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Paving the way for 5G

Nov. 10th, 2016

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Wireless Transmission Research Section

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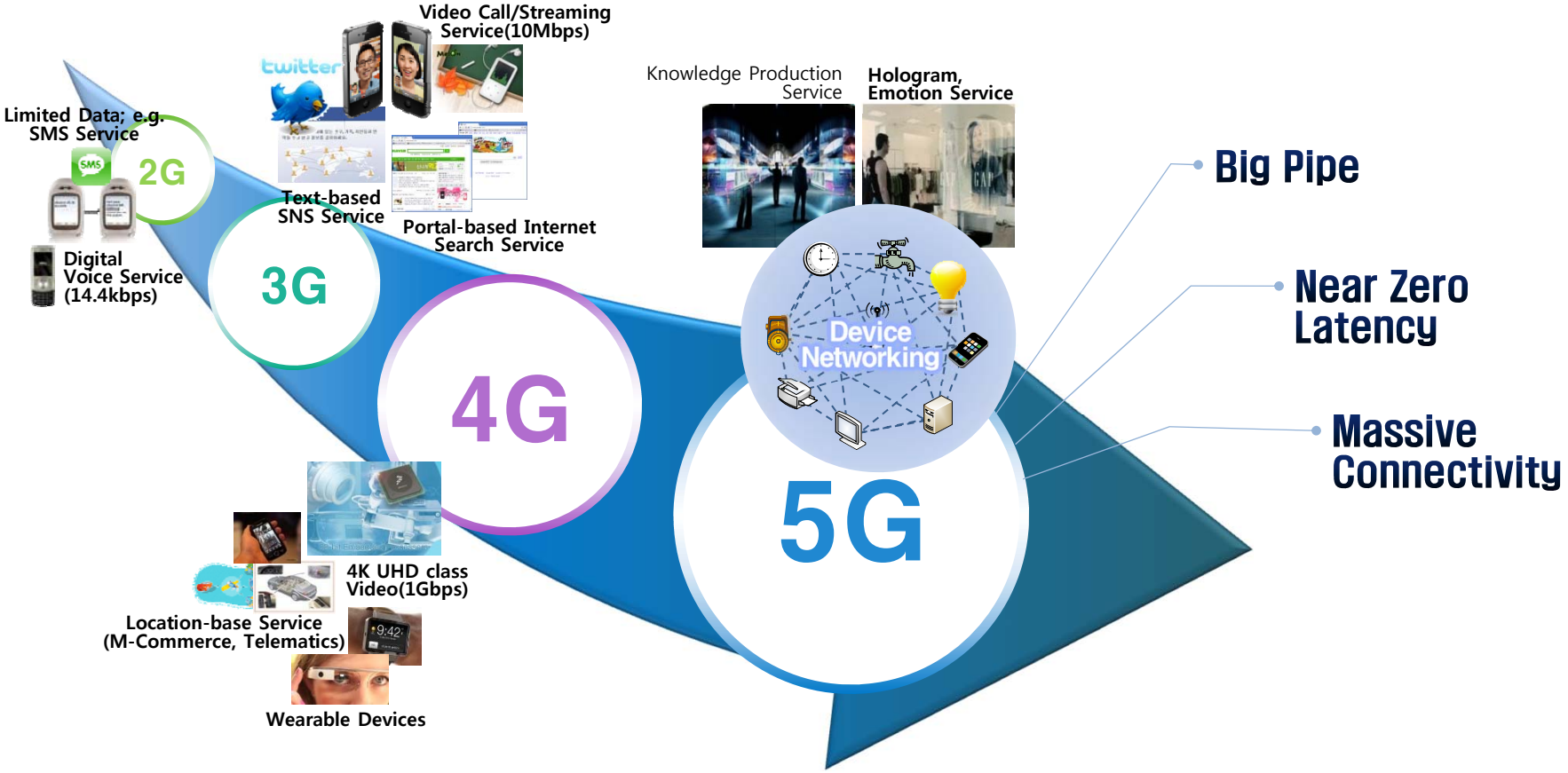
Evolution of Mobile Services



