

# User-centric Wireless Local Loop (ULOOP)

User in Control, the ULOOP Approach

<http://uloop.eu>

**Rute Sofia**

**SITI, University Lusófona**

**User in control Session**

Future Internet Assembly, Poznan / 26.10.2011

# Agenda

1. Quick Project Overview

2. Vision and Innovation

3. Main Technical Blocks – ULOOP Node

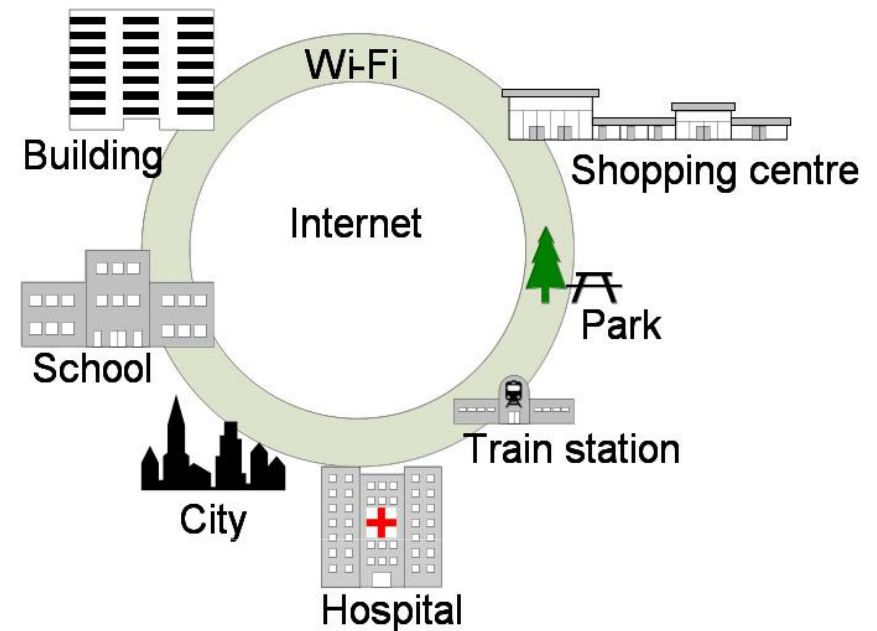
4. Trust Management/Cooperation Incentives  
Aspects – Putting the User in the Control Loop

## Motivation

- **Wi-Fi as the de-facto Internet access technology**
  - Final hop to the user
- **User-centric wireless architectures on the rise**
  - Low-cost, Sharing due to incentives
- **New opportunities for Internet stakeholders**
  - New business models
- **New opportunities for the end-user**
  - Wider roaming, socially-driven services

## Project Details

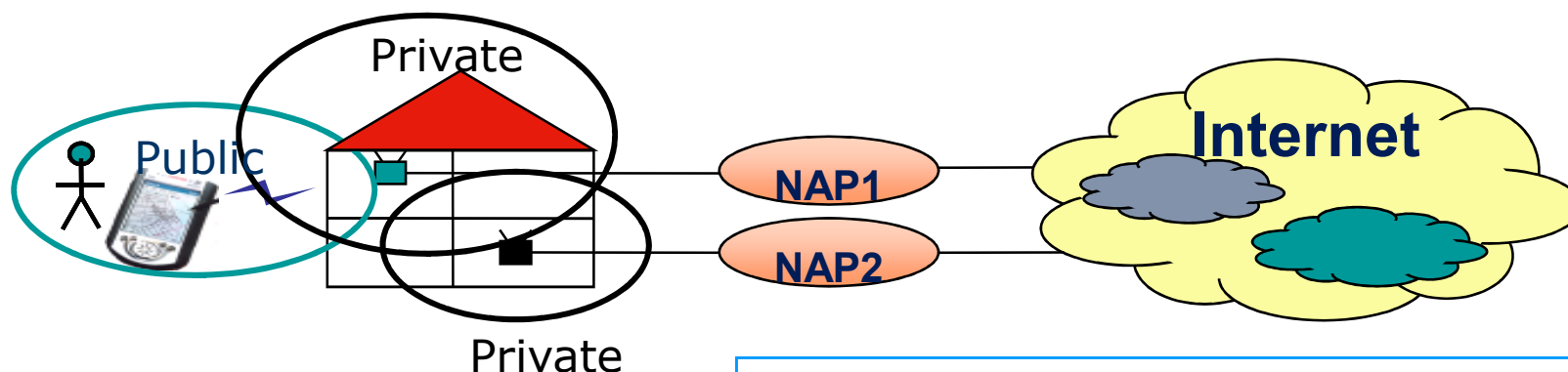
- STREP, FP7 call 5, objective 1.1.1
- **Duration:** September 2010-August 2013
- **Keywords:** Dynamic spectrum management; cooperative networking; low-cost wireless architectures; user-centric; trust management; cooperation incentives



