APC InfraStruXure Solution Overview

- Wiring Closets (1 – 3 Racks)
- Small Server Rooms (1 – 5 Racks)
- Small Data Centers (5 – 20 Racks)
- Medium Data Centers (20 – 100 Racks)
- Large Data Centers (> 100 Racks)
- High Density Cooling
One of the goals of the new building was to consolidate the networks from the existing three buildings under one roof. This new facility operates on the Cisco Added Solution Voice Over IP architecture for video, voice, and integrated data, providing network connectivity throughout the facility. As IT Director, my imperative was to find a watertight solution that would protect our communications infrastructure by guaranteeing uninterrupted power."

"With InfraStruXure, I know that no matter what happens, power flow won’t be interrupted. I don’t waste time wondering about how many circuits I need to set aside for the panel, or if I need a circuit breaker in the panel. I know InfraStruXure is running behind the scenes, protecting my equipment, my company, and allowing us to communicate with our customers.”

Markus M. Hill | Director of Technology and Information Services | Brayton International
"During our four years of operation, we have experienced phenomenal growth. Our systems are critical to the success of our organization. Any downtime risks our reputation."

"Our rapid growth prompted us to bring all outside services in-house, including item and core processing. We built a new operations center. During the design phase of our operations center, we recognized the need to reduce the space required for our systems and we had to pull this off without compromising neatness and cable management."

"InfraStruXure™ costs less than offerings from the competition. It’s an easily managed, fully integrated power and rack solution that affords me the luxury of having to deal with only one vendor. InfraStruXure addressed the power backup requirements for our centralized servers, and provided us with significant space savings."

Christopher Hutchinson | Vice President of Operations | First Reliance Bank
“When we moved our server room to our new eighth floor location, we determined that our power protection was inadequate and needed to be upgraded. Initially, we had intended to purchase a generator and an external uninterruptible power supply (UPS) but we were informed that it would take almost a year to obtain one that would meet our requirements.”

“We saw the InfraStruXure as a great fit for our environment. The installation went perfectly. The components were shipped on time, we wheeled them into our server room and it only took several hours before the system was installed and started up. The smart cable management inherent in the design of the InfraStruXure racks helps us to minimize the risk of human error. We no longer have to worry about someone accidentally disconnecting the wrong cables.”

“Since the power distribution is in the rack and not hard wired into the walls, if we choose to change locations or expand, we can simply pick up and move our InfraStruXure to a new location without losing any of our initial investment. If and when our data center load expands, we simply add another rack of properly configured power protection.”

Dave Rollins | Manager of Technical Services | Boston Medical Center HealthNet Plan

**COMPONENTS**

**POWER**
- InfraStruXure® 20kW UPS with Power Distribution Unit (not shown)
- Symmetra® PX 40kW UPS
- InfraStruXure® 40kW Power Distribution Unit
- XR Battery Enclosure (not shown)

**RACK**
- NetShelter® VX Enclosure
- Rack PDU (Basic, Metered, and Switched) (not shown)
- Rack Accessories (not shown)

**COOLING**
- NetworkAIR™ FM 50kW In-Row High Density Cooling System (not shown)
- Rack Air Removal Unit (ARU) (not shown)
- Rack Air Distribution Unit (ADU) (not shown)

**MANAGEMENT**
- InfraStruXure® Manager
- Environmental Monitoring Unit (not shown)
- Environmental Management System (not shown)

**SERVICE**
- A full range of system- and component-level services are available

InfraStruXure® Manager (5) reduces the complexity of your network-critical physical infrastructure by allowing you to manage your APC devices from a single console or by integrating into your preferred management system.
InfraStruXure™ fulfilled three core requirements for us. First, the scalability of the architecture provides us significant flexibility in terms of power output and in terms of runtime. Second, our Video on Demand (VOD) servers are air cooled from front to back. The APC racks that house the InfraStruXure are also designed to cool from front to back. So the same racks can effectively house our power system and our servers. Third, InfraStruXure gives us the ability to monitor our power system remotely. It provides us with battery life data, alarms, environmental monitoring data and greatly increases our ability to forecast and prevent potential failures by establishing an effective and efficient battery replacement cycle. We no longer have to deal with a single point of failure.

“We wanted an upgradeable solution that could scale through changes and still offer us long-term value. InfraStruXure’s modular approach makes it easy to upgrade anytime. With InfraStruXure’s pay-as-you-grow architecture, we haven’t had to invest in more than we currently need. With InfraStruXure, I don’t have to buy a significant amount of extra equipment and horsepower upfront that I may or may not have to utilize.”

Rich Flanders, Director of Engineering  |  Vince Pombo, VP of Engineering (right)  |  Time Warner Cable
INFRASTRUXURE FOR LARGE DATA CENTERS [ >100 RACKS ]

COMPONENTS

POWER
- Symmetra™ MW UPS
- InfraStruXure™ 60kW Power Distribution Unit (PDU)

RACK
- NetShelter™ VX Enclosure
- Rack PDU (Basic, Metered, and Switched) (not shown)
- Rack Accessories (not shown)

COOLING
- NetworkAIR™ FM 50kW
- High Density Cooling System (not shown)
- Rack Air Removal Unit (ARU)
- Rack Air Distribution Unit (ADU) (not shown)

MANAGEMENT
- InfraStruXure™ Manager (not shown)
- Environmental Monitoring Unit (not shown)
- Environmental Management System (not shown)

SERVICE
- A full range of system- and component-level services are available

cool air is drawn from the floor to where it is needed by the ADU [ X ]

LEGEND
- power routing
- RDP power feed
- data routing
- cold air
- hot air
High Density Air Conditioning

**High Density Cooling System**

- Allows for quick deployment of high density clusters
- IT equipment can be moved or changed without system reconfiguration
- Allows for changing needs and future expansion with a pay-as-you-grow architecture
- Sealed hot aisle eliminates mixing with cold supply air to increase availability
- Increased cooling capacity and system efficiency from warmer air return temperatures
- UPS-supported fans through dual input power to cooling system

**HIGH DENSITY COOLING TECHNOLOGY OVERVIEW**

- **Hot Aisle Ceiling Tiles/Cable Trough**
  - Seals in hot air, prevents mixing with room air

- **Power Distribution Unit (PDU)**
- **UPS**
- **NetworkAIR™ FM**
  - In-row air conditioner pulls hot air from the back and distributes cooled air to the front
- **Discharge Air Plenum**
  - Distributes cooled air to room
- **Chamber Doors**
  - Access to hot aisle, locks for security

**HOT-AISLE, COLD-AISLE CONFIGURATION**

Because most IT equipment cools from front to back, an optimal cooling configuration is that of hot-aisle, cold-aisle, where rack fronts face other rack fronts, and rack backs face other rack backs.