



IPv6 WIRELESS INTERNET INITIATIVE (6WINIT)

Multiaccess Mobile IPv6 went live at IST2001

“Serving the Welfare of citizens “

Düsseldorf, December 3rd – 5th, 2001. A **Multiaccess Mobile IPv6 Network and Innovative Medical Applications** were combined in the 6WINIT-demo at the annual IST conference. University Hospital at Tübingen, University of Stuttgart, Ericsson Telebit, and NomadicLab formed a powerful team, built up a demonstration network between Tübingen and Düsseldorf, and prepared to give live demonstrations of results of the 6WINIT-project to the general public in the IST2001 exhibition booth P203. This booth was to become one of the most popular in the whole conference exhibition.

Critical healthcare data and wireless communications

Seconds and every bit of information – that is what counts in medical emergency situations. First aid is given in the field or in an ambulance, rushing towards the hospital. It is these very first actions that are usually the most important for patients. In these situations medical personnel need every bit of information and advice they can get to be able to make the right decisions as fast as possible. Within this context the team was demonstrating IPv6-based multiaccess networks and applications. Visitors at the booth were able to get hands-on experience on the initial result of applying the 6WINIT concepts to an accident and emergency situation.

By providing real-time data communication channels between the ambulance and the hospital, vital medical data and live video on the patient can be shared by all specialists at hand. Medical personnel not located at the scene can participate in the first aid, giving advice and detailed information on the patient's medical record. In addition, the hospital receiving data on patient can immediately start making all the necessary preparations for the required treatments.

This scenario was realised by integrating innovative medical applications with next generation mobile Internet technology – forming the Guardian Angel system. In addition to the everyday mobile communication most of us have been used to, future network technologies like UMTS together with IPv6 can support people in new ways – and even save lives.

Technical description of the 6WINIT network demonstration

Always-best-connected Guardian Angel medical applications require an ability to seamlessly roam between different types of access networks – whatever is the best available in a certain location. NomadicLab has implemented this functionality at the IP/network layer within a Multiaccess Mobile IPv6 stack. Using this technology the medical applications within an ambulance can always stay best connected with the hospital.

In the Multiaccess network IP traffic can be dynamically transferred from one network interface to another. In an example scenario, when the ambulance arrives to a WLAN hotspot, video stream on the patient can be transferred there from GPRS, in order to achieve higher bandwidth and a better picture quality. Different IP traffic flows can also use separate network interfaces simultaneously. For example, sufficient reliability might not be available in a WLAN hotspot network; therefore vital data transmissions could simultaneously use GPRS or UMTS interfaces.

In IST2001 the network included hosts both in the University Hospital at Tübingen and in the Congress Center at Düsseldorf. The Mobile Node, located in Tübingen, was connected to medical devices retrieving live video and vital data on the patient. This data was sent over a wireless access network and 6Bone to the Correspondent Nodes at the Congress Center. Multiaccess was demonstrated using LAN and WLAN accesses. An Ericsson Telebit AXI462 dual-stack router provided the required Home Agent functionality.