Cloud Computing Microgrid

What is a microgrid?

Microgrids (MGs) represent one outcome of this transformation. The MG represent a compact power systemcomprising of independent renewable energy resources (RERs),energy storage systems (ESSs),and loads operating as a unified control system to generate power for localized areas within the range of 10-100 MW [3,4].

What is edge computing in microgrid control?

Edge computing transfers services from the cloud to the device side to release cloud-computing resources, allowing for real-time data collection and accurate control . In recent years, microgrid control methods based on edge computing have been proposed in various studies [4 - 7].

How does Cloud Control affect a microgrid?

When the system is controlled using the cloud to calculate the commands and send them back to the microgrid,each sent control command results in a long delay. This causes the reference voltage command of the system to deviate more significantly from the actual voltage,which results in a more obvious oscillation.

What is a microgrid control architecture?

A microgrid control architecture and an edge-computing service architecture based on hybrid control theory are proposed, including standard communication protocols. The business applications (BAPPs) can be activated based on the state of the microgrids and controlled distributed energy resources (DERs).

The quantity and heterogeneity of intelligent energy generation and consumption terminals in the smart grid are increasing drastically over the years. These edge devices have ...

These calculation tasks can be conducted on the remote cloud computing platform and the DSP chip of the inverter in an arbitrary renewable generator, respectively. The tests are carried ...

In [107], a cloud and edge computing-based framework is proposed to realize dynamic economic dispatch in a centralized EMS subjected to single point failure problem. Authors in [108] ...

Proposed a scalable cloud-based continuous monitoring platform (SC-CMP): a new system that combines cloud computing, AI, and the Internet of Things (IoT) to optimize EV charging ...

Therefore, we investigate FDRL algorithm based on edge-cloud computing implementation, with the objective of providing a feasible microgrid energy management strategy with ...

The organization of this article is as follows, Section 2 gives related works based onedge cloud computing architecture with microgrid energy management of VANET, Section 3 discussed ...

With an increase in the number of microgrid nodes, the calculation time for cloud computing increases, whereas the time increases slowly using edge computing. This is because ...

Cloud-hosted data analytics have been developed in AWS, considering market arrangements between the microgrid and the utility.

The rapid advancement of renewable energy technologies necessitates innovative solutions for the efficient deployment and management of microgrid systems. This paper presents a ...

In current power grids, a massive amount of power equipment raises various emerging requirements, e.g., data perception, information transmission, and real-time control. The existing ...

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