5G Services & Use Cases

Enhanced Mobile Broadband

High data rate

SMV/UHD

Hologram

VR/AR/Tele-Experience Services

Demanding conditions

Broadband Access in Dense Areas

Massive hot spots /Smart office

High-speed Mobility

Moving hot spots/ High-speed train

Ultra reliable and low latency communication

Ultra-high reliability/low latency

Tactile Internet

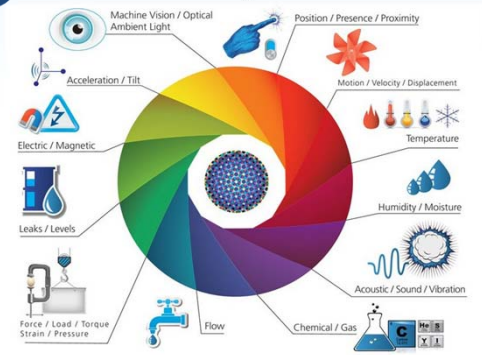
Remote-control robot/machines

Connected cars (V2X)

Massive machine type communication

Massive connectivity

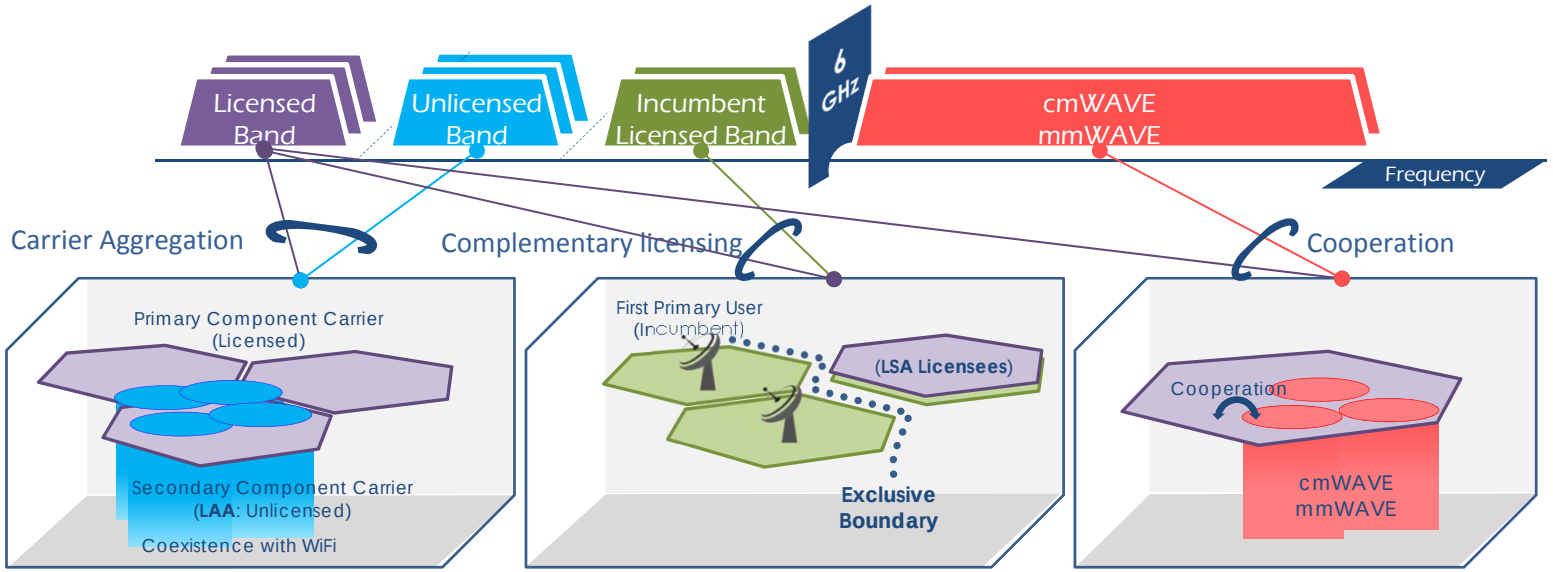
Remote sensors/actuators



Smart city-home

5G IoT

Spectrum Utilization in 5G



LAA : Licensed-Assisted Access

Unlicensed band can be used as Secondary Component Carrier (SCC) for increased user data rate

