Indian Institute of Information Technology, Allahabad

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT

Course Name: Wireless Communication

EXPERIMENT NO: 6

Objective: To Study Call blocking probability versus load on a GSM (Global System for Mobile Communications) network.

Materials/ Component Required :

Network Simulator (NetSim)

Procedure:

1. New→ Cellular Network → GSM
2. Select a Base Station (BS) and a Mobile Switching Center (MSC) from the object menu and place it in the workspace. Connect them via wired infrastructure.
3. Deploy 4 Mobile Stations (MSs) within the coverage area of the base station.
4. Accept the default parameters for the BS.
5. Set the Uplink Bandwidth Min to 890 MHz and Uplink Bandwidth Max to 890.2 MHz in MSC properties.
6. Create two applications Erlang Call type with exponential inter-arrival and duration distribution.
7. Run the simulation for 50 seconds.
8. To view output go to Cellular metrics.
9. In MS metrics, add the call blocked and call generated column, to get the total number of blocked calls and total calls generated, respectively.
10. Call Blocking Probability $= \frac{\text{Total Call Blocked}}{\text{Total Call Generated}}$
11. Likewise create **two more scenarios** with 8 MS (4 applications) and 14 MS (7 applications) and analyze and compare the call blocking probability.
12. Now simulate the three scenarios as done for slotted aloha case (Experiment-4) and obtain the results.

Analyze the above systems in terms of Call Blocking Probability

Result: By using NetSim, we have studied and analysis the Call Blocking Probability in GSM.