



DBBC

Demand Based Cooling™

Demand Based Cooling Case Study #3

Before and After Results Using
the Demand Based Cooling System



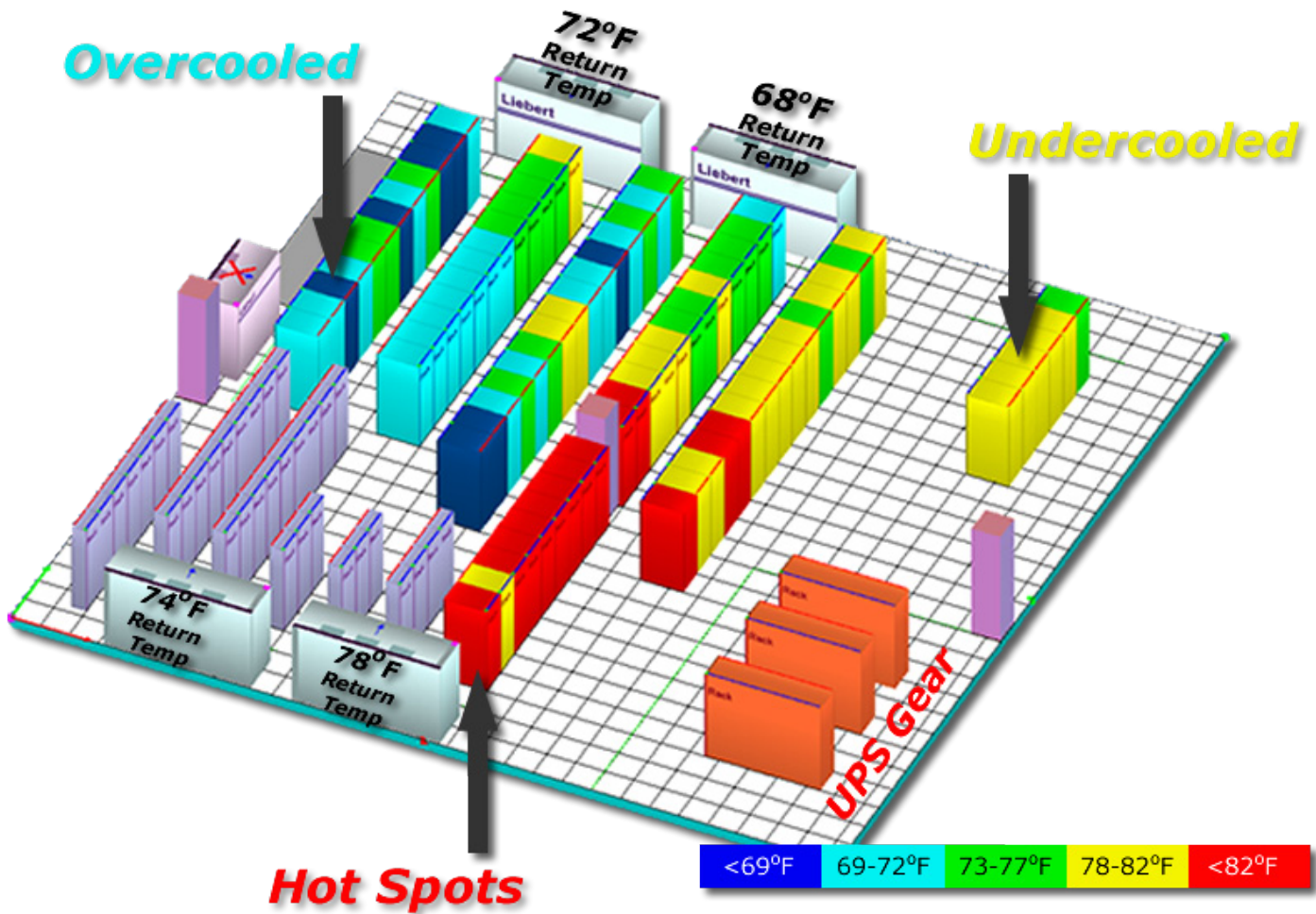
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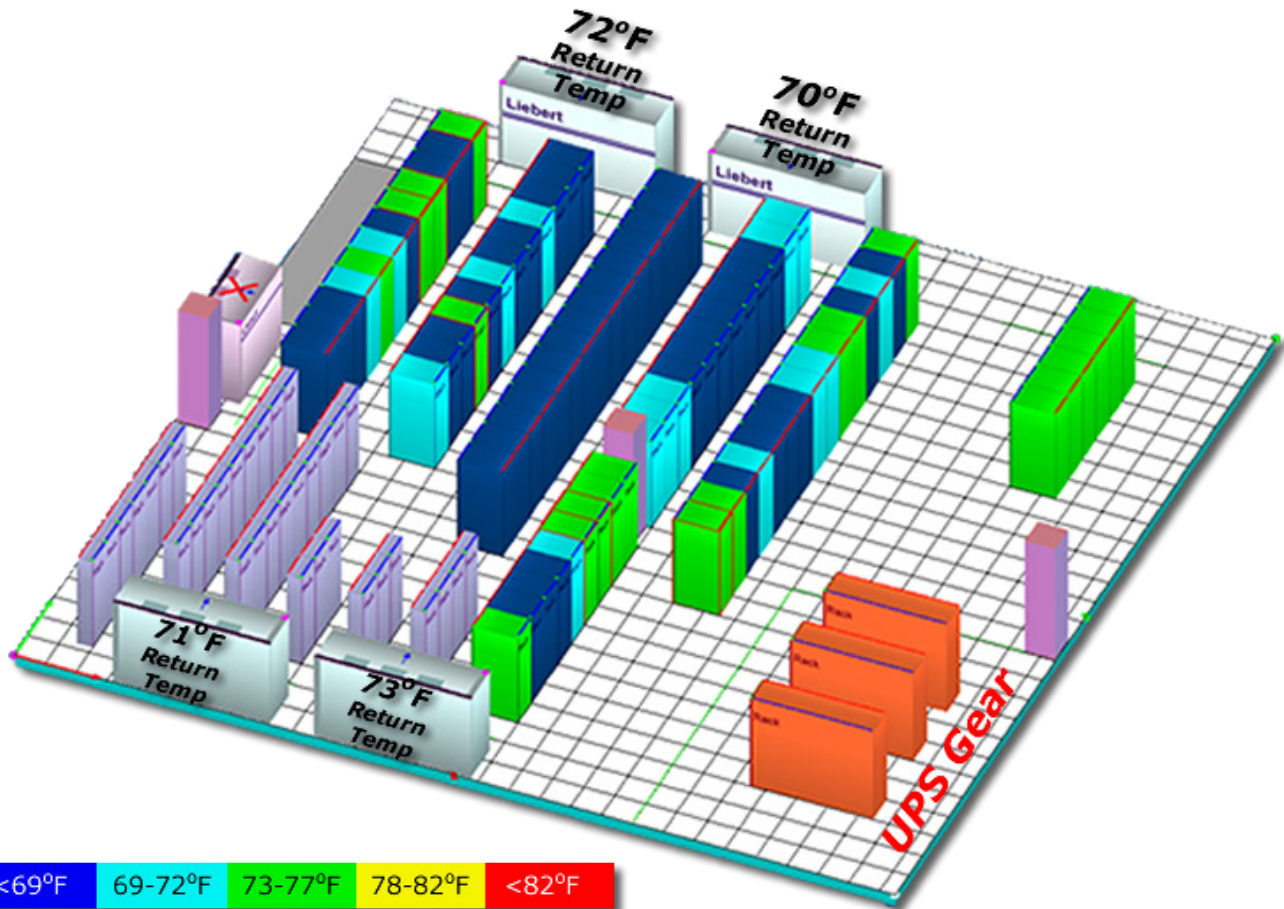


