

Modular Data Center Development



AI Overview

Modular data centers are prefabricated, scalable, and rapidly deployable facilities designed to meet the growing demands of cloud computing, AI, and edge applications.

Overview A modular data center (MDC) is built using prefabricated components or modules manufactured off-site and assembled on location, integrating IT racks, power systems, cooling solutions, and security infrastructure into a cohesive, plug-and-play ecosystem. Unlike traditional brick-and-mortar data centers, which can take years to construct, modular facilities can be deployed in months, significantly reducing time-to-market and enabling rapid scalability.

Key Advantages

- Speed of Deployment:** Modules are pre-engineered and built in parallel with site preparation, allowing faster go-live dates for cloud providers and enterprises.
- Scalability:** Operators can start with a small footprint and expand incrementally by adding modules as demand grows, ideal for edge computing and high-density workloads.
- Cost Efficiency:** Standardized, factory-built modules reduce on-site errors, waste, and overall project costs.
- Energy Efficiency and Sustainability:** Modern modular designs incorporate renewable energy integration, low-carbon materials, and advanced cooling techniques, such as liquid cooling or natural cooling from water sources.
- Flexibility:** Modules can be stacked, relocated, or reconfigured to adapt to evolving business requirements.

Design and Engineering Considerations Modular data centers are highly engineered ecosystems where structural design ensures load-bearing efficiency, thermal optimization, and seamless integration of mechanical, electrical, and plumbing (MEP) systems. Digital tools like Building Information Modeling (BIM) are used to coordinate all engineering layers, ensuring precision and future-ready infrastructure. Specialized modules can be tailored for AI training clusters, high-performance computing, or edge inference applications, supporting ultra-dense compute workloads with advanced power and cooling systems.

Market...

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SLB Industrializes AI for the Energy Industry with NVIDIA

Companies will develop modular data center infrastructure and generative AI models for large-scale deployments HOUSTON, March 25, 2026

Why Modular Data Centers Are Gaining Momentum

Modular construction has transformed several industries, including healthcare and education, delivering speed, cost, predictability, and quality

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About Submer Submer designs and delivers end-to-end AI datacenter infrastructure built around industry-leading

JLL's 2026 Global Data Center Outlook: Navigating the

JLL's 2026 Global Data Center Outlook report highlights a massive \$3 trillion supercycle in data center infrastructure, driven by AI, cloud expansion, and

Modular Data Center Guide: Types & When It Wins | ModulEdge

This post covers what a modular data center actually is, the form factors that exist, what's inside a module, the economics versus traditional builds, the cooling and density questions that

Böll EU Brief 01/2026 | Small modular reactors – smaller regulation ...

This Böll EU Brief critically assesses the prospects of small modular reactors (SMRs) in Europe. It finds that most SMR designs remain in early development, lack regulatory approval in the EU, and are

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PowerBank | Solar, Storage & Power for the AI Era

Built, Not Waiting Power, land, and interconnect — ready today. Co-locating modular edge data centers with PowerBank's existing infrastructure removes the most significant delay in the AI-compute build

Modular Data Center Market

[383 Pages Report] Modular data center market size, share, analysis, trends & forecasts. The global market for modular data center categorized by solutions, form factor (ISO containers (20 feet, 40

Modular Data Center Development: When Prefab Beats the Ground

Modular data centers can compress delivery, but only when power, site logistics and tenant requirements fit the model. Modular data center development uses prefabricated, factory-built

Top 10: Modular Data Centre Companies

Here we highlight the top 10 companies leading the modular data centre revolution, ranked by market leadership, innovation, global scale and strategic focus.

MarketsandMarkets

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Hardware | Oracle

Easy integration with Oracle's public cloud Built-in Oracle Cloud Infrastructure (OCI) integrations make it easy for organizations to develop and deploy cloud native applications across OCI and customer

Big Tech's AI Data Center Power Demands Trigger \$15B PJM Auction

The buildout of AI infrastructure in the U.S. is straining physical infrastructure, particularly electricity supply. A recent PJM Interconnection auction mandates large tech companies to fund new

The Modular Data Center Ultimate Guide

Using prefabricated modules, these centers are operational in weeks rather than months, unlike traditional ones. This article covers the key elements,

The Future of Modular Data Center Design

In this article, we explore what modular data centers are, the advantages they offer, and how engineering innovators like gbc engineers are

The future of the data center is modular

Building in a modular way allows you to duplicate your processes and speed up construction. The best practices and learnings transfer between phases, and a more regimented workflow means that if phases are being built simultaneously, there's less likelihood of builds interfering with each other.

9 Listed Companies Developing Small Modular Reactors (SMRs)

Nine publicly traded companies are developing small modular reactor designs, from NuScale's NRC-certified VOYGR to X-Energy's Xe-100, Oklo's fast reactor and Rolls-Royce's 470

Chevron signs 20-year power agreement with Microsoft for West

Chevron Corporation (NYSE: CVX) today announced that Energy Forge One LLC, a wholly owned subsidiary, has signed an agreement with Microsoft Corp. (NASDAQ: MSFT) to

Evolution of Data Center Design: Modular Construction

Discover how modular design transforms data centers, enhancing efficiency and sustainability in urban landscapes.

Data centre electricity use surged in 2025, even with tightening ...

Data centre electricity use surged in 2025, even with tightening bottlenecks driving a scramble for solutions - News from the International Energy Agency

Prefabricated modular solutions

Customize your own modular data center with Vertiv Modular Designer. Even under extreme load conditions, you can support continuous operation of AI applications with reliable and advanced

Underwater data center proposed off the coast of Ulsan, South Korea ...

The most high-profile underwater data center, Microsoft's Project Natick, which saw a subsea data center deployed off the coast of Scotland in 2018, was shuttered in 2024. Subscribe to

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