vivo

RP-210323

Enhanced support for PIOT network Rel-18

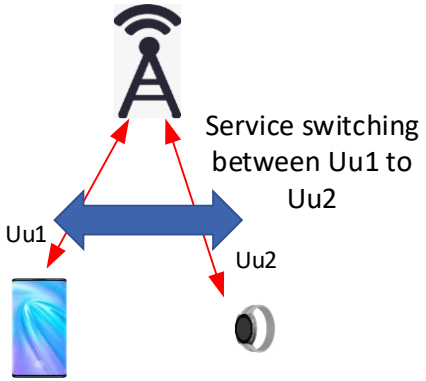
Personal IOT network

Service switching across different UEs

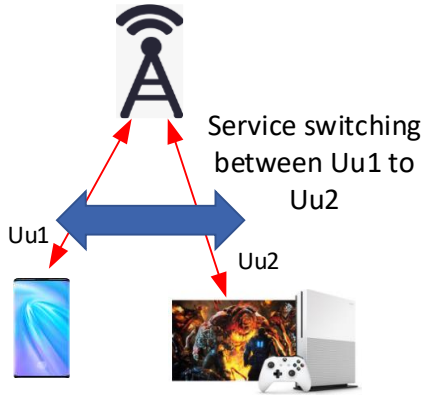
- A PIN shall support service continuity when the communication path is switched from one PIN device to another PIN device.

  （New requirements in TR22.859）

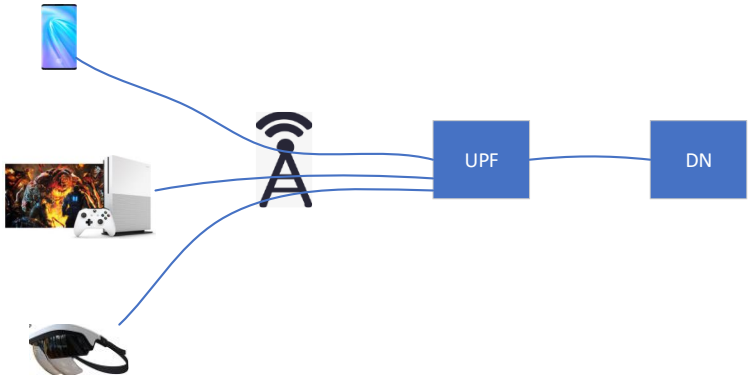
  - Case1.1: Switch a voice call service between smart watch and smart phone （Section 5.3 TR 22.859),
  - Case1.2 Switch a cloud gaming between smart phone and home gaming machine



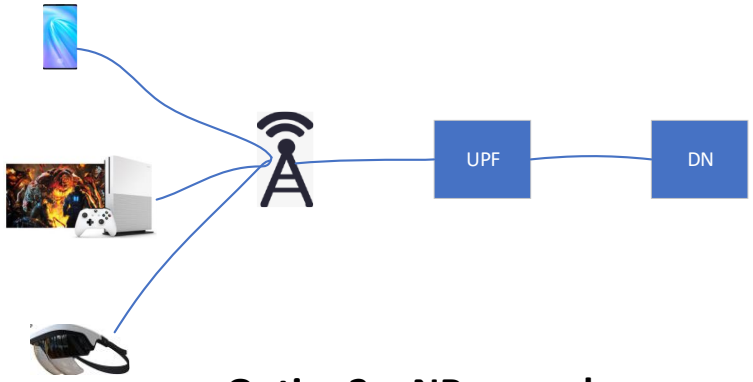
Case1.1



Case1.2



Option1: UPF as anchor



Option2: gNB as anchor

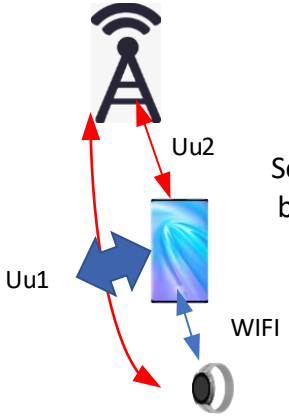
Observation: UPF or gNB can be an anchor node for quick service switching between devices

- UPF as anchor
  - mainly work in SA
- gNB as anchor
  - Same PDCP in different UEs for less data loss
  - SA involve is needed for service status sync between UEs

Personal IOT network

Fast switching link

- Case2: Services on watches or XR glasses (connected to phones with Wifi/BT) can be dynamically switched between relay through phone or directly from gNB when unlicensed band is unreliable.



Service switching between Uu1 to Uu2+WIFI

Case2

Scenario	Testing time	Position	Test	Number of times when the voice is broken
Airport Departure gate	16:13 16:18	Close to the gate	Test1 with first watch	>50
			Test2 with 2nd watch	>50
	16:19 16:23	Close to the billboard	Test1 with 1st watch	0
			Test 2 with 2nd watch	0

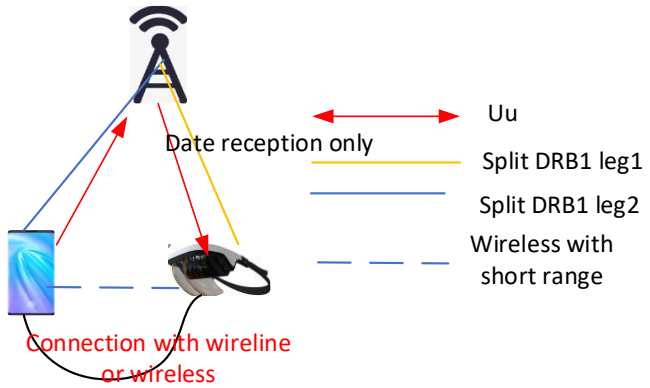
Observation from field test:

- The interference in crowded area would lead severe UE experience degradation.
- Interference in unlicensed band is changing dramatically even when the testing position is very close.

