



μ -Operators & Trust

Cognitive Networking

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μ -Operators, User-Provided, Community, and Cognitive **Networks** in Open Spectrum Access

- *User Provided Networks (UPNs)*
 - ◆ low cost wireless network access equipment
 - ◆ operating in unlicensed bands
 - ◆ the general public provides communications services
- UPN ubiquitous in densely populated urban areas
- *Open Spectrum Access?*
- the issue
 - ◆ not coverage
 - ◆ but interference
- unplanned deployments and very dynamic topologies demand **highly autonomic** operation

Operators, μ -Operators & Trust (Cognitive Networking)

- UPNs not limited to the Access Networks
 - ◆ *Wireless Community Networks*
 - ◆ user mobility/nomadcity
- wide range of service providers
 - ◆ smaller or larger Wireless Service Providers
 - ◆ Wireless Service Aggregators
 - ◆ other network providers
- relationships among all these
 - ◆ are **not straightforward** anymore
 - ◆ are becoming **very dynamic**
- Automated **Trust** Management
 - ◆ is becoming a key issue for
 - Interconnection
 - successful interoperation.
- Reputation
 - ◆ Distributed information / communities / P2P
- Dynamic contracts / SLAs
 - ◆ incl. **privacy, security**, etc.
 - ◆ Trusted 3rd Party



Thank you!

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Emerging Wireless Internet & Open Spectrum Access



- **Organic growth** of Wireless Nets
- Proliferation of wireless services & devices
- Increased demand for spectrum
 - ◆ Regulation ...
- Traditional approach inefficient:
 - ◆ Licensed bands:
 - temporal & spatial underutilization of the spectrum
 - low BW/high cost
 - ◆ **Unlicensed** bands:
 - interference
 - limited coverage
 - ◆ **The Role of Cognitive Radio / Networks**

