
# MultimEDia transport for mobIlE Video AppLications

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Michelle Wetterwald[1], Telemaco Melia[2], Carlos J. Bernardos[3]

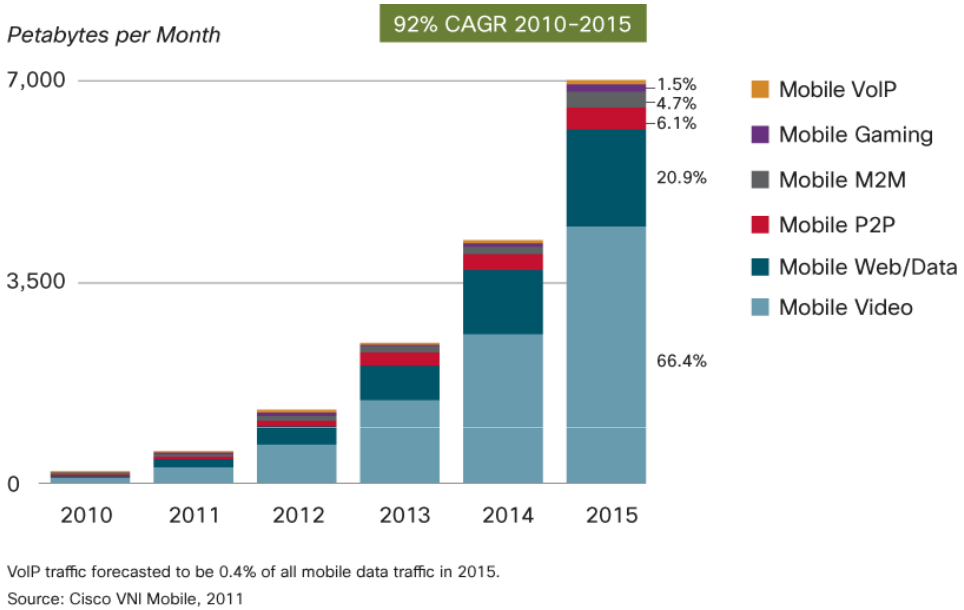
[1]EURECOM, [2]Alcatel Lucent, [3]UC3M

# Outline

- Why do we need MEDIEVAL?
- The MEDIEVAL project
- The MEDIEVAL architecture
- Contributions to standards

