

Communications Research Group

University of Kent

Professor Nathan Gomes, Prof J Wang, – 5G PPP Information Day

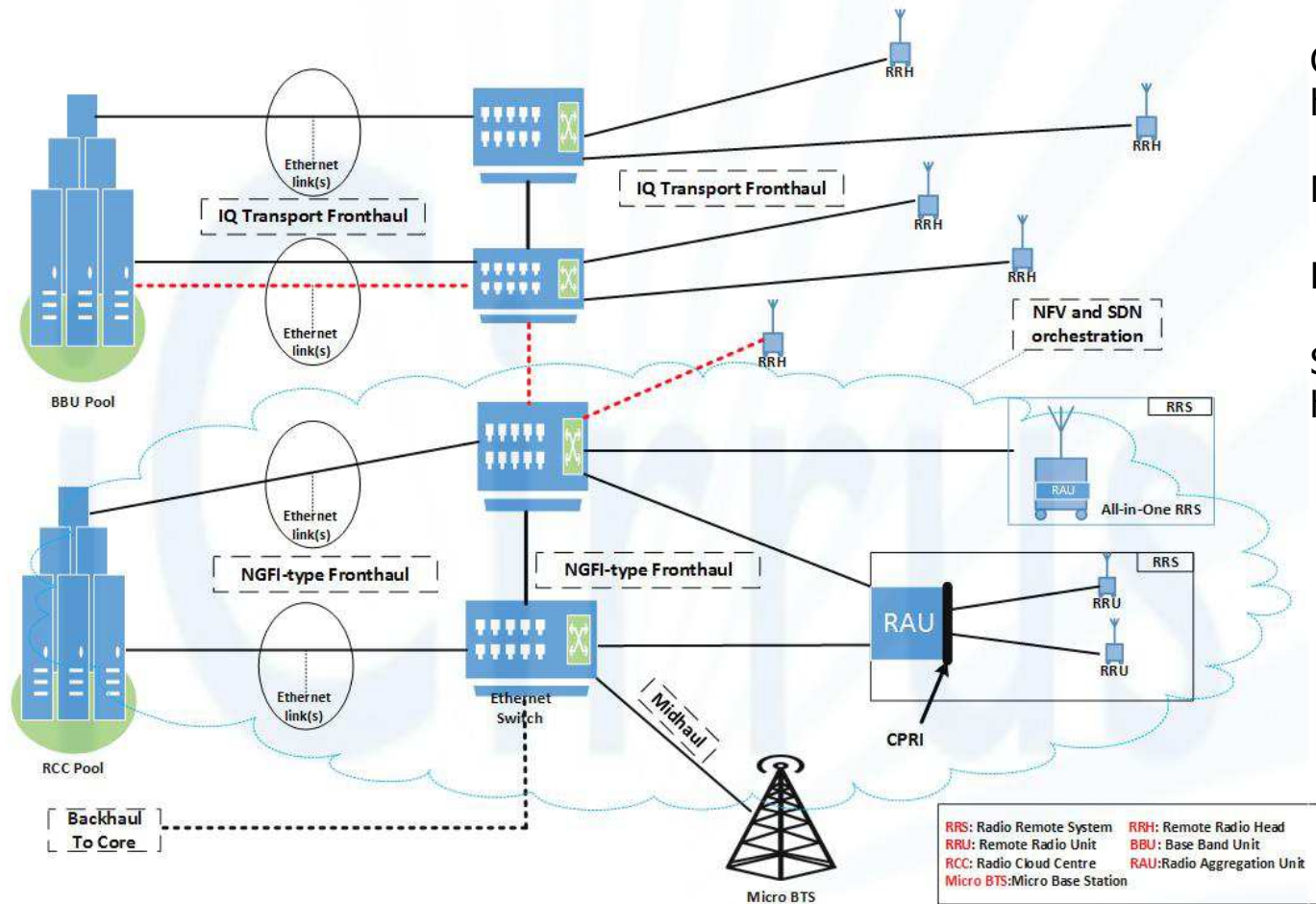
The **University of Kent** is a research-led university in Canterbury, Kent, UK.

The **Communications** Research Group consists of 10 academic staff, around 40 research students and staff, and approaching 20 visiting and honorary researchers.

The group has specific interests in:

- Fibre-wireless access, e.g. fibre transmission and fibre networking for 5G mobile and C-RAN (i.e. particularly fronthaul issues)
- D2D
- 3D Massive MIMO technologies for 5G

Fibre-wireless access: extending iCIRRUS concepts



Generalised transport (x-haul) over Ethernet

NFV in the RAN

Dynamic instantiation

SDN over the fronthaul/x-haul

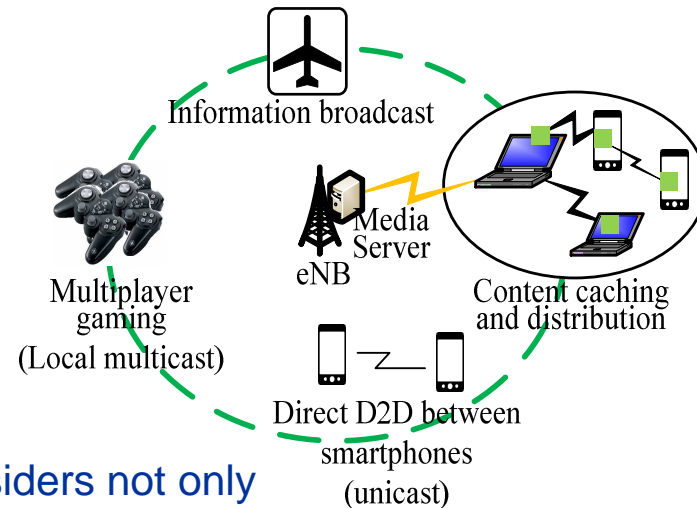
D2D communication in 5G networks

D2D communication shares spectrum with C-RAN. D2D based distributed caching can further overcome limited backhaul capacity by using the storage of mobile devices to cache content for the purpose of reuse.

Challenges are:

Semi-distributed resource management

Capacity evaluation of D2D with cache functions



3D massive MIMO technologies

3D massive MIMO especially 3D beamforming considers not only Horizontal but also vertical domain to increase capacity

Challenges are:

Analog massive MIMO to simplify beamforming design

Hybrid massive MIMO beamforming to balance between performance and complexity.