A Review Paper of Comparison of SDN-WLAN with WLAN

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Abstract- The software defined networking SDN-WLAN has befit one of the popular subject in the amplitude of information and communication technology and a large amount of research has been conducted in this scope. However most of these existing research works only provide theoretical SDN-WLAN concepts and they sorely show any implementation or test bed results. Wireless Local Area Networks of today want a sturdy deployment of wireless Access Points, to handle the wave in the quantity of track produced by an ever-enhance numbers of data users in on order to market the SDN technology in this paper we offer the high security and high performance for SDN-WLAN software defined network and wireless local area network. Wireless Local Area Network (WLAN) infrastructure is a conquering technology for direct access to the Internet and for locular mobile data traffics discharge to WLANs. Furthermore, the investment infrastructure can be used to provide function for the Internet of Things and Machine to automaton scenarios. This work is centralized on betterment of radio resources control scalability analogous to mobile networks via delivery between cells and our work, we show high performance of SDN-WLAN architecture under real word experiment scenarios. Our joint rein channels solution develop the Open Flow protocol. Wireless local area network and we focused on network velocity by SDN and reclaim the network control and management of network and high performance of applications and for administration of SDN WLAN infrastructure and how to improve the infrastructure of SDN WLAN for commerce development and how to attach and communicate wirelessly and our main goal is comparison of SDN-WLAN with WLAN and security of SDN WLAN and High performance of wireless network. In this thesis we define a way to bring the Software Defined Network pattern into Wireless Local Area Networks. SDN (Software-Defined Networking) and Wi-Fi, it is very significant and beneficial to affricates them under one unified architecture. We propose a smart SDN based solution for investment SDN-WLAN.

Keyword- Wi-Fi SDN & WLAN security,

I.   INTRODUCTION

[1] With the reproduce of intelligent devices IEEE 802.11 wireless local area network (WLAN) is catch more amicability amongst the consumers in the year of 2014 the number of tablet devices connection with AP has soared 1.6 crease to 74 million and 189 million laptops has access the internet via WLAN in the nearby years 97% intelligent traffic could communicate through Wi-Fi WLAN devises the uprising appeal for Wi-Fi network encourage academy and crafts to develop standard for

higher quality of services and increase the mobility managements facilities one of the real challenges of the Wi-Fi industries is to attain more efficient managements of wireless network ecosystem consist a wide range of different section. [2] This require exhibitive simplifications of Wi-Fi network management additionally a real state of the technology has previously introduced more vast programmability automations and machine learning capability for Wi-Fi infrastructure this brings new opportunity for Wi-Fi network ecosystem, e.g., collections processing own analytic networks data and acting's on them this process particularly goal investment WLAN infrastructure section because it will natural conduct to a reduction in network management complexities and enhancement in reliability and security the key facets of the useful management is proof a client mobility with at least harm in qualities of services the main IEEE 802.11 standers was not primarily focuses on provide a good client mobility but more focuses on network connection.[3] a intention about a client's delivery is accomplish by client station which can conduct to reduce network performance because a client does not know all the information about network another drawback is possibilities to make community only to one access point in the trend of perform a delivery the stations needs to reassociate to a new access point the process consist detection reathentication and reassocition step the reathentication time was increase by liberation of standard IEEE 802.11i the decrease of the handover time was increased by release of standard IEEE 802.11r and IEEE 802.11k but the decision on delivery perform is still situated at the client side our perspective is to pursue recent process and provide solution to simplifying network management colonizes [4] on SDN WLAN infrastructure and good mobility management the reason of choice the SDN architecture for the concepts of a personal access point are representations of new approaches in networking distributed network use nonstandard part for required functionality simplify solving problems of radio resources control and does not introduce furthermore problem the SDN permit one to use standards components for this concept the personal access point does not require any alter in physically and medium access (MAC) layers we previously presented our primary experiment in two conference papers which are extended in this paper [5] the existing dedicated based WLAN architecture are manufactures related that makes the innovate process reflect and has faced several problem to adopt future network services and applications one of the promising problem in existing WLAN is mobility management that reliant on the access point (AP) associations complications happen when many Aps envelopment areas are overlaps between mobility station (MS)

