

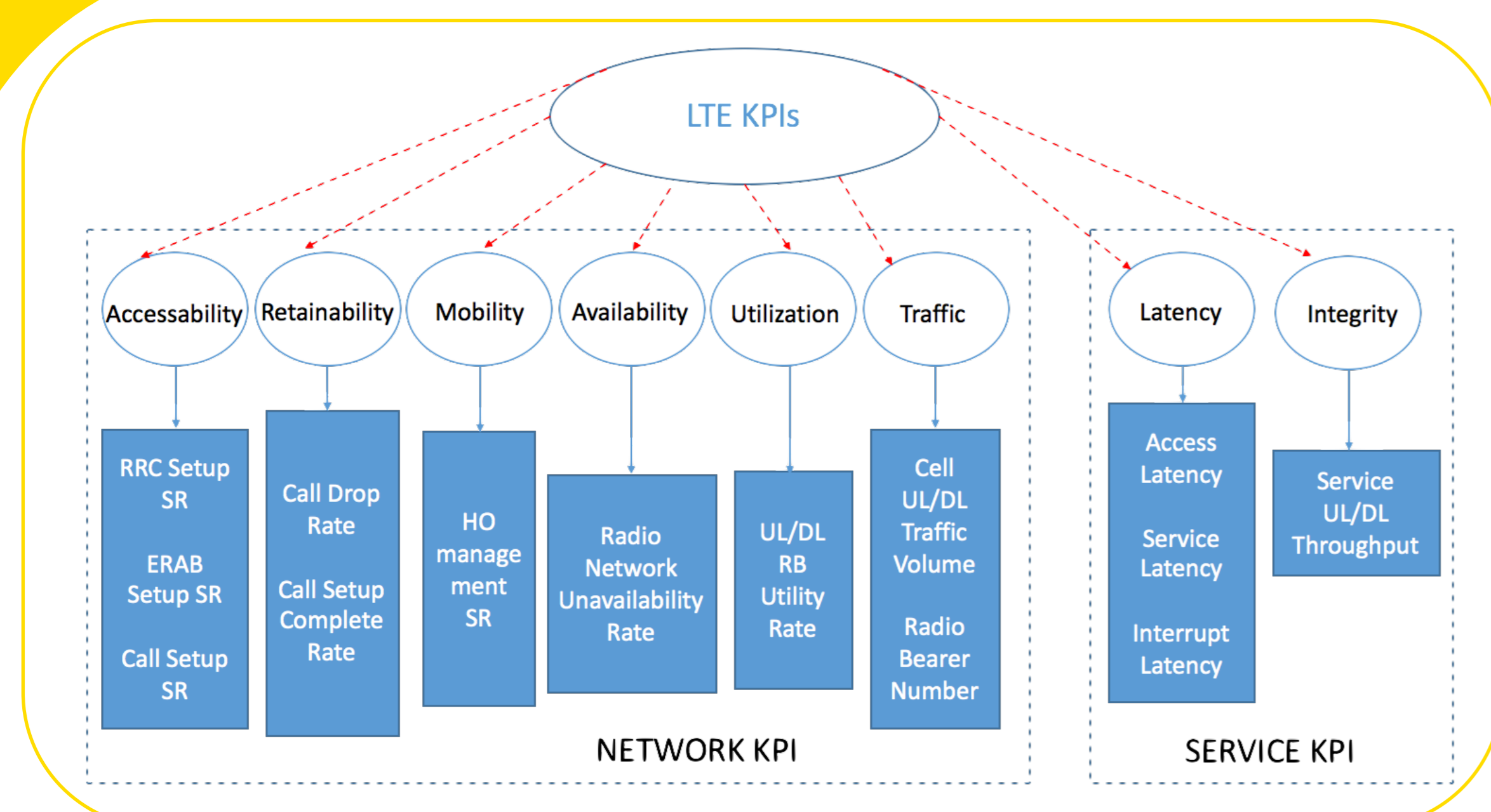
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XXX Cycle - II year presentation

