

FUTURE MOBILE INTERNET RESEARCH AREA

Involving three PhDs

- Mobility in Networks under Extreme Video Scenarios
- Realizing Information Centric Networks inspired by Software Defined Networks
- Approaching Internet of Things Scenarios from an Information-Centric Networking Perspective

Background and challenges

General Internet limitations

- Patch-based evolution, increasing complexity and ossification of the architecture
- Designed disregarding mobility, video & other current (and emerging) requirements
- Core components reaching their scaling limits, increasing CAPEX and OPEX
- Inflexible network deployment and update

Mobility management limitations

- Centralized approaches are inefficient due to default activation for all services and convergence in single points of failure
- Suboptimal routing, increasing communication delay



Techniques Developed

Distributed Mobility Management

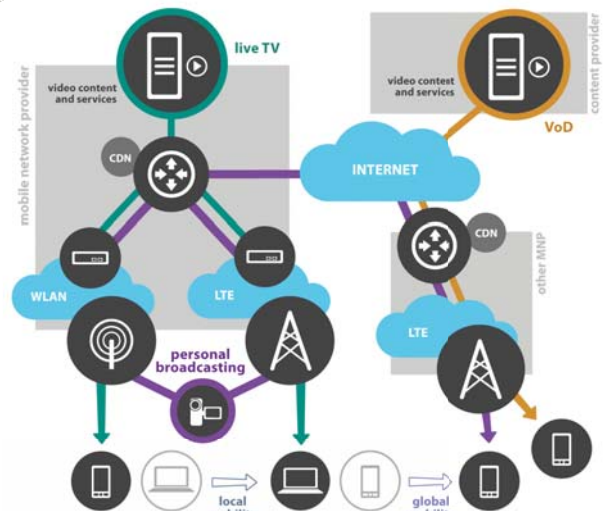
- Distributed mobility functions closer to users, adapted to flat mobile architectures and natively supporting IP multicast
- On-demand mobility management
- Goal: achieve efficient mobility management and optimized routing, reducing impact of data explosion (e.g. video)

Software-Defined Networking

- Leverages a separation of the data plane and the control plane, allowing the *softwarization* of the latter
- Goal: to simplify infrastructure evolution, avoiding manual configuration and supporting more dynamic network topology behaviour and (re)configuration

Information Centric Networking

- Communication model centred around content names that leverages in-network caching, multiparty communication, content-based security, and connectionless communication
- Goal: provide a network infrastructure service that is better suited to today's use and more resilient to disruptions and failures



Achievements

Dissemination

4 Journals and Magazines (COMMAG, COMNET)
26 International conference papers (INFOCOM, GLOBECOM, others)

Standardization

Contributions to IEEE 802.21c, IRTF ICNRG, IETF DMM & MULTIMOB WGs

FP7 Projects

4WARD, MEDIEVAL, OFELIA (EDOBRA work item)

Software Contributions

OPMIP, MRD6, ODTONE, ndnSIM



Overall: Enable innovative Telecom business model and bring enriched data delivery services to society