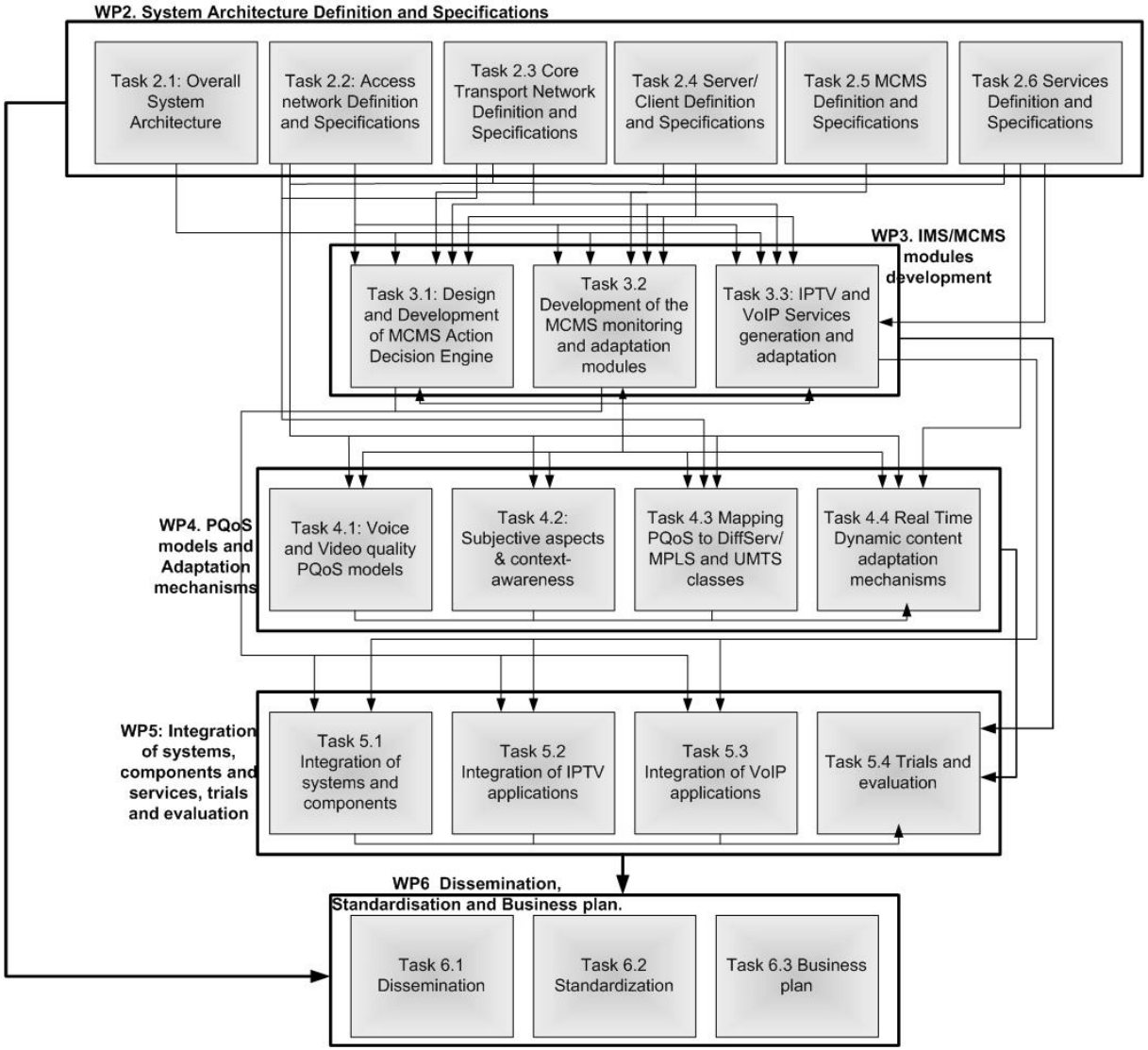
ADAMANTIUM Project: Enhancing IMS with a PQoS-aware Multimedia Content Management System

