Panel

Advances in Wireless Communications: Next Challenges

MODERATOR
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InfoWare
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Panelists

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Femtocells

• Why
  ➢ Indoor coverage
  ➢ Capacity

• What is FAP
  ➢ …Femto Access Point
  ➢ Small lower power base station
  ➢ Located in user premises
  ➢ Connected via subscriber line
  ➢ Operates in licensed spectrum

• Low coverage
• Low power
• Low price

Femtocell
(FAP, HNB, HeNB, …)

Operator’s core network

xDSL, cable, WiMAX, etc.
Benefits

User

- Coverage
- Capacity
- Price
  - Femtozone tariffs
- Devices
- New services
  - Home PBX, Remote control, etc.

Operator

- Coverage
- Capacity
- CAPEX/OPEX savings
  - Sites, access infrastructure, etc.
  - Power, backhaul, site rental, etc.
- Traffic offload
- Fast deployment of
  - New services
  - New technologies
FAP vs. WiFi

- Backhaul
- Spectrum
- Services
- Power
- Security
- QoS
Challenges

• Interferences
• Mobility
• Security
• Backhaul
• Location/Synchronization
• Scalability
• …
ADVANCES IN WIRELESS COMMUNICATIONS: NEXT CHALLENGES

THE AUTOMOTIVE SECURITY ASPECTS

Alexandre Bouard, BMW Group
Panel discussion - VEHICULAR’13 - 22.07.2013, Nice, France
INCREASING NETWORKING POSSIBILITIES

- Increasing number of C2X interfaces
  - Long range (e.g., LTE, UMTS, GSM)
  - Short range (e.g., RFID, Bluetooth, Wi-Fi, ITS G5)
- Rapid evolution of all standards
  - 2G/3G → LTE (tomorrow) → 5G (after tomorrow)
- Plethora of use cases and devices
  - Infotainment vs Safety
  - Third-party applications

In addition to the functional challenges (design of smart antennae and software management), car manufacturers have to cope with security.
SECURITY AND WIRELESS INTERFACES

- Cars are safety-by-design, rather than security-by-design systems
  - Unprotected C2X interfaces
  - Unprotected software components

- 2 main risks
  - Integrity related (service disruption)
  - Confidentiality related (secret leaking, privacy infringement)

**Company effort**
- Threat analysis
- Design/implementation of secure SW and on-board communication architecture
- Penetration testing

**Cooperative effort**
- EU and German-funded projects
- Cooperation with subcontractors
- Standardization committees
Trip to Nice – Station 1
Local Railway Station
Trip to Nice – Station 2

Linz City Tram
Trip to Nice – Station 3
Linz Main Train Terminal
Trip to Nice – Truth
Went by Car
Trip to Nice – Station 4

Vienna International Airport

Austrian

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PASSENGER
Wolfgang Narzt

Wolfgang Narzt, ICWM C 2013, Nice France
Trip to Nice – Station 5

Nice International Airport

Wolfgang Narzt, ICWMC 2013, Nice France
Confused?
Can’t it be easier?