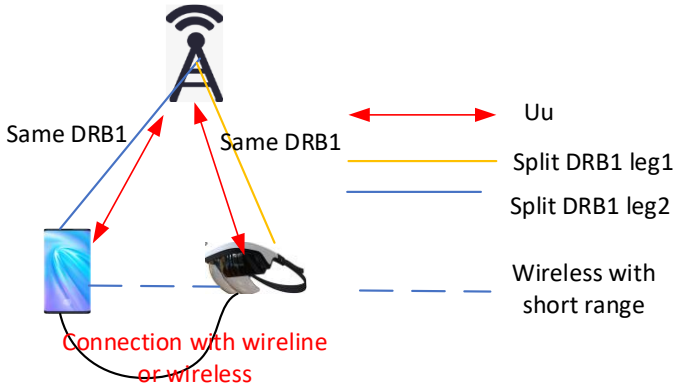
Personal IOT network

Multiple UEs coordination transmission and reception

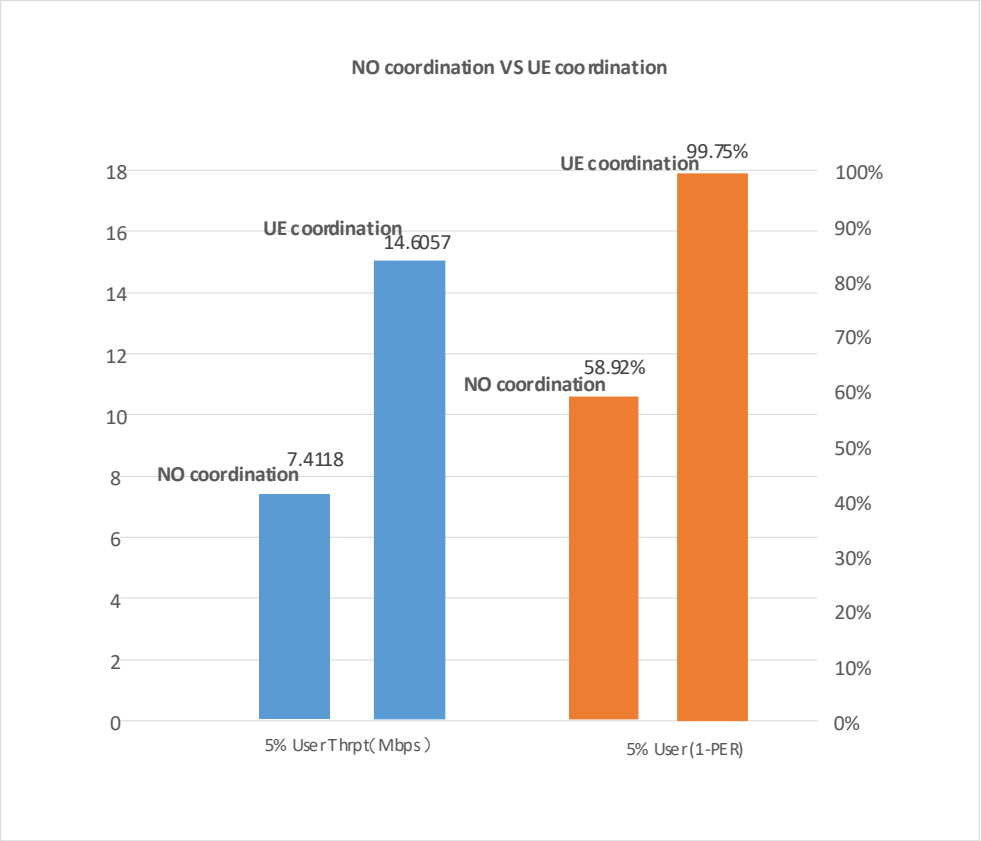
- Case3.1: reception and transmission in different PIOT devices
- Case3.2: coordination UL transmission in different PIOT devices



Case3.1



Case 3.2



Observation :

For Case 3.1, Power consumption of XR is reduced in case data transmission is in smart phone

For Case 3.2, in Dense urban scenario with coordination from simulation :

- Almost double UPT for cell edge UE for big size block file
- 41% Corrected Packet reception rate increasing for cell edge UE for periodic packet.

Motivation

Now 5G has introduced various network capabilities and various type of devices (e.g. onboard devices, smart watch, smart glasses, AR/VR devices, etc.). All of them are for the different demands from consumer in different scenarios, which requires the service/packet can be switched, coordination transmission and reception amongst different devices of a given user in seamless and lossless mode.

- **For Case 1, Study that UPF or gNB is service switching anchor amongst devices for quick service switching**

- **For Case 2, study that quick switching link between Uu and Uu+WLAN for the better service continuity**

- **For Case3, Study coordination transmission and reception amongst devices for better User experience, e.g. power consumption, data throughput**

THANK YOU.
谢谢。