ETSIOT01319 - Energy Consumption in Relay Underwater Acoustic Sensor Networks for NDN

ABSTRACT:- In recent years, a typical representation of the next-generation Internet architecture, named data networking (NDN), and a critical form of underwater Internet of Things (IoT), underwater acoustic sensor networks (UASNs), have attracted widespread attention in academia. Meanwhile, since the battery energy of the sensor node is limited, and the battery is difficult to replace or recharge in underwater environments, extending the networks' lifetime has become a key issue in UASNs. In this study, we try to deploy a UASN on NDN architecture, and explore the energy consumption of the NDN-based UASN under shallow water and deep water conditions based on the relay network topology. A simulation is carried out to compare the delay performance of NDN-based and IP-based UASNs, and validate the result. It is believed that the study could provide a theoretical criterion for the selection of the direct or relay path to optimize energy consumption in the future deployment of NDN-based UASNs.

INDEX TERMS Energy consumption, named data networking, underwater acoustic sensor networks.