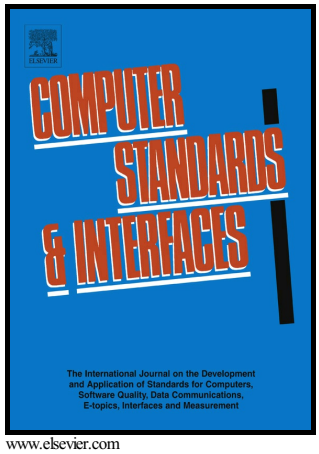
Author's Accepted Manuscript

An OpenFlow Architecture for Managing Content-Centric-Network (OFAM-CCN) based on Popularity Caching Strategy

Rihab Jmal, Lamia Chaari Fourati



www.elsevier.com

PII: S0920-5489(16)30150-7
DOI: http://dx.doi.org/10.1016/j.csi.2016.10.016
Reference: CSI3162

To appear in: *Computer Standards & Interfaces*

Received date: 27 April 2016
Revised date: 30 October 2016
Accepted date: 30 October 2016

Cite this article as: Rihab Jmal and Lamia Chaari Fourati, An OpenFlov Architecture for Managing Content-Centric-Network (OFAM-CCN) based o Popularity Caching Strategy, *Computer Standards & Interfaces* http://dx.doi.org/10.1016/j.csi.2016.10.016

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

ACCEPTED MANUSCRIPT

An OpenFlow Architecture for Managing Content-Centric-Network (OFAM-CCN) based on Popularity Caching Strategy

Rihab Jmal*, Lamia Chaari Fourati

National school of engineering, LETI Laboratory, Sfax, Tunisia

***Corresponding author.** Rihab Jmal. National school of engineering, LETI Laboratory, 3038 Sfax, Tunisia. Tel: +21622633005. Email: rihab.jmal1@gmail.com

Accepted manuscript

Abstract

Software-Defined-Networking (SDN) and Content-Centric-Networking (CCN) are gathering an important consideration from academic world and manufacturing. They are perceived as a big opportunity for future Internet. In order to innovate and optimize network resources, the integration of CCN functionalities with OpenFlow architecture presents an attractive deal. However, there are deployment issues requiring a gradual approach to achieve these goals. The current specifications implementing CCN over OpenFlow have not been inspected sufficiently, although the conceptual design was investigated. This paper introduces OFAM-CCN, a new OpenFlow Architecture for Managing CCN to improve this process through new modifications based on Popularity Caching Strategy taking into account caching as a fundamental principle of CCN.

Keywords: Software-Defined-Networking, Content-Centric Networking, OpenFlow, Caching, popularity.

I. INTRODUCTION

A. Motivation

Internet usage has evolved to be dominated by content distribution and retrieval. Nowadays end-users care about what they want not where it exists. To fit today's trends, new Internet paradigm [1][2][3][4] was introduced which is based on information named Information Centric Network (ICN) [5][6]. The most recent ICN approaches in development are Data-Oriented Network Architecture (DONA) [7], Publish-Subscribe Internet Routing Paradigm (PSIRP) [10], Network of Information (NetInf) [11], Content-Centric Networking (CCN) [8] and the Named Data Networking (NDN) project [9]

CCN [12] is a promising one among them. It has been proposed to optimize network resources and to provide scalability, efficiency, security, flexibility and ease of configuration. It is designed to rise today's Internet problems and insufficient performance beyond customers' requirements.

The future Internet with CCN is an alternative to support existing and expected future applications. It aims to correct IP issues like QoS, security and mobility.

CCN architecture can be characterized by four fundamental functionalities: naming the contents, routing by name the contents, disseminating the content and caching the contents in network. These functionalities lead to a significant improvement of the Internet architecture regarding to Interest aggregation, data multicasting and In-network caching features natively provided.

B. Problem Definition and objective

- The Realization of CCN is a big challenge, regarding to the deployment of CCN and the implementation of its forwarding.

Programmable networks known as Software-Defined Networking (SDN)[13][14] can contribute to the development of the CCN.

Download English Version:

https://daneshyari.com/en/article/4955006

Download Persian Version:

https://daneshyari.com/article/4955006

Daneshyari.com