

BUSINESS CRITICAL CAMPUS NETWORKS, THE OPERATOR PERSPECTIVE

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Digital Services | Business Solutions
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ROHDE & SCHWARZ

Make ideas real





Private 5G Campus Networks

Telefónica Business Solutions

Digital Services

5G Campus Network Competence Centre

O2 Telefónica. Part of Telefónica S.A. group

Global



40.6 bn


EUR revenue in 2023

370 mio


customers in 2023

113,000


employees in 2023

one of the 10 largest
telecommunications
companies in the world



Germany



8.6 bn

45 mio

7,600

operations in 12
countries worldwide



The value and benefits provided by a Private 5G Campus Network

- own, secured network
- future-proof
- high SLA with complete control per Connection
- uninterrupted quality for moving objects
- one technology for all use cases
- wireless factory – only with 5G
- seamless network coverage indoor and outdoor

Security

Traffic Prioritization

Mobility

Reliability

Interference free Reception



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Leading Use cases for Private 5G Campus Networks - and typical first steps

AI and Machine-Learning
for Quality Inspection and
Process Automation



Data-driven Operations
Sensors and AI for
Predictive Maintenance
and operational efficiency



Wireless Factory for
Flexibility and
Equipment sharing



Next Generation of
Automated Guided Vehicles
toward
coordinated swarms of
Autonomous Mobile Robots



Remote Operations
Digital Twin
Remote Expert



Autonomous Solutions in
Security, Inspection and
Logistics

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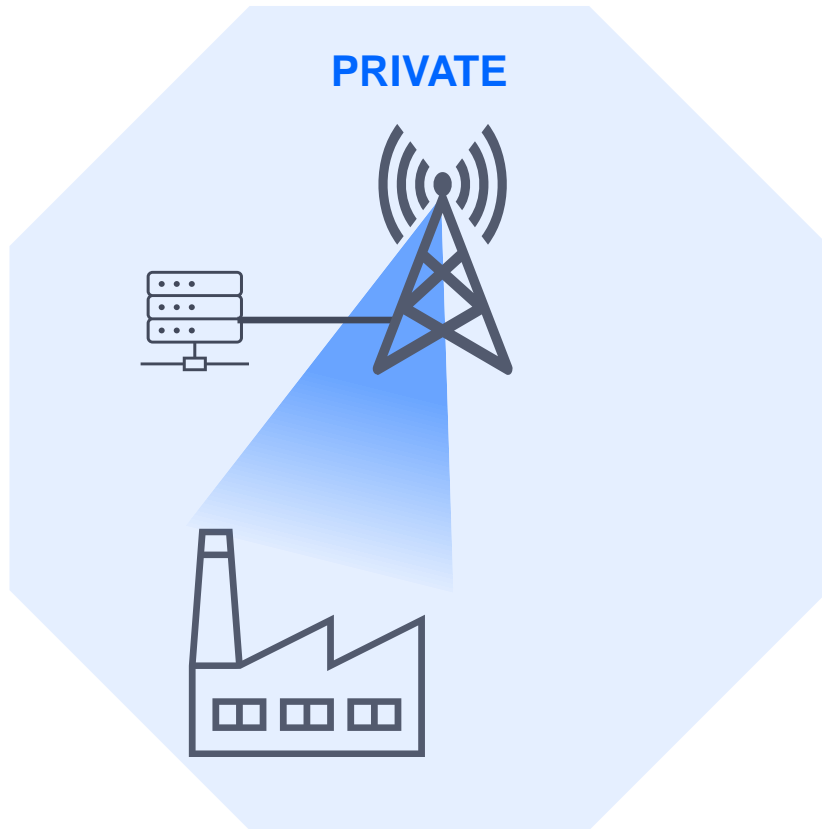


