Abstract

The number of users for developed devices (e.g., mobile, tablet, laptop, iPad, computer) increased rapidly. This trend is expected to continue in the next upcoming years. Thus, the number of users will rapidly increase, which will cause a high demand for capacity in wireless access networks. In addition, they will cause high energy and power consumption. Heterogeneous network (HetNet) is one of the most promising network approaches to achieve high capacity and improve energy efficiency (EE). In this paper, we will investigate the sleep mode mechanism to improve EE and reduce power consumption. When companies design communication network systems, they are considered the network service at peak load hour. Peak traffic load happens a few hours a day, but the rest of the time most of the power is wasted. The sleep mode mechanism is used by switching Micro and Pico base stations (BSs) when the traffic load is low or medium. Simulation results show that EE gain can be achieved 46.68% and 79.77%, when the traffic load is medium or low.


12. EARTH project deliverable, D2.3. (2010). Energy efficiency analysis of the reference systems, areas of improvements and target breakdown.


Using Sleep Mode Mechanism to Improve Energy Efficiency in Heterogenous Network


Index Terms

Computer Science Information Sciences

Keywords

Heterogeneous network, energy efficiency, power consumption, sleep mode.