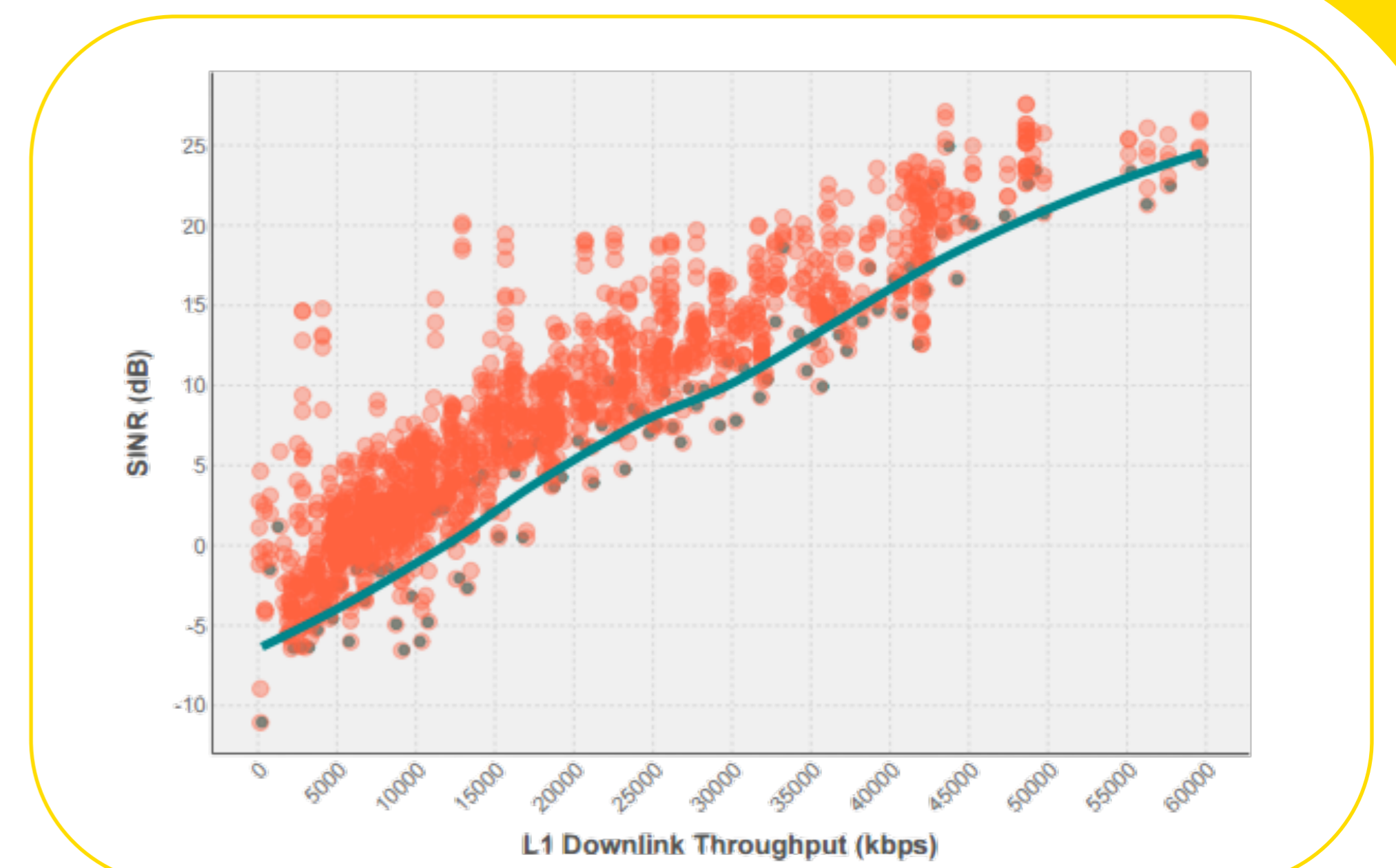
LTE network architecture: assessing performance and evaluating fair coexistence with WiFi

Motivation:

- To overcome **the lack of spectrum resources** the proposal of extending LTE to the readily available *unlicensed spectrum* is receiving much attention. **Gaining capacity** in a band where Wi-Fi technology is widely used and guaranteeing fairness between systems is not an easy to address issue.
- Efforts are required to **fully characterize LTE propagation characteristics**, through the analysis of time and space dependence of exposure levels to high frequency electromagnetic fields and exploring *optimization of network coverage* and capacity, interference reduction algorithms and *radio channel adaptivity* according to channel variations based on user measurements