Autonomous Solutions in
Security, Inspection and
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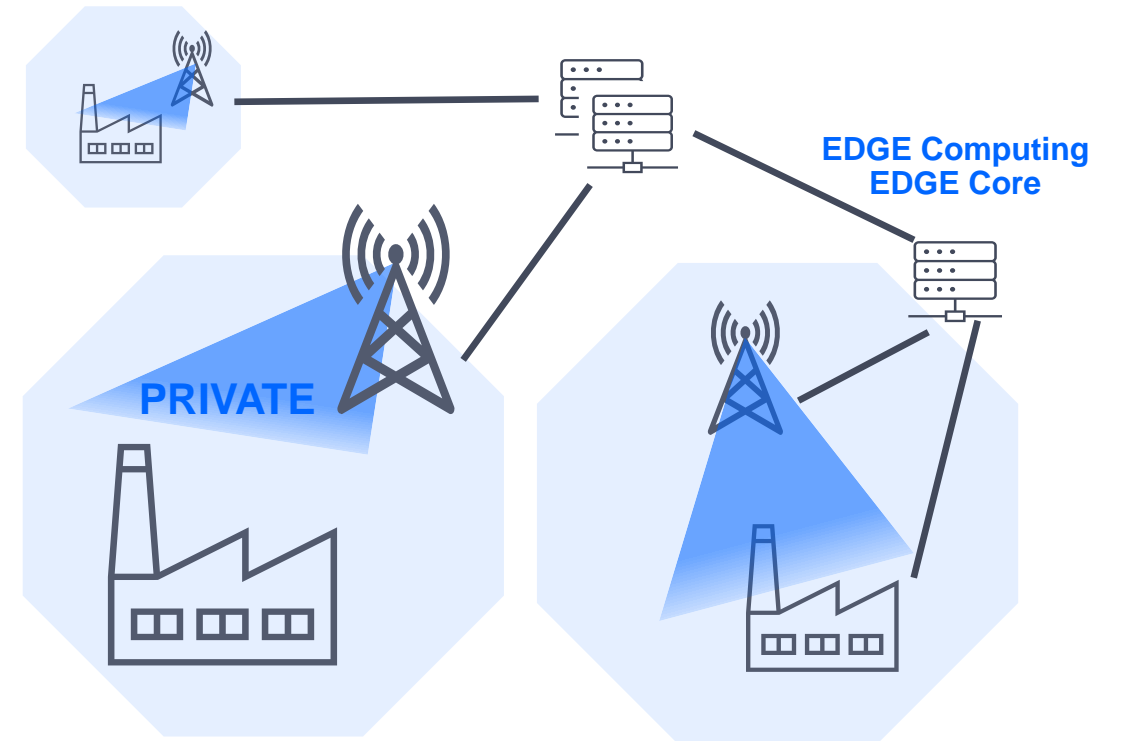
5G Campus Network Architecture Models

