High Quality Mobile Communication

H. Hartenstein*, A. Schrader*, A. Kassler•, M. Krautgärtner†, C. Niedermeier†

* Computer & Communication Research Laboratories Heidelberg, NEC Europe Ltd
email: {Hannes.Hartenstein|Andreas.Schrader}@ccrle.nec.de

• University of Ulm
email: {Andreas.Kassler}@informatik.uni-ulm.de

† Siemens AG Munich
email: {Michael.Krautgaertner|Christoph.Niedermeier}@mchp.siemens.de

Abstract. Future communication environments have to support mobility at various levels ranging from device and personal to session and service mobility. Much effort is currently beeing spent in the areas of cellular access technology, wireless LAN technology and mobility support in IP (Mobile IP). There is a clear trend that the IP protocol is becoming the dominant networking protocol. Since standard IP networks do not provide any guarantees for the transmission quality parameters, there is a clear demand for a comprehensive QoS mechanism, which allows for adaptation in a mobile environment using heterogeneous devices with heterogeneous access networks.
In this paper we present a project on defining and implementing a comprehensive QoS framework for 'Mobility and Service Adaptation in Heterogeneous Mobile Communication Networks' (MASA). Our thesis is that, in order to provide high quality communication for mobile users, media processing facilities as well as mobility handling and handoff decision mechanisms should be closely integrated into a QoS framework. This allows, e.g., to base handoff decisions on *all* available QoS elements such as availability of transcoding units or local resource management. The *MASA* framework is able to release applications of QoS-related work as much as possible and, in addition, hides the complexity of network QoS mechanisms from the applications. The MASA QoS framework is able to support users with the ability to continue ongoing sessions even during handoffs and device changes (session mobility).
We present an outline of the general *MASA* architecture, consisting of distributed autonomous QoS Brokers that can be placed on the (potentially mobile) end-system, on intermediate network nodes (e.g. router, switches) and on transcoding units (gateways). The Brokers are supported by Managers and Controllers responsible for different tasks like resource, network, media, policy and mobility management. As an example, we describe the internal structure of the MASA *Mobility* Manager.

Keywords: *QoS, Mobility Management, Seamless Handover, Wireless Networks*