ADAMANTIUM Fact Sheet

- ICT – 214751
- Started on March of 2008
- Duration 30 Months, 6 Work Packages
- Partners:
  - ***NCSR Demokritos***, Greece 
  - ***University of the Basque Country***, Spain
  - ***University of Plymouth***, United Kingdom
  - ***Rohde & Schwarz***, Germany
  - ***Thomson Grass Valley***, France
  - ***Vodafone***, Greece
  - ***Ericsson***, Spain
  - ***Viotech Communications***, France
- Project Coordination: NCSR Demokritos, Greece
- Technical Management: Ericsson, Spain

ADAMANTIUM WPs



Convergence

The emerging multimedia opportunity

Search, sharing and self-expression

Enablers and ubiquitous access

Telecom

Internet

Media

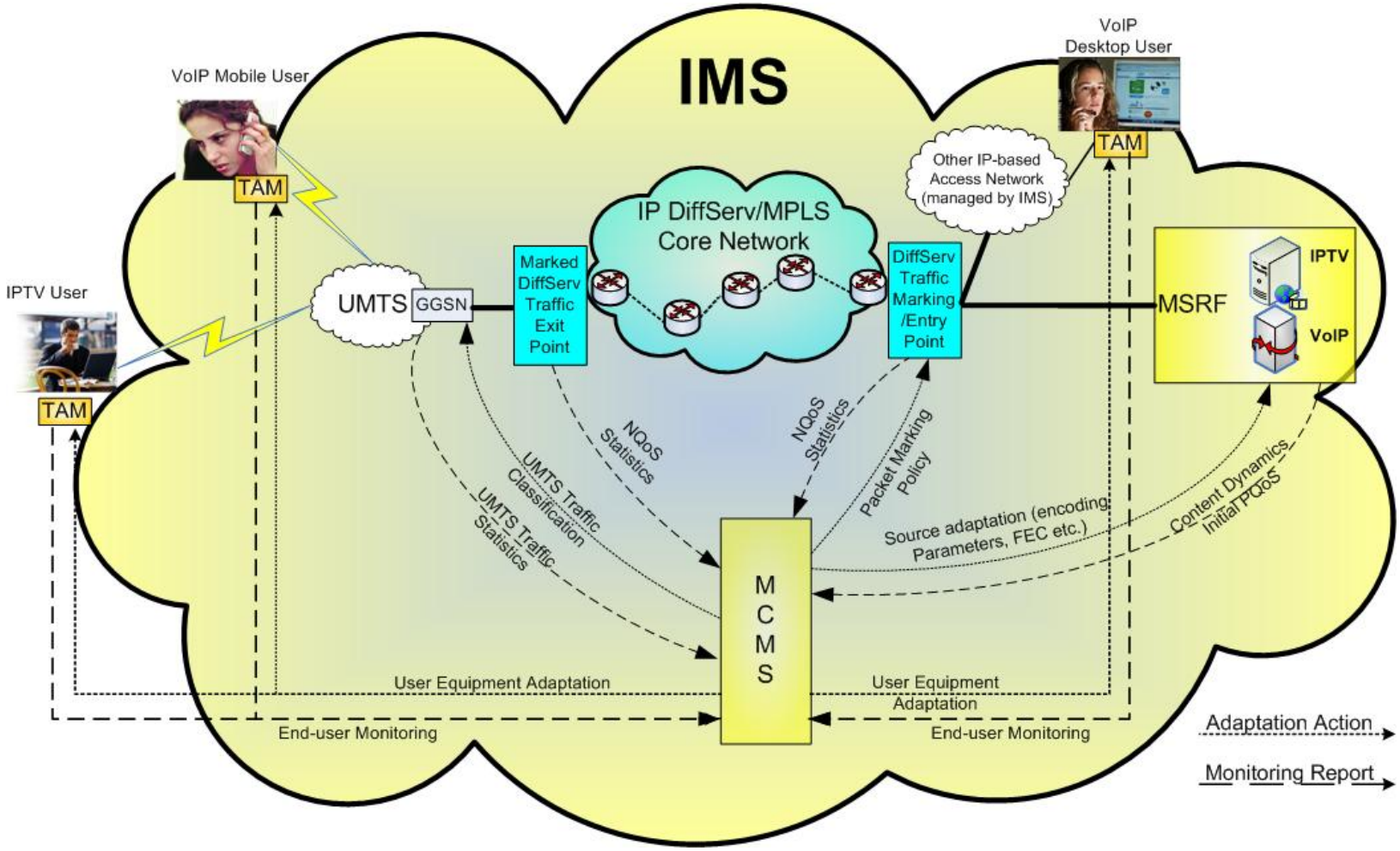
Digital content

From IMS… to ADAMANTIUM

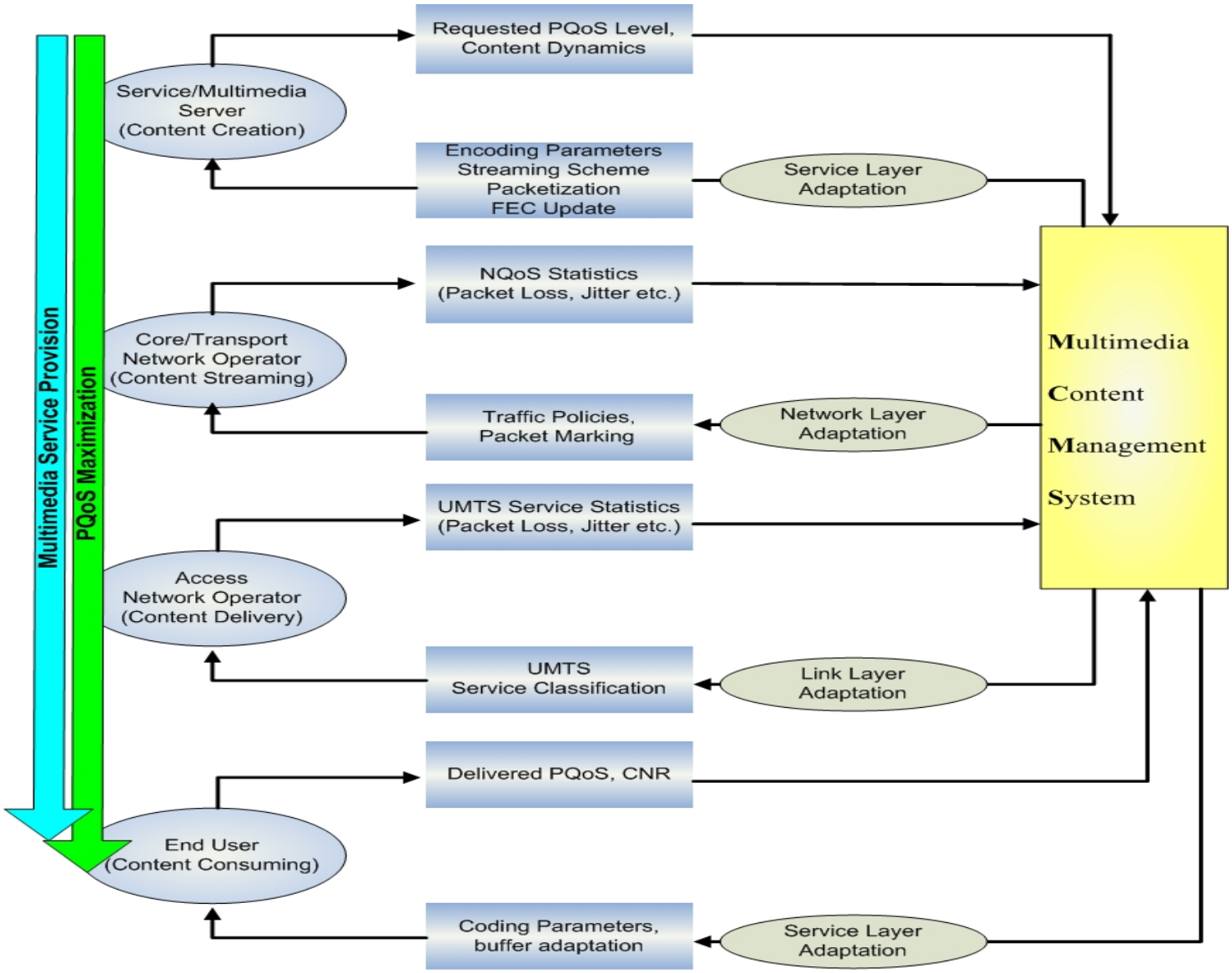
- IMS entails novel business opportunities
  - IPTV
  - VoIP video call
- Lack of user-centric management mechanisms.