# Why do we need MEDIEVAL?

- **Video** is a major **challenge** for the future Internet

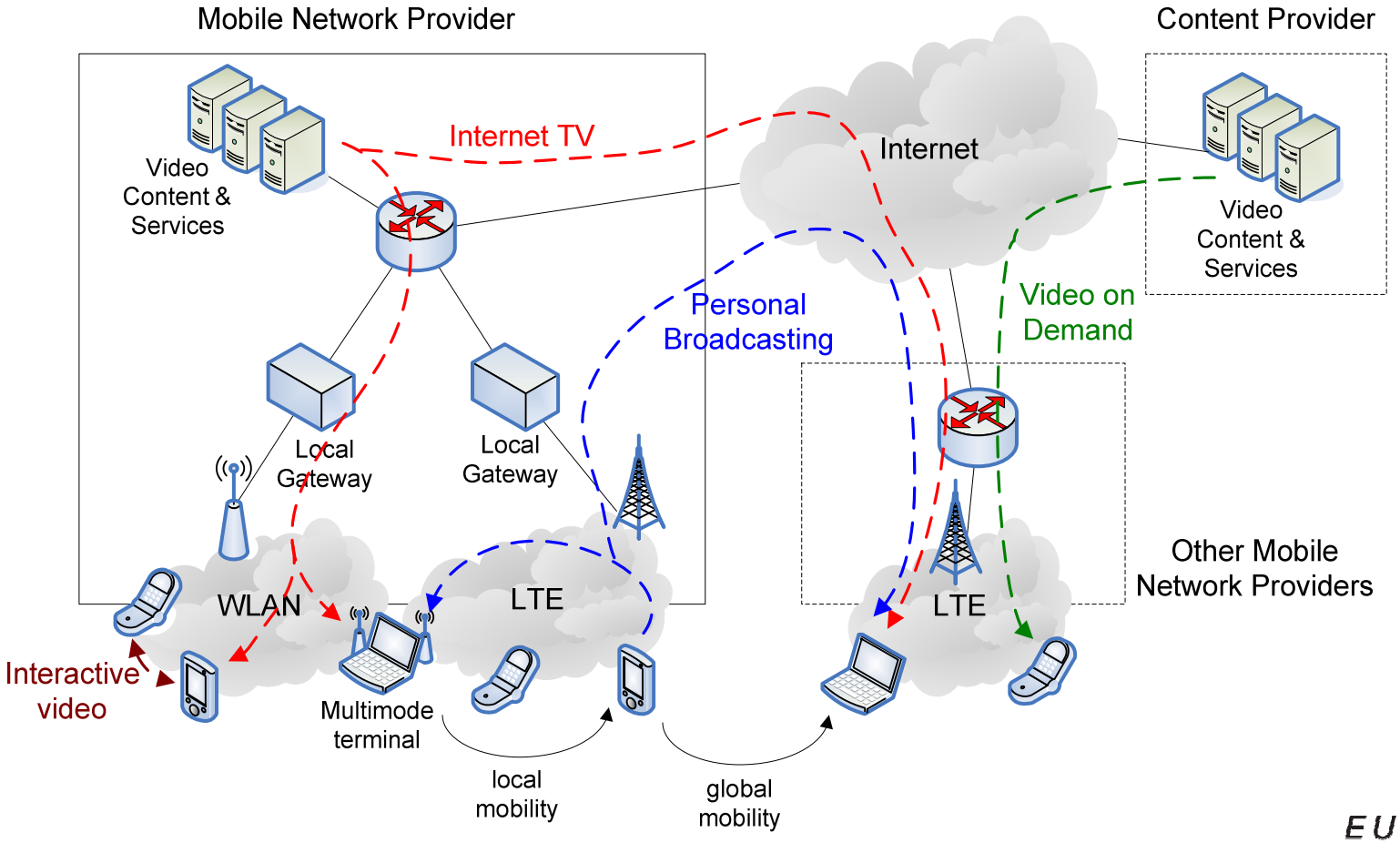



VoIP traffic forecasted to be 0.4% of all mobile data traffic in 2015.
Source: Cisco VNI Mobile, 2011

- Current mobile Internet **IS NOT** designed for **video**
  - Today's architectures are very inefficient when handling video
  - Future Internet architecture should be tailored to efficiently support the requirements of this type of traffic
  - Specific **enhancements for video** should be introduced **at all layers** of the protocol stack where needed

