

EINLADUNG

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Referent: MSc.-Ing. Sadeq Ali Makram

Thema: Channel Assignment and Security in Multi-Channel
Multi-Radio Wireless Mesh Networks

Wireless Mesh Networks (WMNs) are a special kind of ad hoc networks in which most of the nodes are static. The aggregate capacity of WMNs can be significantly improved by providing each node with several Wireless Network Interface Cards (WNICs), and by using multiple channels. This minimizes interference and provides high performance. However, multiple WNICs in each node require a channel assignment planning. Channel assignment in WMNs aims at improving the network throughput by utilizing multiple orthogonal frequency channels.

In this talk, the problem of how to assign channels to nodes in WMNs is addressed. For this purpose, the *Distributed Cluster Channel Assignment* algorithm is introduced. It aims at reducing network interference to increase the overall performance of the network. This clustering approach is employed in order to simplify the method of solving the channel assignment problem in terms of complexity, and to reuse the channels in different clusters. In addition, a dynamic channel assignment approach is proposed. This approach is adaptive to the load in WMNs and supports QoS routing. The algorithm adds or selects a channel for heavily loaded nodes based on the local information of the neighbor nodes. This channel minimizes interferences and ensures network connectivity.

The talk also addresses security vulnerabilities in WMNs in general, and of channel assignment in particular. Security in channel assignment is an indispensable area of research in wireless networks. The previously proposed schemes for dynamic channel assignment in WMNs have not really considered the vulnerabilities that can exist inside these networks. Therefore, an efficient, lightweight and secure assignment of channels in WMNs is proposed that mitigates the channel assignment attacks.

Es laden ein: Die Dozenten der Informatik