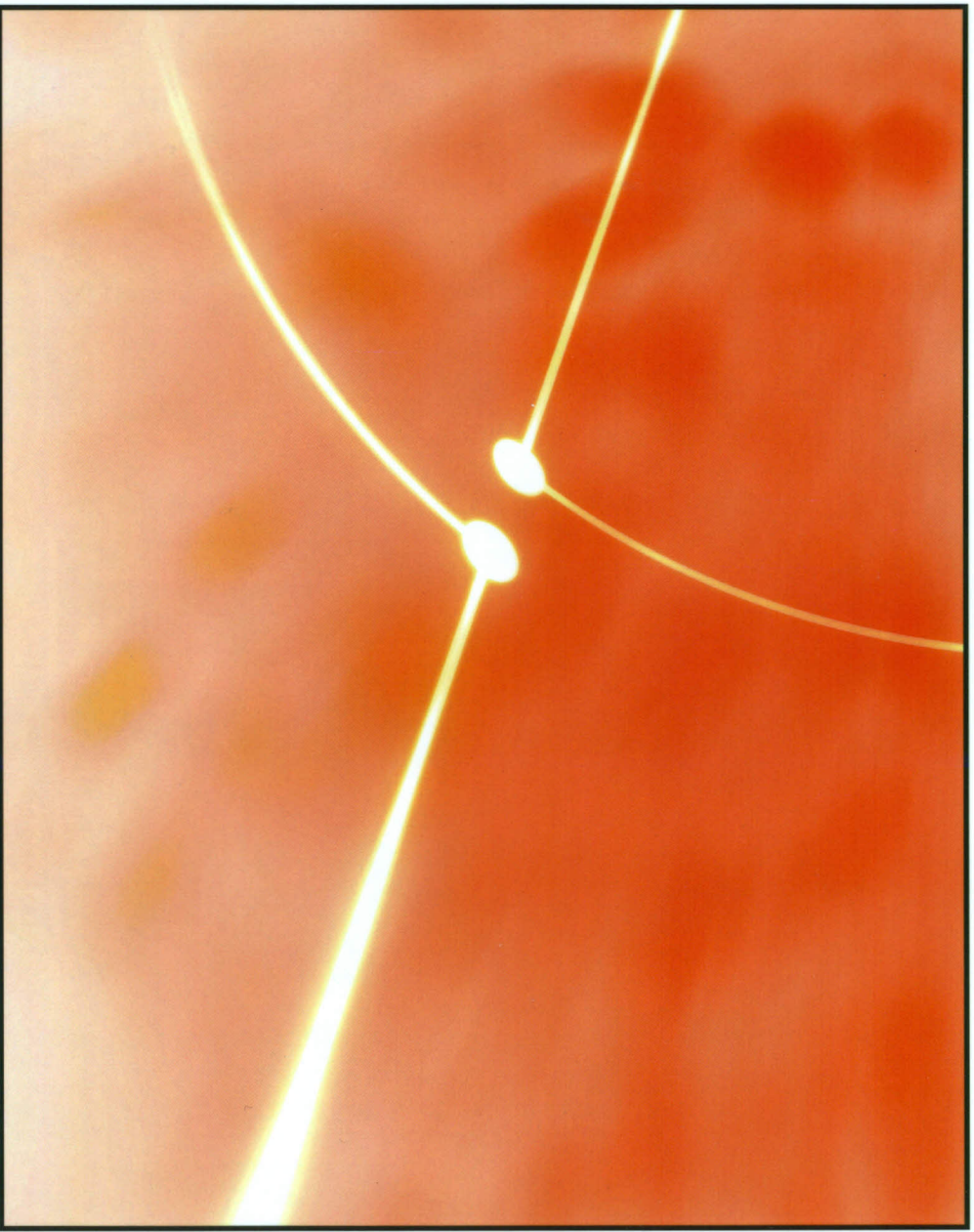


# **Quality of Service Architectures for Wireless Networks**

**Performance Metrics and Management**



Sasan Adibi, Raj Jain, Shyam Parekh, & Mostafa Tofighbakhsh



# Quality of Service Architectures for Wireless Networks

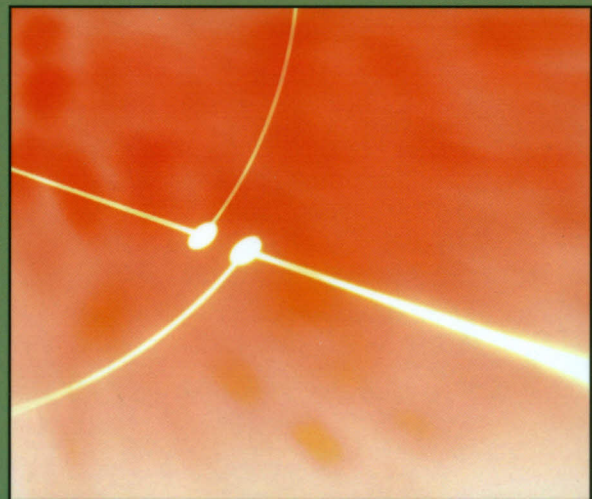
Performance Metrics and Management

Quality of service provides different priorities to different users to guarantee a certain level of performance to a data flow in accordance with requests from the Internet service provider policy.

**Quality of Service Architectures for Wireless Networks: Performance Metrics and Management** presents a comprehensive collection of quality of service mechanisms for various access technologies and introduces existing and traditional approaches to traffic management for wireless technologies. With expert international contributions, this critical mass of knowledge covers both academic and industry-based state-of-the-art techniques and ongoing research.

## Topics Covered:

- Cognitive wireless ad-hoc networks
- Cross-layer quality of service architecture
- Next generation mobile networks
- QoE vs. QoS in video transmission
- QoS issues in micro-mobility wireless networks
- Quality of experience and service for network applications
- Quality of services in UMTS mobile system
- Scalable wireless mesh network architectures
- Vehicular communication networks
- Video distortion estimation
- Wireless load distribution



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# Chapter 8

## User Based Call Admission Control Algorithms for Cellular Mobile Systems

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### ABSTRACT

*Call admission control in mobile cellular networks has become a high priority in network design research due to the rapid growth of popularity of wireless networks. Dozens of various call admission policies have been proposed for mobile cellular networks. This chapter proposes a classification of user based call admission policies in mobile cellular networks. The proposed classification not only provides a coherent framework for comparative studies of existing approaches, but also helps future researches and developments of new call admission policies.*

### 1. INTRODUCTION

The frequency spectrum allocated to the mobile communication networks is very limited. This means that the frequency channels have to be reused as much as possible in order to support the many thousands of simultaneous calls that may arise in any typical mobile communication network (Katzela & Naghshineh, 1996). Thus, the efficient management and sharing of channels among numerous users become an important issue. In cellular networks the geographical area covered by the network is divided into smaller regions called cells. Each cell

is serviced by a base station, located at its center. The base station is used to service the users located at that cell. A number of base stations are again linked to a central server called mobile switching center, which also acts as a gateway of the mobile communication network to the existing wire-line networks such as PSTN, or internet. A base station communicates with users (mobile stations) through wireless links and with mobile switching centers through dedicated links. The model of such a network referred to as *cellular network* is shown in figure 1 (Das & Sen & Jayaram, 1998).

We assume that the network uses a fixed channel assignment algorithm, which means that each base station has a fixed number of channels (capacity).

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