
Preface

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Edge computing, a new paradigm that extends cloud computing and services to the edge of the network, meets the enhanced requirements of low latency, location awareness and mobility support. The edge of the network is located just one wireless hop away from associated end nodes, such as mobile devices, sensors and end users. Services are hosted at the edge of the network; consequently, this reduces service latency, improves quality of service and provides a superior experience for end users.

Hence, edge computing offers ideal placement for low-latency offload infrastructure to support emerging applications that demand real-time or predictable latency, such as vehicle automation, augmented reality and wearable cognitive assistance. Moreover, due to the capability to support a wide geographical distribution, edge computing is well positioned for big data aggregating, analysing and distilling bandwidth-hungry sensor data from devices. In the Internet of Things, edge computing offers a natural vantage point for organisational access control, administrative autonomy and responsive analytics. In vehicular systems, edge computing marks the junction between a moving vehicle and the cloud. Edge computing-enabled 5G radio access networks can improve network performance, enable direct device-to-device wireless communications and support the growing trend of network function virtualisation.

Despite the several advantages, realising edge computing imposes many new challenges. For example, how to compose, deploy and manage distributed edge services, how to enable highly scalable and manageable edge computing, how should the edge interact with the cloud, and how to enable users to control their edge services provided by edge operators. Addressing these challenges necessitates a rethinking of the key requirements and potential opportunities for services and computing in edge computing. This special issue aims to bring together researchers to publish state-of-the-art research findings of services and computing in edge computing. The special issue is composed of three papers organised as follows.

In details, the first work, entitled ‘Efficient request assignment algorithm in mobile cloud computing environment’, from Beijing University of Posts and Telecommunications, presents an efficient algorithm for task request assignment that shortens the response time and reduces the network resource consumption. The first work formulates the problem as a response time and network resource consumption minimisation problem and then proposes an optimised differential evolution algorithm.

The second work is entitled ‘Blockchain challenges and opportunities: a survey’, from Sun Yat-sen University. This work presents a comprehensive survey on the state-of-the-art research efforts on blockchain technology. This paper first gives an overview on blockchain technology, and then presents a survey on blockchain applications and technical challenges as well as recent advances. Finally, future research directions are also discussed.

Finally, the third work, entitled ‘Cross-lingual analysis of English and Chinese web search’ from the South China University of Technology, presents a comprehensive framework for the cross-lingual analysis of web search. This paper proposes a framework for analysing the web search behaviours of users in a cross-lingual context. This framework is composed of 10 factors, which can be applied at the query level, session level and corpus level, respectively.

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