Modular Data Center - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-06-01 | 120 pages | Mordor Intelligence

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Report description:

Modular Data Center Market Analysis

The modular data center market size reached USD 36.04 billion in 2025 and is on track to touch USD 85.21 billion by 2030, translating into an 18.78% CAGR over the forecast period. The steep growth curve mirrors the shift toward prefabricated, factory-integrated facilities that can be deployed in weeks rather than quarters. Demand is fuelled by AI-driven density requirements, the spread of edge locations close to users, and hyperscale cloud operators standardizing global buildouts. Liquid-cool designs, once niche, now underpin many new modules as partial PUE values below 1.05 become commercially viable. At the same time, service-centric revenue is accelerating because enterprises want turnkey integration rather than in-house assembly, while greenfield projects are gathering speed as organisations design for tomorrow's workloads instead of adapting yesterday's shells.

Global Modular Data Center Market Trends and Insights

Rapid Edge-Computing Rollout

Edge deployments are growing much faster than centralised facilities as video analytics, autonomous systems, and industrial IoT call for sub-10 millisecond latency. The modular data center market benefits because micro facilities can be dropped into retail rooftops, factory floors, or base-station shelters without lengthy site work. With edge data centers forecast to expand at 37.9% CAGR, operators in telecom and transportation increasingly select all-in-one prefabricated enclosures that ship with power,

cooling, and racks pre-tested. Delta's SmartNode line shows how integrated battery strings and in-row chillers maintain uptime in harsh edge environments. Service providers also value the ability to duplicate designs across hundreds of remote points, streamlining spares and training needs. For vendors, the distributed footprint expands addressable unit volumes even if individual footprints are smaller than core sites.

Hyperscale and Cloud Adoption Surge

Hyperscale operators add floor area equivalent to several football fields every month, and the modular data center market is becoming a preferred way to meet that pace. Modular blocks allow consistent quality control across continents and collapse deployment timelines from 18 months to less than 9 months. Cloud brands benefit from standardised power and network topologies that make capacity fungible across regions, easing disaster-recovery planning. ARANER projects the hyperscale data-center sector will balloon to USD 935.3 billion by 2032, sustaining demand for rapid-build capacity. Integrated automation-ranging from robotic cabling to AI-based airflow tuning-now ships with many modules, supporting remote "lights-out" operations. Collectively, these factors reinforce a flywheel effect: shorter build cycles free capital sooner, enabling more frequent expansions.

High Upfront CAPEX and Vendor Lock-In

Factory-integrated power modules can cost USD 750,000-1 million per MW, a sizeable cheque for smaller enterprises. Financing complexities are compounded by proprietary interconnects that make it costly to mix brands later, raising fears of being tied to a single supplier. In emerging markets, limited access to low-cost capital accentuates the hurdle. While operating savings eventually offset the premium, CFOs often prioritise near-term cash flow over lifetime economics. Vendors that offer leasing, revenue-share, or "capacity as a service" arrangements can mitigate the perception of lock-in and help broaden adoption.

Other drivers and restraints analyzed in the detailed report include:

AI-Driven High-Density Liquid-Cool Modules / 5G-Triggered Quick-Build Demand / Power-Efficiency and Sustainability Gaps /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Functional modules dominated the modular data center market in 2024, underpinned by their 62.12% share of revenue. Standardised steel-frame blocks equipped with integrated UPS, chillers, and racks have become a de-risked path for expansion: operators know exactly what arrives at the dock and how it will perform. That predictability lowers project management overhead and speeds up grid-tie approvals. Yet, the services segment is on a steeper 19.45% CAGR because clients increasingly outsource everything from site surveys to day-two optimisation. As power densities rise, issues such as fluid chemistry management or AI workload tuning require niche skills that most IT teams do not maintain in-house. Consequently, service providers bundle design, build, and long-term operations into outcome-based contracts, turning what was once CapEx into ongoing OpEx.

In many bids, functional modules now integrate application-specific accelerators, software-defined fabrics, and AI-based telemetry out of the box. EPG's latest generation incorporates modular switchgear, lithium-ion battery strings, and rear-door heat exchangers to support 100 kW racks without floor penetrations. Meanwhile, Delta Power Solutions couples its consulting arm with add-on microgrid controllers so that sites can tap rooftop solar or fuel cells. These extended offerings make the service line indispensable, and its share of the broader modular data center market will likely keep inching upward as complexity snowballs.

Modular Data Center Market Report Segments the Industry Into Solution and Services (Function Module Solution (Individual

Function Module and All-In-One Function Module), Services), Application (Disaster Backup, High Performance/ Edge Computing, Data Center Expansion, Starter Data Centers), Build Type (Greenfield, Brownfield), and Geography. The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

North America led the modular data center market in 2024 with a 43.44% revenue share thanks to a mature cloud ecosystem and capital depth. Large-scale projects in Northern Virginia, Dallas, and Phoenix accounted for a significant chunk of new capacity, and vacancy rates fell to record lows as AI tenants pre-leased entire phases even before construction completed. The region also benefits from robust secondary markets such as Portland and Columbus, where electricity costs remain comparatively low and state incentives sweeten capital-intensive greenfield deals. Cooling innovation clusters around Silicon Valley and Austin mean suppliers can prototype liquid solutions locally, shortening iteration cycles.

Asia-Pacific ranks as the fastest-growing theatre with a 21.23% CAGR through 2030, reflecting the surge in 5G rollouts, e-commerce penetration, and sovereign-cloud frameworks. China's eastern seaboard is layering modular edge nodes along major highways to support autonomous trucking corridors, while India's tier-2 cities adopt prefabricated shells to bypass grid-expansion delays. Government policies encouraging indigenous manufacturing amplify the move-prefab container assembly lines now operate in Shenzhen, Bangalore, and Jakarta, cutting logistics costs. For suppliers, navigating diverse regulatory regimes remains challenging, but volume potential outweighs localisation friction.

Europe sits mid-pack yet exhibits distinct drivers. GDPR compliance prompts enterprises to ring-fence data within national borders, so modular blocks pop up in smaller countries that previously relied on cross-border hosting. Sustainability imperatives loom large: Nordic operators highlight containerised data halls cooled with seawater or free air to secure green financing. Continental demand also ties to automotive electrification, with OEMs in Germany and France setting up AI training pods for autonomous-driving models inside modular units adjacent to proving grounds. As the fit-out phase accelerates, the modular data center market size for Europe could approach previously forecast USD 64.5 billion by 2029.

The Middle East and Africa represent nascent yet high-margin opportunities. Governments in the Gulf push vision-funded digital-economy plans that include megawatt-class greenfield campuses built on desert outskirts with solar hybrids. Because ambient temperatures exceed 45 C, liquid cooling inside sealed containers mitigates dust ingress and reduces chill-water plant footprints. African nations, meanwhile, leverage modular kits for regional internet exchanges, addressing latency and data sovereignty in one stroke. Suppliers willing to offer build-operate-transfer models stand to gain early-mover advantage as these regions leapfrog traditional brick-and-mortar designs.

List of Companies Covered in this Report:

IBM Corp. / Huawei Technologies / Dell Technologies / Hewlett Packard Enterprise / Vertiv / Schneider Electric / Rittal / Cannon Technologies / Baselayer Tech / Instant Data Centers / Colt DCS / Bladeroom Group / Eaton Corp. / Delta Electronics / EdgeConneX / PCX Holding / Cisco Systems / ABB Ltd. / ZTE Corp. / Aspen Systems / DATAPOD Australia / Synergy Associates /

Additional Benefits:

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