SITUATION:

The customer's data center was experiencing hot spots up to 87F at some server racks due to placement relative to UPS gear. Racks were placed too close to CRACs to get cooling and there was a negative pressure area in the center of the room. Blanking panels were absent in some key racks. One of the CRACs had been running 100% compressor duty cycle for months and there was fear of failure with no backup. Energy usage was higher than expected in this unbalanced room.

TOOLS USED:

On Site Data Center Audit by AdaptivCOOL Team and CFD Simulations



SOLUTION:

CFD simulations and physical observations showed that large amounts of UPS heat were overcoming any available cooling in one area even though 56% tiles were installed there. In another area where racks were too close to CRACs the heat drawn by the CRAC was being distributed into the cold aisle. In yet another area negative pressure was caused by slightly offset CRACs creating a vortex. Blanking panels were needed in some racks. A total of 6 HotSpotr airmovers were used to correct overheating conditions and help to balance the CRACs. Blanking panels were installed in several key racks. After installation the average rack temperature was reduced by 7.9 degrees and the CRACs were now balanced. The CRAC that had previously been running at 100% duty cycle throttles itself back to normal duty cycles. The installation also included a Cooling Resource Manager with 60 temperature sensors feeding back real time temperature data to control the flow tiles and provide an instant SNMP messaging system to the customers Castlerock™ BMS monitor. The energy usage for cooling was reduced by 24%. The return on investment was less than 12 months.