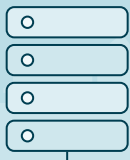


Air vs. liquid cooling:

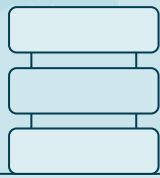
What it means for your data centre needs

Comparing the two major data centre cooling systems and their real estate implications



Air cooling

Uses airflow to absorb heat from components and dissipate it with cooler air



Liquid cooling

Circulates a liquid coolant through IT components to absorb and dissipate heat directly from the source

Workloads

- Supports workloads of up to 35kW per rack



- Capable of handling rack densities of up to 100kW

Power consumption

- Typically uses more energy to remove heat through air circulation (air conditioning units and fans)



- More energy-efficient by removing heat directly from processors (direct-to-chip/immersion cooling)
- Suited for high-performance computing applications generating significant heat

Capital expenditure

- Lower upfront costs for equipment to free up capital for other needs



- Higher upfront costs of between 40% and 70% due to complex plumbing installations and accessories needed to connect servers to liquid cooling

Operating expenses

- Cheaper, easier to implement and maintain
- Requires less specialised infrastructure



- Requires specialised training for maintenance
- Higher energy efficiency can potentially reduce operational costs by 40% over time

Scalability

- Compatible with all servers
- Easier to scale up and down; cooling units can be added/removed as needed



- More complex to scale as additional cooling loops and pumps may be needed
- Retrofitting older data centres with liquid cooling will be challenging due to infrastructural constraints

Space considerations

- Requires larger spaces to accommodate air handling units and ensure proper airflow



- More space-efficient and compact
- Cooling equipment can be located outside the server room, freeing up valuable floor space

Source: NVIDIA, Stulz, CoolIT Systems



Navigating data centre cooling complexities?

Connect with a JLL expert who can guide you to the best solution for your leasing and operational needs.