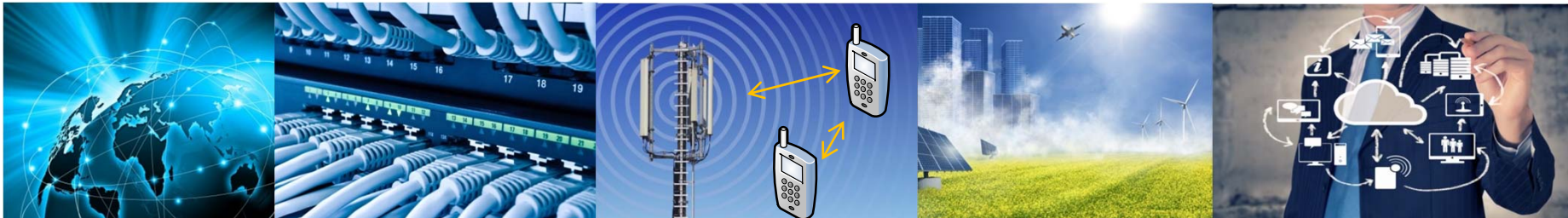
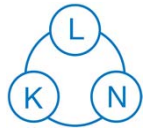


# ITG 5.2.4

## 5G Visions, Requirements, Solutions



**Wolfgang Kellerer**  
wolfgang.kellerer@tum.de

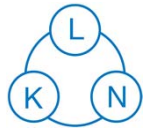


*Scientific, international, entrepreneurial.*

- Funded 1868
- 13 departments (EE&CE, Mechanical Eng., Civil Eng., Informatics, Physics, Chemistry, Architecture, Medical, Economics, Life Sciences, ...)
- > 35 000 students (1/3 female)
- > 500 professors
- 2013: ~300 Mio third party funding
- Tenure track system
- 13 nobel prizes, 16 Leibnitz prizes, 30 ERC grants
- 600 start ups



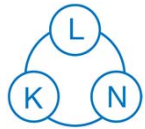




What do you understand with 5G ?



Wolfg



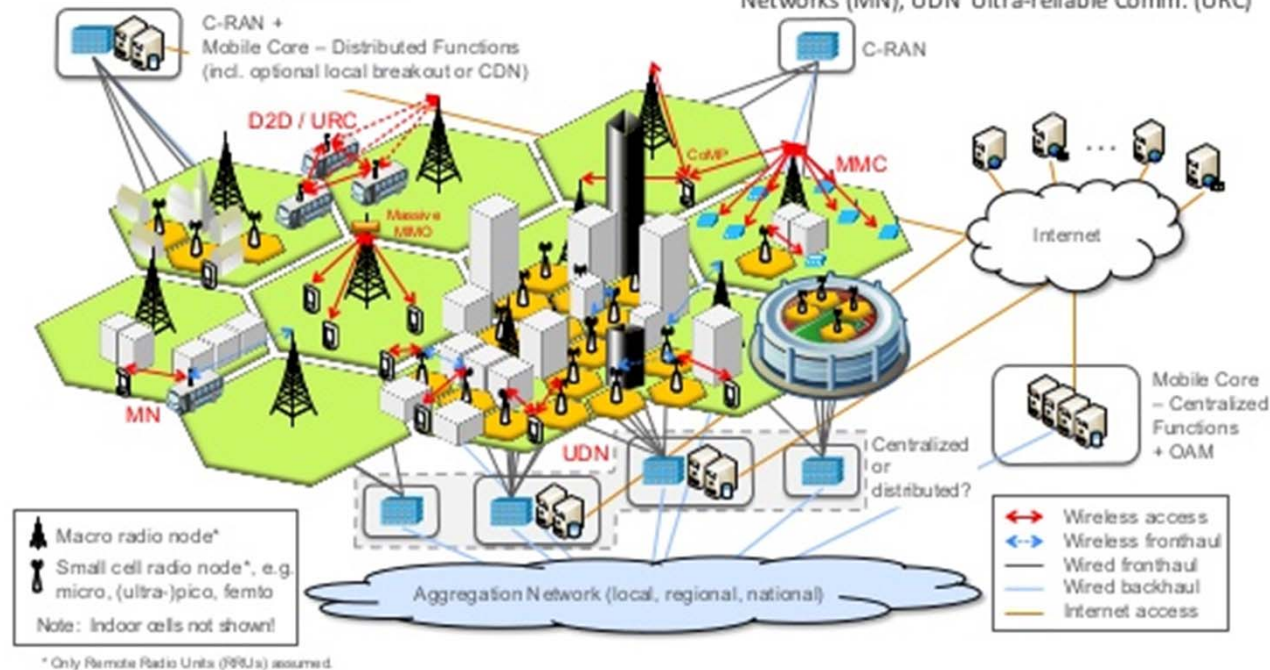
# One possible Vision



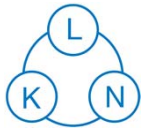
## METIS 5G Architecture



- Amazingly Fast scenario
  - high data rates & network capacities
- Ultra-Dense Networks (UDN)
  - ISD about 10 m
  - >= 1 radio nodes per room
- Local break out & Distributed mobile core functions
- Accelerated content delivery
- Tech. Dependent
  - D2D, MMC (Massive Machine Comm.), Moving Networks (MN), UDN Ultra-reliable Comm. (URC)



