2nd International Symposium on
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Half day Tutorial T4: IP-Oriented QoS in the Next Generation Networks: application to wireless networks

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Emerging Internet *Quality of Service* (QoS) mechanisms are expected to enable wide spread use of real time services such as 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 QoS for these multimedia applications. Therefore new communication architectures integrate mechanisms allowing guaranteed QoS services as well as high rate communications.

The service level agreement with a mobile Internet user is hard to satisfy, since there may not be enough resources available in some parts of the network the mobile user is moving into. The emerging Internet QoS architectures, differentiated services and integrated services, do not consider user mobility. 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. The integration of fixed and mobile 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 the demand for mobile Internet services has grown rapidly and predicted to generate billions of dollars in revenue.

This tutorial covers to the issues of QoS provisioning in heterogeneous networks and Internet access over future wireless networks as well as ATM, MPLS, DiffServ, IntServ frameworks. It discusses the characteristics of the Internet, mobility and QoS provisioning in wireless and mobile IP networks. This tutorial also covers routing, security, baseline architecture of the inter-networking protocols and end to end traffic management issues.

PASCAL LORENZ - CURRICULUM VITAE

Pascal Lorenz (lorenz@ieee.org) received a PhD degree from the University of Nancy, France. Between 1990 and 1995 he was a research engineer at WorldFIP Europe and at Alcatel-Alsthom. He is a professor at the University of Haute-Alsace and responsible of the Network and Telecommunication Research Group. 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 and ICT'03, ICN'04 conferences and co-program chair of ICC'04. Since 2000, he is a Technical Editor of the IEEE Communications Magazine Editorial Board. He is the secretary of the IEEE ComSoc Communications Systems Integration and Modelling Technical Committee. He is senior member of the IEEE, member of many international program committees and he has served as a guest editor for a number of journals including Telecommunications Systems, IEEE Communications Magazine and LNCS. He has organized and chaired several technical sessions and gave tutorials at major international conferences. He is the author of 3 books and 135 international publications in journals and conferences.

Others tutorials presented:

- P. LORENZ, "Quality of Service in the Next Generation Networks", *Asia Pacific Conference on Communications*, APCC'01, September 17, 2001, Tokyo, Japan.
- P. LORENZ, "Quality of Service in Wireless Networks", *Second IEEE Pacific-Rim Conference on Multimedia*, October 23, 2001, Beijing, China.
- P. LORENZ, "QoS in Next Generation of Wireless Networks", *21st IEEE International Performance, Computing, And Communications Conference*, IPCCC'02, April 3, 2002, Phoenix, Arizona
- P. LORENZ, "Next Generation of Wireless Networks", *IEEE International Conference on Telecommunications*, ICT'02, June 23, 2002, Beijing, China, pp. 271-340.
- P. LORENZ, "QoS in Next Generation Networks", *7th IEEE Symposium on Computers and Communications*, ISCC'02, Taormina, Italy, July 1, 2002
- P. LORENZ, "Next Generation of Wireless Networks", *IEEE International Conference on Multimedia and Expo, ICME'2002*, August 26, 2002, Lausanne, Switzerland.
- P. LORENZ, "Quality of Service in Networks", *Joint 2nd IEEE International Conference on Networking and IEEE International Conference on Wireless LANs and Home Networks*, ICN'02 and ICWLHN 2002, 29 August, 2002, Atlanta, USA
- P. LORENZ, "IP-Oriented Quality of Service", *10th IEEE Modeling, Analysis and Simulation of Computer and Telecommunication Systems*, MASCOTS'2002, October 13, 2002, Fort Worth, USA.
- P. LORENZ, "QoS in the Next Generation of Wireless Networks", *Personal Wireless Conference, PWC'2002*, October 23, 2002, Singapore.
- P. LORENZ, "IP-Oriented QoS in the Next Generation Networks: application to wireless networks", *Sixth IEEE International Conference on High Speed Networks and Multimedia Communications*, HSNMC'03, July 23, 2003, Estoril, Portugal.
- P. LORENZ, "IP-Oriented QoS in the Next Generation Networks", *11th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems*, MASCOTS'2003, October 12, 2003, Orlando, USA.
- P. LORENZ, "IP-Oriented QoS in the Next Generation Networks: Application to Wireless Networks", *Symposium on Applications and the Internet*, SAINT'2004, January 27, 2004, Tokyo, Japan.
- P. LORENZ, "IP-Oriented QoS in the Next Generation Networks: Application to Wireless Networks", *11th International Telecommunications Network Strategy and Planning Symposium*, June 13, 2004, Vienna, Austria, pp. 1-37.
- P. LORENZ, "QoS in the Next Generation Networks", *IEEE International Conference on Multimedia and Expo*, ICME'2004, June 27, 2004, Taipei, Taiwan.
- P. LORENZ, "QoS in the Next Generation Wireless Networks", *11th IEEE International Conference on Telecommunications*, ICT'2004, August 1, 2004, Fortaleza, Brazil.
- P. LORENZ, "QoS in the Next Generation Networks and Wireless Networks", *12th International Conference on Software, Telecommunications and Computer Networks*, SOFTCOM'2004, October 10, 2004, Split, Croatia.