

Architecture & Planning

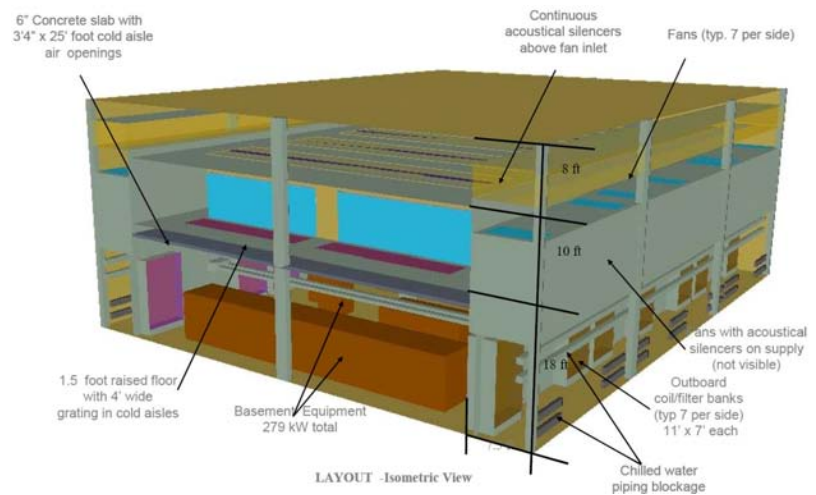
Client
Confidential Client

High-Density Data Center

IDC Architects provided planning, detailed design, and services during construction for this high performance data center designed to house high density computer servers and cabinets that generate heat loads in excess of 500 watts per SF, with individual cabinet loads of up to 20 kilowatts. The initial phase of the two-story data center is comprised of identical independent server room modules, each containing 240 cabinets and approximately 6,000 SF of area.

- 120,000 SF
- 16-month design/construction
- 500 Watts/SF
- Two-story data center
- 5 independent data center modules
- Data center operation area
- Pre-fabricated central utility plant
- Office and conference areas

The design anticipates expanding the facility to five data center modules located off a central utility corridor spine that extends the length of the building. This spine serves as the main circulation path for people and equipment and as the main distribution corridor for most of the buildings' utilities.



Each two-story data center module consists of a lower level electrical equipment room that also serves as the distribution zone for electrical power to the server cabinets located on the upper floor.

Cooling of the server cabinets within each data center and electrical equipment is provided by a single air conditioning system. Cool air is



supplied to the lower level to cool the electrical distribution equipment and flows up through floor openings to the second floor. The cool air then flows up through the raised floor grating into the cold aisles where it is forced to pass through the cabinets, thus providing the necessary cooling to the servers. The warm air exits the backside of the cabinets and enters the hot side where it is drawn through the open ceiling to the recirculation air handlers located in a mechanical chase. The air is then pushed down to the lower level where it travels through fan coil cooling units and repeats the airflow process in less than 30 seconds.

Technical Issues

- Multiple concentric rings of integrated intrusion detection
- Access control and CCTV
- 500 Watts/SF data center heat load
- Flow-through server cooling
- Thermal server storage for transient conditions
- Hot aisle isolation
- Intelligent power management
- Planned shutdown of server power

