

論文 / 著書情報
Article / Book Information

題目(和文)	Mobile Edge Computingを用いた低遅延ネットワークモデルに関する研究
Title(English)	A Study on Low-latency Network Model in Mobile Edge Computing
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学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

Outline of Doctoral Dissertation

Title: A Study on Low-latency Network Model in Mobile Edge Computing

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Abstract

This work generally studied the performance of Mobile/Multi-access Edge Computing (MEC) in various assumptions which were an ideal case, a practical case, and a realistic case. The ideal case assumed that there was no control unit, called an orchestrator, in MEC while the practical case needed it. The realistic case was the study in the real network environment.

The study mainly considered communication and computation latency inside the MEC system then proposed and compared policies of how to select a proper mobile edge server of each workload in the system under conditions of a latency-sensitive application. The main conclusion to this study was that the orchestrator dropped effectiveness from the ideal case and the accuracy of the orchestrator was very impacting to the whole system performance.

Outline

1. Introduction

- Background of network architecture (5G requirements and Mobile Edge computing)
- Issues and Problems
- Objectives and motivation
- Overview of Dissertation

2. Related work and MEC architecture

- MEC model research
- Implementation research
- ETSI MEC reference architecture
- Conclusion

3. Ideal model of low-latency network

- Introduction of low-latency network
- Problem model definition (base on an ideal assumption)
- Optimization model
- Resources allocation policies
- Simulation
- Numerical Results
- Discussion (the performance of MEC on ideal case)
- Conclusion

4 Practical model of low-latency network by applying MEC architecture

- Introduction (introduce an orchestrator)
- Problem model with orchestrator (extend the ideal model)
- Simulation of the practical model
- Numerical results
- Conclusion

5 MEC model prototype: Design and evaluation

- Introduction
- Design of prototype system
- Implementation of prototype system
- Prototype Evaluation
- Conclusion

6 Conclusion and future works

- Conclusion
- Future works and suggestion