Mobile Information Systems

Special Issue on
Challenges and Opportunities of Network Virtualization over Wireless Mobile Networks 2018

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Enabled by the rising of mobile communication technologies, wireless mobile networks have become a crucial component of numerous Internet applications such as mobile sensing, video streaming, data dissemination, and social networks. With this growing trend, wireless mobile networks have the potential to reshape the way in which we lead our daily life. Large efforts have been made by the researchers recently, yet problems such as energy consumption, network resource allocation, and efficient data dissemination and transmission remain unsolved in wireless mobile networks.

Network virtualization as a concept enables abstraction and sharing of infrastructure and radio spectrum resource has become very popular in future communication technologies, such as 5G wireless network and cloud radio access networks (Cloud-RAN). With virtualization, the overall cost of equipment and management can be significantly reduced due to the increased network resource utilization. Additionally, the decoupling of network functionality from infrastructure makes it easier to migrate and test newer network architectures such as software-defined networks (SDN), Content-Centric Networks (CCN), and emerging service and applications. Although network virtualization has been proved as a promising technology for future Internet, despite the opportunities brought by the network virtualization, several significant research challenges need to be addressed before the wide deployment mobile wireless network virtualization, including resource allocation and management, mobility, QoE guarantee of end users, and the future trend of wireless mobile network virtualization.

This special issue targets researchers and investigators from several communities and research fields, including those from network virtualization technologies, wireless communications, future Internet, mobile applications, distributed and cloud computing, and other related disciplines to share and exchange new concepts, ideas, algorithms, and methodologies, aiming to solve the emerging challenges in vehicular networks.

Potential topics include but are not limited to the following:

- Optimal utilization of network and communication resource by virtualization
- Protocols and advanced algorithms for dynamic network virtualization
- Routing and transport protocols for wireless virtualization environment
- QoS and QoE of virtualization technologies for mobile applications and service
- Overlays for future Internet networking architectures
- Real-time application and service in software-defined mobile networks
- Data distribution and delivery in virtualization-based future networks
- Network virtualization technologies for 5G wireless networks
- Network virtualization technologies for wireless sensor networks
- Cloud-based mobile systems and services
- The convergence of network virtualization and Internet of Things (IoT)
- Big data analytic in mobile cloud computing
- Performance studies of services and applications based on network virtualization
- Security and privacy in wireless network virtualization
- Virtual test labs and network federation

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