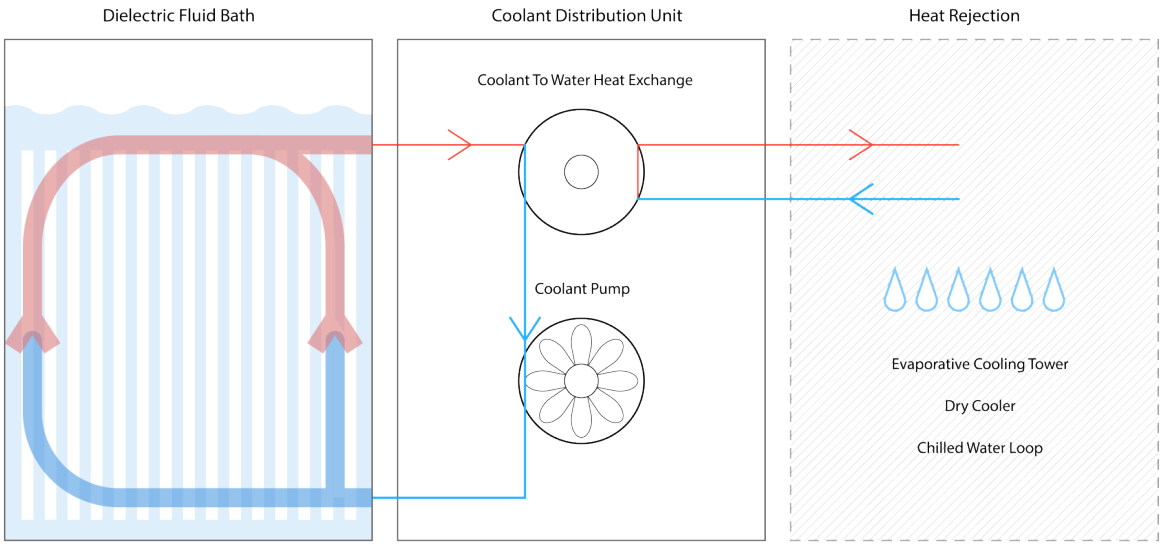
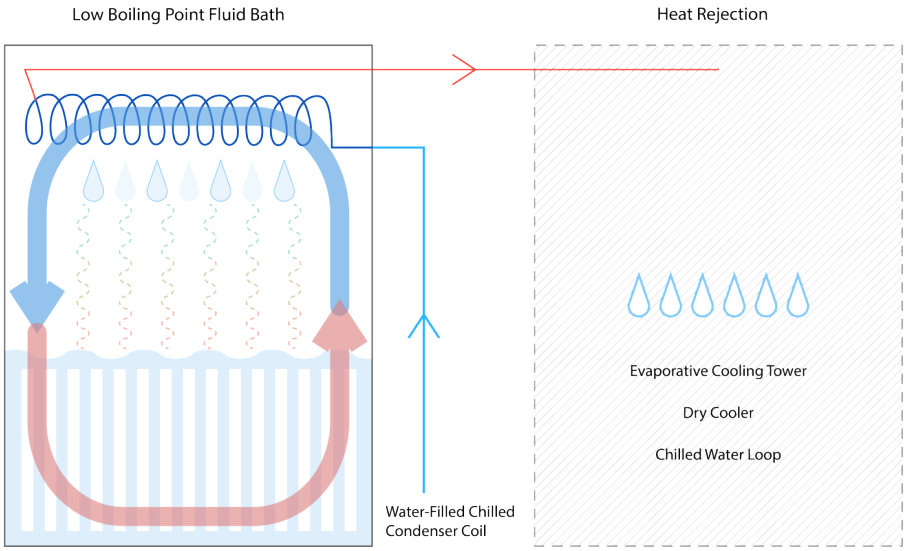
Immersion Cooling





Immersion cooling is a data center cooling method where IT equipment is directly submerged in a thermally conductive but electrically non-conductive fluid (known as dielectric fluid). Heat generated by the servers is absorbed by the fluid and then transferred to external systems through either single-phase or two-phase processes.

Although still an emerging technology, immersion cooling currently accounts for only about 4–6% of data centers globally. It is most suitable for large-scale or high-density deployments because of its ability to handle much higher thermal loads than traditional methods.

Unlike air cooling, immersion cooling eliminates the need for server fans and reduces the reliance on CRAH units, lowering both power consumption and noise. It also has the potential to significantly reduce water consumption compared to conventional liquid or evaporative cooling, depending on the external heat rejection system used.

On average, immersion cooling allows for some of the most efficient operations in the industry, with reported power usage effectiveness as low as 1.03, while also lowering total operational costs by reducing the energy needed to move and condition air.

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