

CCN Forwarding for the Internet of Things

Prerequisites:	- Programming in C++ - Experience with the OMNet++ Simulator
Recommended background:	- Attended the Network Simulation Theory course
Level:	This topic is appropriate for Master Students
Language:	English

INTRODUCTION

Content Centric Networking (CCN) [3] is a widely researched Information Centric Networking (ICN) architecture standardized at the Internet Engineering Task Force (IETF). A primary architectural element of CCN is forwarding. RFC8569 describes the mechanism to adopt when CCN nodes forward information. CCN has a pull type (i.e., request-response) communication strategy where information flow occurs only due to requests.

The Internet of Things (IoT), which is primarily a network for carrying information is ideally suited to use CCN for communications as seen by the many works of research [2, 1, 4]. Due to the limitations of resources on the devices used in the IoT pull type communications is considered unsuitable [2]. Instead, research works [2, 1] propose push type (publish-subscribe) strategies to avoid unnecessary transmissions of data. Since the scale of devices in the IoT is large, any new strategy must be evaluated to determine their performance in large scale networks.

PROJECT DESCRIPTION

The objective of this work is to evaluate the performance of a selected set of forwarding strategies in a simulator to identify the benefits and drawbacks of each strategy. The work is performed using the OMNeT++ simulator and the *inbaverSim* model framework [5] developed to simulate CCN.

The individual steps are as follows:

- Perform a survey of CCN forwarding strategies in literature proposed for the IoT and identify a subset of strategies to evaluate
- Identify appropriate use cases to evaluate the performance of these strategies
- Extend the models in *inbaverSim* to include the identified strategies
- Evaluate the performance of these strategies to make recommendations

CONTACT

If you are interested in this work, please contact us via mail: projects@comnets.uni-bremen.de

REFERENCES

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