for 26435, and the log of CoAP message in the IoT middleware that includes same CoAP message ID. The log of IoT middleware shows the resource URI is “notify/sleepy”, query is ni with the value node001. The message payload is 0, which means the IoT node sleep mode is wake up status.

IV. Conclusions

The IETF CoAP is a transmission protocol in the application layer that is used for the communications between devices in constrained environments. The IoT device equips with sensors and actuators to provide services ubiquitously to the users. Therefore, the device requires the small size with limited computing parts and power supply. With the sleepy mode, the IoT device can reduce the power resource more efficiently. We have proposed the sleepy scheme using the subscribe/publish communication architecture of MQ broker for the IoT device in the CoAP network. The subscribe/publish enables the client to request the IoT device in a sleep status through the IoT middleware. The IoT middleware includes the functionalities of RD and MQ broker to support the sleepy scheme through subscribe-publish communications to the client. Through the RD, the IoT middleware provide services of registering the IoT device information, and looking-up by the client. The information of sleepy mode also available in the IoT middleware for being retrieved by the client. From the IoT middleware, the client can subscribes the data that provided by the IoT device through the IoT service. Once the IoT device goes into the wake-up status from the sleep status, the IoT middleware gets the data and publishes to the client. Through the sleepy scheme in the CoAP network, we can apply more efficient energy consumption on IoT devices for having long life time in the constrained environment.

Acknowledgment

This research was supported by the MSIT(Ministry of Science and ICT), Korea, under the ITRC(Information Technology Research Center) support program(IITP-2017-2016-0-00313) supervised by the IITP(Institute for Information & communications Technology Promotion), and this research was supported by Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology (2015R1D1A1A01060493), Any correspondence related to this paper should be addressed to DoHyeun Kim.

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