## Main Expected Results

- Low-cost wireless local-loop architecture
- User-centric business models, sustainability
- Analysis of the impact on telecommunications legislation
- Large-scale pilot, for wide demonstration

# User-centric Networks (UCNs)



## UCN Today

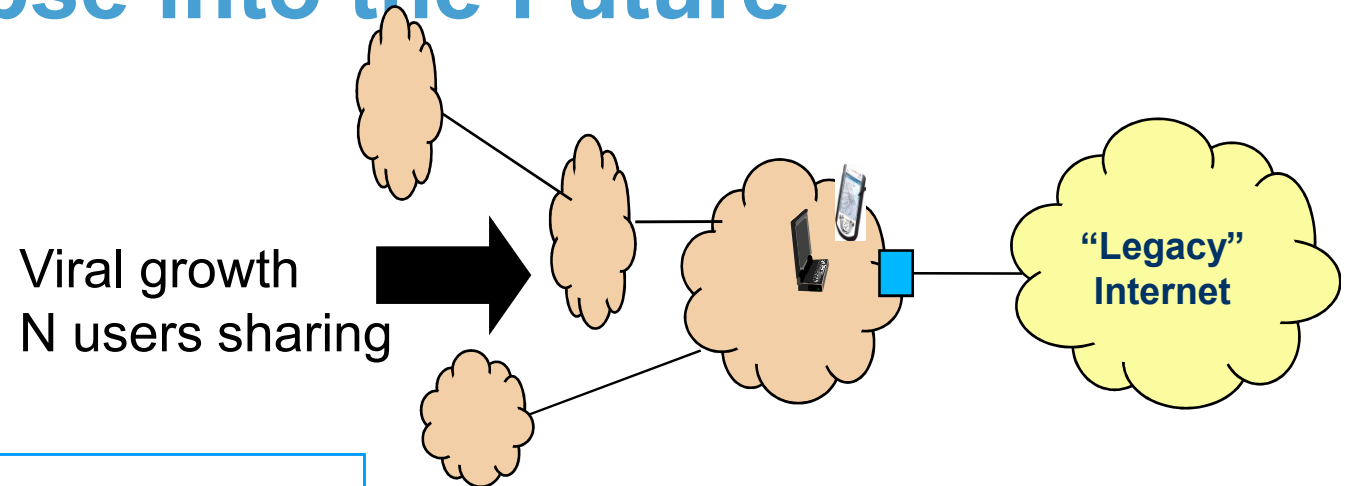
- Infrastructure or mesh based
  - Complement(1 hop) existing infrastructures
- Wireless link sharing within 1 hop
- 1 user responsible for direct sharing to N others
  - “virtual” users on a “virtual operator “database

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## Current Security Concerns

- **SOME Privacy**
  - At home, normally WPA2
  - Eduroam: privacy only on the wireless link
  - Enterprise: VPN
- **Basic security available for micro-provider**
  - No security for outsiders
- **Liability Issues**
  - Who owns the responsibility in case of wrongdoing?
  - How can the provider distinguish?