in customary WLAN. [6] the AP forum process usually reliant on received signals solidities indications (RSSI) that can direction to the load imbalance environs means while an MS during delivery may connects with plenteous AP that can reduce execution of accompanied station according throughputs demotion delay aspects packets detrimentally and in consequence the connections could be lost the another's challenges of customary IEEE 802.11 WLAN relevant to associations schema to considers only user selections methods for connections founding with AP that generally causes throughputs reduce and does not permits seamless mobility's between abutting AP however researchers [7] have been presented several hand to hand method for WLAN to bettering the network execution such as elective channels scanning procedure proposed to decrease the scanning time during new option and prefer to connects utilizing store information although this method can be incorrect if an MS alter the directivity in compares to cashed event. Enabling security between wired and wireless assets is other example in which a WLAN-central SDN implement can add values. The forays of mobiles devices have trigged the needs for influence protecting for investment accessibility networks. Because attacks perhaps come from the wireless amplitude or the wired LAN, SDN-enabling the WLAN controllability beget a more widely suitable firewalls and intrusion protections system. [8] Wireless network have empirical and exponentially development in the last few years right now, wireless is the most used technology by devices to access to the internet or to communicates with one another's or throughout an access point (AP). Wireless network are also being duration of quality of services such as vehicular Ad-Hoc network. [9] (VANET) or wireless sensor network used in other environs, which are extremely passible in (WSN). In added, it is expectedly that low-cost singles plank computers (SPC) devices like Raspberry-pi or droid produced a further development of wireless network, especially for real-time application in IoT environments, which are also QoS informed. in this thesis we explained a route to bring the Software Defined Network pattern into Wireless Local Area Networks. SDN (Software-Defined Networking) and Wi-Fi, it is very consequential and beneficial to complete them under one unified architecture.

II. LITERATURE REVIEW

In this chapter, a review of previous paper will be discussed. This study is a tools to generate some ideas about how this thesis work based on the achievement of the related thesis.in this chapter, I will discuss some of them.

In 2019 Deepak Singh Rana survey of Software Defined Networking (SDN) Challenges State of the art research challenges: In state of the art research challenges are given the aim of the research is to describe the benefits of using SDN in a multitude of environments such as in data centers, networks, the comprehensive survey of SDN clearly edentates the several research possibilities in SDN, although several works had been done in the area of SDN but still a lot more things to be uncovered. The work done in this area is still in its initial stage.

The future work in the SDN leads to increase acceptance and decrement in the cost of setting the network.

In 2018 Košťál K, Bencel R, Ries M, Kotuliak According to SDN principles, we proposed the enhanced architecture what resulted to merged control channels for wireless and wired part of the network to one control channel. He proposed the extension of Open Flow protocol for ensuring the wireless functionality and also changes in AP and SDN Controller components.

In 2017 Ojas Kanhere survey SDN-WLAN Software Defined Network Wireless Local Area Network
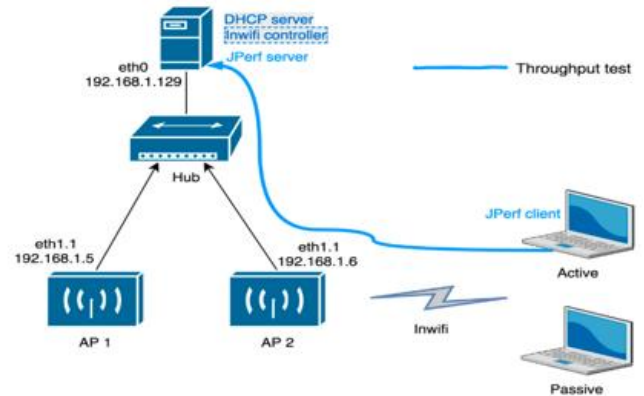

Fig.1: SDN WLAN Architecture

Controller. He described how the Control plane and Management plane respectively, of the WLAN controller must be designed.

In 2019 **Kristian kostal** survey High Performance SDN WLAN Architecture design develop and demonstrate efficient and unified network management with improved client's mobility and security for a WLAN infrastructure.

