ABSTRACT

Tactical Data Link is a military communication protocol to exchange tactical data between entities. PT Len Industri employs Multicast Tunnel as an alternative to VPN Multicast to enable multicast services on the Tactical Data Link Ground network. This paper will use RabbitMQ, Hazelcast, and Netty in the Multicast Tunnel connected to PT Len Industri's C2 and DLP products and deployed on a computer that meets the test environment's specifications. This research will compare and analyze the Quality of Services (QoS) parameters of RabbitMQ, Hazelcast, and Netty to determine which multicast tunnel system is superior in reliability, efficiency, and availability. This experiment is performed by sending data from each C2 in one of two ways: periodically every second or periodically every three seconds. The result of the experiment shows that Hazelcast is better than RabbitMQ and Netty regarding availability, reliability, and efficiency. The delay value in the one-second experiment, Hazelcast has good results, namely 999.865 ms and 361.502 ms. The obtained latency is also extremely low, with a value of less than 0.4 milliseconds for packet calculations only. The results of the availability test indicate that six out of nine Hazelcast experiments achieved better results than others.

Keywords: Smart Military, Tactical Data Link, Multicast Tunnel, Server Broker, Serverless, Quality of Service.