

# Integrated access and sidelink:

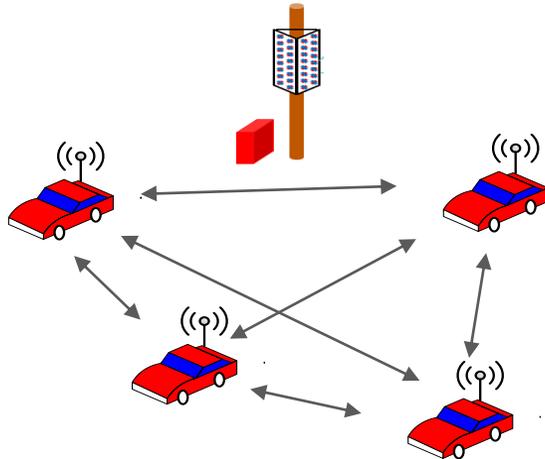
A unified concept for V2X

AT&T

## NR V2X technologies development tracks

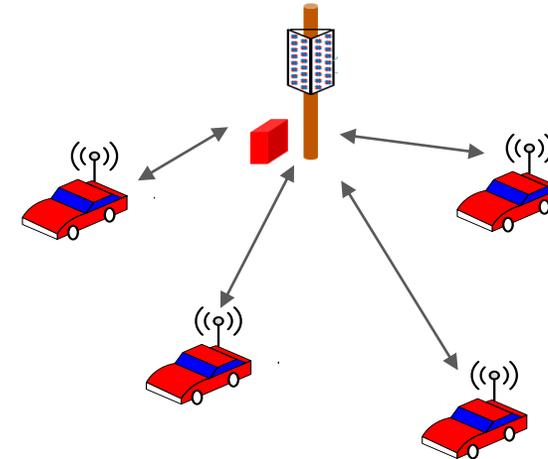
### PC5 based (side link)

- MESH structure (peer-2-peer)
- Network assistant resource allocation (as optimization)
- Typically work in unlicensed spectrum



### UU based (Access link)

- Hierarchical structure
- Need infrastructure investment
- Can work on both unlicensed or licensed spectrum.



**Can this two tracks be merged?**

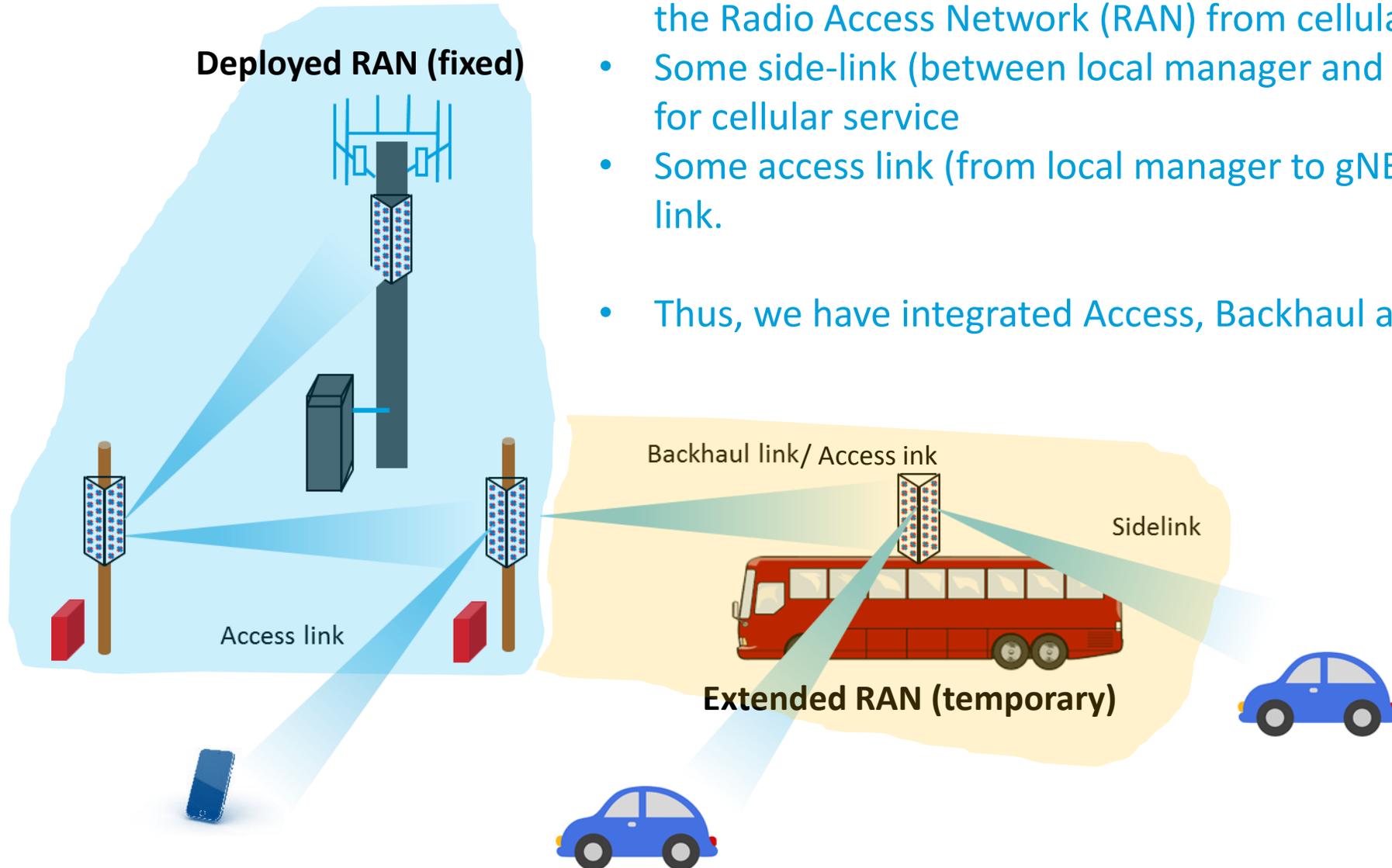
## Integrated access, backhaul and sidelinks

Network can promote a UE (typically with high-end capability and stable power supply, e.g. Vehicle UE, or road side unit) to be a local manager.

- A resource pool (PRB, time, etc.) is granted to local manager for scheduling
- Local manager allows UE to “access” to it through sidelink
  - No need to have full-blown access procedure in side link
- Local manager further grant resource from the pool for access UE to use on sidelink
  - Sidelink can be used to transmit cellular data packets
    - Local manager acts like a relay node (become part of RAN): to relay data packet between UE (including local manager’s own data) and donor-gNB
  - Sidelink can be used to transmit local breakout data packets
    - data packets are exchanged between access UEs including local manager.

**Integrated Access and Side Link**

## Integrated access, backhaul and sidelinks



- Promote some UE to be local manager effectively make it be part of the Radio Access Network (RAN) from cellular service point of view
- Some side-link (between local manager and UE) can carry data packet for cellular service
- Some access link (from local manager to gNB) now become backhaul link.
- Thus, we have integrated Access, Backhaul and Sidelink.