

# Benefits of private 5G networks in Industry

## Case study: steel manufacturing

**Mr. Daniel Mai**  
Director Industrial Wireless Communication  
Siemens AG

**ROHDE & SCHWARZ**

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A large industrial steel mill with a worker on a platform and molten metal being poured.

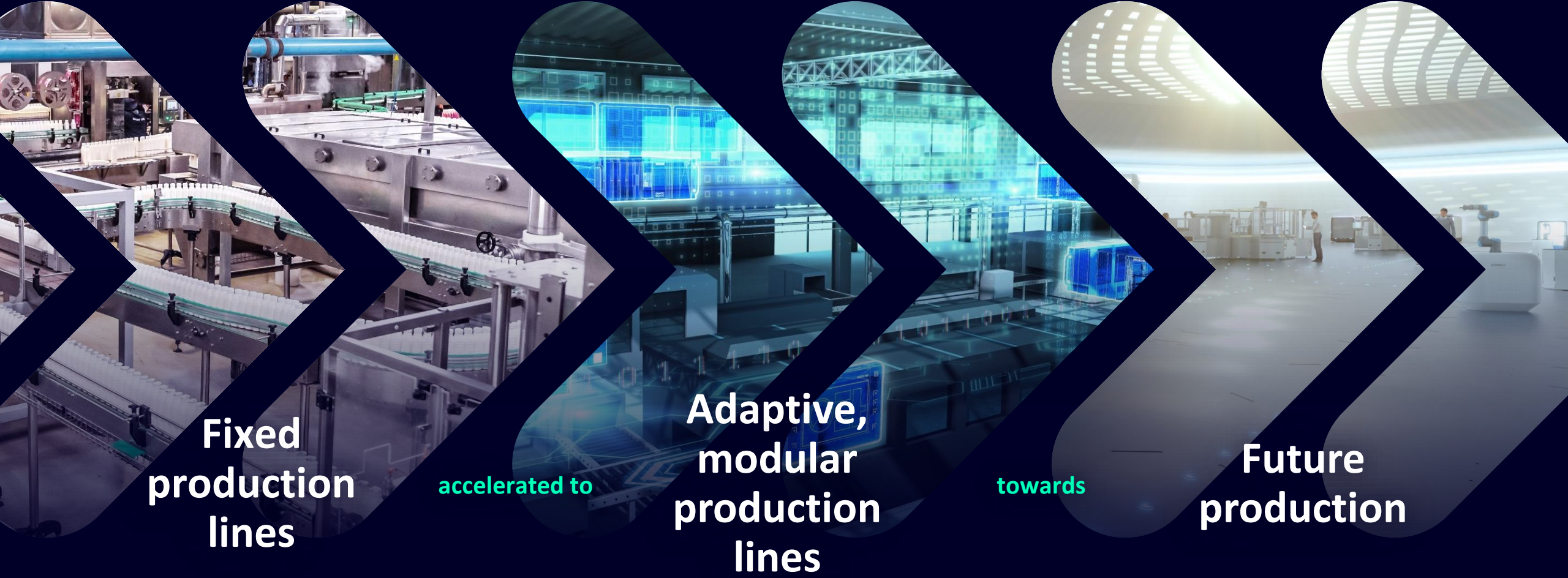
# Benefits of private 5G networks in Industry

