

Preview

LPO modules reduce per-pluggable power from ~30W with DSP-based optics to ~10W, enabling up to 50% system-level savings. Early tests show good receiver performance even under degraded conditions, though transmit paths remain sensitive to reflections and crosstalk at the connector. Arista Networks co-founder Andreas Bechtolsheim used his keynote at IEEE Hot Interconnects 2025 to highlight how Linear Pluggable Optics (LPO) and new rack designs can dramatically cut power consumption in AI-scale networks. At the 2024 Open Compute Project (OCP) Global Summit, we showcased our advanced liquid cooling heat exchanger units (HXUs), designed to support next-generation GPUs and AI accelerators from Microsoft and other industry leaders. Our approach focuses on innovating the entire cloud system--from silicon. At Energy Solutions Intelligence, we analyze operational data from hyperscale operators, colocation providers, and enterprise deployments to benchmark liquid immersion cooling economics against advanced air-cooling architectures across power densities from 15 kW/rack to 100+ kW/rack. Data Center. The OCP Cooling Environments Project Total Cost of Ownership (TCO) tool rev1. 10 helps serve the mission and purpose of the Open Compute Project Cooling Environment TCO Workstream to empower users with open, unbiased, peer reviewed, transparent tools to help make more informed and data-driven.

Explore the benefits and drawbacks of liquid cooling vs. air cooling, as well as adoption considerations with these two data center cooling methodologies.

Introduction All liquified natural gas (LNG) plants require cryogenic heat exchangers to liquefy natural gas. This paper compares the two most common heat exchangers used in LNG liquefaction: Coil

In cases where rack densities are gradually creeping up to the threshold at which liquid cooling becomes a necessity, facility operators will have to weigh the benefits that can be achieved by moving to liquid

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Liquid-liquid heat exchangers are critical for precise temperature control and efficient heat transfer in demanding applications. They support coolant-to-oil heat

A thermodynamic model is developed to predict the EPCM heat exchanger performance for plant-scale operations. Equipment and construction costs for heat exchangers are estimated

Optimize the performance of your liquid cooling system with the best-fit liquid heat exchangers from Eaton. Our liquid heat exchanger design expertise paired with

In addition to the above equipment, the HT system includes a circulating water system for its heat exchanger, and the LPO system includes a compressed air system for process air supply.

To support higher densities of AI accelerators per rack, we are utilizing standalone liquid-to-air heat exchanger units. These units enable legacy datacenters--traditionally unequipped for using direct-to

This work provides insights on the design and optimization methods for single-phase liquid cooled heat exchangers and can be used as a guide for the design of thermal management

Solutions for Liquid Cooling in the Data Center Integrated, Multi-Vendor Deployment Rear-Door Heat Exchanger 20-40 kW per rack

Abstract This case study presents an experimental investigation of closed loop liquid cooling of CPUs. The cooling system implements a pumped liquid supplying a cold plate fixed to the

Capital cost, however, is viewed as a common obstacle. In this paper, we first demonstrate that at a like-for-like rack density of 10 kW in a 2 MW data center, the data center capex is roughly equal for

At Energy Solutions Intelligence, we analyze operational data from hyperscale operators, colocation providers, and enterprise deployments to benchmark liquid immersion cooling economics

Cost-based design optimization of the heat exchangers in a parabolic trough power plant P.A. Gonzalez-Gomez¹, F. Petrakopoulou¹, J.V. Briongos¹, D. Santana¹.

The design accommodates up to 16 2U switch blades with tool-less installation, tightly located liquid quick disconnects, and generous space for

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