# "STUDY AND ANALYSIS OF DIFFERENT TYPES OF NETWORK FOR BATTER PERFORMANCE OF SYSTEM"

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## ABSTRACT

Computer network are a system of interconnected computers for the purpose of sharing digital information. The concept of a network began in 1962 when a server at the Massachusetts institute of Technology was connected to a server in California. Since that time the proliferation of computers and computer networks has increased significantly. One of the most significant challenges to networks is attacks on their resources caused by inadequate network security. The purpose of this research project was to evaluate open source, free, intrusion detection systems and how easily they can integrate into in existing network .research was conducted for this study through a review of existing literature pertaining to intrusion detection systems and how they function. The literature also highlighted previous studies conducted on intrusion detection systems, both commercial and open source. In addition to the review of existing literature, the author conducted independent testing on three open source intrusion detection systems.

## INTRODUCTION

The open source programs, Snort, OSSEC, and prelude, were selected due to being highly rated in professional publications. The author created a secure simulated computer network, to ensure that each of the programs was tested in a controlled and equitable manner. The findings of this study determine that the three open source intrusion detection systems tested are as capable as commercial programs in securing a computer network.

1. Personal area network (PAN)

2. Local area network (LAN)

3. Wireless local area network (WLAN)

4. Campus area network (CAN)

5. Metropolitan area network (MAN)

6. Wide area network (WAN)

7. Storage area network (SAN)

8. System area network (SAN)

9. Passive optical local area network (POLAN)

10. Enterprise private network (EPN)

11. Virtual private network (VPN)

## 1. PERSONAL AREA NETWORK(PAN)

The smallest and basic types of network, a pan is made up of a wireless modem, a computer or two, phones, printers, tabletse.t.c and revolves around one person in one building. These types of networks are typically found in small offices or residences, and are managed by one person or organization from a single device.

A personal area network (PAN) is a computer network used for communication among computer devices, including telephones and personal digital assistants, in proximity to an individual`s body.

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The devices may or may not belong to the person in question. The reach of a PAN is typically a few meters.

### 1.1ADVANTAGE OF PAN

(i).NO EXTRA SPACE REQUIRES:-personal area network does not require extra wire or space for connecting two devices .you only need to enable Bluetooth in booth devices to start sharing data among them for example;-connecting wireless keyboard and mouse with the tablet through Bluetooth.

(ii).CONNECT TOO MANY DEVICES AT A TIME:-many devices can be connected to one device at the same time in personal area network. You can connect one mobile to many other mobiles or tablets to share files.

(iii).COST EFFECTIVE:- no extra wires are needed in this type of network. Also, no extra data charges are involved so PAN is an inexpensive way of communication.

(iv). EASY TO USE:-It is easy to use .no advanced setup is required.

(v).SEQURE:-this network is secured network because all the devices are authorized before data sharing. Third party injection and data hacking are not possible in PAN

(vi). PORTABLE: - A person can move devices as it is wireless network and data exchange is not affected. That mean PAN is portable as well.

(vii). USED IN OFFICE CONFERENCES AND MEETINGS:-infrared is the technology used in TV remotes ,ac remotes, and other devices, Bluetooth ,infrared and other types of PAN is used to interconnect digital devices in offices, meetings and conferences.

**1.2DISADVANTAGE OF PAN**

(i).LESS DISTANCE RANGE:-signal range is maximum 10 meters which limitation for long distance sharing.

(ii).INTERFERE WITH RADIO SIGNALS:-as personal area network also use infrared so it can interfere with radio signals and data can be dropped.

(iii).SLOW DATA TRANSFER:-Bluetooth and infrared have a slow data transfer rate as compared to another type of network like LAN.

(iv).HEALTH PROBLEM:-in some cases, PAN uses microwave signals in some digital which have a bad effect on the human body like brain cancer and heart problems.

**1.3 EXAMPLE OF PERSONAL AREA NETWORK**

(A).wireless keyboard
(B).wireless mouse
(C).smart phones
(D).TV remotes
(E).wireless printers

(F).gaming consoles
(H).Smartphone technologies include infrared, Bluetooth, fire wire, wide band, wired, wireless USB.

## 2. WIRELESS LOCAL AREA NETWORK (WLAN)

Functions like a LAN, WLAN`s makes use of wireless network technology, such as Wi-Fi typically seen in the same types of applications as LAN`s these types of network don`t require that devices rely on physical cables to connect to the network. A wirelessLAN (or WLAN; for wireless local area network, sometimes referred to as LAN, for local area wireless network) is one in which a mobile can connect to a local area network (LAN) through a wireless (radio) connection. The IEEE802.11 group of standards specify the technologies for wireless LANS.802.11 Standards use the Ethernet protocol and CSMA/CA (carrier sense multiple across with collision avoidance) for path sharing and include and encryption method, the wired equivalent privacy algorithm.

