Volta Great Sutton Street London, UK

Savings

25% increase in energy saving

Compared to a typical CRAC unit, the Virtual Hot Aisle Solution saves 25% on fan costs alone.



Reducing the most basic of operating costs, savings will be compounded annually and will result in a fast return on investment.





Optimum Data Cooling Limited seeks to challenge the status quo of traditional data centre cooling solutions. Completely rethinking the solution to one of the most common problems in this computerdriven world, Optimum has been able to empower IT professionals by making the server rack the self-contained basis of datacentre design. By removing the need to consider the complex physics of roombased cooling they have been able to create an easy, universal solution that works with standard server room hardware from any manufacturer.

Overview

Vertical Data Centre Site build Retrofit Site size 91,000 sq ft.

Formerly the Reuters data centre, in 2012 Volta Data Centres completely renovated and refitted this space to meet London's growing IT infrastructure needs. Volta's goal: to change the typical model for a data centre by providing a high-tech, ultra-low latency service while minimizing the building's ecological footprint.



The Challenge

Data centres are known for their incredibly high energy usage; Volta wanted to be different.

Through a new patented Virtual Hot Aisle Containment technology from SemperTec, cooling is focused where it is needed most through multiple rack mounted units. Bringing all of these units together to work in harmony they needed the compatibility, reliability and scalability that Delta Controls hardware could offer.

Handling the incredible heating load created by modern server hardware typically consumes a colossal amount of energy. Traditional room cooling through the use of CRAC (Computer Room Air Conditioning) units means that a substantial amount of cooling is wasted as the delivery is not concentrated on the heat source.

- Large volumes of very cold air are required to avoid hot spots in the room.
- The extremely low temperatures within the space can create uncomfortable work environments.

In the past, containment has been deployed to overcome this unnecessary over-cooling and heat contamination by creating cubicles around server equipment. While there is a benefit to this concept, there is a significant capital cost to be paid to install these air flow management systems.

To find out how Delta overcame this challenge, please turn over. $\; o \;$



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The Solution

Virtual Hot Aisle Containment managed through a Delta Controls DDC system was a perfect way to accomplish Volta's goals. Using the construction of the data centre racks themselves to create a hot air plenum, hot air is drawn through SemperTec's patented delta-T cooling units, cooled, and re-distributed across the front of the racks as a cool air curtain that is drawn back through the racks, thus cooling the equipment.

Upon completion, over 200 separate units will be installed providing direct cooling to each server rack. Each unit is installed with their own DAC-1180E programmable Delta Application Controller connected back to the enteliTOUCH colour touch screen HMI at the end of each row.

The Benefits

When compared to CRAC units, a 25% saving can be realized just on fan power costs alone. Focusing the cool air exactly where it needs to be virtually eliminates over-cooling and maintains a comfortable working environment for technicians.

enteliTOUCH

UCH DAC-1180E

• Full colour HMI touchscreen. Ethernet connected
application controller

DNS-24LBX

 Intelligent network thermostat Local Interface

• Real-time, rack mounted displays

The Results

Local graphic user interface.

Delta enteliTOUCH HMI screens installed at the end of each row of server racks provides technicians the ability to confirm operation at a glance.

Granular space temperature sampling

Delta Controls DNS-24LBX sensors installed in each server rack within each row of equipment allows for a complete heat profile within each enclosure. Economically priced and scalable through a secondary external thermister connection, SemperTec never had to compromise to deliver essential information.

High-speed communications

Ethernet enabled Delta Controls application controllers can respond to the rapid environmental changes that can occur. Fast response from the DDC system can mean the difference between normal operations and a critical server failure.

Through the flexibility of Delta Controls' hardware catalogue and a willingness to embrace new technologies, SemperTec has delivered a new kind of data centre cooling solution that Volta could be proud of.



