



DAMAC CASE STUDY Colocation Provider

Overview

A professional IT services company selected DAMAC to provide data center infrastructure equipment for a new colocation data center. The first phase featured 6,000 sq. ft. of BICSI Class F3 data center space, and the facility could offer 80,000 sq. ft. of space when fully constructed.

The data center offered a fully customizable space for colocation, managed services, high-performance computing and disaster recovery. It was also designed to minimize power consumption, with a near-perfect power utilization efficiency (PUE) rating below 1.2.

The data center was built in an area that was low risk for natural or man-made disasters and had low energy costs. The climate also enabled the facility to utilize ambient cooling 85 percent of the year. As a result, the colocation data center required customized data center racks that would optimize airflow while maximizing data center density and providing the security features required by its colocation customers.

DAMAC's Solution

The first phase of the facility incorporated 256 custom engineered DAMAC racks. The company engaged DAMAC to design and manufacture 50U cabinets that would enable colocation customers to install more equipment within the same footprint as the typical 42U rack.

DAMAC's unique rear cavity section ensured efficient equipment cooling even with the increased height of the rack. Cabling and power distribution units (PDUs) were recessed to avoid blocking hot exhaust air from exiting the rear of the cabinet. The racks featured DAMAC's tubular steel construction and fully-welded seams to support the growing weight loads of today's high-density data center architectures. There were also multiple security features at the rack level — for example, locking systems to ensure panels and doors could not be opened or removed without proper security clearance.

The company also elected to use a hot aisle containment system to isolate and repurpose the exhaust air to heat office space within the facility and mix with outside air as necessary to maintain ideal operating temperatures in the data center. DAMAC's hot aisle containment system isolates hot exhaust air produced by equipment to eliminate air mixing between hot and cold aisles.



The DAMAC Difference

The colocation facility used cutting-edge air economizer technology that facilitated air-to-air heat exchange to cool the data center. An indirect evaporative cooling system automatically took over when ambient temperatures could not support air-to-air heat exchange. DAMAC cabinets provided extremely high airflow of 85 percent or more through the front and rear doors, maximizing the efficiency of the air economizer system.

DAMAC's hot aisle containment system was built to embrace an overhead Unistrut grid system. This not only provided the company with an aisle containment hood but also a weight-bearing structure on which to mount and manage cable runway and overhead power systems. The modular approach provided the flexibility to quickly change the configuration of the racks to accommodate colocation customer requirements.

The custom cabinet design allowed multiple secure compartments to be separated within individual racks. This enabled the company to lease half or quarter-cabinet units to serve smaller colocation customers who did not need a full-size 50U cabinet.



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Solution Summary

- Custom engineered data center racks provided 50U of vertical space in a high-density design that maximized colocation real estate.
- Tubular steel construction and fully-welded seams ensured the racks could support ever-increasing weight loads.
- Front and rear doors allowed for an airflow of 85% or more, which optimized the efficiency of the colocation's air-economizer technology.
- DAMAC's hot aisle containment system isolated hot exhaust air, allowing it to be used for office space heating and mixing with ambient air.
- Functional rack design supported colocation through integrated security features and the ability to separate individual data center racks into multiple compartments.

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