Editorial

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With rapid evolutions of wireless networking technologies, wireless internet is a reality. Especially, with the arrivals of many latest smart phones and devices, people are communicating while moving at the same time. In this special issue, new results among various research areas are reported, and each of them may potentially bring forward better overall wireless networking performance. Among 12 high-quality submissions, three of them are selected to appear in this special issue on wireless internet. The acceptance rate of this special is 25%.

These three papers cover different areas in wireless networks, ranging from layer 2 medium access protocol design, to layer 3 channel assignments, and to the overall system level design issue for mobility management on the internet. In future, the wireless internet may consist of all types of wireless networks, which may include mobile ad hoc networks (MANETs), and wireless mesh networks (WMNs). Accepted papers are spread across these different topics.

In 'Service differentiation using priority-based MAC protocol in MANETs', N. Sarma and S. Nandi proposed a scheme for resolving MAC layer contention with a priority based variant of the IEEE 802.11 DCF. The design is known as priority-based QoS-aware MAC protocol (PQAMP). PQAMP is a dynamic priority-based QoS-aware MAC protocol, where nodes are assigned priority based on different traffic types, e.g., real-time and best effort types. Although only two classes of traffic are presented, a node can have further sub-divide priority classes to improve end-to-end QoS support in multi-hop environments.

In 'Comparisons of channel assignment algorithms for wireless mesh networks', Y. Feng et al. investigated different channel assignment algorithms for multi-radio multi-channel wireless mesh networks. Typically, three broadly investigated designs, tabu-based, load-aware (LACA) and max-flow (MCAR), are studied. Head-to-head simulation comparisons were made. Among these three algorithms, MCAR outperformed both the tabu-based and LACA designs, and provided a better overall network performance.

In 'Virtual ID: ID/locator split in a mobile IP environment for mobility, multihoming, and location privacy for the next generation wireless networks', C. So-In, R. Jain, S. Paul and J. Pan presented a new mechanism for mobility management. Concept of virtual ID is introduced which shall be different from the traditionally used IP address interface. The virtual ID is an explicit ID/locator extension of mobile IPv6 and explores its applicability to address the issues of mobility, multi-homing, and location privacy in the context of next generation wireless networks. The virtual ID may be used as an abstraction, hiding the complexities of managing and leveraging the underlying diversity of multiple link layer technologies available to a multi-interface functionality. A policy-based QoS framework is proposed for managing this virtual service access point and allowing it to optimise the deliveries of various application-specific contexts.

Finally, the guest co-editors of this special issue would like to take this opportunity to thank the reviewers who went through the submitted articles. Their works also assisted authors to improve and polish the final versions, which are appearing in this issue.