

Modelling issues of integrating services in Next Generation Networks.

Villy B. Iversen (Technical University of Denmark)

Abstract:

A main issue in engineering next generation of multi-user, multi-service networks is to guarantee end-to-end differentiated Quality-of-Service (QoS) and, in particular for wireless systems to attain a high utilization of radio resources.

In general a high degree of sharing is efficient, but requires service protection mechanisms to guarantee the QoS for all services. We describe the basic principles and strategies for obtaining the maximum utilisation, when at the same time guaranteeing a certain QoS.

As an application we consider Multi-protocol Label Switching (MPLS) networking where flows of packets are considered as traffic flow in connection-oriented networks.

As a second application we consider 3G cellular systems. We study the effect of cell breathing and cell overlapping, and consider systems with hierarchical cells. By call packing we may obtain a very high utilisation. We also present an approach for calculating the capacity of multi-service CDMA networks with soft blocking using general traffic models.