



Achieving Low-Latency in Wireless Communications - LOLA

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EC Contribution: € 2,628,323

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THALES



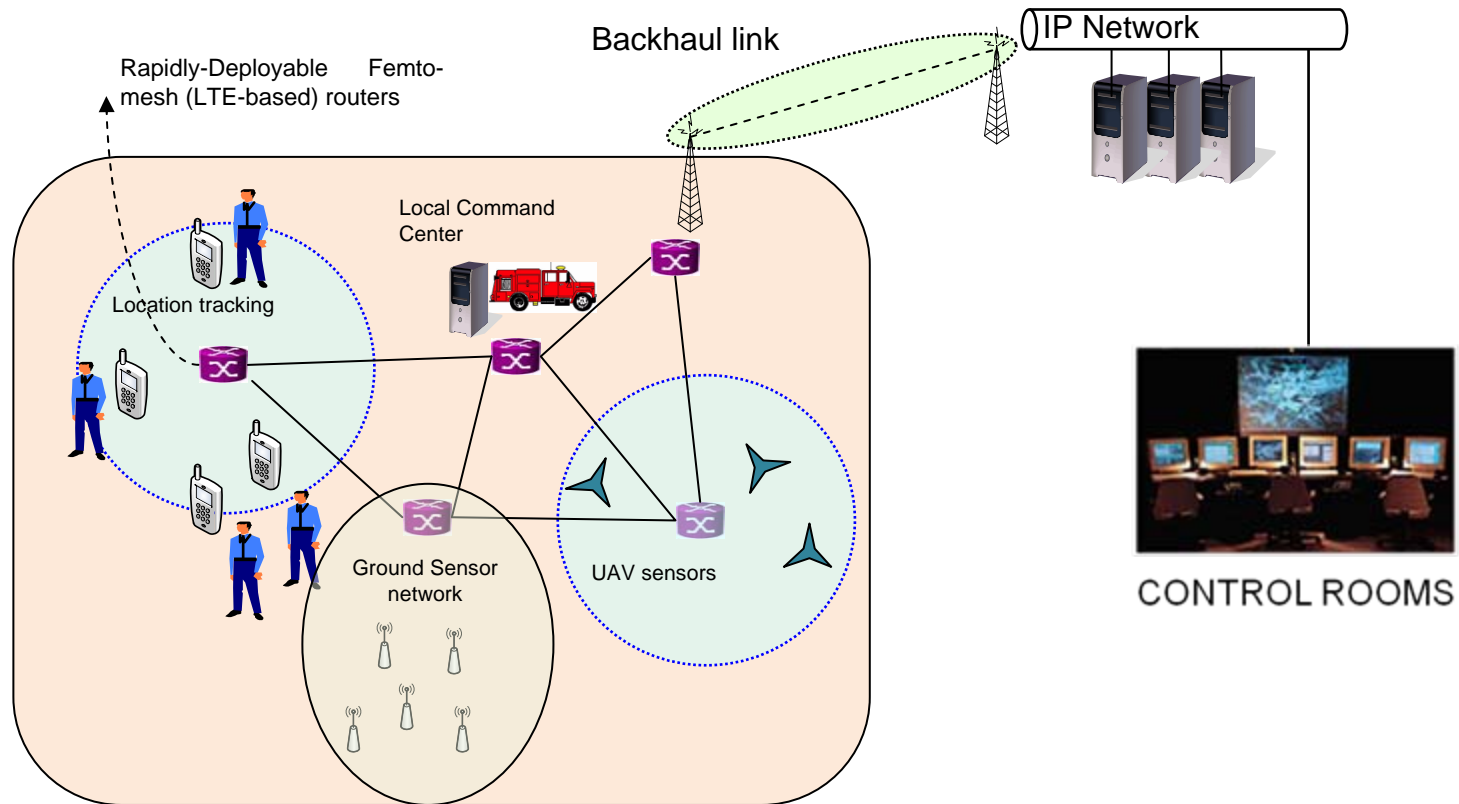
Linköping University



Context

- **Low layer procedures for low-latency communications in LTE/LTE-A**
 - Interactive gaming services (<10 ms latency for short packets)
 - Co-existence of M2M/sensor/gaming traffic with conventional services (low-layer issues)
 - Reduced energy consumption for M2M devices through low-latency protocols (low duty-cycle sensors through LTE/LTE-A infrastructure) and efficient channel access times
 - Remote sensing/actuation over LTE/LTE-A
 - Pseudo-V2V and V2I
- **Public-safety / professional networks**
 - Remote sensing/actuation over mesh nets
 - Convergence (air-interface) with LTE/LTE-A waveform with multihop (infrastructure-less) topology
 - Low-latency is crucial and hard to achieve in mesh networks due to multihop nature

