

3GET

3G Evolving Technologies

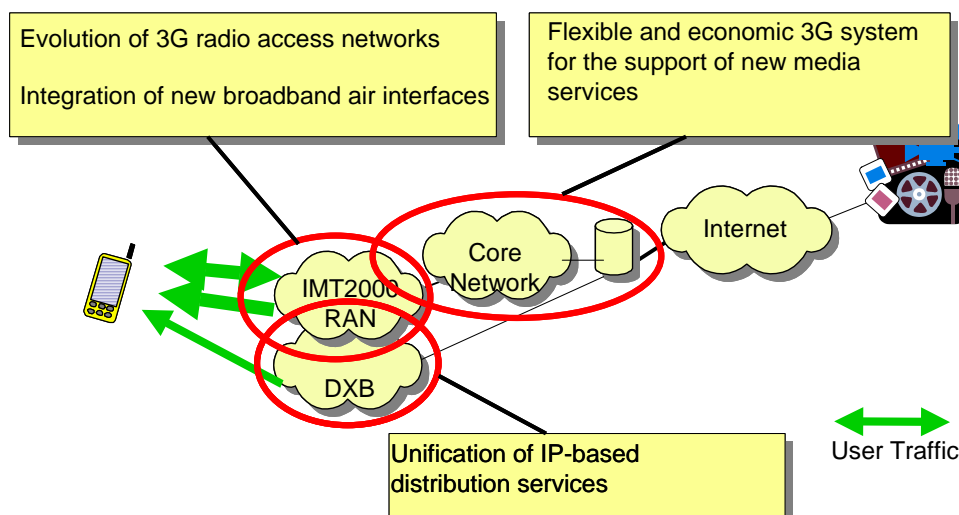


The capabilities of 3G systems will continue to steadily evolve in the future due to the growing traffic volume of mobile applications and the pressure to provide an increasingly cost efficient mobile communication infrastructure. From a radio access and from a network perspective, it is expected that the future development of mobile communications systems will be build on and integrate the systems and technologies already being developed and deployed, thereby protecting the enormous investment in mobile systems. This evolution will enhance stability and promote the development of an expanding number of services and applications.

Industrial and academic partners are working together on 3G Evolving Technologies (3GET), which is part of the Mobile Internet research framework of the German Ministry for Education and Research (BMBF). Within this research framework, new concepts and system architectures are addressed to enable the full-coverage and efficient use of all resources. Solutions shall be developed which will result in new specifications, open innovative markets and protect and create work places.

Mobile Internet in the context of 3GET means the provision of full-coverage of mobile voice, data and multi-user services using and combining mobile real-time, best-effort and broadcasting services. Therefore one main focus is set on the further development of the 3GPP standard towards a high-bit rate downlink for the transmission of multimedia broadband services and on the inclusion of new technologies and requirements as foreseen in the convergence of digital broadcast and mobile telecommunication. Based on the vision, the overall objectives shared by all partners in 3GET are to

- Drive the evolution of the 3G radio access network
- Investigate the integration of new broadband radio interfaces, e.g., OFDM and MC-CDMA, into the existing UMTS architecture
- Develop flexible and economic 3G system concepts for the support of new media services, and
- Work on the unification of IP-based distribution services.



Förderkennzeichen:

01 BU 355

Partner:

Ericsson GmbH

Projektstart:

01.08.2003

Projektende:

31.03.2007

Kontakt:

Dr. Ralf Keller
Ericsson GmbH, Eurolab R&D
52134 Herzogenrath

Gefördert von:



Bundesministerium
für Bildung
und Forschung

All major new technologies currently under discussion for the 3G evolution are addressed in 3GET. Air interface and radio network topics are multiple and distributed antenna systems, multi-hop and relaying techniques, future enhancements of the downlink and uplink transmission schemes, the integration of new air interfaces (OFDM, MC-CDMA), multi-standard radio resource management, multi-standard MAC and generic link layer. For the support of new media services, topics like multimedia broadcast and multicast services (MBMS), security and charging for the network access and for the use of media services are studied.

In addition, 3GET is a platform for the development of a methodology that allows analysing and comparing the gains achievable by these new technologies. Metrics used to quantify the performance both from an end-user as well as from a network perspective are capacity gains, throughput, coverage, electric-magnetic exposition and cost.

Scalable hardware implementations of H.264 for the support of new media services on mobile phones are investigated. These new media services will be delivered via 3G systems and also via digital broadcasting systems like DAB and DVB-H, hence the unification of IP-based distribution services is addressed. Besides the evolution of the above-listed technologies, also the evolution of the spectrum usage by means of spectrum utilization and coexistence studies is investigated. Selected innovative concepts will be implemented prototypically in demonstrators.

The project partners are also active in other system concepts within the Mobile Internet research framework and also in 6th framework projects of the European Union. Thereby and by joint working groups and workshops the linking and exchange of research results will be achieved.

Expected Results:

- **New concepts for the evolution of the 3G systems will be developed.**
3GET covers almost all key technologies that are currently discussed for future mobile communications systems. The ambition of 3GET is to develop technical concepts that allow 3G systems to benefit from the potential performance gains achievable by these innovations. The gains are profoundly evaluated by simulations. For this reason, the 3GET partners plan to contribute to the standardization and the global discussion on the future of mobile communications systems.
- **Demonstrators showing some 3GET concepts**
- **Contributions to standardization** bodies and working groups (3GPP, ETSI, OMA, Liberty Alliance, World-DAB)

Partners in 3GET in alphabetical order (with contacts):

Alcatel SEL AG, Bernd Haberland, bernd.haberland@alcatel.de
 Ericsson GmbH, Eurolab R&D (Co-ordinator), Ralf Keller, ralf.keller@ericsson.com
 Fraunhofer Institut für Nachrichtentechnik – Heinrich-Hertz-Institut, Image Processing, Ralf Schäfer, schaefer@hhi.de
 Fraunhofer Sino-German Lab for Mobile Communications MCI, Holger Boche, boche@hhi.de
 Institut für Rundfunktechnik GmbH, Christoph Dosch, dosch@irt.de
 Lucent Technologies Network Systems GmbH, Armin Dekorsy, dekorsy@lucent.com
 Nokia Research Center, Klaus Strohmenger, klaus.strohmenger@nokia.com
 Qualcomm CDMA Technologies GmbH, Hans Schotten, hans.schotten@qualcomm.com
 sci-worx GmbH, Achim Ibenthal, Achim.Ibenthal@sci-worx.com
 Siemens AG, Radio Access, Egon Schulz, egon.schulz@siemens.com
 Siemens AG, Core Network, Christian Gayda, christian.gayda@siemens.com
 Siemens AG, Corporate Technology, Klaus Illgner, klaus.illgner@siemens.com
 Sony International (Europe) GmbH, Markus Zumkeller, zumkeller@sony.de
 Vodafone Pilotentwicklung, Robert Spadinger, Christian Rauch, christian.rauch@v-pe.de

Duration: 1st of August, 2003 till 31st of March, 2007