# Our Vision

- evolutionary path for a truly video-for-all philosophy



# The MEDIEVAL project

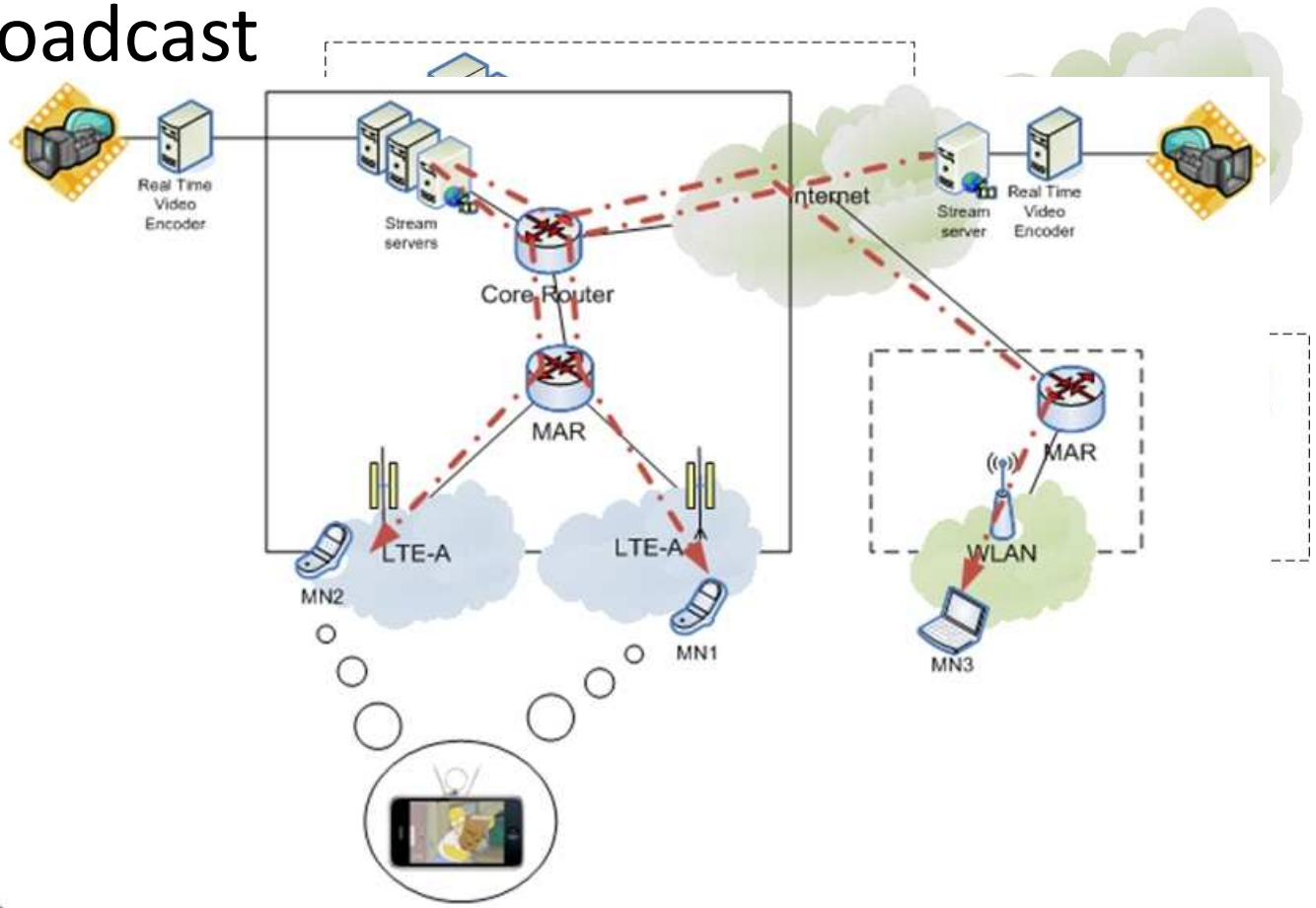
- MEDIEVAL is an **operator-driven** project specifying and demonstrating a **mobile video** architecture with **cross-layer** mechanisms to provide high quality of experience to users