Civil Protection Networking Example (LOLA Testbed 3)



Project Structure

2 Vendors

Ericsson (SRB), Thales (F)

1 Operator

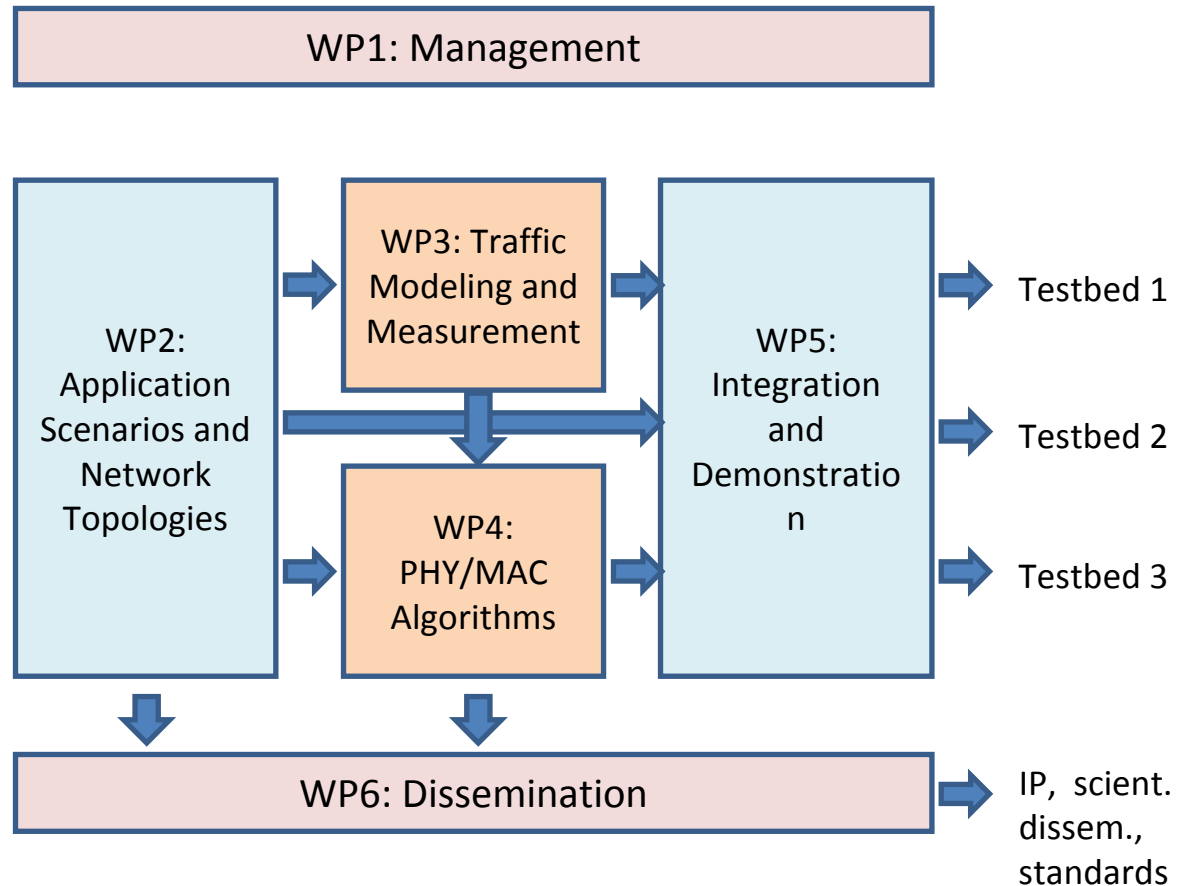
Telekom Serbia

Test and Engineering

AT4Wireless (Spain)

Academic

EURECOM (F), Tech. Univ. Vienna (A), Linkoping Univ. (SE)



3 Objectives

- **Fundamental**

- Characterization of traffic for M2M/Online Gaming
- Innovation with respect to PHY/MAC procedures (Cellular and Mesh topologies) in support of low-latency applications

- **Experimental**

- Rapid prototyping on three carefully chosen testbeds based on existing open-source technology
 - Testbed 1 : Large-scale system emulator and traffic measurement testbench (PHY/MAC/L3) using real applications and Network – TUV/EYU/MTS/EURE
 - Testbed 2 : Real-time Link validation platform (PHY) – AT4/EURE
 - Testbed 3 : CHORIST FP6 demonstrator (rapidly-deployable mesh, full-system demonstrator with mini field-trial) – TCF/EURE/LIU

- **Standardization**

- Input to 3GPP and ETSI-M2M