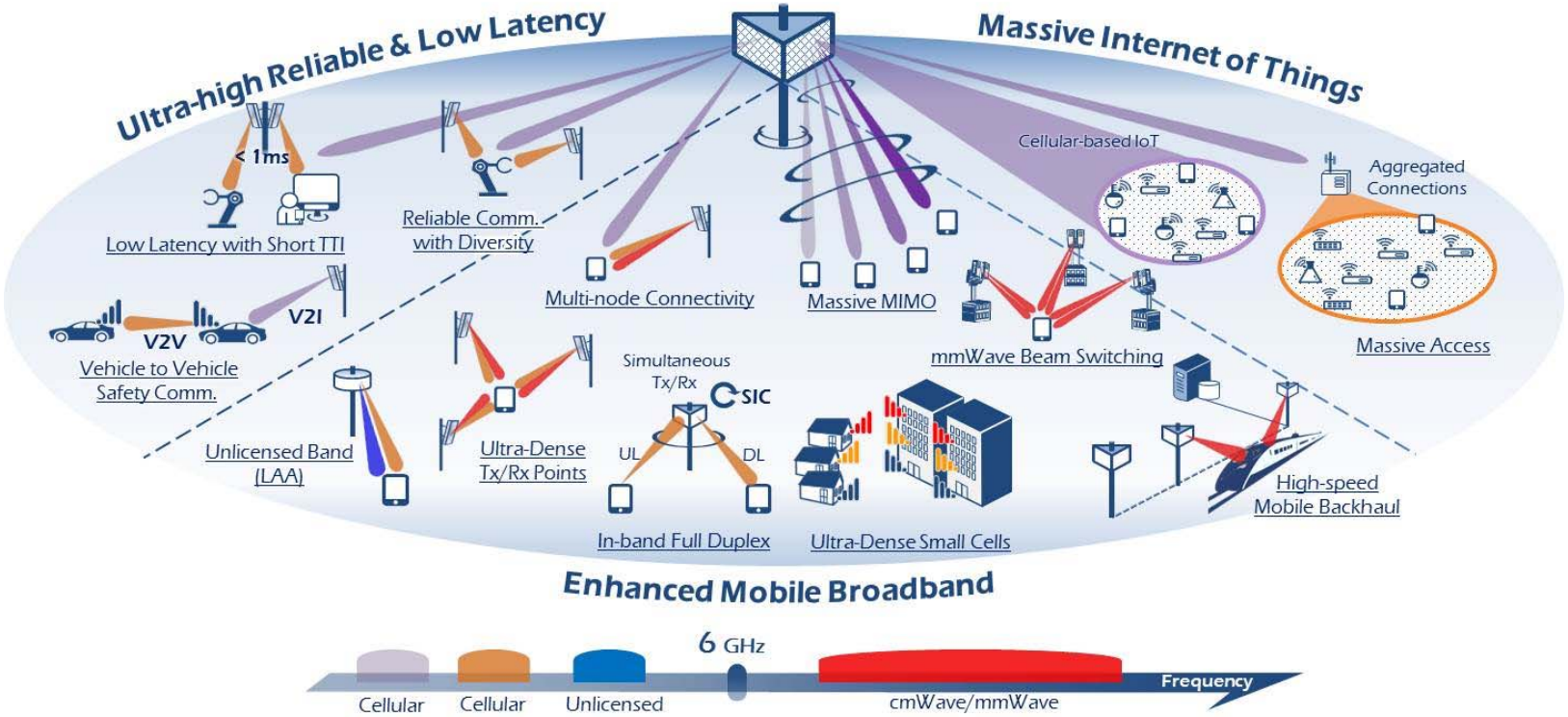
LSA : Licensed Shared Access (ASA : Authorized Shared Access)

