

ABSTRACT SUBMISSION –– SOUMISSION DE RESUME

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ABSTRACT / RESUME:

**A SDN-Based Heterogeneous Architecture Leveraging Fog Computing For the Future Maritime Communication Networks**

**Abstract:** Perceiving maritime wireless communication networks could extends the wireless connections between vessels to the shore, to guarantee navigation safer and provide ubiquitous broadband services. It could be dramatically simplify network configuration, and dynamically and efficiently manage network resource by extracting the promising software defined networking (SDN) paradigm combining the fog computing technology into maritime society. This paper aims to propose a practical and cost-effective underlying multitier infrastructure to construct a SDN-based Space/Air/ Sea integrated network architecture leveraging fog computing based on the analysis of unique characteristics of this dedicated network. The motivation and envision, as well as the potential use cases and challenges showcasing are further provided. The heterogeneous networks evolving base stations which are satellite-based, air ship-based and land-based respectively, are established to collaboratively facilitate the traffic steering, taking into account of the various ever-increasing services demands both for safety-related and non-safety related services. In this paper, we proposed a network vertical switching decision algorithm based on rough set and analytic hierarchy process (AHP). We believe that the provided systematic architecture is meant as a petri dish to revolutionize the navigation communication pattern and pave the way towards E-Navigation.

**Resume:**

Tingting Yang received the B.Sc. and Ph.D. degrees from Dalian Maritime University, China, in 2004 and 2010, respectively. She is currently an associate professor at Navigation College of Dalian Maritime University, China. Since September 2012, she has been a visiting scholar at the Broadband Communications Research (BBCR) Lab at the Department of Electrical and Computer Engineering, University of Waterloo, Canada. Her research interests are in the areas of maritime wideband communication networks, smart grid, DTN networks, green wireless communication. She serves as the associate Editor-in-Chief of the IET Communications, as well as the advisory editor for SpringerPlus. She also serves as the workshop chair of FCST'15, and a TPC Member for IEEE ICC'14& ICC'15 & ICC'16 Conference, IEEE SmartGridComm'14 Symposium and IEEE ScalCom'14 Conference as well.