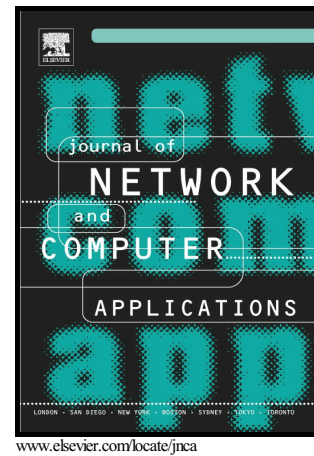


Author's Accepted Manuscript

A Survey on Ultra-Dense Network and Emerging Technologies: Security Challenges and Possible Solutions

Garima Chopra, Rakesh Kumar Jha, Sanjeev Jain



PII: S1084-8045(17)30230-8
DOI: <http://dx.doi.org/10.1016/j.jnca.2017.07.007>
Reference: YJNCA1938

To appear in: *Journal of Network and Computer Applications*

Received date: 16 February 2017
Revised date: 3 June 2017
Accepted date: 5 July 2017

Cite this article as: Garima Chopra, Rakesh Kumar Jha and Sanjeev Jain, / Survey on Ultra-Dense Network and Emerging Technologies: Security Challenges and Possible Solutions, *Journal of Network and Computer Applications*, <http://dx.doi.org/10.1016/j.jnca.2017.07.007>

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 galley proof before it is published in its final citable 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

A Survey on Ultra-Dense Network and Emerging Technologies: Security Challenges and Possible Solutions

Garima Chopra, *Student Member, IEEE*^a, Rakesh Kumar Jha, *Member, IEEE*^a, Sanjeev Jain, *Member, IEEE*^b

^aSchool of Electronics and Communication Engineering, Shri Mata Vaishno Devi University, J&K, India. .

^bSanjeev Jain is Vice Chancellor in Shri Mata Vaishno Devi University, J&K, India..

garimachopra100@gmail.com

jharakesh.45@gmail.com

dr_sanjeevjain@yahoo.com

Abstract

The recent advancements in the field of next generation mobile communication provides scope to a variety of new areas by connecting various devices through a common platform for data transfer. The addition of several applications like e-health monitoring, smart homes, surveillance etc can be managed from a remote location. It not only opens the door for new researches but also boost the requirement to secure the network from the eye of the potential attackers. In this paper, a detailed survey has been done on security issues and their possible solutions in Ultra Dense Networks for 5G wireless network architecture. With this, a detailed explanation about security issues of physical layer in Massive MIMO, Jamming, VANET and D2D have been provided with best efforts. Also, the description about the security flaws of spectrum shared, IoT devices have been explained. At the end, the architecture for security attacks in UDN has been proposed with proper thought process in the increasing order of their risk factor.

Graphical Abstract

Proposed cellular architecture for Ultra dense network based on the risk factor. In order to meet the growing demand of high data rate by subscribers and providing with the satisfactory results, the next generation (5G) of cellular communication is equipped with large number of small cells. Due to integration of large number of user density and small cells (eg. Picocell, femtocells, WiFi etc.) opens gate for attacker to exploit the weakness. Thus, in this architecture we have listed out 5 attacks with will affect the performance of the network on a larger scale. Although, the list of attacks is enormous but immediate work in these major attacks should be done in order to meet the performance goals.

ABBREVIATION: 3G, THIRD GENERATION; 3GPP, 3RD GENERATION PARTNERSHIP PROJECT; 5G, FIFTH GENERATION; AN, ARTIFICIAL NOISE; BER, BIT ERROR RATE; BS, BASE STATION; CoAP, CONSTRAINED APPLICATION PROTOCOL; CR, COGNITIVE RADIOS; CSI, CHANNEL STATE INFORMATION; D2D, DEVICE TO DEVICE; DOMINO, DETECTION OF GREEDY BEHAVIOR IN; MAC, LAYER OF IEEE 802.11 NETWORKS; DoS, DENIAL OF SERVICE; DDoS, DISTRIBUTED DENIAL OF SERVICE; FFD, FULL FUNCTIONAL DEVICE; IDS, INTRUSION DETECTION SYSTEM; IP, INTERNET PROTOCOL; IoT, INTERNET OF THINGS; IKEV2, INTERNET KEY EXCHANGE VERSION 2; LTE-A, LONG TERM EVOLUTION ADVANCE;

Download English Version:

<https://daneshyari.com/en/article/4955825>

Download Persian Version:

<https://daneshyari.com/article/4955825>

[Daneshyari.com](https://daneshyari.com)