Spectrum sharing with incumbent users can be a complementary solution

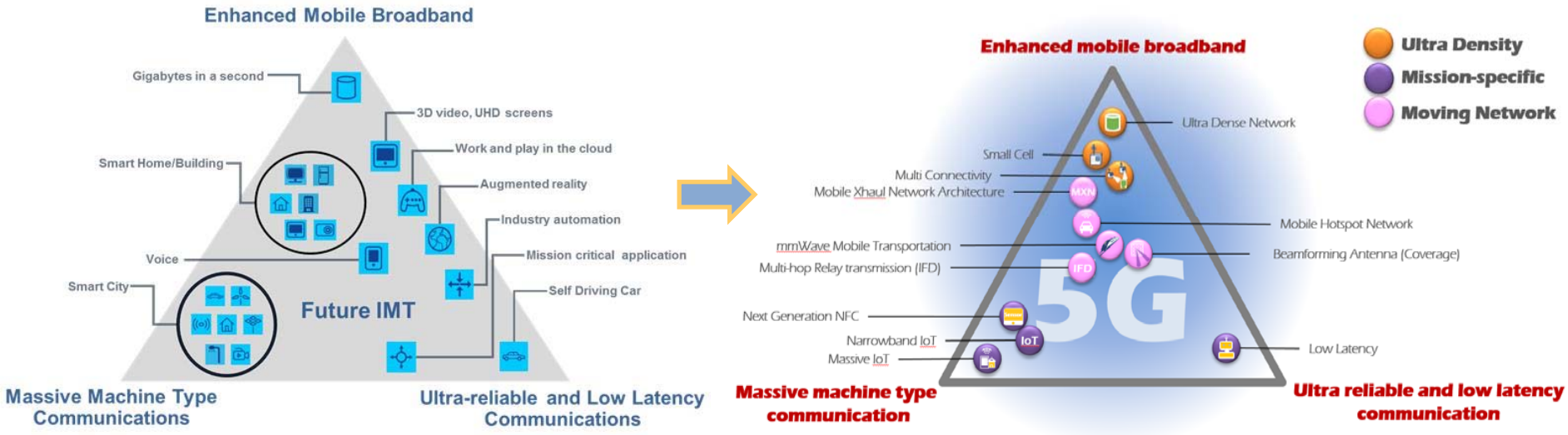
New Spectrum Access

Mobile broadband access to support higher data rate and to accommodate traffic explosion

