Wireless backhaul: Performance Modelling and Impact on User Association for 5G

ABSTRACT

Wireless technology is the strongest contender for catering for the 5G backhaul stipulated performance where optical fibre is unavailable. In the presence of ultra-dense networks, such occurrences are exponentially increasing and different wireless technologies are investigated for this application. We present the first backhaul-specific wireless link performance modelling that considers its inherent line-of-sight nature, together with an appropriate representation of the network topology using stochastic geometry. To this end, novel tractable models are obtained to capture the performance of wireless backhaul links. These are integrated into a multi-hop hybrid backhaul performance modelling framework and are applied in the analysis of a backhaul-aware user association optimisation problem.

EXISTING SYSTEM

- In existing system, analytical models to capture the cumulative radio access and BH delay as perceived by users in the network.

- However, the it consider two extreme cases; the first models the noise-limited wireless BH delay as a constant.

- The second models the in-band interference-limited scenario where interference is received from macro-cells and small cells.

PROPOSED SYSTEM

- We propose the first framework for analysing the performance of a wireless BH hop in LOS conditions with pertinent assumptions and tractable expressions where possible.

- The User-Centric-Backhaul (UCB) is the state-of-the-art user-cell association scheme that is radio-aware, BH-aware, and user-centric at the same time

- A BH condition would reflect on the quality perceived by half of the users who would be suffering from queuing delays, lost packets, and significant reduction in throughput.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

•Processor   -   Intel core i3

•RAM   - 2B

•Hard Disk   - 20 GB

SOFTWARE REQUIREMENTS

•Operating System : LINUX

•Tool : Network Simulator-2

•Front End : OTCL (Object Oriented Tool Command Language)

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