VERTIV.

Case study

Optimized for AI: EdgeConneX's data centers leverage Vertiv's advanced power technology.

Data center provider EdgeConneX collaborated with Vertiv to enhance the resiliency of its power infrastructure with dynamic AI loads.

Background

EdgeConneX is a global data center provider that partners with service providers to deliver tailored solutions, enhancing access to content, cloud services, networks, and applications.

EdgeConneX partnered with Vertiv to address the unique power challenges posed by AI variable loads such as rapid load fluctuations and the need for seamless power transitions. Vertiv and EdgeConneX rigorously tested the performance of large UPS systems under the variable power demands of AI variable loads. The results demonstrated that Vertiv's UPS solutions provide reliable power continuity and energy efficiency, enabling the resilience and performance required for AI-driven data centers.

Challenge

AI workloads can generate highly variable and unpredictable power demands due to rapid shifts between compute-intensive and idle cycles, creating challenges such as:

- Managing sudden step changes in GPU power consumption without disruptions.
- Providing continuous supply of power during transitions between utility and generator sources.
- Accelerated battery aging caused by frequent micro-cycling.
- Maintaining compliance with strict IEC 62040-3 Class 1 power stability standards under all operating conditions.

EdgeConneX chose a power solution that could reliably handle these challenges while maintaining operational continuity and efficiency in its AI-focused data centers.

edgeconnex®

Company profile:

A leading global data center provider specializing in efficient content delivery, cloud solutions, and application optimization across the world.

Industry: Data center and digital infrastructure

Region: Atlanta, USA

Related links

Evaluating the performance of Vertiv™ large UPS systems with AI variable loads

Vertiv's AI power load management solutions for data centers

Solution

EdgeConneX conducted a comprehensive performance evaluation of large UPS systems, under AI variable loads. The tests were conducted on Vertiv™ EXL S1, Vertiv's large UPS system that shares component architecture with the recently launched Vertiv™ Trinergy™. The evaluation focused on the UPS system's ability to maintain stable output voltage and current during the rapid shifts of the AI load profiles. The test scenarios included operation on utility power, the transition from utility to generator, and operation on generator power.
Vertiv's UPS demonstrated resilience by allowing power protection and quality for every scenario through resilient design and flexible algorithms that manage all available AC and DC sources.

Outcome

The test took place in a controlled environment within one of EdgeConneX's data centers and produced the following results:

Stable output regulation

The Vertiv™ EXL S1 UPS maintained stable output voltage and current during high compute and idle cycles of AI training, maintaining consistent power delivery despite rapid fluctuations in load.

Seamless power transition

The Vertiv™ EXL S1 UPS demonstrated seamless transitions between utility power and generator power, effectively managing the switch without any interruptions or power quality issues, which is critical for maintaining AI application performance.

Overload capabilities

The UPS system managed overload conditions supporting the intensive processing tasks of AI without any degradation in performance.

By leveraging Vertiv's expertise in UPS systems and dynamic power management, EdgeConneX successfully addressed operational challenges related to AI, providing continuous operation and reliability in its high-density data centers.

> "Our data centers are designed to support accelerated computing and generative AI, featuring architectures that are more advanced than those used for general-purpose computing. Vertiv's innovative power technologies enable EdgeConneX to transform this vision into reality, creating AI factories that drive digital intelligence and deliver value across industries and businesses globally."
>
> **— Phillip Marangella,**
> *Chief Marketing and Product Officer, EdgeConneX.*

Additional resources

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https://www.vertiv.com/en-emea/solutions/artificial-intelligence/

https://www.vertiv.com/en-emea/about/news-and-insights/articles/white-papers/enhancing-ups-reliability-with-the-advantages-of-distributed-battery-systems/

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