Your Guide to Data Centers

As demand for digital services grows, data centers remain central to supporting everything from mobile banking to cloud storage and beyond. Naturally, communities and individuals want to know more about these facilities and what to expect when a data center is being developed.

Here are some answers to common data center questions:

What is a data center, and what does it do?

A data center is a specialized facility containing computers and networking equipment that store, process and distribute data. Data centers power the digital tools we all use to stay connected every day, including the internet, cloud services and beyond.

Why are data centers important?

Data centers make sure the online world, including websites and apps, work smoothly and reliably. They help individuals and businesses stay connected, share and access information, work efficiently, and get things done online every day. Data centers power many things in our everyday lives, including streaming services, online banking and shopping, cloud storage, social media and communication apps, business operations and AI tools.

How do enterprise-class and hyperscale data centers differ from crypto mining facilities?

While cryptocurrency mining facilities house similar equipment to hyperscale and enterprise data centers, they are quite different. Since crypto facility operations are not crucial for the day-to-day lives of the general population, the facilities often aren't built to the same operational standards as large hyperscale facilities.

Enterprise and hyperscale data centers benefit from world-class designs for reliability and security. Furthermore, they are engineered for long-term resource efficiency, responsible power management and sustainability, which minimizes their environmental impacts, including noise and water usage.

What are the different types of data centers?

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

Enterprise Data Centers
A facility owned and operated by a single business for internal use

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

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

Data Centers and Their Impacts

Are data centers noisy?

Data centers are designed from the ground up to meet a wide range of strict local noise level criteria.

Noise management is an integral part of facility design and operational planning. This includes conducting comprehensive ambient noise studies both before the facility begins operation and after it is fully operational. Equipment and cooling systems are integrated into the building design and often shielded by acoustic systems that minimize sound, ensuring the facility meets all regulatory requirements and is a good neighbor to the community.

Do data centers create pollution?

Data centers adhere to strict environmental regulations. Facilities are designed with sustainability in mind, including strategies to manage and reduce greenhouse gas emissions. They also follow sustainable building practices that minimize environmental and social impact, featuring energy-efficient design, responsible water use, and low-emission construction materials.

By design, data center emissions profiles remain minimal even with on-site backup power. This is due to the limited operational time of the backup systems, which are only used for maintenance and readiness testing or in emergency scenarios.

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How much water do data centers use?

Many modern data centers use closed-loop cooling systems, which significantly reduce water consumption. These systems recirculate water rather than continuously drawing from local supplies. For most hyperscale and enterprise-class developments, water usage is **typically like that of a small office building**. Some facilities also use air-cooled systems or reclaimed water to further minimize environmental impact.

How do data centers manage energy use & sustainability?

Data centers need energy to power servers and keep them cool—but they are built to be highly efficient too. In fact, data centers are always improving the sustainability of their cooling systems, designing more efficient buildings, developing onsite power generation and using renewable energy. These changes help lower carbon emissions and make data centers more environmentally friendly, which are priorities for the data center industry, its customers and the communities it serves.

Data Centers and Their Surroundings

Where are data centers typically located?

You'll find data centers near major cities and tech hubs, as well as more remote areas where proximity to supporting infrastructure and industrially focused land allow for larger campuses.

How do data centers affect utility power in the community?

Data centers do require significant electricity, but good developers work closely with utility providers to ensure infrastructure can support their needs without impacting residential service. Data centers are also typically connected to higher-level transmission lines, not the same electrical lines used to supply homes.

As always, the utility companies' priorities are their ratepayers, and good developers want to find ways to assist that mission. Many developers even invest in renewable energy or energy-efficient technologies to reduce their footprint — and some projects even become additive to local utility landscapes, making infrastructure more resilient. By collaborating with local utilities, **many hyperscale data center developments present no anticipated utility rate increases for local community members.**

Do data centers contribute to traffic?

During construction phases, all activities occur only during daytime hours and follow all best practices for site management to limit noise while ensuring efficient and safe work environments.

In the operational phase, **employee shifts are staggered to ensure traffic remains minimal**. Traffic and associated vehicle emissions from data center projects are often minimal compared to other types of development, such as manufacturing.

Do data centers change the look or feel of an area?

Facilities must meet or exceed the criteria of state environmental standards, including specific requirements for noise, visual impacts, architectural design and light pollution. This ensures facilities blend appropriately with the existing surroundings. Data centers often feature clean, modern architecture with minimal signage and landscaping that complements the area. Because they don't attract public traffic or retail activity, they tend to be quiet and unobtrusive additions to the community.

How do data centers benefit the local economy?

Some of the fastest growing communities in the U.S. welcome data center development because of its positive economic impact and return on taxpayer investment. Data centers play a vital role in local economies, creating jobs, supporting businesses and generating tax revenue that benefits communities. By working closely with communities, they aim to be a responsible and beneficial presence.

- During the construction phase, numerous local construction workers across a wide range of skilled trades are employed. This influx of activity not only generates jobs but also stimulates local businesses, increasing demand for construction materials, equipment rentals, and other essential services.

- Once operational, data centers become a significant contributor to the local economy, with hyperscale facilities directly employing hundreds with competitive salaries across a diverse range of technical and non-technical roles.

- Data centers offer significant tax revenue for communities with little impact on infrastructure compared to other more high-intensity manufacturing or industrial uses.

- Recognizing the importance of a skilled workforce, developers often proactively develop comprehensive workforce training programs, ensuring communities are well-positioned to capitalize on the opportunities presented by this project.

Are data centers safe?

Data center designs and power requirements are built to operate extremely safely and mitigate heat through advanced cooling systems, **ensuring there is very little to no risk of fires**.

Our high-tech environment, in comparison to a cryptocurrency mining facility, is built to rigorous operational and safety standards, which makes the risk of operations-borne emergency scenarios exceptionally low. Best-in-class data centers are built foremost for safety and security.

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