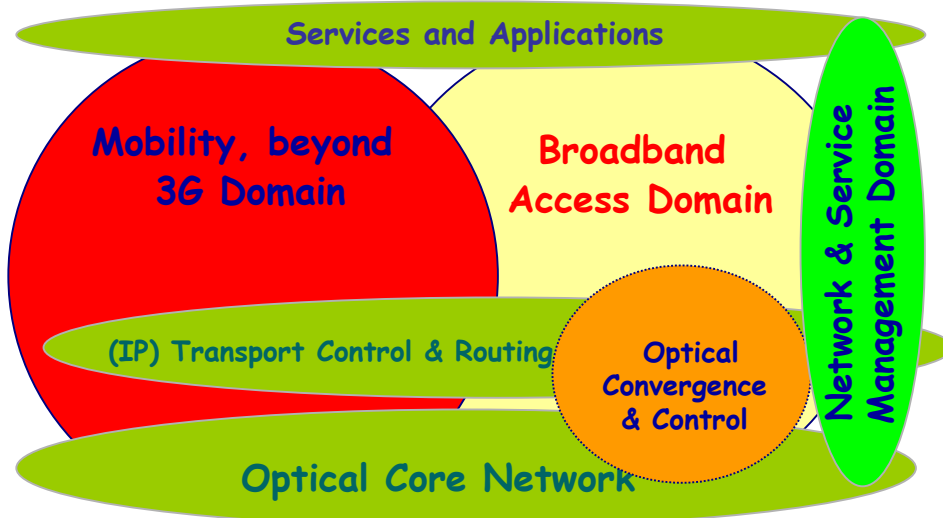# Networking Challenge

The challenge for the networking technologies in FP6 is to bring different "worlds" closer – usage, connectivity, intermediaries – in order to deliver services with rich multimedia content adapted to usage, that enable co-operative processes and support e-communities and mobility.

Communications & Networking

Services and Applications

Mobility, beyond 3G Domain

Broadband Access Domain

Network & Service Management Domain

(IP) Transport Control & Routing

Optical Convergence & Control

Optical Core Network

FP6 - Strategic Objectives

- <u>Broadband for all:</u> To develop the network technologies and architectures allowing a generalised availability of broadband access to European users, including those in less developed regions.

- <u>Mobile and Wireless Systems Beyond 3G</u>: To realise the vision of "Optimally Connected Anywhere, Anytime" where different terrestrial access levels and technologies are combined to complement each other in an optimum way for different service requirements and radio environments.

- <u>Networked Audio-visual systems and home platforms:</u> To develop end-to-end networked audio-visual systems and applications, and open trusted and interoperable multimedia user platforms and devices, notably for broadcasting and in-home platforms with full interactivity capacity.

Broadband R&D Issues

- Next Generation Networks and Internet
  - Multimedia (services), mobility, convergence,
  - Automated, scalable, secure, multi-domain management
- Access networks
  - Low cost and full service
  - 'First mile', hybrid ATM/Ethernet/IP, FWA, WLAN, satellite (DVB-S/RCS)
  - PLC (improved performance, EMC compliant, low-cost, inter-operability)
- Optical networks
  - Optical at all levels of communication networks including core networks, metro and access networks, home networks, short reach networks
  - End-to-end broadband capacity and QoS
  - IP over Optics (ASON/ITU, GMPLS/IETF)

BEYOND 3G:
TECHNOLOGICAL CHALLENGES

- Radio/UWB
  - Ubiquitous wireless access, Higher frequencies, Optimised, Flexible
- Local 'sphere' networking
  - Personal/Body Area Networking, WLAN
  - Dynamic composition of networks, ad hoc, mesh, relay
- Wide Area Networking
  - FWA, DxB
- Satellite
  - Mobile and (interactive) broadcasting networks , S-DMB, Multicast
- Re-configurable radio RF and Baseband techniques

  - Software and hardware partitioning
- End-to-end service delivery
  - Wireless protocols, all IP (v6)
  - Network management, resource and mobility management, QoS, flexible billing system, security across different layers, privacy

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Networked Audio-visual systems and home platforms R&D issues

- **Multimedia networking**
  - Seamlessly co-operating IP audiovisual (AV) networks, storage, new middleware protocols and architectures for real time and consistent multimedia routing, storing and distribution, load and balancing control mechanisms,
  - P2P, datacasting and streaming of audio-visual rich media.
  - Adaptive Quality of Services for scalable audio-visual flows on heterogeneous networks, AV internetworking, network traffic engineering, interactive AV service management, and simulation
- **Home platforms**
  - Networking technologies and their integration to broadband access gateways to global networks, wireless networks, DVB, security.