# UCNs: Glimpse into the Future

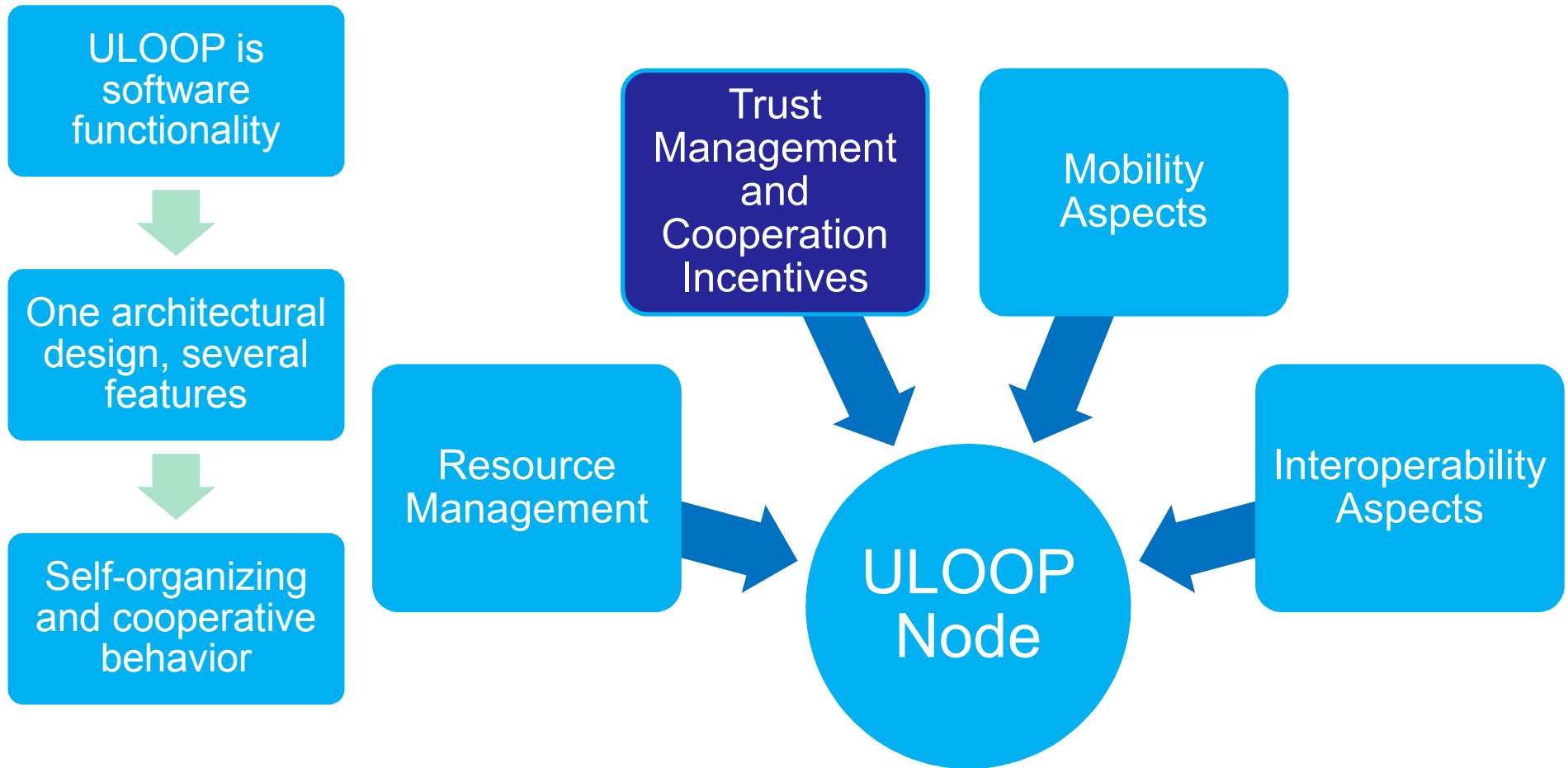


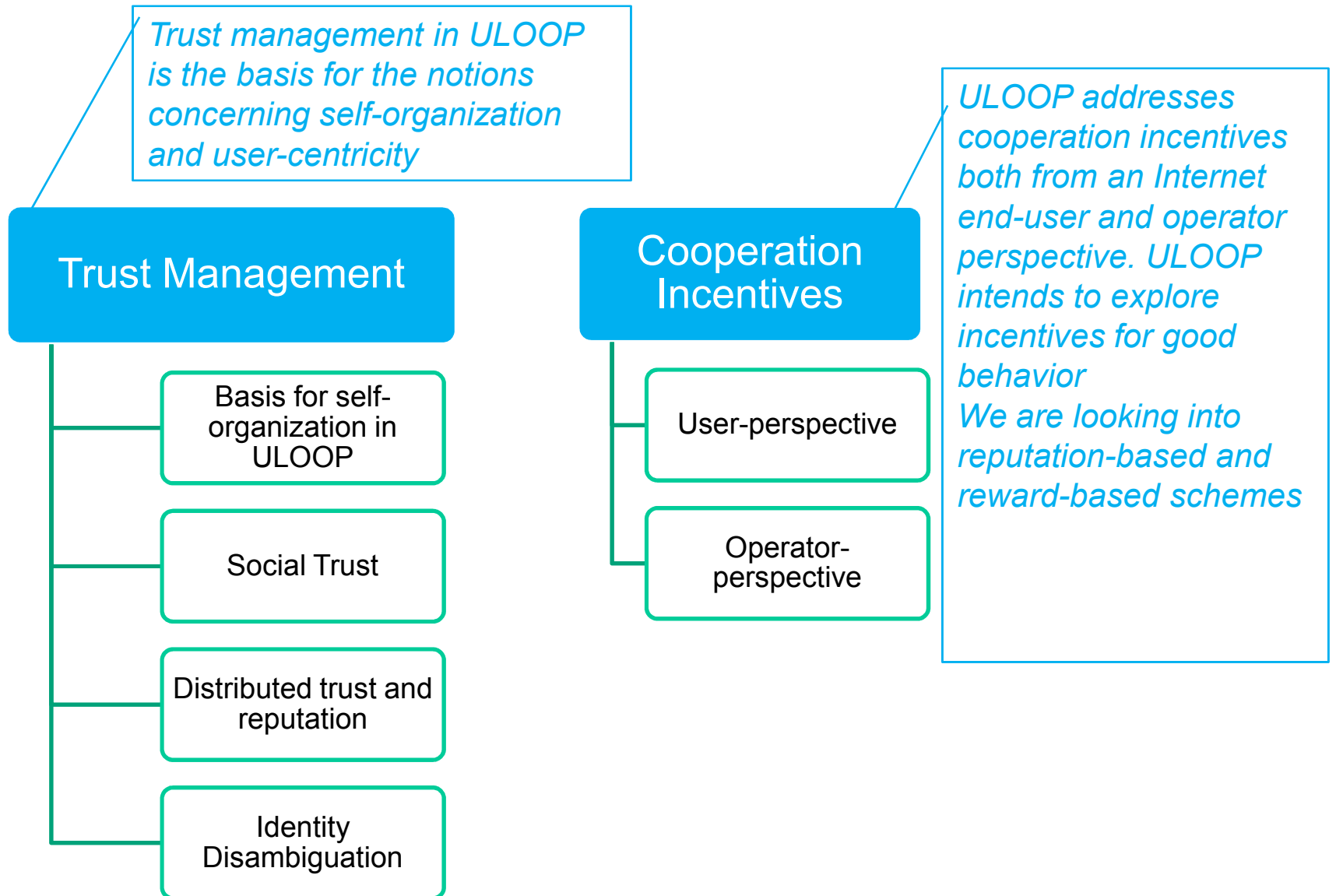
## Future UCNs

- Infrastructure or mesh based BUT
  - Multihop routing and relaying
- Path sharing (not only 1 hop sharing)
- X out of N users responsible for direct sharing to N other users
- Different communities built on-the-fly
  - User identification?
  - What about anonymity

