

Preface

Broadcast is an important operation in wireless networks where control information is usually propagated as broadcasts for the realization of most networking protocols. In traditional ad hoc networks, since the spectrum availability is uniform, broadcasts are delivered via a common channel which can be heard by all users in a network. However, in cognitive radio (CR) ad hoc networks, unlicensed users may observe heterogeneous spectrum availability, which is unknown to other unlicensed users before the control information was broadcast. This non-uniform spectrum availability imposes special design challenges for broadcast in CR ad hoc networks. In this book, the special challenges of broadcast design in CR ad hoc networks are discussed. Two broadcast protocols in CR ad hoc networks are introduced: (1) a quality-of-service (QoS)-based broadcast protocol under blind information and (2) a fully-distributed broadcast protocol with collision avoidance. In addition, a novel unified analytical model is also introduced to analyze the performance of broadcast protocols in CR ad hoc networks. This is the first book that discusses the unique broadcast challenges in CR ad hoc networks and investigates the analytical work on the performance analysis of broadcast protocols for CR ad hoc networks.

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