

## ABSTRACT

*Eksisting core network condition at Sulawesi Region have a fixed system, how ever 2.435 % increase in traffic every year. Core network EPC only can handle increase traffic until 2017. So that a fixed system can not cover the capacity of increased traffic in the next year. For that EPC planning through dimensioning process can handle the problem of increased traffic capacity that occurred. Dimensioning result of the needed of network elements and bandwidth interfaces to handle capacity for the future. Obtain a reliable system in terms of cost, technical and performance.*

*Core network is required as a service content provider to the user. The designing of a core network or 4G LTE core network in the Sulawesi Region will be done by conducting a case study at PT TELKOMSEL until year 2022. The dimensioning method will be carried out by calculating the core network element device which is required in the Sulawesi regional coverage. Some operators nowadays use 4G networks without overriding existing 2G and 3G networks. In the 4G LTE core network has a packet switvhed domain to support voice services using CS Fallback by switching voice services to 3G networks allowing User Equipment (UE) to drop LTE connections to a network with a specified 3GPP standard. The process of network dimensioning is done by collecting customer data and elements data of the existing network in 2017.*

*The dimensioning result that has been done to overcome the increase of subscriber every year is 2.435%. On the 4G LTE network with CSFB requires network elements 9 MSS, 2 HSS, 5 S / PGW, and 5 MME. For dimensioning interface can know the minimum bandwidth that must be provided. The plane control interface consisting of S6a, S11, S10, S1-MME, S5 / S8 requires 0.4015 Gbps and user plane bandwidth requirement consisting of S5 / S8 user plane, S1-U and SGi is 20.075 Gbps. From the results of dimensioning elements and network interfaces produced EPC network topology that can be implemented in Sulawesi region. To form a reliable system in terms of technical and cost with a full mesh topology using pooling system. Determination of transport links from EPC resulted in some topical planning core scenarios. For topology infrastructure that cater from the customer and operator side. Costs are linked to the bandwidth efficiency provided by selecting the transport links for the second scenario.*

*Keywords : 4G LTE, CSFB, EPC, Core Network, Network Planning.*