

# Liquid cooling | is not a novelty is a necessity

## The Data Center Industry Needs A New Cooling Paradigm

2x

Data center rack power density has experienced a 2x growth rate over the past five years and the pace of growth is accelerating.



At the same time, the availability of power continues to be constrained.

The physical size of data center processors has more than **1.5X** in five years. This has driven a 2X growth in the power consumption of data center processors.

Additionally, fast-growing compute-intensive applications like artificial intelligence have driven a boom in scaled up servers, where a high number of processors are placed in the same server.

With the demand for computing continuing to grow, data center operators would be wise to deploy **power efficient cooling infrastructure**.

## Direct-To-Chip Is Winning The Liquid Cooling Battle



### Accelsius Propels Direct-To-Chip Liquid Cooling Forward

NeuCool's™ two-phase technology can cool 1500+ Watt processors, providing a futureproof solution.

#### WHY DIRECT-TO-CHIP WINS VS. IMMERSION

- Direct-to-chip requires only minimal server modifications, ensuring straightforward serviceability.
- Requires a fraction of the refrigerant compared to immersion cooling, resulting in significantly lower costs.
- Direct-to-chip has a proven design, with many deployments at scale.
- No specialized training, specific servicing equipment (such as cranes or lift trucks), or PPE is required.
- With two-phase, direct-to-chip technology, the critical heat flux is higher at the boiling point of the refrigerant, allowing higher power processors to be cooled safely.

Redundant and hot-swappable key components (power supplies, pumps, sensors, control boards, etc.)

Lowest total cost of ownership due to saved energy cost & comparatively low upfront investment.

Dielectric refrigerant will not damage servers or IT equipment in the event of a leak, unlike water-based systems where a leak is often catastrophic.

The eco-friendly refrigerant is from the same chemical family used in household products.

- Non- "forever" chemical
- Refrigerant lasts the life of the system
- Contained in a closed loop with brazed tubing and industrial-grade components, including robust leak prevention & detection