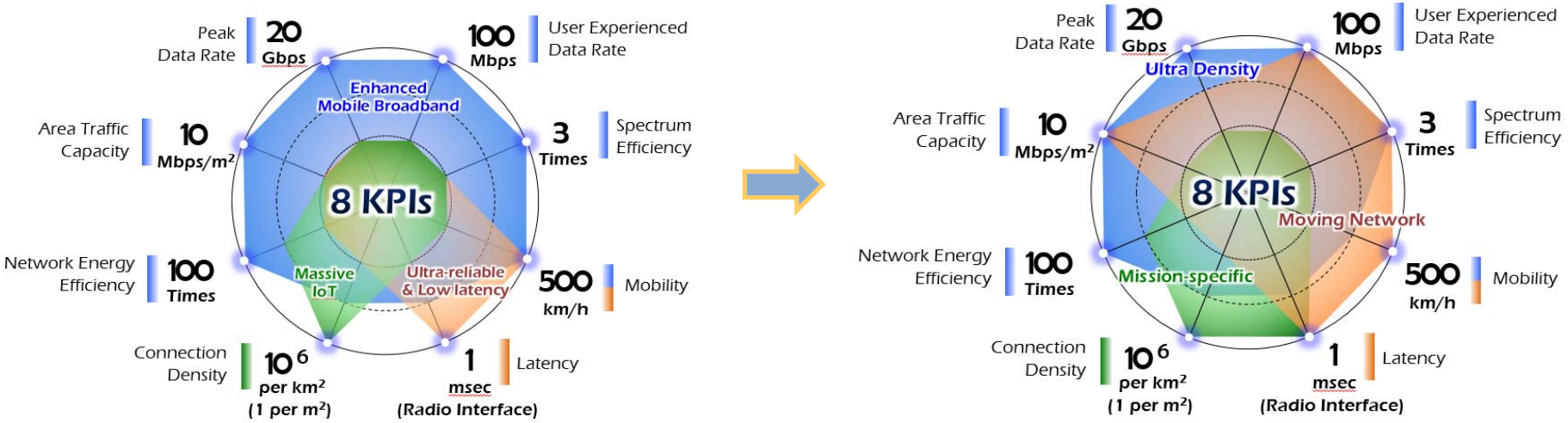
5G enabling technologies



Usage Scenarios

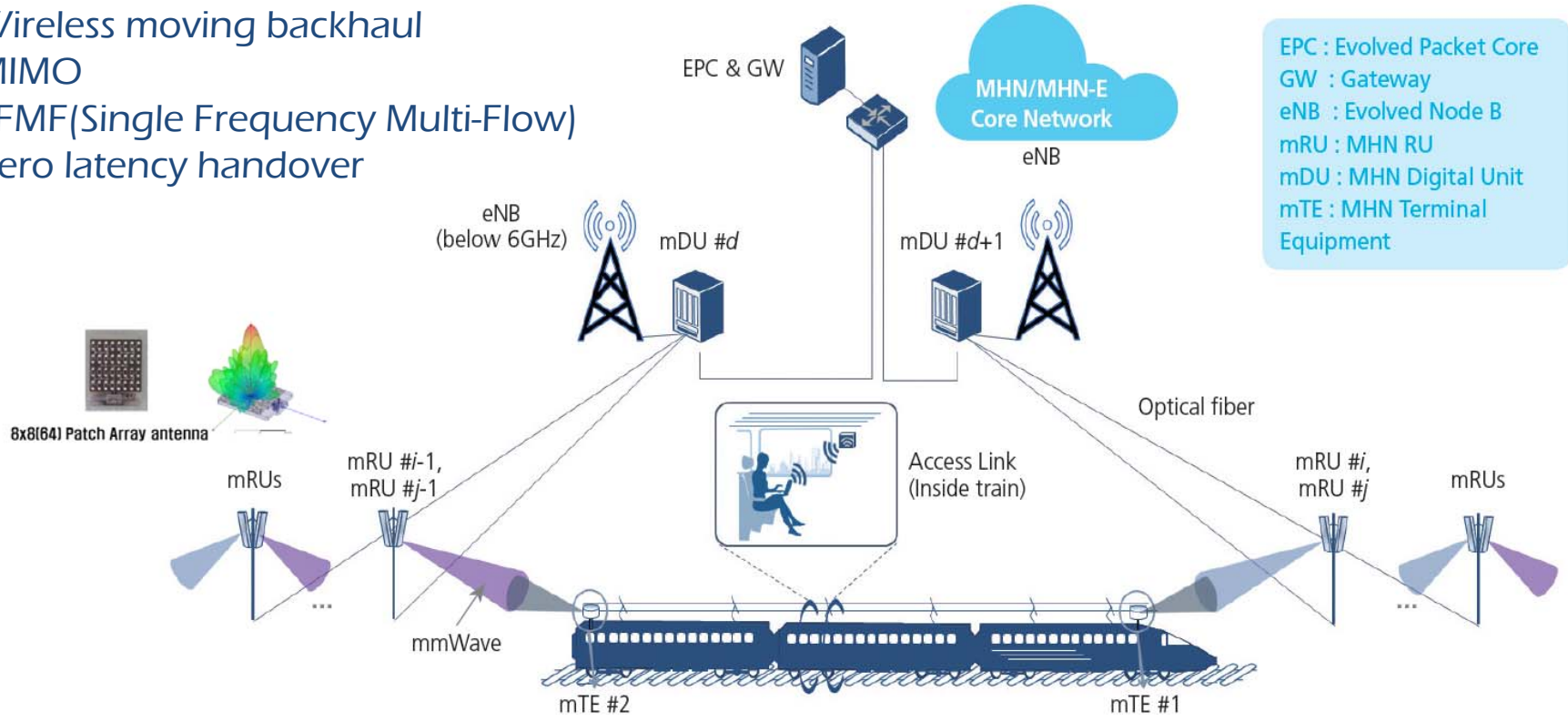


5G Key Capabilities

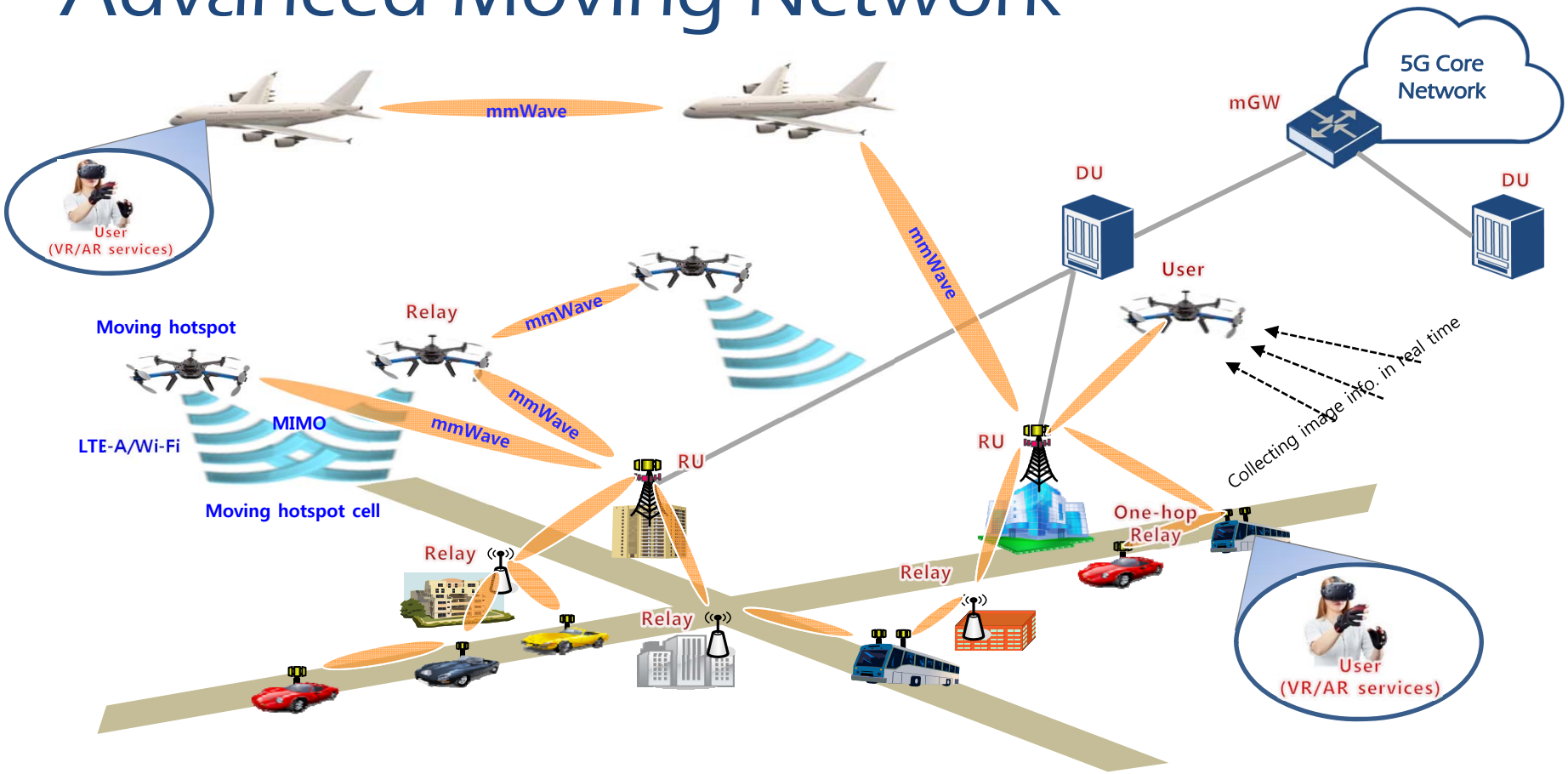