Typical Models for manufacturing sites

CAMPUS NETWORK ISOLATED



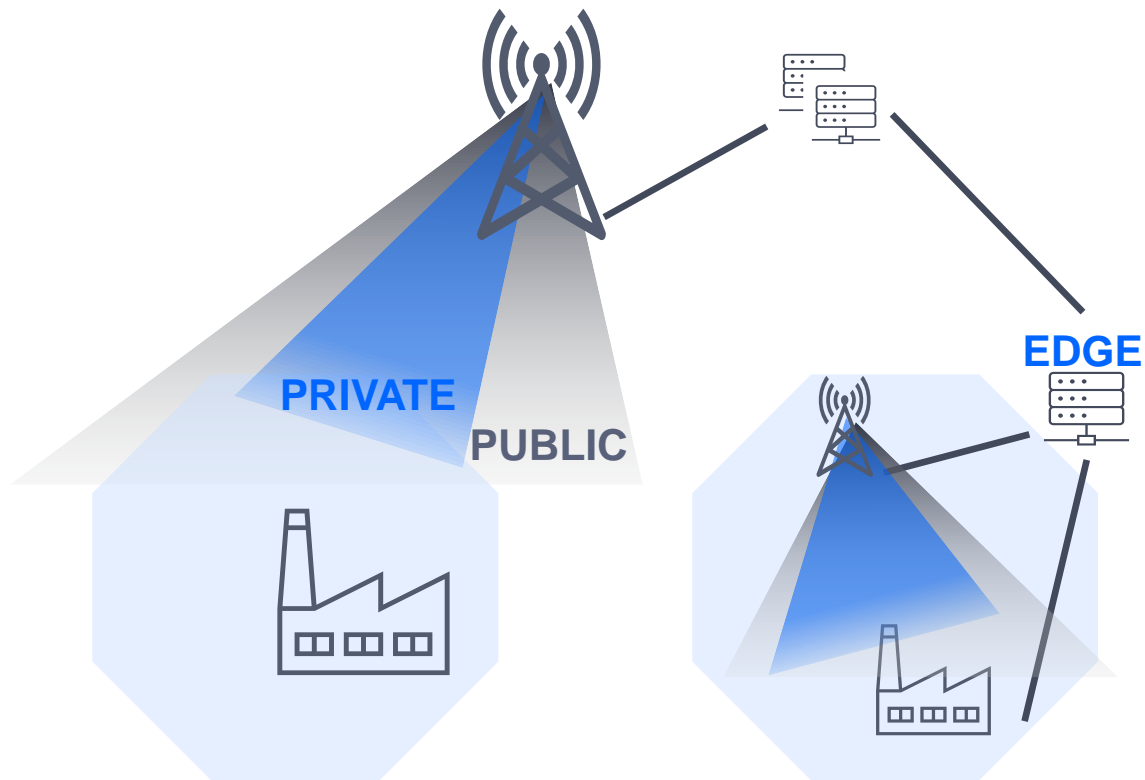
CAMPUS NETWORK CLOUD



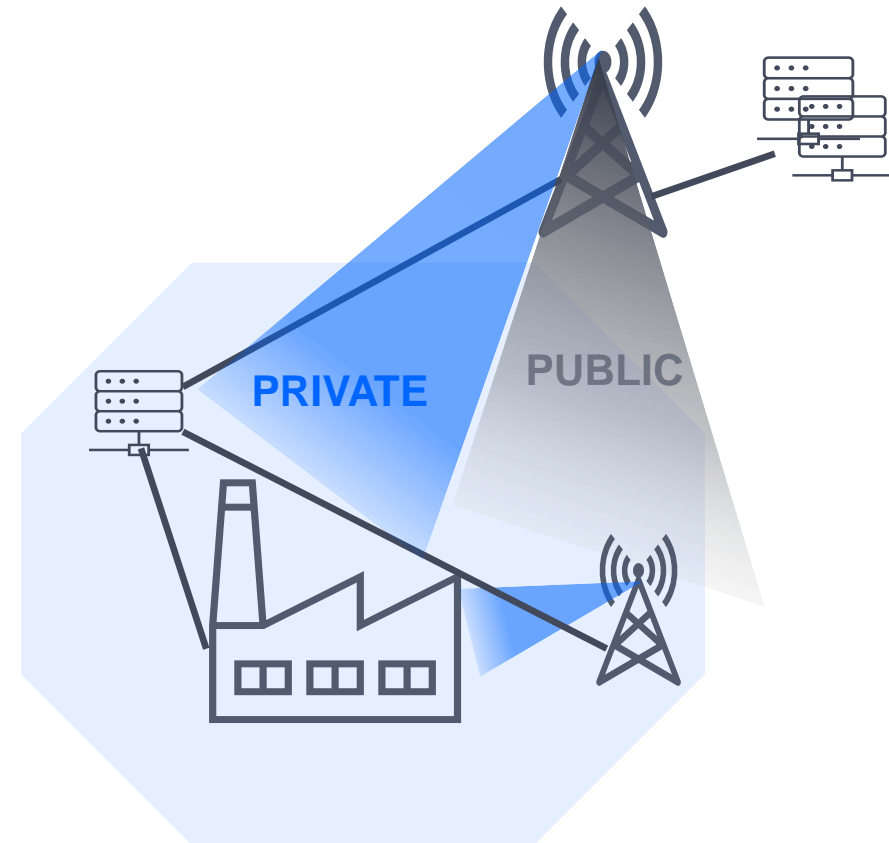
5G Campus Network Architecture Models

Typical Models for large outdoor and public areas

CAMPUS NETWORK SLICING



CAMPUS NETWORK HYBRID



Selected Campus Network Projects in Telefónica Germany

Outdoor Vehicle Test Center



Automatic testing of cars in live scenarios.

