

Breakthrough Technology Addresses Under-Reported Data Center Cooling Challenge

'PDS' Enables Water-Based Direct-to-Chip Cooling for High-Performance AI Infrastructure

HERNDON, VA, UNITED STATES, February 9, 2026 /EINPresswire.com/ -- As artificial intelligence workloads drive unprecedented demand for data center capacity, a Northern Virginia-based technology company has developed a solution to one of the industry's most pressing challenges: temperature controls that provide both data center energy efficiency, while protecting AI chip performance and functionality.



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*Vertiv Holdings Co. CEO
Giordano Albertazzi*

Reverse Ionizer LLC, headquartered in Washington DC's "data center alley," has introduced its Plasma Disinfection System (PDS) technology designed to enable efficient water-based cooling in direct-to-chip (DTC) systems. The patented innovation addresses biological fouling in cold plate micro-channels, a persistent obstacle that has limited the use of water as a primary coolant in high-density

computing environments. In short, the PDS system ensures that data center cooling systems and the individual cooling systems for the chips that are the heart of the data centers operate efficiently and effectively.

"The PDS uses advanced non-thermal plasma discharges to continuously control bacteria growth and biological fouling, eliminating insulating biofilm in cooling systems throughout closed-loop DTC systems to sustain optimal heat transfer efficiency and maintain maximum power capacity per rack—critical factors as chip densities continue to increase. It does the same in open-loop chiller/cooling tower systems," said Patrick Hughes, CEO of Reverse Ionizer. "Compared to glycol-based solutions, water increases heat transfer efficiency by 15% to 20%, allowing designers to reduce pump size requirements while maintaining optimal thermal performance."

The PDS technology comes as industry leaders highlight growing infrastructure constraints. According to TheStreet, "a looming critical infrastructure obstacle is holding up the AI boom." Vertiv Holdings Co. CEO Giordano Albertazzi recently noted on LinkedIn that "AI workloads are operating at unprecedented complexity and criticality. This demands new levels of data center visibility and insights to operate reliably and efficiently."

The PDS will also help keep America's water safe from bioterrorism and it represents a fundamental shift in how the industry can approach thermal management while systematically mitigating cooling and biological risks."

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