Views on Rel-17 topics

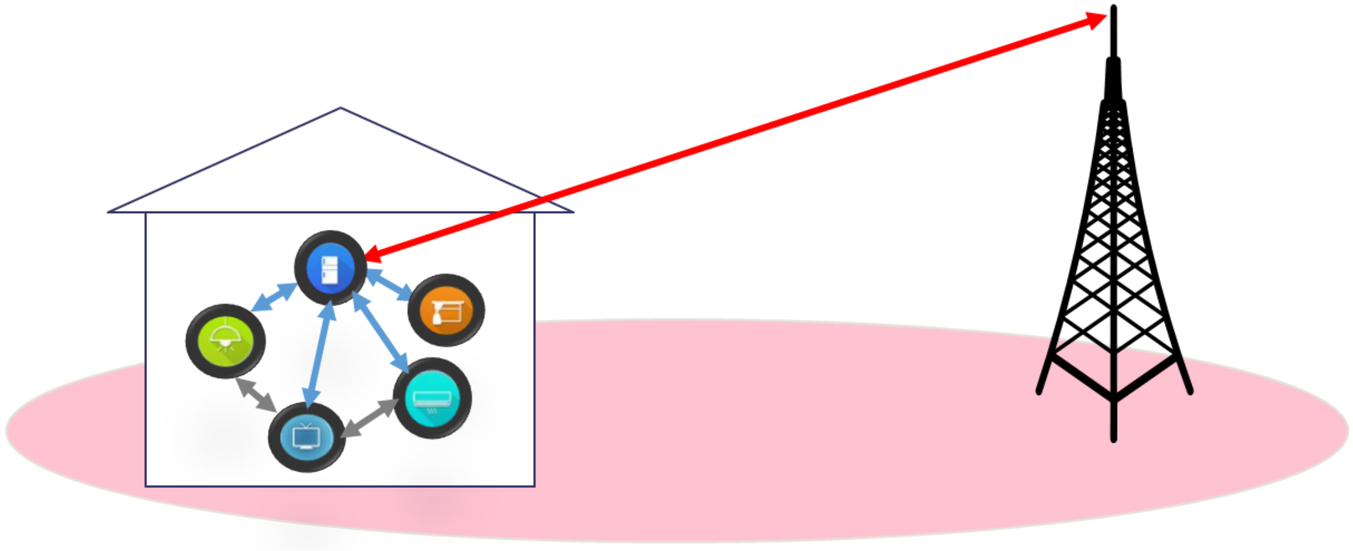
Xiaomi

Xiaomi’s Priority on Rel-17 Items

- NR Sidelink for Home IoT
- On-demand SI enhancement for NR
- Other enhancements
  - V2X enhancement
  - NR-U enhancement
  - MIMO enhancement
  - MTC, NB-IoT enhancement in LTE
  - Multi-SIM UE enhancement

NR Sidelink for Home IoT

Scenario for Home IoT



- Compared to MTC/NB-IOT, sidelink enables direct communication, which is more resource and energy efficient and less cost of remote UE for the home IoT devices.
- Sidelink relay could help for coverage enhancement to reduce the operator’s investment.

Challenges

- Direct NR communication increases the cost of the communication module, consumes more power and depends good coverage, Influencing the large-scale market applications

- Power consumption for device depending battery while supporting video burst is very challenging, demanding a suitable solution.

- Use case for direct communication among home IoT devices is unneglectable and with latency advantages.

- Home IoT appliances are in variety, some big appliance is suitable for relay UE and wideband, however, other small devices are suitable for narrow band remote UE .

Potential objectives

- Study the feasibility for low cost for home IoT
  - Support of sidelink transmission and reception in narrow band.
  - Low RF complexity
- Study on UE-to-Network and UE-to-UE relay for sidelink communication in NR
- Study on sidelink power saving mechanism
  - DRX enhancement for NR sidelink

On-demand SI enhancement for NR

Potential enhancements

- Support on-demand SI request in connected mode
  - Dedicated RRC signalling support of on-demand SI in connected mode
  - Msg1/Msg3 based on-demand SI request in connected mode
  - The solutions should take multiple-BWP/CA, NR-DC/NE-DC/EN-DC into consideration
- Optimization on signaling overhead and power consumption
  - Reduce UE power consumption/signaling overhead in requesting for multiple SIs
  - Improve resource efficiency when providing SIs

Other enhancements

V2X enhancement

- Enhancement for V2P and V2I
  - Energy saving for pedestrian UEs in V2P with latency and reliability requirements
  - Sidelink resource allocation by RSU node for V2I applications

- Unfinished part of Rel-16 V2X (if any)

NR-U enhancement

- Improved co-existence with WiFi, e,g.
  - Directional LBT
  - Common Preamble

- Further enhancement in absence of WiFi nodes
  - Improved channel access scheme, control/data flexibility

MIMO enhancement

- Enhancements for extending multi-TRP/panel operation for eMBB, including PDSCH, PUSCH, PDCCH, and PUCCH.
- Enhancements for SSB transmission, initial access and beam failure detection/recovery by multi-TRP/panel transmission.
- Enhancements on UL multi-beam operation for the UEs with multiple TX panels capable of fast panel switching and simultaneous transmission, including the leftovers from Rel-16.

MTC, NB-IoT enhancement in LTE

- Support UE-based relay for coverage extension and power saving
  - Sidelink framework is reused to establish the communication between remote device and relay device considering the following features
    - Narrow band operation
    - Possible repetitions
    - eDRX configuration
  - Layer 2 relay structure can be considered to ensure NW control

Multi-SIM UE enhancement

- Paging collision
- Possible enhancements for intra-MNO case, e.g. cell (re)selection, e.g. measurement.

Innovation for Everyone
Thanks!