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Sustainable Green Energy Optimization for Edge Cloud Computing with Renewable Energy Resources

Abstract

The recent emergence of edge computing advocates that computational and storage resources can be extended to the edge of the network so that the impact of data transmission latency over the Internet can be effectively reduced for time-constrained Internet of Things applications. With the widespread deployment of edge computing devices, the energy demand of these devices has increased and started to become a noticeable issue for the suitable development of urban systems. This research proposal outlines energy management framework for enabling a sustainable edge computing paradigm with distributed renewable energy resources.

Green computing is a strategy that makes use of energy-harvesting methods and device-to-device communication to promote the collaborative and sustainable execution of tasks. Device to device communication is defined as the direct communication between two wireless devices in proximity by passing information through the base station. Green Computing aims to reduce the power demand of Edge devices and Cloud devices via offloading more workloads to devices that support energy harvesting, especially for the situation when IoT devices have insufficient energy supply. Tasks in Green Computing can be executed in three ways: local execution, device-to-device offloaded execution, and edge offloaded execution.

Conclusion & Significance: Sustainability is the need of the hour. We hope this topic will attract researchers' attention to establish more validated research in the green-aware optimization in edge cloud computing to take advantage of the heterogeneity of them for task offloading.

Biography:

Mr. Soumya Ranjan Jena is basically an Author, a Researcher, a Trainer and a Faculty. He is currently working as a Faculty Associate in the department of CSE at Mahindra University, Hyderabad, Telangana, India. He has published 11 international level books, 25 international level research papers, 9 patents out of which one patent is granted. He has more than 7 years of teaching and research experience. Regarding his qualifications, he has been awarded B. Tech in CSE, M. Tech in IT, CCNA, and FSASS. He has been honored by Bharat Education Excellence Awards in the year 2022, Excellent Performance in Educational Domain & Outstanding Contributions in Teaching in the year 2022 and Best Researcher by Gurukul Academic Awards in 2022.

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