Case study: steel manufacturing

R&S



# Rethinking production towards more adaptability



**Fixed  
production  
lines**

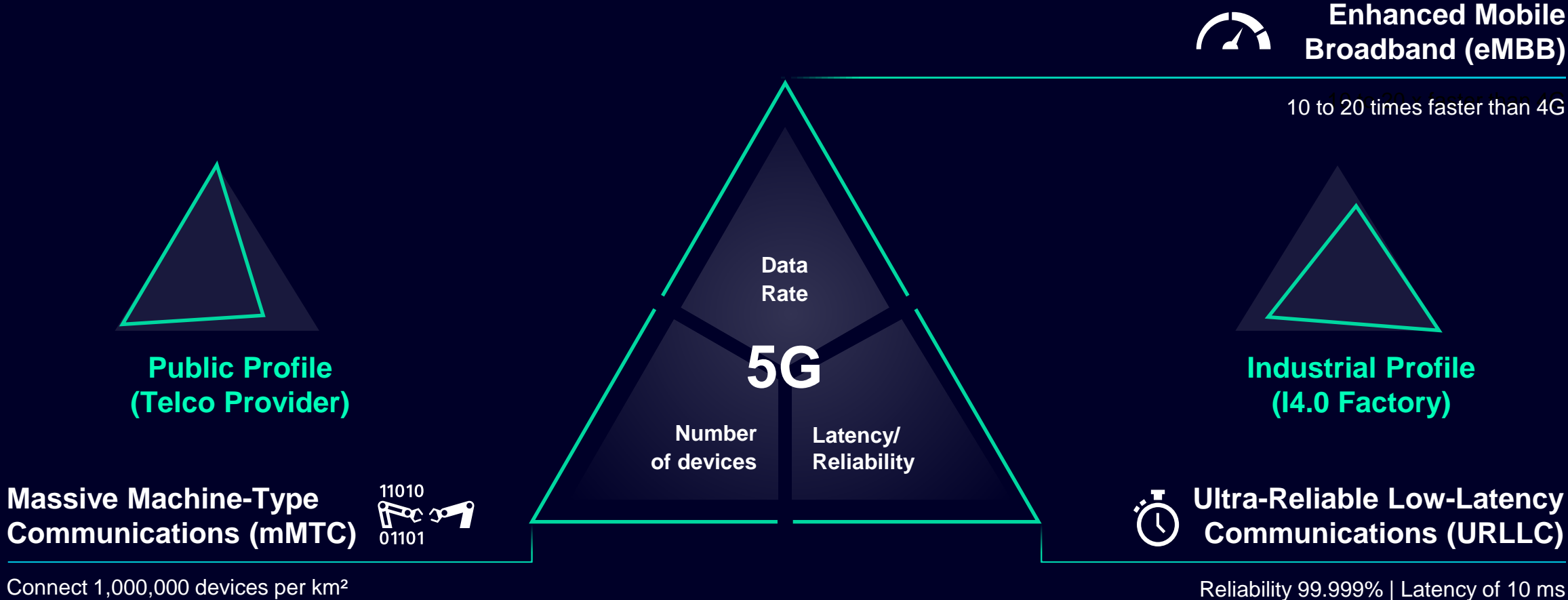
accelerated to

**Adaptive,  
modular  
production  
lines**

towards

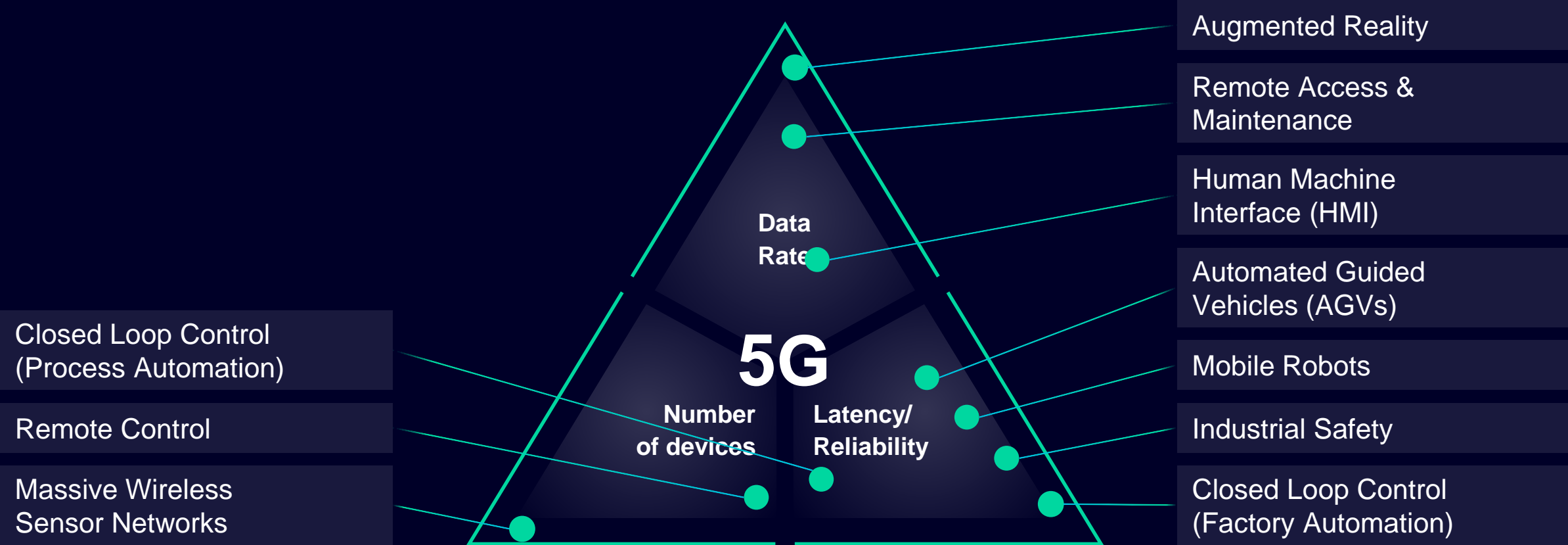
**Future  
production**

# 5G fulfills various network requirements



# Classification of applications according to network requirements

## Factory and Process Automation



# Applications with private Industrial 5G networks



Mobile Equipment



Augmented Work



Digitalization, IIoT



Autonomous Machines



Autonomous Logistics

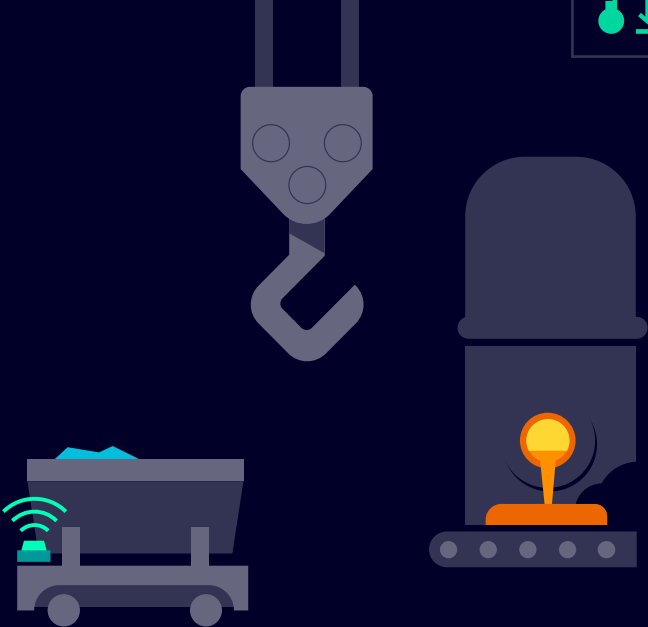


