

Heterogeneous Networks

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Panel on Heterogeneous Network (HetNet) Deployment: Challenges and Strategies

In the next decade, multiple cellular network technologies such as GSM/UMTS/HSPA/LTE/LTE-Advanced will co-exist. It is also expected that Wi-Fi and fixed networks will be used to offload 30%-50% of traffic from mobile networks, and is likely that some mobile operators will deploy both FDD and TDD technologies to meet the exponential traffic demand. Moreover, in LTE-Advanced networks, macrocells, remote radio heads (RRHs), microcells, picocells, femtocells, as well as relay stations will be used to cost-effectively provide seamless coverage and capacity in indoor and outdoor scenarios. In the near future, device-to-device communications may also become essential to improve energy efficiency and save resources at base stations. Furthermore, apart from traditional human-to-human communications, machine-to-machine communications will become more and more important to deal with smart infrastructure requirements. Hence, future networks will be heterogeneous in terms of radio access technologies (RATs), fixed or mobile, access node types, and long or short range.

Network heterogeneity will impose an enormous challenge for network operators to make the best use of their existing network infrastructures, and cost effectively deploy LTE/LTE-Advanced networks that comprise of different types of access nodes. Some of these challenges are:

- Seamless indoor and outdoor coverage
- Use just enough resources to meet users' Quality of Experience requirement
- Integration of fixed, Wi-Fi and cellular networks
- Interference control and management
- Self-organising networks (SONs)

- Trade-off between energy and spectrum efficiency
- Mobility management and handover control
- Flexible backhauling

In this session, experts from network operators, telecom vendors and academia will discuss the challenging issues of HetNet deployments and the strategies to address them. In addition, possible industry and academia collaborations and research topics will be highlighted.

The session will encourage industry and academia interactions, and will be very attractive for network operators, telecom vendors and research organisations.

Presentations:

Small Cells in Heterogeneous Networks

Jie Zhang, University of Sheffield, UK

Enhanced Local Area (eLA) for Future Radio Access

Anass Benjebbour

David López-Pérez, King's College London, UK

Wireless HetNet ? Impact on Mobility and Backhaul

Dejan Beznec, Director - Engineering, EION Wireless, Ljubljana, Slovenia

Authors:

Zhang, Jie

Benjebbour, Anass

López-Pérez, David

Beznec, Dejan

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