ADAMANTIUM proposes an IMS-compatible Multimedia Content Management System (MCMS) focused on performing dynamic cross layer adaptations for optimization of the user experience in terms of perceptual quality for media services consumption.

The overall architecture of ADAMANTIUM

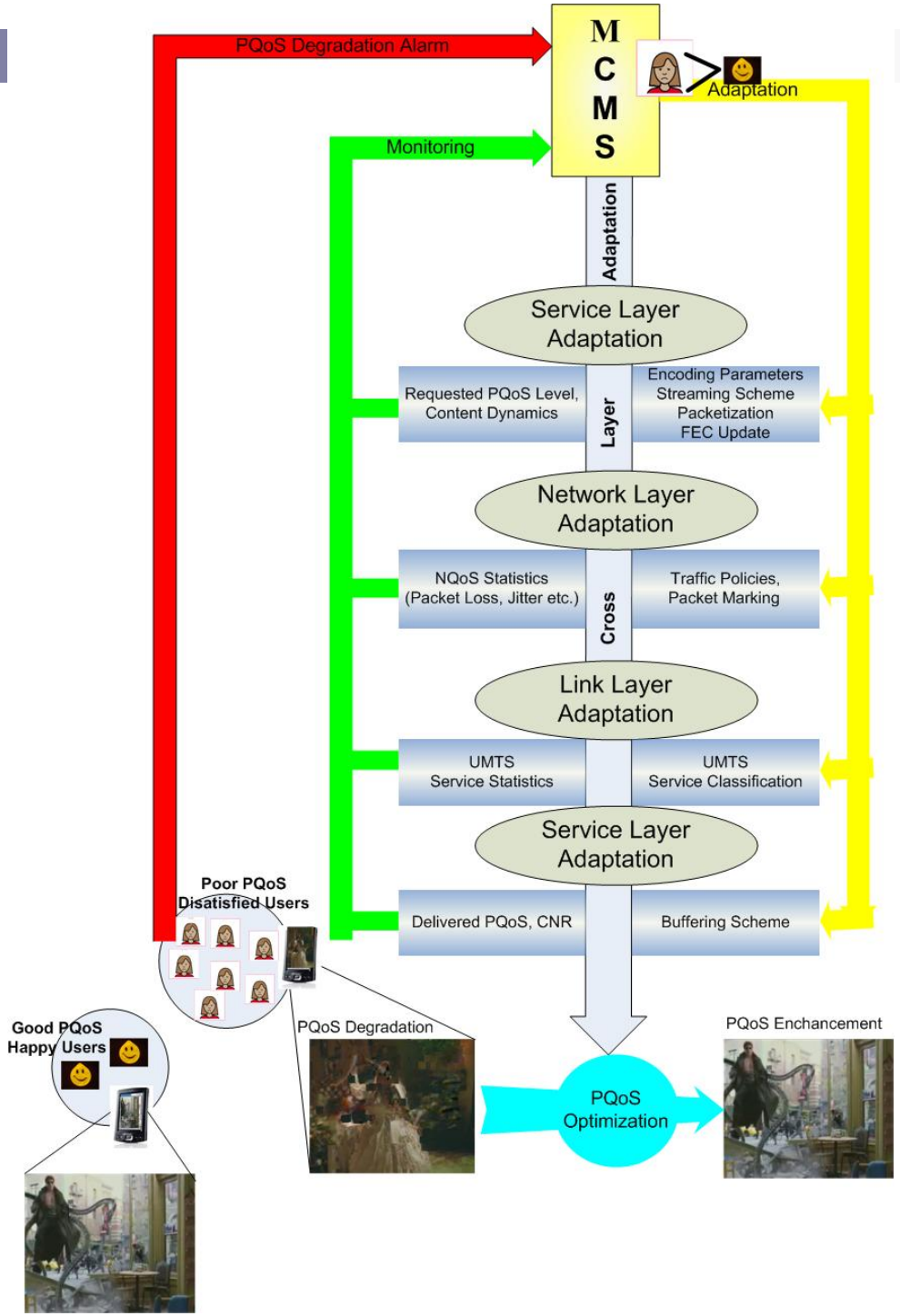


Conceptual diagram of the MCMS



Use-case Scenario

- Unicast
  - VoIP
  - IPTV
- Multicast
  - IPTV



QoE Research Challenges of ADAMANTIUM

- Network QoS to QoE mapping
  - DiffServ/MPLS Classes
  - UMTS Classes
- Encoding Parameters to QoE mapping
  - IPTV (video)
  - VoIP
- Spatiotemporal Classification of the Content
  - Preparation of video content at various quality levels
- Subjective and context-aware QoE evaluation algorithm
  - Converge various metrics
  - Considers the service impact on user perception

Progress

WP 2: System Architecture Definition and Specifications

- **Definition of the system architecture at the various levels necessary for the rest of work packages to carry out their work.**
- **Detailed specifications of the various modules to be implemented in the demonstrator testbed and also for further exploitation after the project end.**
- **Definition of all the required interfaces for communication between the modules integrating the system.**
- **Definition of the applications that will be targeted for experimentation to demonstrate to interested organisations, businessmen, industries or authorities the technical features of the developed technology.**

Progress

WP 3: IMS-based MCMS modules and services development

- **Design and development of the modules and interfaces that are necessary for the IMS system integration (i.e. IMS HSS, P/I/S-CSCF, PCRF)**.
- **Design and development of a fully operational small scale DiffServ autonomous system as the core network of ADAMANTIUM**.
- **Definition, design and development of an intermediate and preliminary version of the MCMS Action Engine Module (AEM) and its sophisticated algorithm** .