4G optimized E2E to 5G level

520ha, 16 sites

Industrial use in a paper factory

PRINZHORN GROUP | *We will.*

- Focus on seamless 5G coverage in indoor, machine and outdoor environments
- Operationally critical applications with industry SLA including penalties
- International network with inter-operator frequency agreement for Austria (Three AT)

Private Healthcare Sector in Germany



5G standalone core network, with all components and functions located on site at the clinic in Leipzig.

to use **5G SA** technology to test real-time use cases in the clinical environment and for medical technology devices.

5G campus for public administration



5G campus network supplies indoor & outdoor areas with 100MHz frequency spectrum

use case: Broadband **connection to public state network via 5G**

Test lab for **use case development** available to regional public and private partners / startups

5G Standalone network for major automotive technology supplier

Private secure Network for Confidential Data

- Full Coverage of Vehicle Test Area
- Reliable Connectivity for Customer Test Scenarios and Data Collection
- Replacement of Expensive Cable systems
- Availability of Highly confidential Customer and Test Scenario Data on Mobile Devices

Development of robotics and AGV in technical logistics



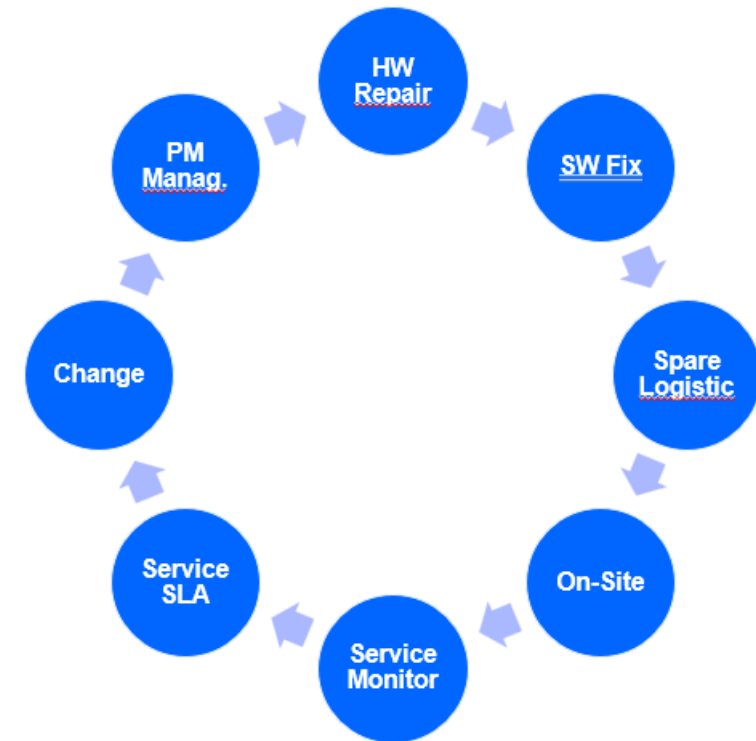
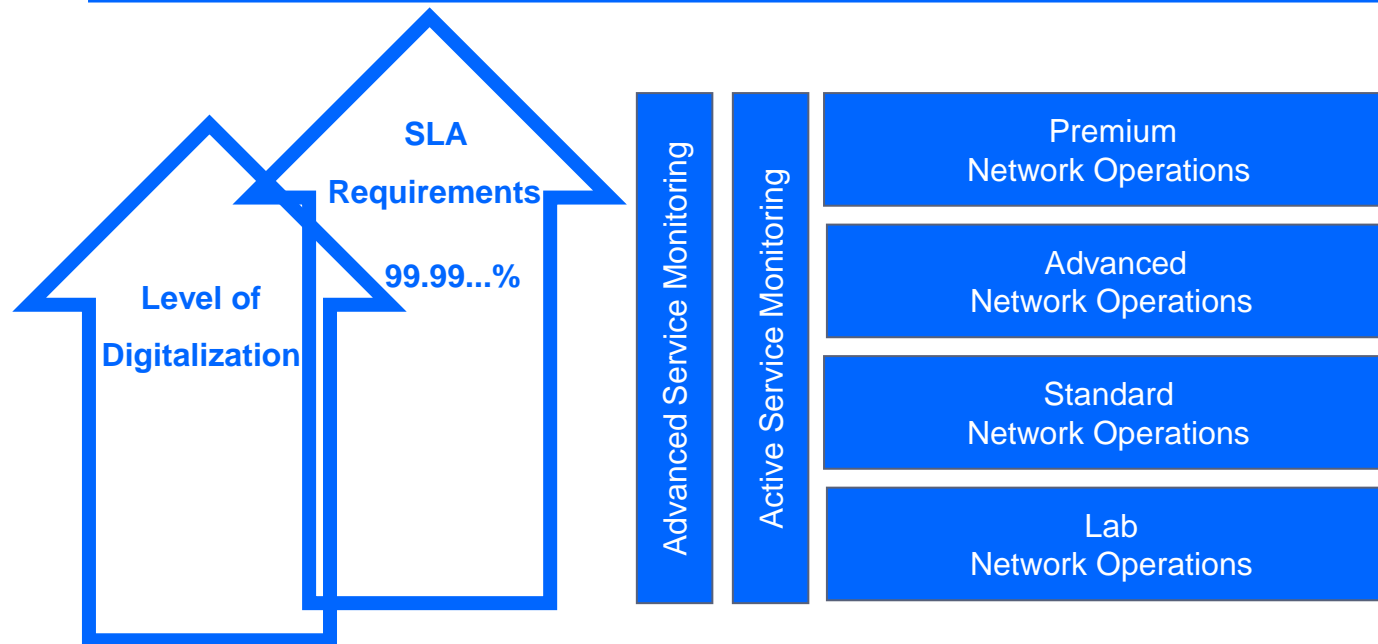
5G campus network services and cooperation package for research into 5G in technical logistics application

