

KDDI Enables Complete Remote Monitoring of Edge Data Centers with Sunbird DCIM

On June 21, 2021, KDDI Corporation announced a proof-of-concept project for the utilization of an immersion cooling system and the realization of edge data centers.

“As an initiative to reduce power consumption and decarbonize for the purpose of preserving the global environment, we will utilize an immersion cooling device that cools the servers with liquid, realizing a small data center that houses them in a container.”

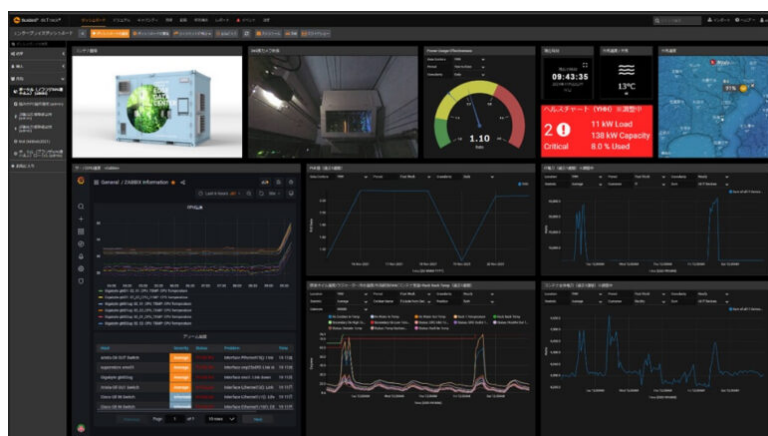
- Partially quoted from KDDI's news release



Specifically, they housed a server equivalent to 50kVA and an immersion cooling device in a 12-foot container. While demonstrating sufficient cooling performance, they aimed for a Power Usage Effectiveness (PUE) of 1.1 or less, which is the industry's lowest level.

In this project, solution provider DC ASIA also introduced Sunbird's DCIM software, which is responsible for the constant power and temperature monitoring of all the parts in the container including the rack and the immersion tank.

The equipment's power data was measured by Raritan intelligent PDUs that can be measured at the outlet level and a Branch Circuit Monitoring (BCM) device which were polled at one-minute intervals. Based on that data, Power IQ automatically calculated the PUE value and displayed it on a dashboard.



Customer

KDDI Corporation is a Japanese telecommunications operator. They provide mobile communication services and sell mobile devices. KDDI also is a broadband provider.

Situation

KDDI needed a solution to remotely monitor and manage their proof-of-concept edge data center.

Solution

Sunbird's comprehensive, easy-to-use DCIM software gives KDDI complete monitoring and visibility into their data centers.

Results

A successful proof-of-concept that demonstrated the effectiveness of DCIM software in an edge environment.

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For temperature monitoring, the Raritan Smart Rack Controller (SRC) environmental monitoring device was used to measure various parts of the container, including the rack. At the same time, SRC also monitored the opening and closing of container doors for security purposes.

For temperature measurement of special points such as oil temperature in the immersion tank, integrated monitoring with Power IQ was realized via Control Solutions' protocol gateway BAS-7050RT.

In this way, all data is aggregated in Power IQ. With visibility in dcTrack which is installed on KDDI's cloud platform KCPS, information is made available via web browser.

Sunbird's DCIM displayed detailed power and temperature trends and PUE values. The customizable dashboard monitored Axis' 360-degree camera images installed inside the container as well as internal monitoring of IT equipment such as CPU temperature. Charts have also been integrated into the dcTrack dashboard.

In addition to monitoring, dcTrack manages all the assets and cabling information in the container. It also provides virtual server management by integrating with VMware. Live measured readings and asset information can be aggregated in one system.

The project was successfully completed in December 2021. With this proof-of-concept, KDDI and DC ASIA were able to demonstrate the effectiveness of DCIM software in an edge environment.

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