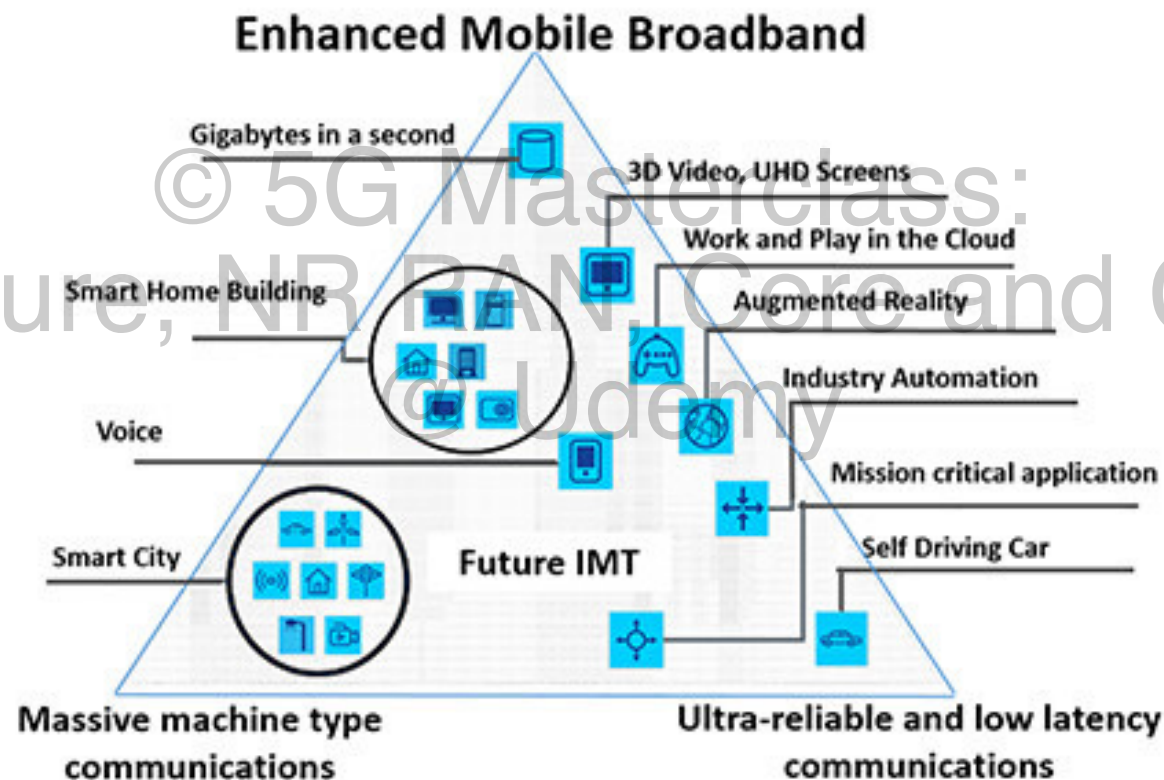


© 5G Masterclass:
Architecture, NR RAN, Core and all flows
@ Udemy

5G System

THE 5G USE CASES

The 5G Use Cases



Enhanced Mobile Broadband

- Peak data rate: 20 Gbps (DL) , 10 Gbps (UL)
- Peak spectral efficiency: 30 bps/Hz, 15 bps/Hz
- User experienced data rate: 100 Mbps (DL), 50 Mbps (UL)
- Area traffic capacity: 10 Mbps / Sq.m
- Speed: Up to 500 Kmph
- Energy Efficiency
- Low cost per bit



Smart phones



Homes, enterprises and venues
(mobile/wireless/fixed)



4K/8K, UHD, broadcasting, virtual
reality, augmented reality

Massive Machine Type Communications (mMTC)

- Connection density: 1,000,000 devices per sq km²
- Battery life: Up to 10-15 years
- Low data rate: 1-100 kbps
- Enhanced coverage

© 5G Masterclass:
Architecture, NR RAN, Core and Call flows
@ Udemy



Smart building



Logistics, tracking and
fleet management



Smart meters



Smart agriculture

Ultra Reliable Low Latency Communications

- Low User plane latency: 1 ms
- Low Control plane latency: 10 ms
- Reliability: 99.999% success rate
- Mobility interruption time: 0 ms

© 5G Masterclass:
Architecture, NR RAN, Core and Call flows
@ Udemy



Traffic safety
and control



Remote manufacturing,
training and surgery



Industrial applications
and control

The 5G Use Cases - Summary

Massive Machine Type Communications (mMTC)

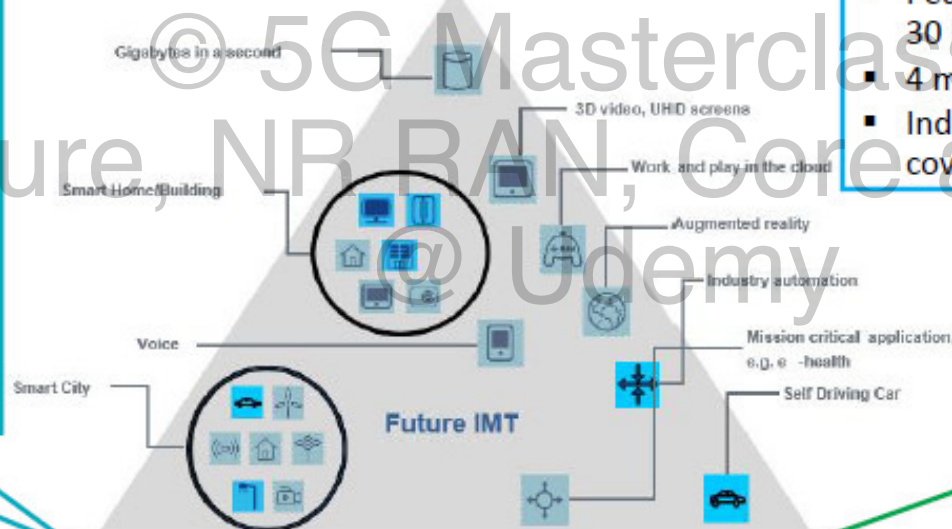
- Low data rates (1 to 100 kbps)
- High device density (up to 1,000,000 /km²)
- Latency: Seconds to hours
- Low power: Up to 15 years battery life

Enhanced Mobile Broadband (eMBB)

- Peak data rates: 20 Gbps (DL) and 10 Gbps (UL)
- Peak spectral efficiency: 30 bps/Hz (DL) and 15 bps/Hz (UL)
- 4 ms user plane latency
- Indoor/hotspot and enhanced wide-area coverage

Ultra-Reliable and Low Latency Communications (URLLC)

- Low to medium data rates (50 kbps to 10 Mbps)
- 0.5 ms user plane latency
- 99.999% reliability and availability within 1 ms
- High mobility



Source: ITU-R SG5 WP-5D

© 5G Masterclass:
Architecture, RAN, Core and Call flows
@ Udemy

THANK YOU