

ADVANCED MBMS FOR THE FUTURE MOBILE WORLD

The C-MOBILE project aims at enhancing MBMS for systems beyond 3G at Radio, RAN and Core Network levels. The evaluation of the new techniques will be performed by simulation. The project includes also an experimental component where some of the new features will be validated in a testbed. Key aspects are the integration of IMS and MBMS, the introduction of personalisation in broadcast and multicast services and the development of the convergent BM-SC platform concept.

Main Objectives

At a Glance: C-MOBILE

Project Coordinator

Manuel Dinis

PT Inovação S.A.

Tel: +351 234 403 311

Fax: +351 234 424 160

mdinis@ptinovacao.pt

<http://c-mobile.ptinovacao.pt>

Partners: Portugal Telecom Inovação (PT), France Telecom (FR), Deutsche Welle (DE), Bamboo (IL), University of Cyprus (CY), ADETTI (PT), University of St. Gallen (CH), University of the West of England (UK), University of Applied Sciences Osnabrueck (DE), Instituto de Telecomunicações (PT), Fraunhofer-Gesellschaft Zur Foerderung Der Angewandten Forschung (DE), QUALCOMM CDMA Technologies (DE) and Hutchison3G UK (UK).

Duration: 03/2006 – 02/2008

Total Cost: € 4,96m

EC Contribution: €3.25m

C-MOBILE project aims to evolve broadcast and multicast technologies towards the “beyond 3G vision” of a converged global network based on the usage of multiple broadcast transport bearers. It will address both resource efficiency and service flexibility issues, by close coupling of broadcast and communication capabilities on all layers, covering the radio access, the core network and the service enablers, across multiple technologies, and providing a smooth migration path for MBMS evolution. This evolution will follow the vision of a federated global multicast broadcast transport beyond 3G system. Project key objectives are:

- Develop new high capacity MBMS radio interface technologies, radio resource management and new topological approaches in the architecture for beyond 3G systems.
- Provide a concept for integration of a more flexible MBMS architecture into IMS including group management, session management, scheduling, media delivery and transcoding.
- Evolve MBMS, in order to exploit alternative broadcast bearers (e.g. DVB-H), when available, in a heterogeneous mobile networks environment, with multi-interface terminals.
- Specify and implement interactive content formats for MBMS and a secure content management architecture within and in-between content provider and mobile operator domain.
- Validate various innovative technical solutions experimentally or via system level simulations.

Technical Approach

C-MOBILE project is structured in 7 workpackages two of them dedicated to project management and dissemination and standardisation. The technical workpackages are:

WP2: Requirements and Business Models - in depth analysis of market, user and business requirements and development of innovative business models considering the interests of all involved players in the value chain.

WP3: Radio Access Network Enhancements – development of new RAN technologies for an efficient support of enhanced MBMS services allowing a commercially attractive implementation namely the ability to support the QoS requirements with a minimum consumption of radio resources.

WP4: Core Network Enhancements - investigate and define core network enhancements to support the performance, delivery and management of future advanced multicast/broadcast applications and services. Key features to support subscriber feedback, group management, programme control & scheduling, media delivery, interfaces to multi-technology core network entities and content providers and convergence of MBMS – IMS.

WP5: Applications and Content - the main goal is to design and produce content formats and adapt content management procedures within the content provider domain and in-between content and mobile broadcast service provider domains.

WP6: Proof of Concepts - simulators will be used to evaluate the proposed enhancements as well as its feasibility. A testbed will also be setup to validate some of the new features.

Key Issues

C-MOBILE aims to develop new RAN technologies for an efficient support of enhanced MBMS services allowing a commercially attractive implementation, namely high capacity radio technologies that might help improve MBMS support and to incorporate the new radio technologies into the long-term evolution of UMTS. New topological approaches like multi-hop solutions and relaying allow the increase of coverage for high rate data transmission.

It is a major issue of C-MOBILE to understand how best to organise and schedule MBMS content from BM-SC (Broadcast Multicast Service Centre) through the Core Network and RAN to the user. Since the target traffic is multimedia, it is reasonable to expect that there will be interactions with the 3GPP IMS. C-MOBILE will investigate how to make this interaction explicit and to investigate how best MBMS can make use of capabilities provided by the IMS. Moreover, MBMS should evolve and integrate into a converged global multicast broadcast system, which will provide services across many multicast-broadcast bearers.

Interactive content formats for mass distribution do not exist today. C-MOBILE will develop

interactive content formats for innovative MBMS services.

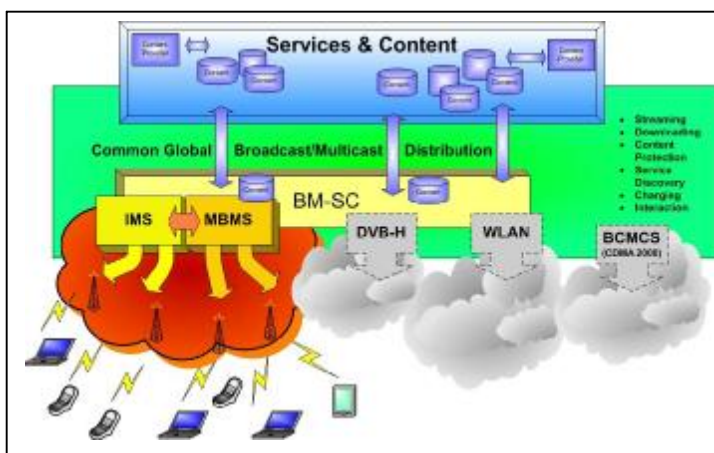
C-MOBILE will also research ways to use multicast technology to support personalized services. In particular the concept of Multicast community (Community-created content where users are also contributors to the multicast service) is a particularly challenging issue. Such services may have pictures, clips and messages received from community members.

In particular considering the personalisation paradigm, the C-MOBILE project intends to research and analyse the technical and marketing/business aspects of using MBMS to support personalised services.

Expected Impact

The project will stimulate sustainable growth and maintain the competitiveness in the European Communications sector by enabling the emergence of a new business area of mobile broadcast with promising business opportunities.

Europe has a strong record on technology leadership in mobile communication and broadcasting. C-MOBILE brings together the strength of these areas and contributes to the convergence of the mobile and the broadcast world, thus leading to new



revenue opportunities and increased competition to the benefit of the user.

The communications industry has long recognized the crucial role of standards in enabling interoperability, promoting competition, and securing investment. The consortium behind the project has both the determination and the possibility to impact standardisation. Several partners have leading roles in the most relevant standardisation and regulation bodies, such as 3GPP, ITU, OMA and IETF.

C-MOBILE will develop personalized ("My-broadcast") mobile broadcast techniques that will empower the user to be anytime anywhere informed and, in addition, to participate actively in the information society by integrating personalized broadcast in mobile communication systems providing interactive feedback channels.