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How Direct Liquid Cooling is Helping Providers Meet Rising Colocation Demand

Involta, an innovative agent of change and award-winning colocation, hybrid IT and managed services firm, is leading the charge in addressing the cooling challenges brought forth by rising high-performance demands. In the age of nonstop technology advancements, the need to meet high-perfomance demands, especially in data centers that require efficient processing and high-performance computing (HPC), is growing faster than ever.

But with high-performance demands come high power demands—and more heat. And with more heat comes the need for effective, efficient cooling strategies. Many traditional data center air cooling systems are no longer sufficient for these high-performance demands, requiring data center operators to seek out more modern, innovative cooling methods, like Direct Liquid Cooling.

Direct Liquid Cooling (DLC) is a modern cooling system designed to manage the temperatures of IT equipment, preventing overheating and improving energy consumption in high-power, high-performance, high-density data centers.

Contrary to traditional air cooling strategies, DLC uses liquid coolant pumped through a piping system to absorb heat generated by IT equipment through convection. Once heated, that liquid solution flows through a heat exchanger to cool before recirculating to the equipment. It plays a significant role in regulating the temperature of chipsets, a vital data center component that requires a specific temperature range.

When used in conjunction with—or in replacement of—traditional air cooling systems, DLC improves power usage effectiveness (PUE) and energy consumption in high-density data centers. With more precise cooling capabilities, DLC uses less water than traditional cooling, resulting in significantly increased energy efficiency and lower operating costs for data centers. As a result, Involta has joined other innovative data center providers in adopting this cooling technology, implementing modern DLC methods to supplement—or in some cases, replace—air cooling methods and improve energy efficiency. DLC, in combination with other sustainable initiatives, such as installing sensor-controlled LED lighting and replacing end-of-life equipment with high-efficiency alternatives, has led Involta to achieve a 50% increase in energy efficiency since opening its flagship facility in 2008.

On top of the ESG (environmental, social and governance) benefits, DLC’s compatibility with existing data center rack infrastructure offers simplified installation, making it more accessible for organizations just starting on their innovative cooling journeys. Starting with a hybrid

air/liquid cooling strategy allows operators to keep the traditional air cooling system they're familiar with while exploring the benefits of energy-efficient liquid cooling, enabling them to learn the new system with minimal operational disruptions.

Though DLC has a higher installation cost than traditional air cooling systems, as demands for HPC workloads and high power increase, its efficient equipment temperature regulation will provide decreased operating costs and increased energy efficiency in the long run, making its implementation well worth the initial investment.

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As technology continues to advance at a rapid pace, Involta strives to remain at the forefront of innovation, implementing new strategies like DLC to help its clients operate more efficiently and transform their worlds through technology.