- **Design and development of an intermediate and preliminary version for the Transport Network and MSRF of the MCMS for monitoring and adaptation (i.e. TNMM, TNAM, MSMM, MSAM).**
- **Definition, design and development of an intermediate and preliminary of the ADAMANTIUM specific (IPTV & VoIP) services, their generation and adaptation, including the server and client modules.**

Progress

WP 4: PQoS-models and Adaptation Mechanisms

- **Design and development of intermediate Voice Quality context-aware PQoS models**.
- **Design and development of intermediate Video Quality context-aware PQoS models**.
- **Design and intermediate development of dynamic service adaptation mechanisms for optimizing the delivered PQoS level**.
- **Investigation on the subjective temporal tolerance of the end-user when she/he experiences degraded PQoS.**
- **Intermediate research results of Mapping NQoS parameters (including access and core networks) to voice and video PQoS for VoIP and IPTV applications.**

Progress

WP 6: Dissemination and standardisation

- The project is deeply participating in the standardisation activity related to IMS.

Standardisation body/group	Project partner
ETSI TISPAN	Thomson GV, Ericsson & Viotech
Open IPTV Forum	Thomson GV, Ericsson & Viotech

Concluding remarks

- ADAMANTIUM will create the conditions for a new generation of media services and technologies.
- The outcome of the project will include:
  - Enhancement of existing IMS architecture with QoE-aware mechanisms
  - Design and development of an IMS-based MCMS that monitors and adapts, across the media delivery chain, the NQOS and QoE parameters
  - Development, evaluation and demonstration of QoE-aware dynamic cross layer adaptations for VoIP and IPTV services within a real IMS infrastructure.

Contact details

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