

ABSTRACT

The need for flexible communication has challenged the cellular system provider to develop the communication technology. People need the fast and unlimited communication. Due to that the third generation technology has been developed, which is also known as WCDMA (Wideband Code Division Multiple Access).

By the soft handoff services on 3G WCDMA, make it possible to build additional connection on neighboring cell when a user is doing handoff, while it still has the connection with its origin cell. It makes the system capacity in one cell can not be exactly determined by using Erlang-B formula because the amount of canal can be increasing due to interferences in a cell divided by neighboring cells, which is possible to divide capacity between the adjacent cells. A cell with a high traffic can borrow the capacity from one neighboring cell which has low traffic intensity. A phenomenon which a capacity can be changing depend on traffic on a cell is called as soft capacity.

The analysis of soft capacity simulation is defined by comparing the increasing of system capacity using soft handoff method and the increasing of system capacity using hard handoff method. The simulation is using OPNET modeller 14.0. This software is able to provide a graphical user interface for network modelling, so it can display the needed parameters from the WCDMA system. The soft capacity in WCDMA system will be determined from this simulation.

Key words: hard handoff, soft handoff, soft capacity, W-CDMA