Mobile Middleware for Voice/Data-Integrated Internet Communication

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The main objective of the EU-promoted project MOVE (Mobile Middleware with Voice-Enabled Services, http://move.rwth-aachen.de) was the integration of voice (real-time data) and multimedia services (non-real-time data) for mobile GSM- and UMTS-based communication, transmitted via the Internet Protocol.

Partners from Siemens (Germany), Tecsi (France), Orange (UK), RWTH Aachen (Germany) and Kent Ridge Digital Labs (Singapore) have developed an architecture enhanced with an API for service providers. It permits the initiation, maintenance and termination of voice-enabled multimedia connections from an internet site via a single link, such as collaborative web surfing in a phone conference (e.g., with a hotel-booking call center for mobile users). Real-time voice or video streams are decoded according to the transmission quality for real-time streams. They are transmitted with high priority, relative to non-real-time data (e.g., HTML- and XML-based visual objects), which are downsized, if necessary. Special attention is paid to the monitoring and adaptation of heterogeneous media streams concerning their adjustment to a wide range of quality-of-service (QoS) parameters.

Presentation of the results of MOVE at Telecom ’99 in Geneva marked the first time in the history of telecommunication, that seamless handovers of internet telephony via HSCSD-, GSM- and DECT-based mobile radio networks (in the kbit/s range) and a Wave-LAN (in the Mbit/s range) could be demonstrated, together with a simultaneous quality adjustment of integrated voice/data streams. Patent applications with international coverage have been filed for the heuristics of the deployed QoS adaptation strategy, named AQaVIT (Adaptive Quality-of-Service Management for Voice-enabled Internet Telecommunication).

The MOVE project was completed in February ‘00. The results are being fed into ongoing follow-up projects, e.g., H.323- and SIP-based internet telephony for mobile users of UMTS and wireless LANs, and the preparations for a mobile health care consortium, involving several industrial and academic EU partners, as well as various health care institutions.