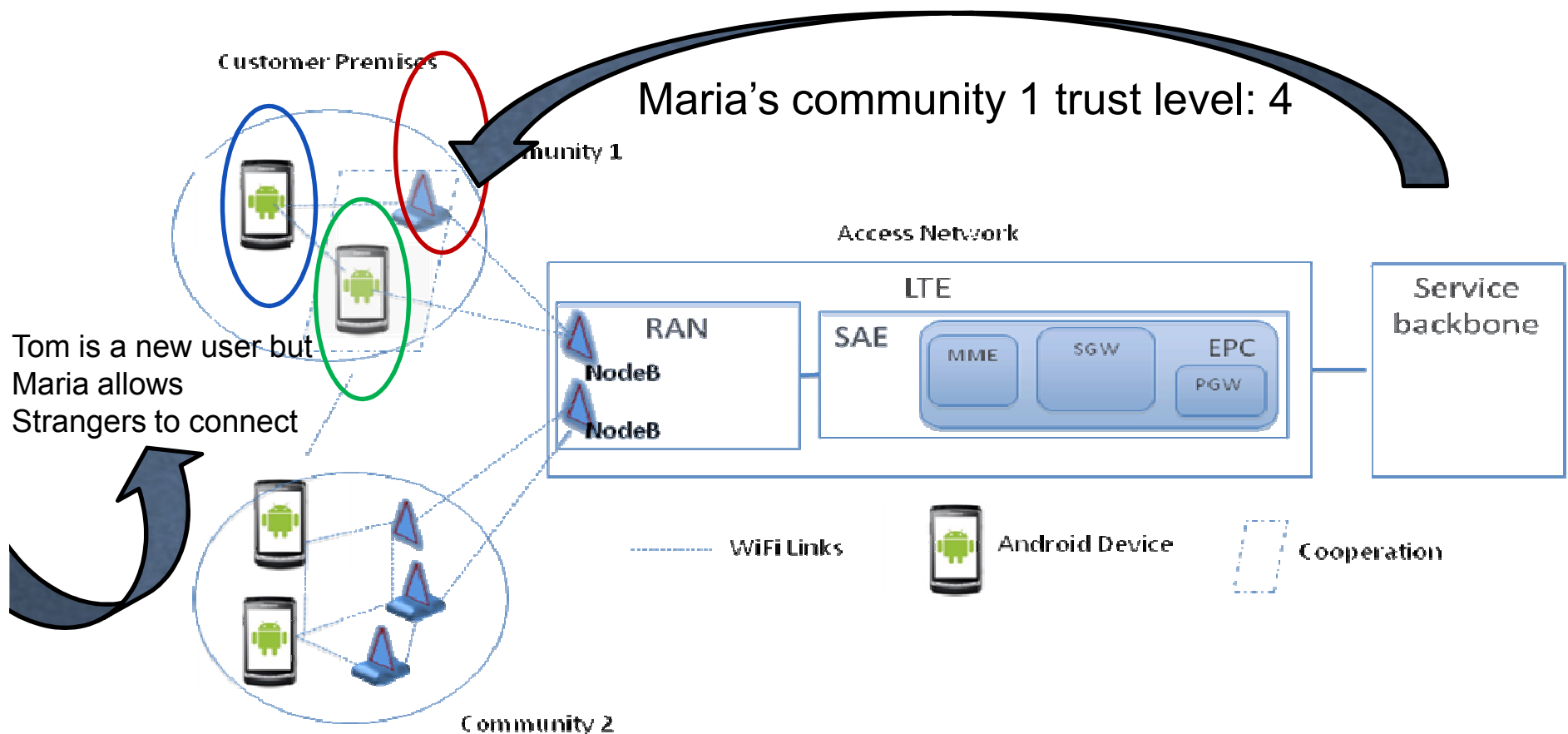
## The ULOOP Approach

- **Ensuring Liability**
  - Reputation schemes and Identity management
- **Supporting but controlling the viral growth**
  - Allow trust to be developed on the fly
    - Data confidentiality levels depend on the trust circle!





- Community 1 is already active
- ULOOP "Gateway" (equipment providing the shared Internet access) in red
- Maria in Blue, Tom in green
- In Community 1, Maria holds a trust level of 4 (refer to use-case 1 to recall the scenes)





## Project ULOOP

User-centric Wireless Local Loop

## FP7/2007-2013

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## Participants

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