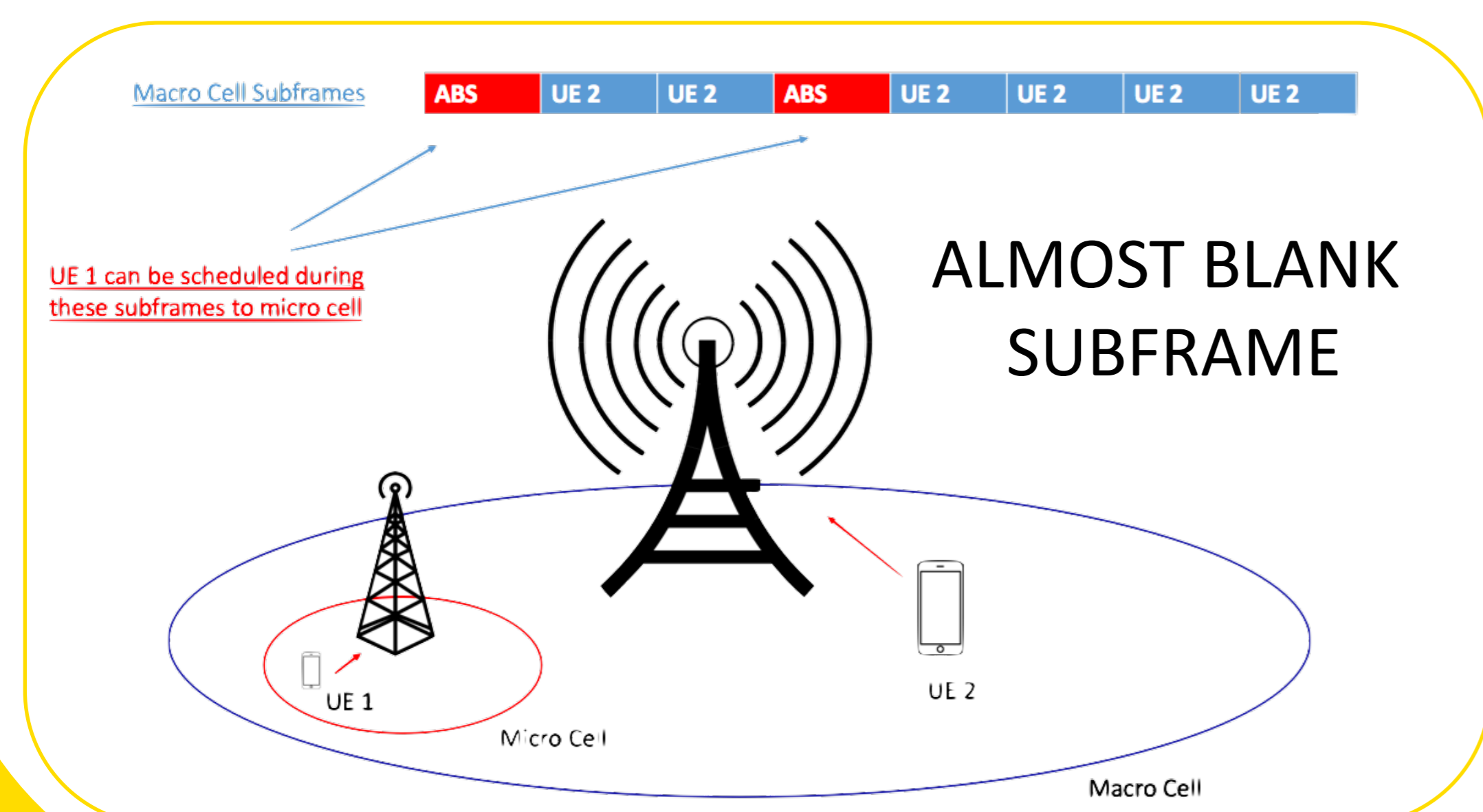
THE USE OF STATISTICAL METHODS SHOWS HOW STANDARDS EXPECTATIONS ARE TOO HIGH WITH RESPECT TO REAL LIFE USERS' EXPERIENCE. KPI PARAMETERS ARE THEN EVALUATED.



