

ABSTRACT

SMART GRID consists of three essential elements, namely information technology, telecommunications and electricity or Gas. These three elements work together to enable two-way communication between the utility company PLN with consumers. With SMART GRID, electrical energy transfer not only from the electricity provider for the consumer, but also vice versa.

With SMART GRID technology as well, consumers will have full control to manage their energy consumption. Sensors and automatic control technology in the SMART GRID allows setting the activation of consumer electrical appliances automatically taking into account the amount of electrical energy. All data is recorded on the sensor will be sent to the utility company to be processed in order to determine the future development strategy. Advanced Metering Infrastructure (AMI) plays an important role in data collection sensors. Nowadays Telkom has tested and successfully using the USSD protocol in GSM technology or Indihome WIFI network as access media to the AMI network, especially for PLN.

In accordance with the development trend of telecommunication, LTE is currently a priority of network expansion of service provider network, so it is necessary to do research on the performance of metering data collection using the LTE network in the AMI environment. The problem is a lot of devices in the Smart Grid communications environment, such as sensors (smart meters) and the control device, to send or receive small packages at fairly frequent intervals. LTE is not designed for this traffic pattern, it is designed to support voice traffic and data that sudden and large where individual users may send or receive a package of relatively large (eg, with respect to web browsing).

In this study the authors using Round Robin Scheduling although this type of scheduling is old enough, but it is considered most likely to deliver the two interests that the individual users as well as of the smart meter. Evaluation is done by means of simulation using NS3, with preliminary data comparing the default scheduling in LTE, and continued by using several traffic conditions and the number of nodes that are involved specifically with the Round Robin scheduling to find numbers of node that can be served. As a results by considering the QoS measurements showed that the number of nodes that can be served numbers of 300 nodes Smart meters.