TUM (Technical University of Munich) is researching new AGV/AMR automation levels and collaborative robots in logistics processes enabled by 5G.

Campus Network Operations for Business Critical Networks

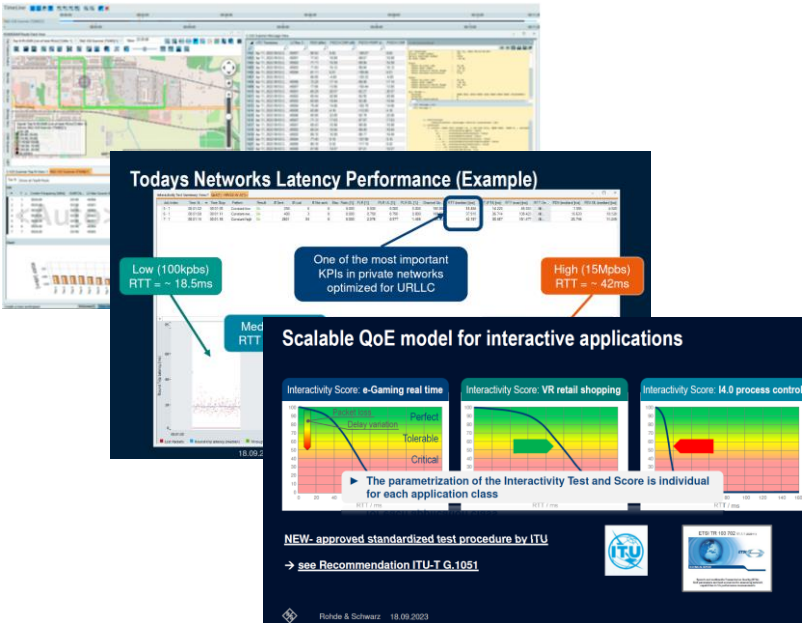
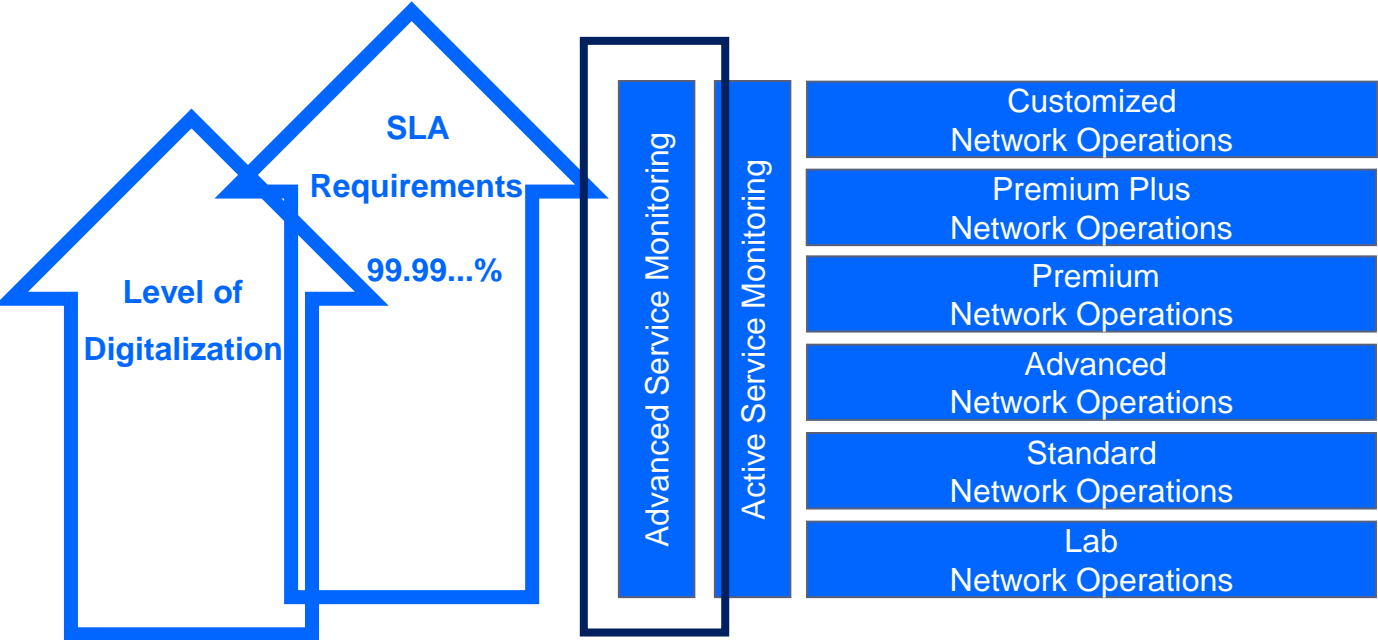
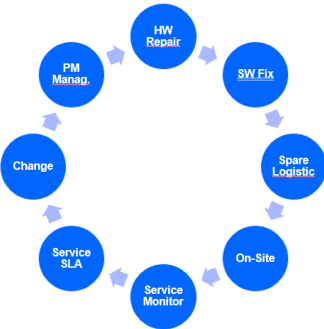
New Business and Risk models ask for advanced solutions

- 5G Campus Networks are made for high reliability use cases
- Operational Model must follow Business Criticality
- Need for highly specialized Operations Infrastructure



Current and Future Advanced Monitoring Solutions reduce risks for Industry

- Use of specialized Monitoring Tools for Advanced Monitoring
- Leverage Joint Experience from other projects
- Outlook: Advanced Monitoring for Slicing



Thank you for your attention!
Please contact me and Telefónica any time for additional information!



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Campus Networks @ Telefónica Germany - Partners

<https://www.o2business.de/campus-networks/>

<https://www.o2business.de/campus-networks/use-cases-loesungspartner/5g-campus-loesungspartner/>



Telefónica

Test. Measure. Innovate

THANK YOU
VERY MUCH

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