Edge

# Special requirements on the shop floor

## Harsh environment

Equipment needs to cope with heat, dust, vibrations, a lot of metal



## Reliability is king

The network needs to reliably work 24/7



## Optimal coverage

All participants need to have a good wireless signal availability



# Special requirements on the shop floor

## Guaranteed Latencies, Deterministics

Applications working together require deterministic communications



## High uplink data rates

Industrial applications need high uplink data rates to send data to EMS



## Industrial protocols

Industrial applications „talk“ industrial protocols

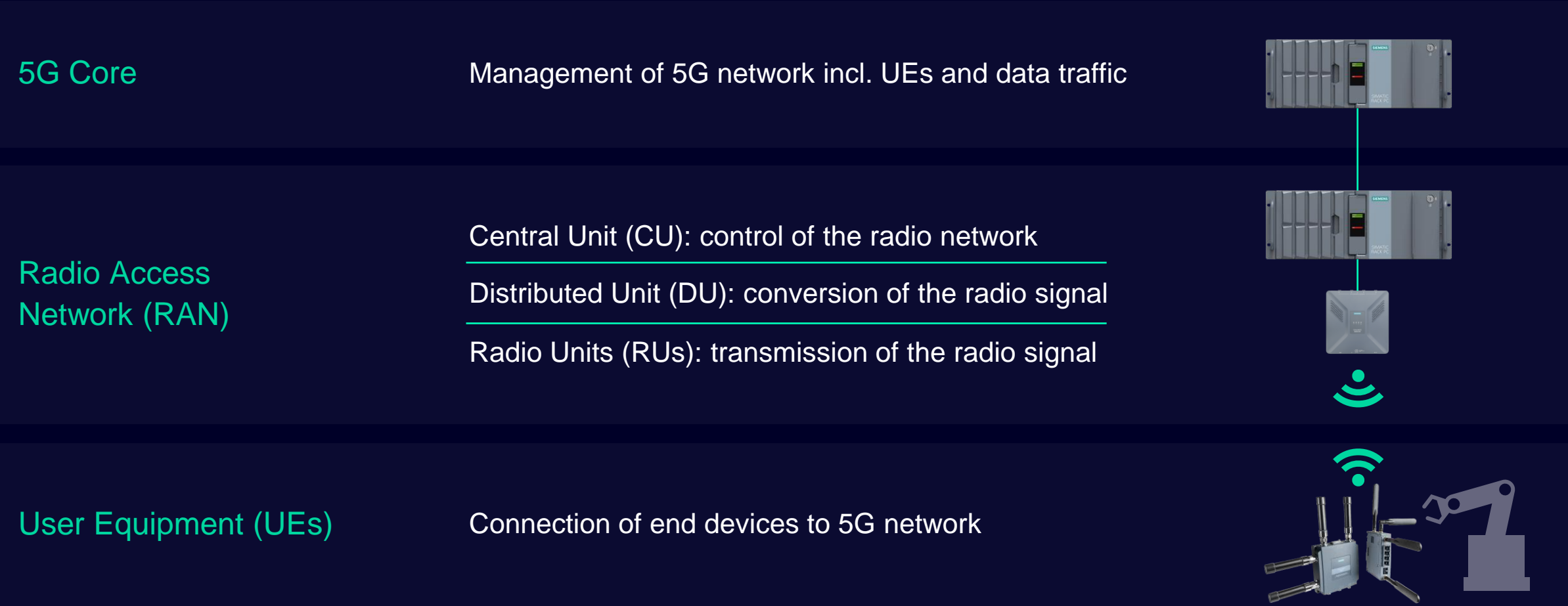




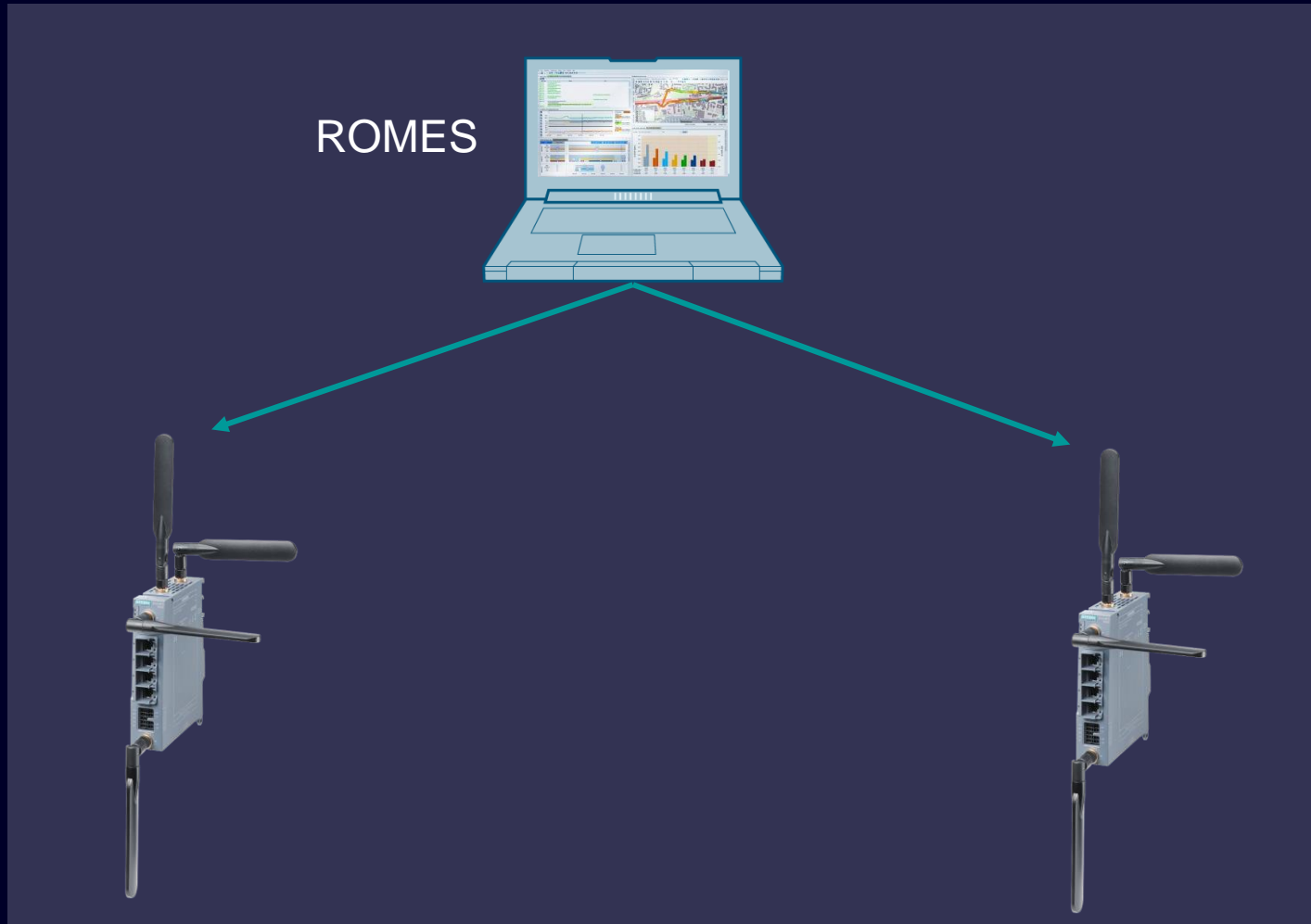
# Which industries will benefit from 5G?



# Private Industrial 5G solution



# Troubleshooting in 5G Networks with SCALANCE MUM85x and Romes



- Romes is installed at service technician PC
- IP Connection from PC to MUM is available via Ethernet cable or wireless via cellular network e.g. Private 5G Infrastructure or Public Network and VPN with SINEMA RC

## Benefit:

- Deep analysis and recording of cellular connection possible



# Steel production at Salzgitter AG in Germany

- Installation of a private 5G network at Salzgitter Flachstahl GmbH in the flat steel production area
- Private Industrial 5G network using private spectrum (3.7 – 3.8 GHz band)
- In the 1<sup>st</sup> step connection of AGVs that transport red hot steel slabs

# Contact

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## Daniel Mai

Director Industrial Wireless Communication

E-mail: [mai.daniel@siemens.com](mailto:mai.daniel@siemens.com)

LinkedIn: [linkedin.com/in/daniel--mai](https://www.linkedin.com/in/daniel--mai)

Website: [www.siemens.com/industrial-5g](https://www.siemens.com/industrial-5g)



Test. Measure. Innovate

THANK YOU  
VERY MUCH

**ROHDE & SCHWARZ**

Make ideas real



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