

Data Center Cooling Solutions: Cold Aisle Containment VS Hot Aisle Containment

It takes immense amounts of energy to ensure a data center's environment is suitable for the equipment it houses. Aisle containment makes your infrastructure substantially more efficient, offering [10-40 percent more power savings](#) when in place.

Data center containment can vastly decrease the amount of energy used for cooling, saving IT companies a pretty penny. Aisle containment solutions will completely isolate cold and hot airflow to create a calculable and consistent temperature for your data center that is optimal for your equipment.

Depending on your data center needs, you may choose Cold Aisle Containment (CAC) or Hot Aisle Containment (HAC) for your [cooling solutions](#).

Cold Aisle Containment

Cold Aisle Containment utilizes doors at the aisle ends in addition to a divider atop the entire cold aisle, so that each rack has a reliable stream of cool air delivered to the top. This option is typically used in fully configured data centers that do not already have an aisle containment solution in place. CAC inhibits "**short-cycling**," or the occurrence of hot exhaust air dragging back into your equipment.

Benefits:

- More cost-efficient
- Simple installation; doesn't require any systems altering for configuration
- Easier to add into old data centers

Disadvantages:

- Possible lower system efficiency caused by raised floor and gaps underneath the equipment allowing conditioned air to leak through
- Risk of higher extreme exhaust temps because the solution turns the entire data center into a hot aisle



- Lowered delta T due to the heightened mixing of return air
- May affect data center fire detection

Hot Aisle Containment

Hot Aisle Containment works by putting doors at the end of the hot aisles, as well as climate-controlled ductwork going from the hot aisle to the AC return vents to safely transfer the air. HAC confines hot exhaust air and uses the ductwork to send it back to the AC return. This method increases the efficiency of your data center cooling by 30 percent or more.

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Benefits:

- Data center environment outside of the containment remains cold
- Any leaked air is directed to the cold space
- More effective; does well with most environments
- Creates no problems for standard fire detection systems

Disadvantages:

- More expensive
- Required ductwork involves a more complicated installation
- Higher temperatures may cause discomfort for IT technicians working in the hot aisle

Making the Right Choice

Regardless of which option you choose, data center containment will result in better capacity for cooling, increased hardware lifespan, and more uptime for your equipment.

The power and cabling experts at PowerIT will work with you to ensure you have the right cooling solution in place. Our aisle containment solutions are customized to your infrastructure for temperature control that's a perfect fit for your operations. To find out more, [reach out to us today](#), or call PowerIT at 914-263-7351.