Capacity planning for Carrier Ethernet LTE backhaul networks

With the introduction of LTE networks operators need to plan a new, IP-based mobile backhaul. In this paper, we provide recommendation on dimensioning LTE backhaul networks links using three methods: delay-, dimensioning formula- and overbooking factor-based. Results are obtained from OPNET simulations with traffic model based on traffic forecast for 2015. A delay-based approach gives recommended bandwidth for expected number of users. A dimensioning formula is proposed to calculate link bandwidth when mean value of aggregated traffic in the network is known. An overbooking factor is calculated and verified. Simulation in this work proves that Carrier Ethernet, one of the candidate technologies for mobile backhaul, protects the network from users that want to flood the network with their data and manages to keep the delay experienced by other users low.

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