contributions are those occurring within other businesses as part of the supply chain to the data center industry. Induced contributions are those arising from household spending of income earned from the data center industry or its supply chain. Sourced from Data Center Coalition and its 2025 Economic Contributions of Data Centers in the United States, as prepared by PwC.

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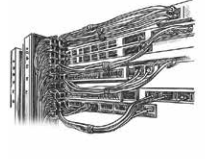
The Anatomy of a Data Center

A modern data center may be on-premises, cloud-based or hybrid, but all share these fundamental components to ensure efficiency, security and scalability.

Core Infrastructure
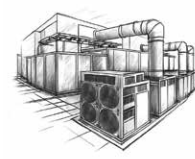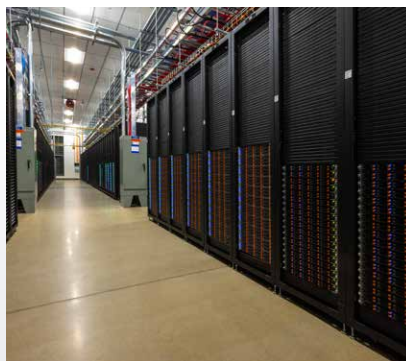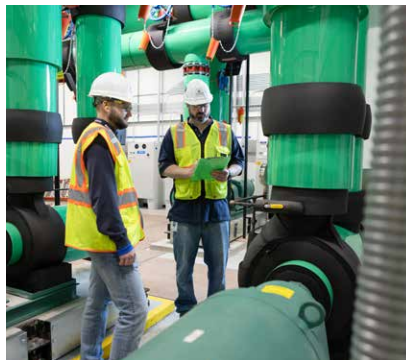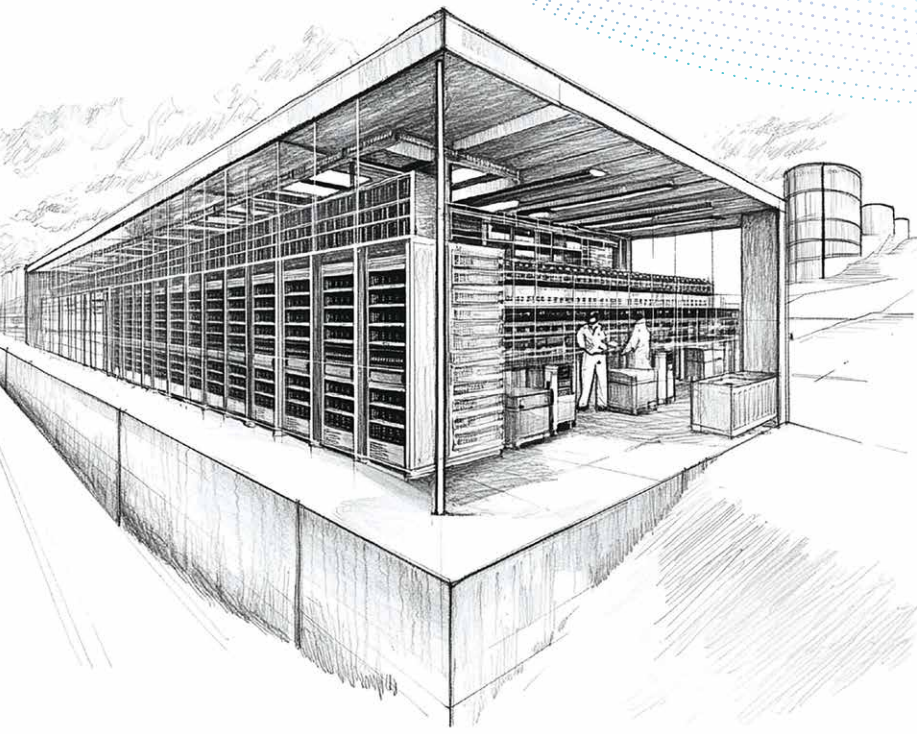

Power & Cooling

Networking & Connectivity

Security & Monitoring

Disaster Recovery & Redundancy

Here's How It Works

Core Infrastructure

Servers are physical or virtual machines that process and store data. Nearby are storage systems such as NAS (Network Attached Storage) or SAN (Storage Area Networks); and networking equipment, including switches, routers and firewalls to manage internal and external communication.

Power & Cooling

Redundant power sources include utility power, generators and UPS (Uninterruptible Power Supply) units to prevent downtime. Cooling systems such as CRAC (Computer Room Air Conditioning) and liquid cooling solutions maintain optimal temperatures. Ventilation and other air handlers facilitate airflow to prevent overheating.

Networking & Connectivity

Internet Service Providers (ISPs) provide multiple connections for redundancy. Fiber optic cables deliver highspeed data transmission between servers. And load balancers distribute traffic across servers to prevent overload.

Security & Monitoring

Many layers of physical security protect critical infrastructure from the outside world. Security includes human supervision, K/crash-rated fences and controlled gates, biometric authentication, security cameras and mantraps with secured stop gaps all the way to the server environment. Cybersecurity is managed through firewalls, intrusion detection/prevention systems (IDS/IPS). Monitoring systems provide AI-driven analytics and remote monitoring dashboards.

Disaster Recovery & Redundancy

Backup systems occur as on- and off-site data backups, while all systems are subject to redundancy protection. Redundant systems ensure failover in case of hardware failure.

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