

QoS in the Next Generation of Wireless Networks

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Tutorial Outline

Emerging Internet Quality of Service (QoS) mechanisms are expected to enable wide spread use of real time services for example, VoIP and videoconferencing. The “best effort” Internet delivery cannot be used for the new multimedia applications. New technologies and new standards are necessary to offer Quality of Service (QoS) for these multimedia applications. Therefore new communication architectures integrate mechanisms to allow QoS guarantees as well as high rate communications.

The promising service level agreement to a mobile Internet user is hard to come by, since there may not be enough resources available in some parts of the IP/ATM networks as mobile terminal is moving into. The emerging QoS architectures, differentiated services and integrated services do not consider the network nodes are mobile. QoS mechanisms enforce a differentiated sharing of bandwidth among services and users. Thus, there must be mechanisms available to identify traffic flows with different QoS parameters, and to make it possible to charge the users based on requested quality. Integration of fixed and portable wireless access into IP networks presents a cost effective and efficient way to provide seamless end-to-end connectivity and ubiquitous access in a market where demands on mobile Internet have grown rapidly and predicted to generate billions of dollars in revenue.

This tutorial covers an introduction to QoS in heterogeneous networks, Internet delivery over future wireless networks, the ATM, MPLS, DiffServ, IntServ protocols,... It addresses characteristics of the Internet and its mobility features and how it could guarantee QoS using wireless IP services. It also presents concepts of routing, quality-of-service provisioning and security, baseline architecture of the inter-networking protocols and end-to-end traffic management issues.

Biography of Instructor

Pascal Lorenz (lorenz@ieee.org) received his Ph.D. degree in 1994 from the University of Nancy, France. Between 1990 and 1995 he was research engineer at WorldFIP Europe and at Alcatel-Alsthom. Since 1995 he is associate professor at the University of Haute-Alsace. His research interests include QoS, wireless networks and high-speed networks. He was the Program and Organizing Chair of the IEEE [ICATM'98](#), [ICATM'99](#), [ECUMN'00](#), [ICN'01](#), [ECUMN'02](#) conferences and the Co-Chair of [ICATM'00](#), [ICATM'01](#) conferences. Since 2000, he is Technical Editor of IEEE Communications Society Editorial Board. He is member of many international committees programs and he has served as guest editor for a number of special issues, including Telecommunication System, IEEE Communications Magazine and LNCS. He has served as referee for several IEEE conferences, he has organized several technical sessions and has chaired many of them. He is the author of 60 international publications.