CASE STUDY

DAMAC
A DIVISION OF Maysteel

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E-Commerce

Overview

A global leader in E-commerce asked DAMAC to provide server and network racks for its high-density data centers, located in both corporate-owned and colocation facilities. DAMAC was required to design a rack system that would meet both the customer's requirements and the specifications of third-party colocation providers. The goal was to have one standard set of products that would provide consistency across these environments.

The customer established detailed specifications for its rack infrastructure, power and cooling environment, and other aspects of its corporate-owned facilities, including its domestic data centers. The rack infrastructure is required to support extremely high densities and provide multiple options for cable management. Thermal management was also critical.

The racks had to support a dynamic weight load of 4,000 lbs. Third-party integrators, including Dell, HPE and World Wide Technology (WWT), rack and cable the equipment off-site then ship fully populated racks to the customer's data centers. The rack design had to be tested, certified and approved by both the customer and the third-party integrators.

DAMAC's Solution

DAMAC engineers custom-designed a rack that provides 60 rack-mount units (RMUs) in a traditional 48RMU footprint by mounting the network switches vertically to the side of the server mounting rails. The six 2RMU "side pockets" — three on each side of the rack — provides an additional 12RMU of space in a rack that is just 30 inches wide by 88 inches high by 48 inches deep.

This unique design not only allows servers and other gear to occupy the full height of the rack but makes it easier to access both the servers and switches and the company could use shorter patch cables.

The tubular steel construction and fully-welded seams of the DAMAC rack provide the vertical and horizontal strength to support a 4,000-lb. dynamic weight load. The rack will maintain Electronic Industries Alliance (EIA) specifications within the mounting area when shipped fully populated with equipment.

DAMAC's Solution Continued

The racks had to incorporate unique provisions for coupling to an existing aisle containment system. DAMAC also designed air dampening and baffle provisions that allow zero hot and cold air mixing through the rack.

Because of the density of equipment within the racks, the customer wanted to gather real-time data on temperature, humidity and other environmental metrics throughout the rack environment. DAMAC worked with the customer specified PDU to mount their environmental sensors at the top, center and bottom of each rack. These sensors collect environmental data at the rack level and the RMU level.

The customer specified PDU's power strips manage power usage at the rack level and the RMU level and provide a view of actual power used versus benchmarked power consumption. The environmental sensors are cabled to the power strips, which are tied into the network to capture real-time data by data center infrastructure management (DCIM) software.

Proven Success

The custom-designed rack met the customer's requirements for rack strength, thermal management and real-time monitoring of power and environmental metrics. DAMAC was also able to accommodate the customer's aggressive lead times and quick turnaround on customization.

As a result, the customer has come to rely upon DAMAC as both a premier rack infrastructure partner and an extension of its data center infrastructure design team.

DAMAC's ability to build custom products supports the customer's ongoing efforts to drive greater efficiencies within the data center space.

DAMAC's contributions have played a key role in the customer's ability to optimize Power Usage Effectiveness (PUE) and other metrics within its data centers.

Solution Summary

- Custom design meets the specifications of both corporate-owned and colocation facilities and third-party integrator requirements.
- High-density rack provides 60RMUs in a traditional 48RMU footprint by mounting the network switches vertically to the side.
- Tubular steel construction and fully welded seams support a 4,000 lb. dynamic weight load, so fully populated racks can be shipped and moved.
- Unique provisions couple the racks to an existing aisle containment system and enable the mounting of environmental sensors.

OUR TEAM IS HERE TO HELP WITH YOUR NEXT DATA CENTER PROJECT.

PHONE: 714-228-2900

EMAIL: DAMACSales@Maysteel.com

WEBSITE: www.DAMAC.com

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