Moving Network: High-speed moving Backhaul

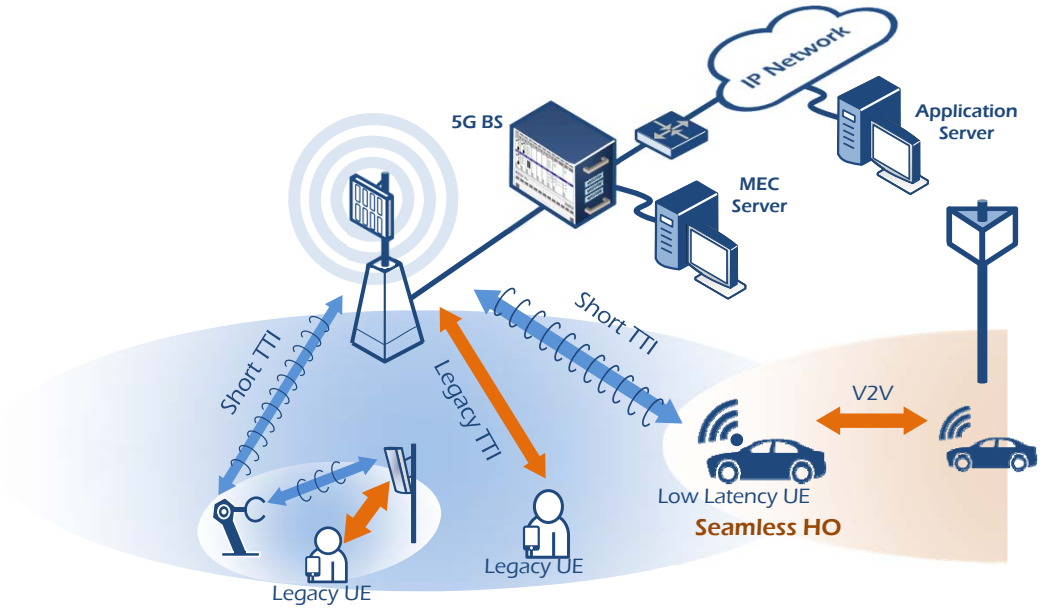
- Wireless moving backhaul
- MIMO
- SFMF(Single Frequency Multi-Flow)
- Zero latency handover



