RAN Monitoring and Data Collection

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Network / Spectrum monitoring

Cellular carriers collect manifold information about network performance and spectrum in uplink and downlink direction

Network counter availability depends on RAN vendor, Radio access technology, software releases, etc.

Uplink: live spectrum information and aggregated information

Downlink: network data collection and crowd data collection. No live spectrum collected by UEs.

Interference Mitigation

Network carriers spent billions of dollars to use licensed spectrum

Non–intentional radiators/interference sources much more common to cause external interference than intentional radiators

Low– and mid–bands mostly interfered

5G requires cleaner RF spectrum compared to LTE and UMTS

Air Interface Security

Impersonation, interception, tracking

Intentional interference could force UEs to connect to fake base stations/stingrays

Physical base station

Strong 5G encryption – is it always used?

Life cycle security – massive IoT

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