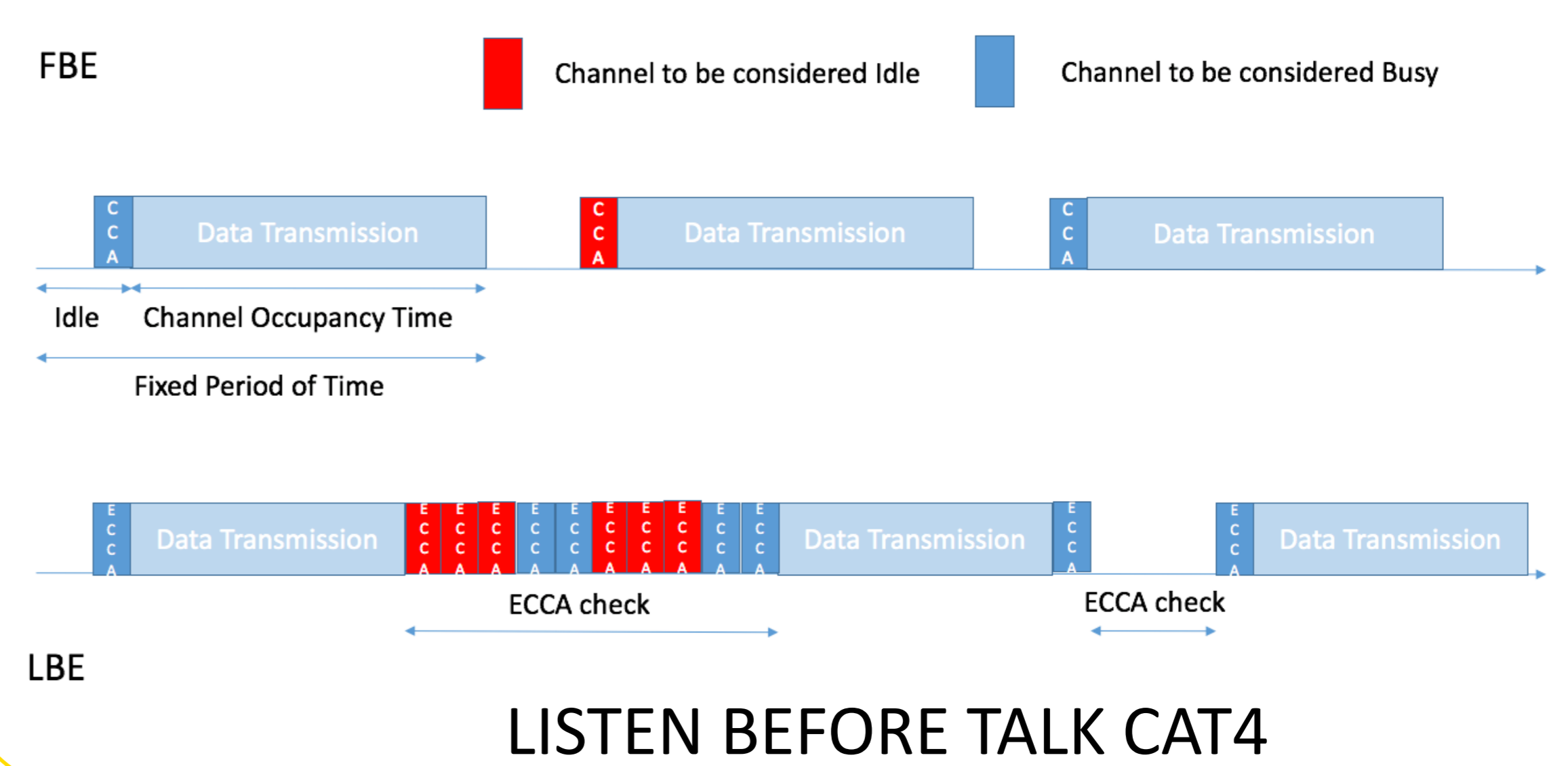
LTE UNLICENSED STANDARDS, LAA, LTE-U AND MULTIFIRE TAKE ADVANTAGE OF CARRIER AGGREGATION FEATURE TO ACCESS AND EXPLORE THE UNLICENSED SPECTRUM



THE GOAL OF THE ANALYSIS IS TO UNDERSTAND HOW DOWNLINK THROUGHPUT IS AFFECTED BY SINR. A PROPORTIONAL RELATIONSHIP WAS THE RESEARCH OUTPUT.



LBT4 WITH A RANDOM BACK-OFF PROCEDURE AND A CONTENTION WINDOW OF VARIABLE SIZE SEEMS TO BE ONE OF THE MOST EFFICIENT ABS IS NARROWED DOWN TO FURTHER INDAGATE THE BEST SOLUTION FOR LTE



NAPOLI FUTURA (Nuovi Approcci per PrOteggere Le InFrastrUTtUre cRitiche da Attacchi cibernetici)



BEST IDEA CHALLENGE ENEL HACKATON BE DIGITAL 2°class.

Future Works:

- LTE NETWORK RADIO OPTIMIZATION WITH REGARD TO KPI FEATURES
- TESTING OF LTE NETWORK OPTIMIZATION SOLUTIONS
- EXPLORING AND TESTING HUMAN EXPOSURE TO LTE ELETTRIC FIELD
- TESTING AND DEVELOPING DIFFERENT MECHANISM OF LTE COEXISTENCE IN UNLICENSED BANDWIDTH