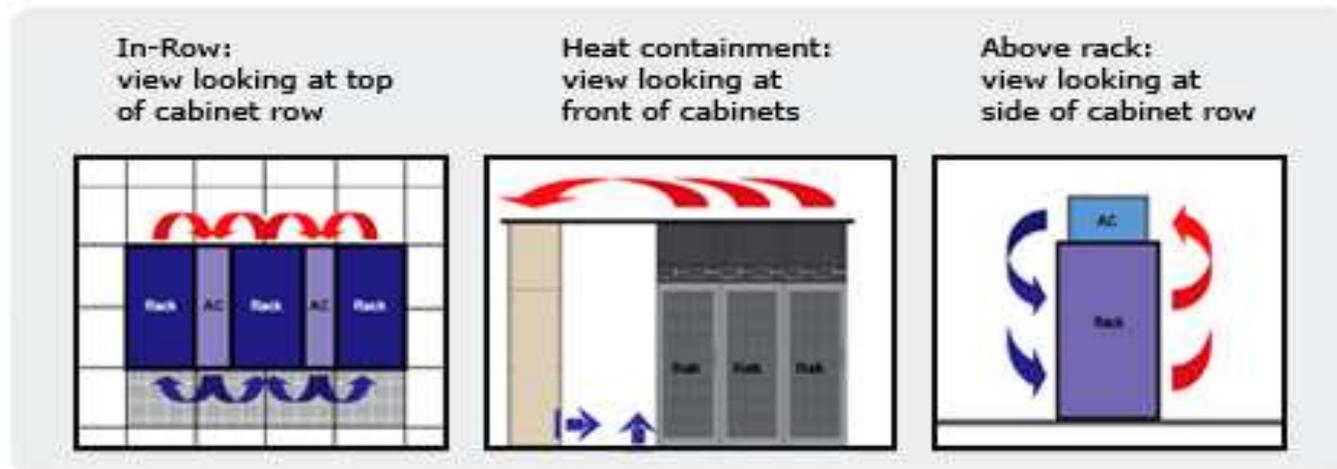


Criteria for a High Density Cooling Strategy

A [high-density cooling system](#) should aim to improve compute availability, maximize IT flexibility, maximize rack positions on the floor and maximize operational efficiency.

Airflow distribution patterns for various high-density cooling strategies



Criteria for a High Density Cooling Strategy

The following table presents four categories of criteria for making an intelligent decision about high-density cooling. Using this criteria, compare our Opengate [SiteX EC Cooling distribution System](#) against another cooling strategy.

High-Density Cooling Strategy Decision Criteria

Initial Expense

- Lowest total cooling equipment cost per kW of IT load
- Reduced piping, electrical, and sensor networks
- Reduced and simplified engineering
- Rapid commissioning & training

Maximize Efficiency

- Eliminates over-provisioning - reducing the number of CRAC/H units in operation
- Greatest cooling capacity per unit of power
- Reduced maintenance and service costs
- Allows raising air supply/return temperatures
- Allows raising water supply temperature to improve chiller plant performance and efficiency
- Allows additional hours of free cooling

Criteria for a High Density Cooling Strategy

Maximize Availability

- Reduced components & interconnects
- Eliminates all hot-spots even with very high density racks or rows
- Single cooling system in operation to improve availability and simplify maintenance
- Keeps water or Glycol loops at the perimeter of the facility
- Reduces human interaction / easily maintained
- Single failure / repair does not effect operation
- Provides early alarm conditions
- Can use same system in existing and new facilities
- Installation does not cause production interruption
- All hot-swap electronics to reduce human interaction

Maximize Flexibility

- All or most IT rack load locations are divorced from cooling source locations
- Design facility and total cooling from day one with no need to worry about IT changes later
- Cooling reports provide clear indication of load to supply ratio
- Reduces the quantity and fully utilize CRAC/H units on the floor
- Rack neutral, allows IT adds, changes and removes without disrupting IT operation or environment
- Maximizes rack spaces on the floor due to fewer CRAC/H units taking up space
- Allows higher power per rack with no effect on intake air temps
- Allows stable cooling environment even with low slab to slab ceiling heights
- Extends operation during utility failure by routing exhaust heat away from rack intakes
- System gives indication cooling supply versus cooling demand by the IT equipment