5G CAMPUS IN DUBAI, HOW CAMPUS USE CASES WILL FOSTER INNOVATION

Falk Schröder, Detecon International

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5G is a game changer and much more than "just another" mobile phone technology.

1 5G provides a **universal network layer**! IT, OT and TK are merged and complexity is reduced.

- Network Slicing
- Precise Positioning
- Managed Latency/ QoS
- Campus Networks

2 5G enables **digital innovation**! New fields of application are opening up.

Energy | Healthcare | Logistics | Automotive | Manufacturing | Agriculture

New 5G eco-systems arise!

3 5G **changes market structures**! The right partners have to be found.

4 5G **starts today**! The next steps must be planned.

5G provides features forming the foundation for a new generation of use cases and business models.

Enhanced Mobile Broadband (*eMBB*)

10x LTE performance
Upload: 100 parallel 4k Videostreams (5 Gbps)
Download: 1:40 min for 1 TB data (10 Gbps)

Reliability at the highest level
LTE: statistical Quality-of-Service
5G: Managed Quality-of-Service with dedictaed ressources

500x LTE device density
Call capacity per km^2
LTE = 2.000 devices
5G = 1.000.000 devices

10x LTE performamce
>10 ms roundtrip time enables e.g.:
- Cloud based AR-services
- AGV* cloud steering

Massive Machine Type Communications (*mMTC*)

Ultra-Reliable and Low Latency Communications (*URLLC*)

*AGV = Automated Guided Vehicle

Industry 4.0 requires additional capabilities to enable IoT services

Need for enhanced production processes

- Competition will intensify in context of globalization and digitalization towards Industry 4.0
- Need to adapt to challenging market environment
- To remain competitive, all potentials for improved productivity and process efficiency must be leveraged:
  - Need to further optimize logistics & supply chains
  - Need to enable OT / IT convergence
  - Need for agility and shorter time-to-market
  - Need for deeper insights, more information transparency of value chain

Demand for new services

Communication / IoT Infrastructure	Factory Floor	Intralogistics	Office
Campus-wide network availability	Production Automation	AGV Transport Systems	Virtual Conferencing
Augmented Maintenance	Virtual Optimization	Asset Tracking	Wireless Office
Safety Monitoring	Remote Maintenance & Control	Supply Chain Integration	

A dedicated network solution is required to enable IoT processes and new services

Depending on the individual requirements, different variants of the implementation of 5G campus networks are recommended.

Status-Quo

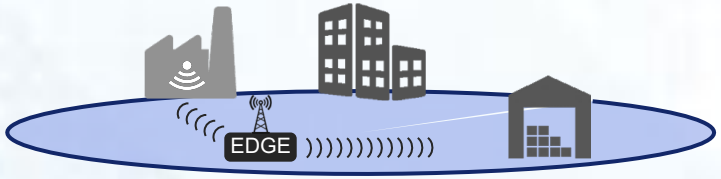
Insufficient coverage/functionality of the public network

Public mobile network

CAMPUS SOLUTION

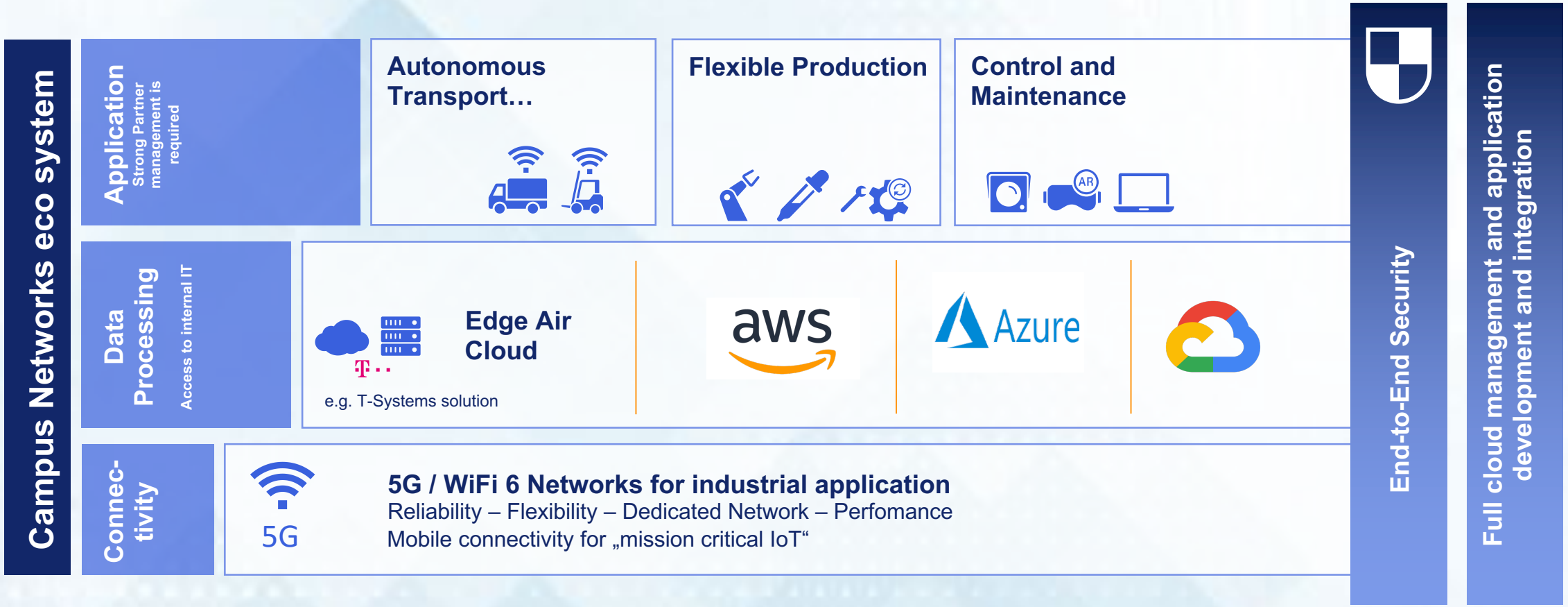
Enhanced public network
(public network infrastructure on the campus)

Hybrid-Campus-Network
[improved public network + (partly) isoliated private LTE / 5G network]



Isolated privat LTE / 5G WiFi 6 network
(dedicated own network infrastructure)

The use cases will be incorporated as applications on a cloud on premise or at the telco with full integration into campus IT via exiting connectivity



Detecon International GmbH
Sternengasse 14 - 16
50676 Cologne (Germany)
www.detecon.com
info@detecon.com

Falk Schröder
Managing Partner
Chapter Head
Network Technology

Mobile: +49 171 551 8452
e-Mail: Falk.Schroeder@detecon.com

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