Accepted Manuscript

AFIRM: Adaptive forwarding based link recovery for mobility support in NDN/IoT networks

Maroua Meddeb, Amine Dhraief, Abdelfettah Belghith, Thierry Monteil, Khalil Drira, Sofien Gannouni

PII: S0167-739X(17)31452-8
DOI: https://doi.org/10.1016/j.future.2018.04.087
Reference: FUTURE 4165

To appear in: *Future Generation Computer Systems*

Received date : 30 June 2017
Revised date : 24 March 2018
Accepted date : 25 April 2018

Please cite this article as: M. Meddeb, A. Dhraief, A. Belghith, T. Monteil, K. Drira, S. Gannouni, AFIRM: Adaptive forwarding based link recovery for mobility support in NDN/IoT networks, *Future Generation Computer Systems* (2018), https://doi.org/10.1016/j.future.2018.04.087

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

AFIRM: Adaptive Forwarding based Link Recovery for Mobility Support in NDN/IoT networks

Maroua Meddeb[a,b], Amine Dhraief[a], Abdelfettah Belghith[c,*], Thierry Monteil[b,d], Khalil Drira[b], Sofien Gannouni[c]

[a] *HANA Lab, University of Manouba, Tunisia*
[b] *LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France*
[c] *College of Computer and Information Sciences, King Saud University, Saudi Arabia*
[d] *Univ de Toulouse, INSA, F-31400 Toulouse, France*

Abstract

The Internet of Things (IoT) ecosystem includes a plethora of devices equipped with heterogeneous communication interfaces. They exhibit different mobility patterns and hardware constraints as memory, battery and processing power. On the other hand, IoT applications are overlayed on top of these constrained-devices imposing stringent requirements in term of data availability, data coherence, and response latency. To cope with these challenges, Named Data Networking (NDN) architecture is positioned in the middle layer to act as the networking layer. By providing easy data access thanks to the unique and location-independent content names, in-network caching and name-based routing, NDN expects to hide from IoT applications the complexity and diversity of the underlying Things by adapting the network operation to their features. In this paper, we focus on data availability requirements threatened by high IoT network dynamics related to sensors mobility. We address the producer mobility issue in NDN/IoT networks using the routing-based approach.

We propose a novel and efficient forwarding algorithm named AFIRM in order to support producer mobility, and compare its performances to those of other relevant solutions based on the routing approach.

Keywords: NDN, IoT, Mobility, Adaptive Forwarding

*Corresponding author. Tel.: +966 535920540.
Email address: abelghith@ksu.edu.sa (Abdelfettah Belghith)

Download English Version:

https://daneshyari.com/en/article/6872925

Download Persian Version:

https://daneshyari.com/article/6872925

Daneshyari.com