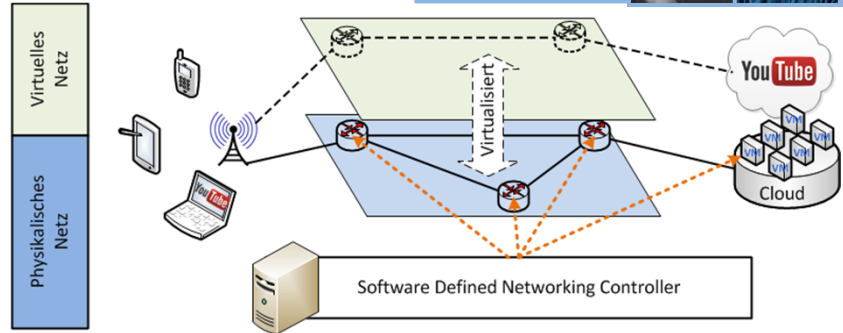
<http://image.slidesharecdn.com/journeyto5gpolicy20140507pa643-140521062918-phpapp02/95/commtech-talks-journey-to-5g-trends-and-scenarios-for-mobile-networks-40-638.jpg?cb=1400677901>



# „5G“ @ LKN



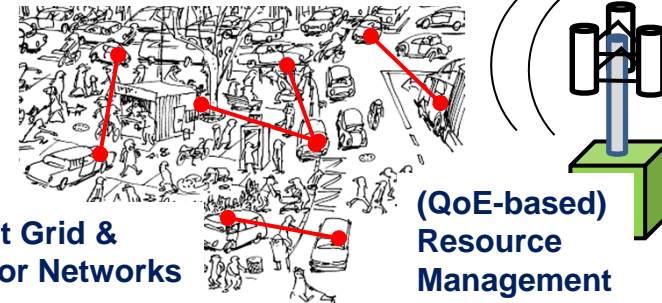
## Network Virtualization & Software Defined Netw.



## Cooperative Mobile Networks



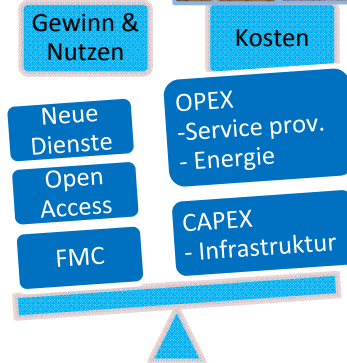
### Device-to-Device Communication



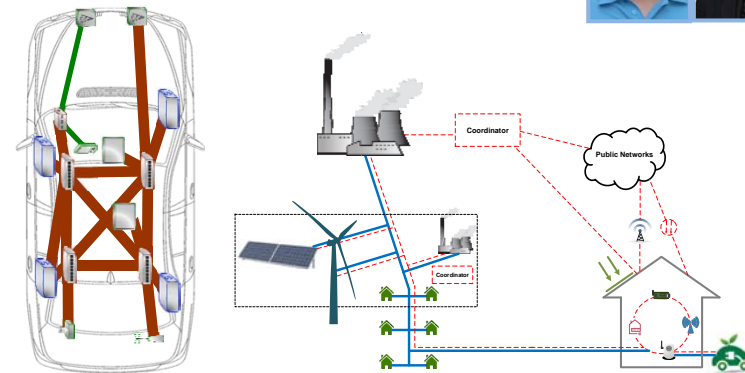
Smart Grid & Sensor Networks

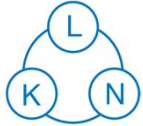
(QoE-based) Resource Management

## Techno Economic Analysis & Network Planning



## Application Domain-oriented Communication Infrastructures





## VDE ITG 5.2.4

### *IP and Mobility*

# Fachgruppe - Expert Group

#### Scope

- architectures, protocols and mechanisms of current and future IP-based mobile communication networks.

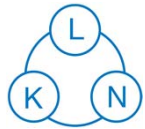
#### Mode of operation

- Regular workshops (2-3 per year): presentations and discussions on selected topics
- Results (slides etc.) are available on the homepage

<http://www.ikr.uni-stuttgart.de/Content/itg/fg524/index.html>

→ <http://itg.lkn.ei.tum.de>





## *IP and Mobility*

### Fachgruppe - Expert Group

Resource Management  
QoE, SON, Congestion  
Control, Interference  
Coordination, ...

Technologies  
Cellular (LTE, LTE-A, HSPA),  
Mesh & Sensor,  
Car2X, ...

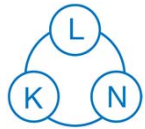
Wireless and  
Mobile  
Networking

Services, Applications,  
Business  
GreenIT, Service  
Platforms, D2D, M2M, ...

Models and Evaluation  
Traffic characterization,  
Simulation techniques,  
Mobility models, ...

<http://www.ikr.uni-stuttgart.de/Content/itg/fg524/index.html>

→ <http://itg.lkn.ei.tum.de>



## *IP and Mobility*

### Membership

- Workshops are open to the public  
(subscribe to mailing list for announcements – see web)
- Experts interested in shaping the work actively are  
always welcome  
*just ask us* (Fachgruppensprecher)!



Prof. Dr. Wolfgang Kellerer  
Technische Universität München



Prof. Dr. Dirk Staehle  
Hochschule Konstanz

<http://www.ikr.uni-stuttgart.de/Content/itg/fg524/index.html>

→ <http://itg.lkn.ei.tum.de>