Advanced Moving Network

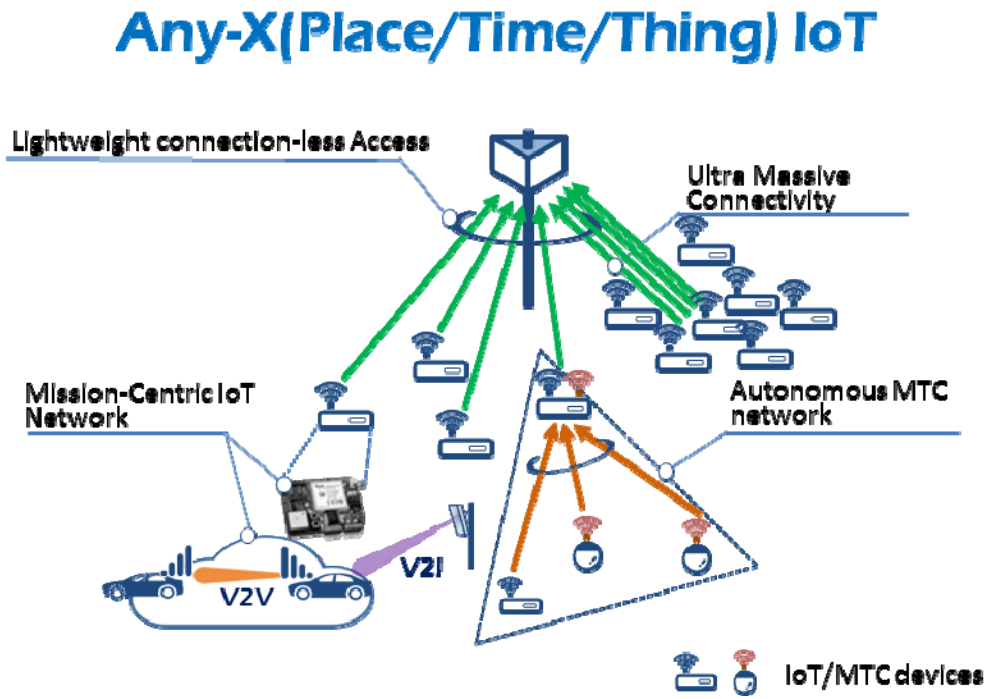


Mission-specific: Low Latency



- Grant-free contention based transmission schemes
- Real-time control and big data processing based on edge cloud/fog computing
- Enhanced transmission schemes including multiple diversity, new HARQ, new coding & modulation, etc.
- Handover interruption time reduction

Mission-specific: Any-X IoT



- Autonomous MTC networking based on Direct M2M Communication
- Aggregation and relaying of data from the local devices
- Maximizing # of connected devices/unit area with increased resource reuse
- Maximizing peak simultaneous device capability

Summary

- 5G?
  - ❖ New RAT covering Vertical industries' requirements
  - ❖ Aggregation of the heterogeneous resources
- Three Categories of 5G Enabling Tech.
  - ❖ Ultra Density
  - ❖ Mission-specific
  - ❖ Moving Network
- Remaining Critical Issue
  - ❖ Collaboration with neighbors

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Thank You !!!