# MEDIEVAL project details

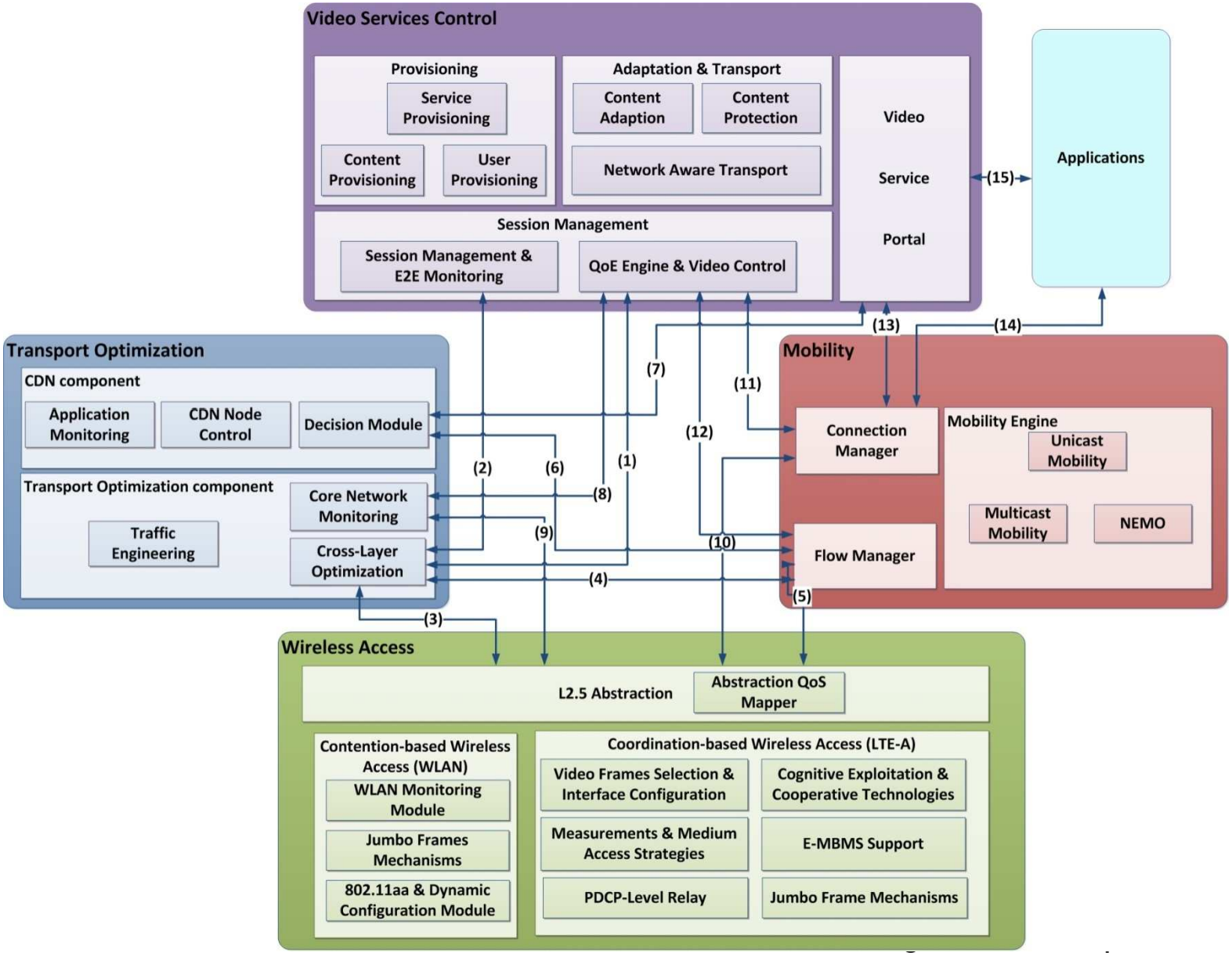
- Project Coordinator
  - Dr. Telemaco Melia
  - Alcatel-Lucent Bell Labs France
  - Email: telemaco.melia@alcatel-lucent.com
- Project website: http://www.ict-medieval.eu/
- 9 partners from 6 different countries
- Duration: July 2010 – June 2013
- Funding scheme: STREP
- Total Cost: €5,369,788m
- EC Contribution: €3,470,885m
- Contract Number: INFSO-ICT-258053

# Video Services

- Personal Broadcast
  - Each user
    generate c
  - In general,
- Mobile TV
  - Evolution
- Video on D
  - The user s
- Interactive video
  - interactive video chatting, integrates other media



