# ABSTRACT

Long Term Evolution (LTE) is a name given to a project of third Generation Partnership Project (3GPP) to improve the standard mobile phone 3$^{rd}$ generation (3G) UMTS is WCDMA. LTE is a development of previous technology, the UMTS (3G) and HSDPA (3.5) which is referred to as LTE 4$^{th}$ generation (4G). On the other hand, needed to be able to accommodate the backhaul network acces system of the LTE. Backhaul network have an important role because it will effect the performance of the LTE network. LTE backhaul network has little difference with previous generation because there are difference in the architecture and functionality.

In this final study to compare three types of backhaul topology, mesh, ring, and tree. Testing the performance of each topology using three types scenarios that is, changes in distance between eNodeB, variety number of eNodeB, and case studies existing in the city of Bandung. Each scenario will be simulated using OPNET 14.5 and test the throughput and delay parameters on each topology.

After research that performance backhaul topology depend on the distance between the eNodeB and the number of hops in the topology. In a ring topology for every 100% increase of the distance will throughput decrease 0.218% and 22.19% delay increases, mesh topology every 100% increase of the distance will throughput decrease 0.13% and 13.36% delay increases, and tree topology every 100% increase of the distance will throughput decrease 0.37% and delay increases 31.62%. While the influence of the number of eNodeB is when the number of hops is three, tree topology have throughput decrease 6.37% ang ring topology have throughput decrease 6.65%.

Keyword: Long Term Evolution (LTE), Topology, Network Backhaul.