

Data Center Modular Design Pricing



Overview

This piece breaks down the cost drivers that actually move the needle – on CAPEX, on OPEX, and on timeline.

Key Takeaways

Modular data center costs typically range from \$7,000 to \$12,000 per kW, with total project costs influenced by power density, redundancy, cooling systems, and site preparation. Cost Overview

The average cost per kW for a modular data center in 2026 ranges from \$7,000 to \$12,000, depending on capacity, redundancy level, and specific features (Schneider Electric, 2023) . For example, a 250 kW modular facility can cost between \$2 million and \$3 million, including infrastructure and deployment . On a larger scale, U.S. construction costs for modular or traditional facilities cluster around \$9.3M–\$15M per MW, with an average near \$11.7M/MW .

Key Cost Drivers

- **Power Density and Redundancy** Higher rack density and AI-optimized workloads increase cooling and power distribution costs. N+1 redundancy adds 15–25% to base costs, while 2N redundancy can double power and cooling expenses .
- **Cooling Systems** Cooling represents 30–45% of total infrastructure cost. Air-cooled systems are less expensive upfront but require more space, while liquid cooling supports higher densities and better PUE but commands premium pricing .

- **Module Form Factor** Skid-mounted power modules can cost up to 40% less than full enclosure designs, though they may require indoor placement or additional weatherproofing . Containerized or prefabricated rooms offer factory integration, reducing field labor and commissioning risk .
- **Electrical Distribution Costs** vary with rack count and density. Higher density reduces the number of modules but requires more robust busways, PDUs, and cabling .
- **Site Preparation and Logistics** Concrete pads, electrical upgrades, and network connectivity can add \$100,000–\$500,000 depending on location. Shipping and logistics for containerized modules also significantly affect total cost .

Operational Expenditure (OPEX)

Modular designs can reduce OPEX by 10–20% due to optimized cooling, power efficiency, and lower maintenance requirements. Over a 15–20 year lifespan, these savings can be substantial, especially for edge computing or phased deployments .

Comparison with Traditional Builds

Modular data centers often offer up to 30% lower CAPEX for initial deployment compared to traditional brick-and-mortar facilities of similar capacity. The compressed deployment timeline allows organizations to start generating revenue 6–12 months earlier, which can justify premium pricing for modular solutions .

Summary

Pricing for modular data centers is highly variable and depends on power requirements, redundancy, cooling technology, module type, and site conditions. Typical ranges are \$7,000–\$12,000 per kW, with total project costs influenced by both CAPEX and OPEX considerations. Modular solutions provide faster deployment, operational efficiency, and scalability, making them a competitive alternative to traditional data center builds .

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The Modular Data Center Ultimate Guide

Using prefabricated modules, these centers are operational in weeks rather than months,

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