COLDFRONT™

Intelligent Thermal Management of Data Centers

Features

- ❖ Lower cooling cost
- ❖ Higher equipment availability
- ❖ Early warning of potential thermal problems
- ❖ Adaptive thermal management to changing heat problems
- ❖ Optimal layout of equipment in the room
- ❖ Easy to install and configure
- ❖ Reduce acoustic noise

- ❖ Temperature monitoring of critical locations in the data room
- ❖ Bring cold air when and where required in the room
- ❖ Installs over the existing cooling infrastructure
- ❖ Survive and compensate for CRAC failures
- ❖ Adapt to changing room configurations
- ❖ Scalable as the data center grows

Description

Datacenters are the nerve centers of today's information based world. One of the most challenging problems faced in data centers is heat removal. Most datacenters are designed for 100 Watts per square foot while today's equipment often generates in excess of 150 Watts per square foot of heat. COLDFRONT technology from DegreeC provides a method of dealing with these increased thermal loads without significantly impacting the existing datacenter design.

The products and services specializing in thermal management of data centers consist of two areas:

- ❖ *Thermal analysis and layout design for minimizing cooling cost and maximizing equipment reliability*
- ❖ *Reliable thermal control of a data room using COLDFRONT NODE, temperature data acquisition system, COLDFRONT TILE, fan assisted perforated tiles, and COLDFRONT THERMAL SERVER, a thermal management program.*

Using computer simulation to understand the thermal and airflow behavior of the data room, cooling needs at different locations in the room are evaluated. This study also provides the ideal locations for the placement of sensors for monitoring temperatures. Using COLDFRONT NODE, multiple temperature sensors are located throughout the room. COLDFRONT TILES are placed at critical locations in the room. COLDFRONT THERMAL SERVER communicates with NODES to read the temperature measured by them, and commands TILES to operate at different speeds as required by the thermal needs.

COLDFRONT technology allows dynamic airflow balancing in a datacenter to solve local heat problems that change with equipment usage variations.
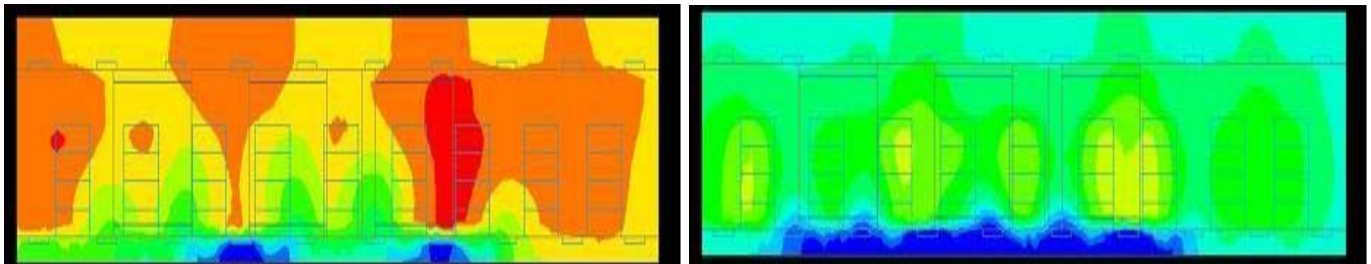

Simulation temperature study of a data room before and after using COLDFRONT

COLDFRONT™

Benefits

- Eliminates hotspots in datacenters by providing additional cooling air where it is needed.
- Complements existing cooling methods designed to be integrated within the existing environmental control scheme.
- Provides 10-15% reduction in cooling costs by reducing the mixing of air between hot and cold aisles.
- Reduces energy consumption and helps increase the life of the fans,
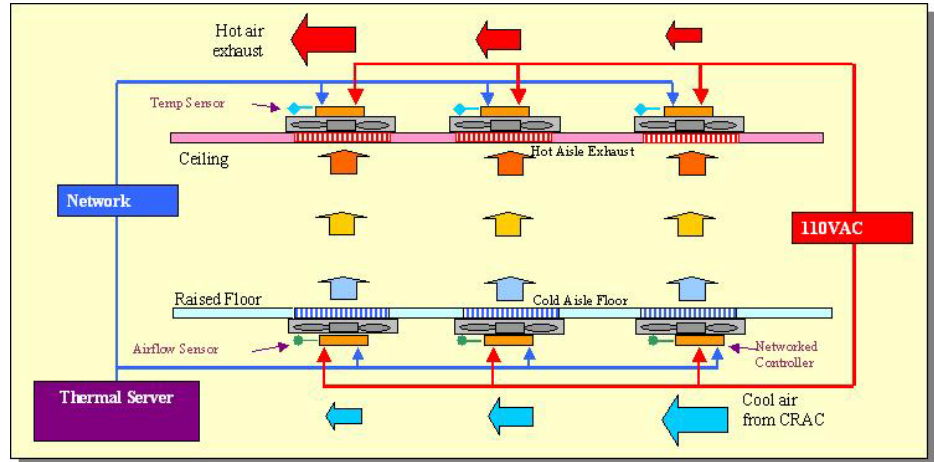
COLDFRONT TILE
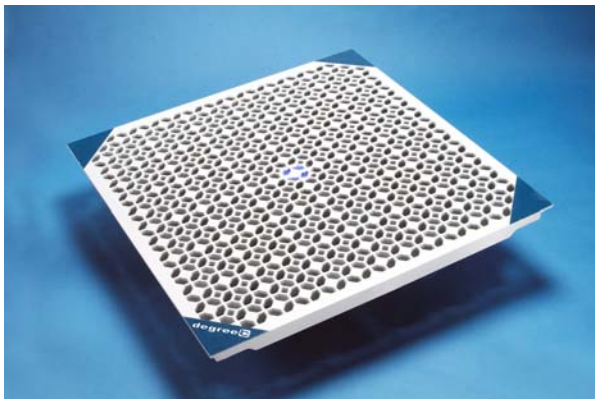
- Fan-assisted floor tiles with built-in speed control
- Network driven
- Connect multiple TILEs together
- Fan speed commands over the network
- Accepts temperature sensors
- Works on 120VAC
- UL approved

The COLDFRONT TILE is easy to install and power up. Different configurations are available, depending on your airflow requirements. Using the COLDFRONT network, longer fan life is achieved as more efficient use of cooling methods is implemented. COLDFRONT TILE brings air where and when it is needed.

COLDFRONT NODE

- 16 Channel Air Temperature monitor
- Measures temperature remotely
- Identifies local heat build-up
- Connect multiple NODEs together

The COLDFRONT NODE system allows you to identify potential failures BEFORE they occur, saving valuable time and money while preventing system failure. NODE monitors critical areas for overheating as well as provides air temperature information on cold and hot aisles.