



Markus Gaugler
Christoph Frehner
Dino Mani

Robust Overhead Compression for RTP/UDP/IP

Graduate candidate	Markus Gaugler, Christoph Frehner, Dino Mani
Examiner	Prof. Dr. Guido M. Schuster
Co-examiner	Gabriel Sidler, Eivycor GmbH, Zürich
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Project partner	Motorola, USA

Conceptual formulation: During the last five years, two communication technologies in particular have become commonly used by the general public: cellular telephony and the Internet. It seems reasonable to believe that in the years to come, IP will become a commonly used way to carry telephony. Cellular phones may have become more general-purpose, and may have IP stacks supporting not only audio and video, but also web browsing, email, gaming, etc. For cellular phone systems, it is of vital importance to use the scarce radio resources in an efficient way.

A problem with IP over cellular links when used for interactive voice conversations is the large header overhead. A viable header compression scheme for cellular links must be able to handle loss on the link between the compression and decompression point as well as loss before the compression point.

Goal of this work: Achieve incorporation into the developing environment and network programming with Linux. Implement a robust header compression and decompression profile for RTP/UDP/IP, based on the standard RObust Header Compression (ROHC) RFC 3095. Design a test application to test and demonstrate the performance of this compression scheme over communication channels under different error conditions.

Solution: Program operation which captures and compresses a real-time RTP audio-stream will take place under Linux, as will the opposite side, which decompresses the ROHC packets and rebuilds the original RTP/UDP/IP packets. Capturing will be carried out using the PCAP library, and packet generation will use the LIBNET-library. For testing purposes a VoIP application will fire RTP packets, which will be compressed and decompressed. Statistics will be plotted graphically to illustrate the performance of the ROHC compression standard.