



Key Context for Data Center Cooling & Associated Water Use

Servers generate heat and require cooling. Many technologies, such as air cooling, water cooling, or some combination, can help keep data center server halls at the right temperature and humidity. There is no one-size-fits-all solution for cooling, and the best approach often depends on local factors, such as humidity, climate/temperature, and availability of water, including recycled, non-potable, or harvested rainwater sources.

Types of Cooling

Air cooling

- Air cooling uses air conditioning, fans, and vents to circulate ambient air, expelling the hot air produced by computing equipment. It's the most traditional cooling method.

Liquid cooling

- Liquid cooling systems use coolants, including water, that circulate through a pipe network, absorbing heat away from IT equipment.
- Many data centers who employ liquid cooling use a closed-loop system, where an initial input of water is cycled through the system repeatedly without the need for additional water to be added.

Immersion cooling

- Immersion cooling directly submerges IT infrastructure components in dielectric fluids that cool by absorbing heat. Servers, which are kept in nonconductive, absorbent fluids, provide effective heat management.

Evaporative cooling

- Evaporative cooling uses fans to draw outside air in, cooling it before deploying it to cool IT equipment. Through water evaporation, this method draws heat away from the air efficiently.

Hybrid cooling strategy

- A hybrid cooling approach integrates multiple cooling technologies to optimize thermal management based on specific IT equipment demands.

The Bottom Line

The Data Center Coalition and our members support responsible data center growth across the nation. These facilities are a small share of local and statewide water use, and with modern cooling technology and local planning, we can protect water resources while continuing to grow jobs and investment.

About DCC

The Data Center Coalition (DCC) is the membership association for leading data center owners and operators, as well as large end users. As the voice of the industry, DCC advocates for a strong business climate, as well as policies and investments that support the growth and success of the sector.

Contact Us

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