# MEDIEVAL Architecture

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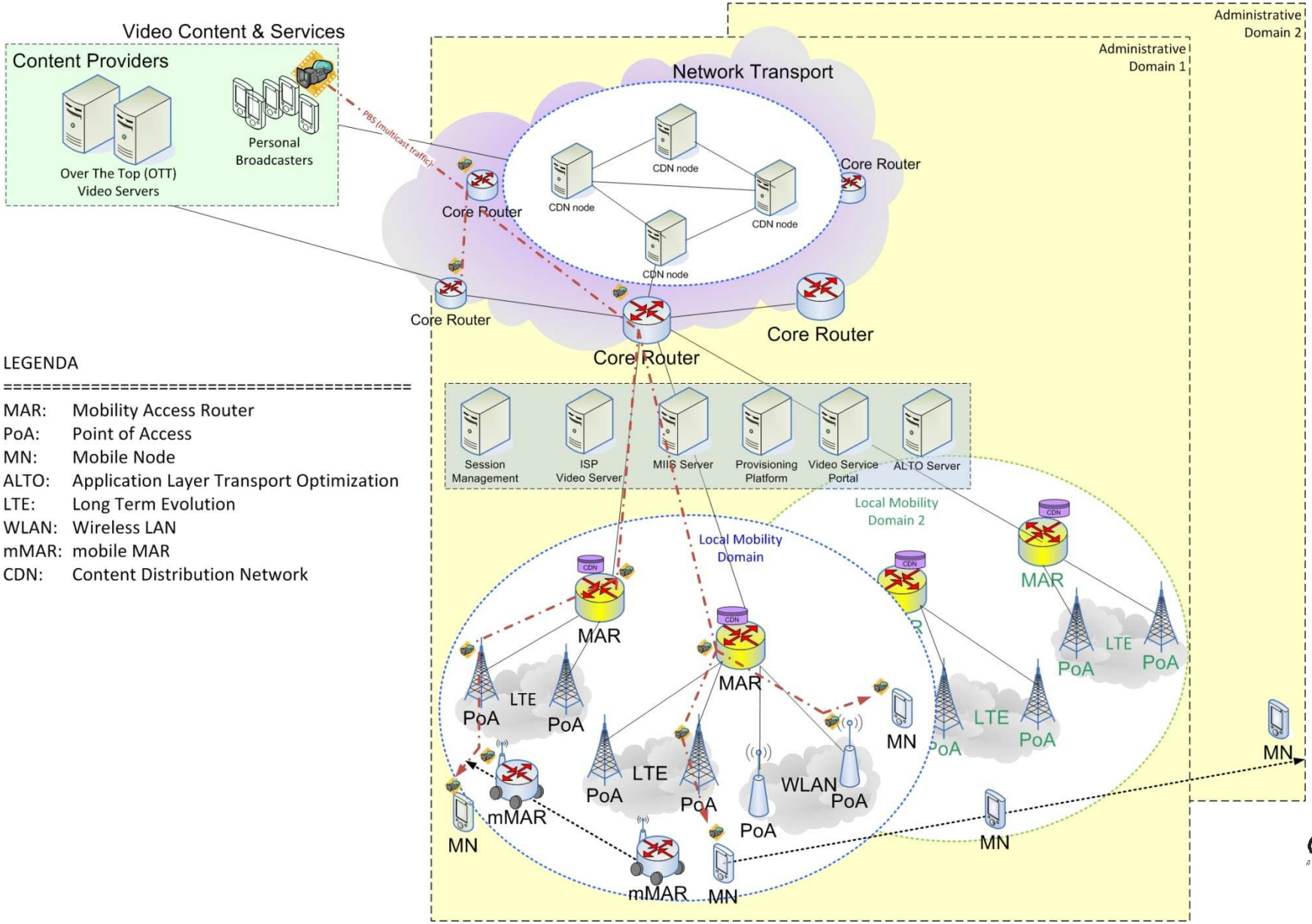
# MEDIEVAL Architecture

- Medieval architecture is divided into 4 subsystems
  - Video Service Control (WP2)
    - Links the applications and services to the underlying network delivery entities
  - Transport Optimization (WP5)
    - Provides optimized video traffic in the mobile operator's core network
  - Mobility Management (WP4)
    - Evolves today's mobile Internet architecture to more efficiently support growth of video services, based on flow mobility and DMM
  - Wireless Access (WP3)
    - Provides enhanced video delivery in the last (wireless) hop, mainly focusing on novel access techniques and technology abstraction
- Strong level of cross-layer interactions between the subsystems

# Physical View

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| | |
|---|---|
| MAR: | Mobility Access Router |
| PoA: | Point of Access |
| MN: | Mobile Node |
| ALTO: | Application Layer Transport Optimization |
| LTE: | Long Term Evolution |
| WLAN: | Wireless LAN |
| mMAR: | mobile MAR |
| CDN: | Content Distribution Network |

# Contributions to standards - IEEE

- Linked with WP3 and WP4
- 802.11aa Robust streaming of Audio Video Transport Streams
  - 802.11 Video Streams transport
  - assessment of draft standard (Groupcast)
- 802.21 Media Independent Handover Services
  - Video Support in heterogeneous networks
  - Already submitted 7 contributions
  - Contributions show the new concepts regarding mobility, configuration of interfaces and new video related extensions developed within MEDIEVAL