In 2019 Elzain, Hisham FD-SDWMN, a Flat Distributed Software Defined Wireless Mesh Network multi-domain architecture. Its organization relies on a peering domain; each domain is managed by a local controller. The controllers establish a lightweight manageable control channel in between domains and are for agents that developed to share and aggregate network-wide information in order to enhance end-to-end network services. The distribution of the controllers surrounding a considerable number of mesh devices that cover large geographical areas supports WMN network scalability, and SDN controllers need to be closer network edges for collecting and monitoring network status.

In 2016 Lee, Hwi Young, SDN controller based HA WLAN solution for WLANs. Unlike previous research works where only theoretical concepts of SDN are discussed we developed a real-time ONOS controller based WLAN test environment. Furthermore, we also implemented and evaluated the performance of our proposed HA WLAN solution.

III. RESEARCH METHODOLOGY

In this paper I design development and demonstrate efficient and unified network management with improved client's mobility and security for SDN-WLAN infrastructure. [10] And

also the comparison of SDN-WLAN with WLAN and security of SDN WLAN and we used security parameter for SDN WLAN and high level architecture of SDN WLAN and we designed star topology for SDN WLAN. one of the most common network setups. Right now, hub interfaces with a focal system gadget like a center point switch or PC. The most common problem of SDN WLAN is security problem because the traffic encryption is also weak so attackers are able to recover transmissions and also authentication of wireless network user is not strong. For solution of this problem I consider deference security protocol to secure wireless network and also for better security we must change the network SSID name and we used strong encryption and then we encrypted the entire network and for best security we consider 801.11i standard and also we can use 802.11x for authentication. [11] The 802.11x standards provide some basic security, but are becoming less adequate as use of wireless networking spreads. And also the designing of star wireless topology we consider c++ programing language by this language we write coding for star topology. and programing ns3 we used for connecting deference nodes. I considering one node as a central node. and we designed network for small business network and for private home network. SDN is focused on the internal network, be it the LAN or the kernel services provider networks. SDN is overall programmability by the client or user, and permit for effective conversion and configurational handling. In this paper we allow devices to connect and communicate wirelessly Unlike a traditional wired LAN, [12] in which devices communicate over Ethernet cables devices on a WLAN communicate through Wi-Fi A remote LAN is a remote PC arrange that joins at least two than two gadgets utilizing remote correspondence to shape a neighborhood inside a limited "area such as a home, schools, client laboratories, campus office cell building. In a software-defined network, a network engineer or administrator can shape traffic from a centralized control console without having to touch individual switches in the network The physical separation of the system control plane from the sending plane, and where a control plane controls a few gadgets. [13] SDN implementation into wireless networks is one promising solution. We have seen how SDN has transformed campus networks data centers and the cloud to date so how can SDN help with Wi-Fi SDN-enabled Wi-Fi is the best solution in delivering consistent high performance Wi-Fi to the growing number of Wi-Fi connected devices Because of the SDN architecture wireless networks are enabled to become more agile and scale based on the networks.

Fig.2: Network Diagram Typical Simple Home Network

IV. CONCLUSION

In this paper our aim is to design develop, and demonstrate, efficient and unified network management, with improved client's mobility, and security, for SDN-WLAN infrastructure. It integrates, enterprise, WLAN services. "In this paper I will develop dynamic flexible scalable connectivity. we are also going to focus on the higher performance, for high-speed, Wireless local area network. And also to improve the network control, and management of network and high performance, of application, and management of SDN WLAN infrastructure. and for development the infrastructure of SDN WLAN. and also for business growth and for connect, and communicate wirelessly unlike a traditional, wired LAN in which devices communicate, over Ethernet cable devices on a WLAN communicate via Wi-Fi network. and SDN is focused, on the internal network be it the LAN or the core service provider network, and we also focus the security of SDN to build into the designed as supply as a help to ensures the availability, trueness and security of every single accompanied assets and data. "And our main goal is comparison of SDN-WLAN with WLAN and also the high security of SDN WLAN and we used security parameter for SDN WLAN and high level architecture. and we design star topology for current work and we designed network for small business network and for private home network.one of the most common network setups. In this configuration, every node connects to a central network device like a hub switch or computer Furthermore, our unified network management introduces easier performance for SDN- WLAN architecture.

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