European Project Enables Unified Access to All Wireless Technologies for Mobile Platforms

*Consortium of seven European research institutes and industrial companies
defines an API to rapidly implement high-performance applications
for mobile multimedia terminals*

Aachen, Germany and Agrate, Italy, March 9, 2006 - A consortium of seven partners, comprised of universities and R&D units from industry from four European countries, has presented today the first implementation of an embedded, open, operating-system-independent link-layer API (Application Programming Interface) to unify the various methods for accessing different wired and especially wireless links. Termed "GOLLUM" (Generic Open Link-Layer API for Unified Media access), the project has been sponsored by the European Commission with a total contribution of 1.8 Million Euros.

Mobile multimedia terminals, such as wireless phones, PDAs, interactive set-top boxes, laptops and other applications are becoming more and more common in people's everyday lives. A considerable part of the cost of those terminals resides in the number and complexity of software interfaces required to enable them to connect with other terminals and servers through wired and wireless links. In fact, a separate programming interface exists for almost every wireless technology.

Primary objectives of the GOLLUM API are to reduce the development time and cost of mobile multimedia platforms, and to improve their functionality and interoperability. It simplifies wireless access programming as seen by developers, while providing more flexibility and new features for innovative products. This API is called the Unified Link Layer API (ULLA) and has been prototyped on a wide variety of platforms, ranging from wireless sensors to PDAs, mobile phones up to high-end notebooks. ULLA conceals diversity of technologies like IEEE802.11, UMTS/GPRS, Bluetooth, Zigbee, UWB, WiMAX and others. ULLA can help with a variety of applications such as programming of connection managers, Unlicensed Mobile Access (UMA) agents on mobile phones and optimisation of multimedia streaming applications. It is also a possible enabling technology towards software defined and cognitive radios.

Trial implementations of the GOLLUM API show considerable advantages over existing solutions. Through the uniform API, a range of legacy as well as future technologies can be handled in a transparent and simple way. The support for asynchronous notifications allows applications to react dynamically to events happening on the available communication links. Finally, the API is also light enough to be applied to a large variety of computer equipment including sensors, embedded and mobile devices. In summary, the GOLLUM API will allow application and middleware to better interact with wired and wireless networks, thus permitting programmers to focus on their goals rather than on the API.

To demonstrate the advantages of the GOLLUM API, the consortium has developed a demo application called the "GOLLUM Travel Guide". This application consists of a simple browser that runs on a handheld device and downloads city information, sight-

seeing tips, and other tourist information from a remote server. The ULLA interface informs the application about the available links and their bandwidth. If only a small bandwidth link is available – the current demonstration is done with GPRS - the application will only show text and small pictures. If a higher bandwidth link becomes available (Wireless LAN), the ULLA core will notify the application that the context has changed and more bandwidth is available. The application will react to this notification and show bigger pictures and also video.

"The adoption of the Gollum API will enable operators and software vendors to provide new kinds of services and greatly enhance the user experience", said Professor Petri Mähönen from RWTH Aachen University who is coordinating the activities of the GOLLUM consortium. "In fact, terminals could properly adapt to changes in wireless network connectivity and environments, allowing new smart applications to be developed", continued Prof. Mähönen. "The current reference implementation and demonstration is a fruit of the hard work carried out by the consortium during the last year, and leverages the long-term research and development work done by the core partners previously".

The introduction of the GOLLUM API in multimedia mobile terminals will bring two strong benefits. Firstly end users do not have to perform any operations to detect bandwidth-change events; thus enabling context sensitive applications. Secondly terminal manufacturers and network operators will find that programmers can use their own company's link layer independent code on top of ULLA to develop applications and services, rather than writing device-specific code close to the hardware of the mobile device. This allows for faster and more cost-effective implementation of new applications and services.

The partners in the GOLLUM project are RWTH Aachen University, STMicroelectronics, European Microsoft Innovation Centre, MATERNA, Telefónica, Toshiba Research Europe and the University of Cantabria.

The GOLLUM consortium will live-demonstrate the Travel Guide application at Cebit fair in Hannover as a part of the Strategy and Innovation area of the MATERNA booth in Hall 12, stand A26
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