# Contributions to standards - IETF

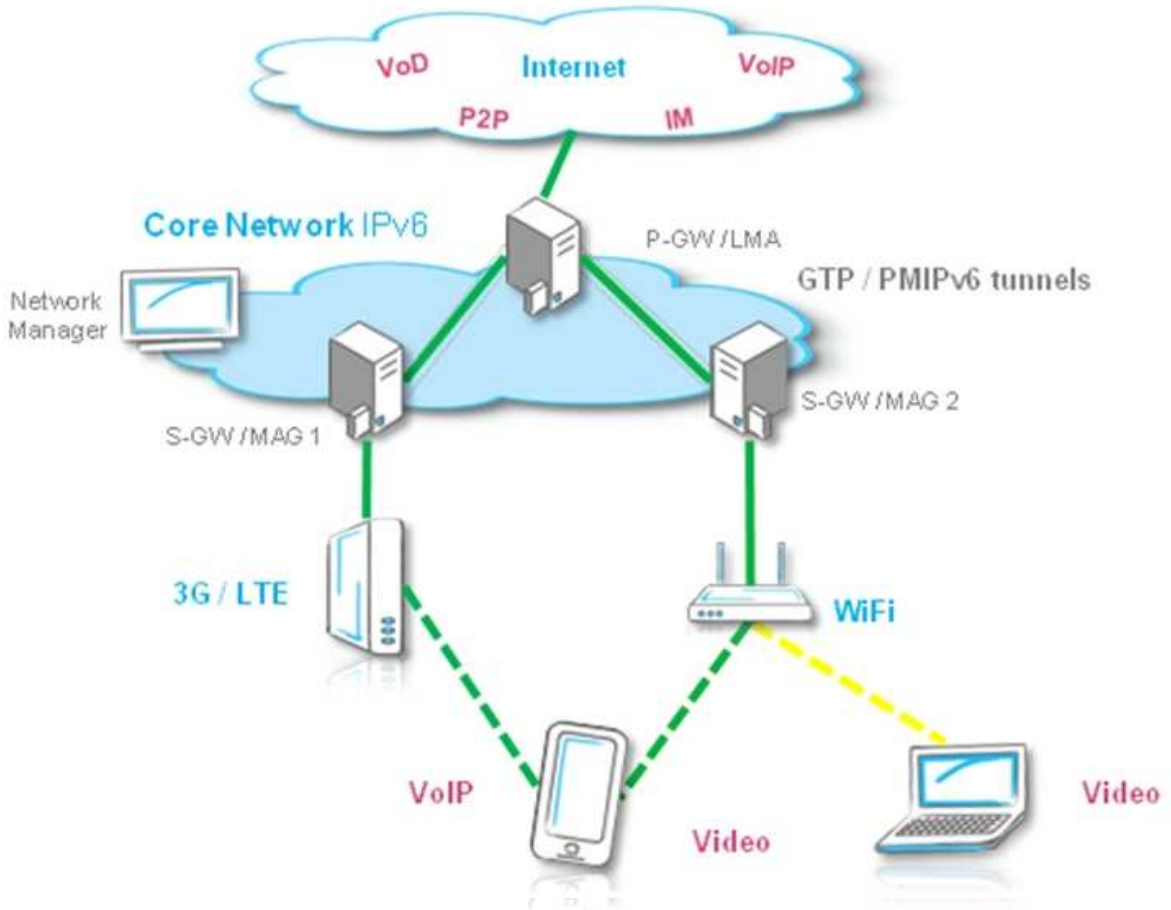
- Linked with WP4 and WP5
- Already submitted 16 contributions
- NETEXT
  - PMIPv6 extensions, including Logical Interface concept and flow base mobility (WG documents)
- MEXT
  - Distributed Mobility Management
- MultiMob
  - Multicast Mobility, including source Mobility
- ALTO
  - Mobile Content distribution network (new extensions to mobile Core)

# Contributions to standards - 3GPP

- Linked with WP5 (and other technical work packages)
- 3GPP SA2
  - Extending the mobile traffic management framework with application awareness (video) and congestion handling (→ SAPP, TDF, UPCON,…)
    - QoE-based traffic management concept
    - User plane traffic management targeting network congestion handling
  - Ongoing work for Rel. 11 and beyond
    - Discussion paper submitted to SA2#86 supporting UPCON SID
- 3GPP SA1 (other SDO?)
  - Splitting and merging IP video flows to increase the allocated bandwidth
  - Tight relation between Content adaptation and network events such as mobility and resource change

# Mobile World Congress 2011

Alcatel·Lucent InterDigital



# Conclusion

- MEDIEVAL aims at improving video traffic distribution over the Future Internet
- Results from research is pushed to standards
- MEDIEVAL consortium is active in several SDOs (IEEE, IETF, 3GPP)
- Concrete impacts on industrial and operator partners
  - workshops and demos
  - future product development

# Thank you for your attention

http://www.ict-medieval.eu/

michelle.wetterwald@eurecom.fr

telemaco.melia@ALCATEL-LUCENT.COM

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