### 2.1ADVANTAGES OF WIRELESS LOCAL AREA NETWORK (WLAN)

(i).It is reliable type of communication.
(ii).As WLAN reduces physical wires so it is a flexible way of communication.
(iii).WLAN also reduces the cost of ownership.
(iv).It is easier to add or remove workstation.
(v).It provides high data rate due to small area coverage.
(vi).you can also move workstation while maintaining the connectivity.
(vii).for probation the light of sight is not required.
(viii).the direction of connectivity can be anywhere i.e. you can connect devices in my direction unless it is in the range of access point.
(ix).easy installation and you need don`t need extra cables for installation.
(x).if there are any building or trees then still wireless connection works.

### DISADVANTAGE OF WIRELESS LOCAL AREA NETWORK (WLAN)

(i).WLAN requires license.

(ii).It has a limited area to cover.

(iii). Government agencies can limit the signals of wan if required. This can affect data transfer from connected devices to the internet.

(iv).if the number of connected devices increases then data transfer rate decrease.

(v).if there is rain or thunder then communication may interface.

(vi).Attackers can get access to the transmitted data because wireless LAN has low data

(vii).access points can get signal of nearest access points.

(viii).it is required to change the network card and access points when slandered changes.

(ix).chances of errors is high.

(x).communication is not secure and can be accessed by unauthorized users.

(xi).LAN cable is still required which acts as the backbone of the WLAN.

(xii).Low data transfer rate than wired connection because WLAN uses radio frequency.

**EXAMPLE OF WLAN**

WLAN is used to make a limited network in school, home, campus, computer, laboratory and office building.

## 3. LOCAL AREA NETWORK (LAN)

We are confident that you have heard of these types of networks before LANs are the most frequently discussed networks; one of the most common, one of the most original and one of the simplest type of networks.LANs connect groups of computers and low-voltage devices together access short distances (within a building or between a group of two or three buildings in close proximity to each other) to share information and resources. Enterprises typically manage and maintain LANs.

A LAN is a greater that is used for communicating among computer devices, usually within an office building or home.

LAN`s enable the sharing of resources such as files or hardware devices that may be needed by multiple users. It is limited in size typically spanning a few hundred meters; and no more than a mile. It is fast with speeds from 10mbps to 10gbps. Requires little wiring, typically a single cable connecting to each device. Has lower cost compared to MANs or WANs is LAN.LANs can be either wired or wireless twisted pair coax or fibre optic cable can be used in wired LANs. Every LAN uses a protocol a set of rules that governs how packets are configured and transmitted. Nodes in a LAN are linked together with a certain topology. Include;-bus-ring-star. LANs are capable of very high transmission rates (100mb/s to GB/s).

## 4. CAMPUS AREA NETWORK (CAN)

Computer users can interact with one and another through some type of network. There are many types of network and we name the network depending upon how long distance the network covers. If the network is within the room or couple of rooms then we name if local area network(LAN) and if the network is all over the world then we name if wide area network (WAN).LAN and WAN are two main types of networks With the new era of technology. We have categorized the network into more types such as campus area network, metropolitan area network storage area network and others. Today I am going to tell you about the campus area network .the type of computer network which connects different

departments of the university, school, and the organization is known as campus area network (CAN). CAN is also known as corporate area network because it also connects. It is departments of a large corporate organization. CAN covers area 1km to 5km. It is smaller than metropolitan area network (MAN). MAN makes a network that can cover the whole city. CAN or campus area network is made by combining different LANs through routers, switches, hubs, copper wires or optical fibre. In the CAN, computers are connected by wired and wireless connections. the purpose of the can is to share computer resources with each other and to ,make private network among the organization . Data transfer rate of the CAN is fast as compared to WAN. TO make the connections between different branches of university or organization, we use large bandwidth optical fibre also known as backbone trunk. If the university is using CAN to communicate within university then chances of hacking are less but if the CAN is also connected to the internet than security problem may occur. University data can be stolen if the main servers of university are connected to the internet because hackers can barrier the security in the network and access private data to solve this issue the university has to keep an updated version of all software used in the computers. By using CAN the organization has to not install any software to all the computers but users can access and use the software through the network.

## 5. METROPOLITON AREA NETWORK (MAN)

A metropolitan area network (MAN) is a network which covers a city or a large university campus. MAN connects users within an area larger than local area network (LAN) but smaller than a wide area, the term is normally applied to the connections. The working mechanism of man is similar to an internet service provider (ISP) BUT A MAN is not owned by a signal organization like a WAN, a MAN network provides share network connections to its users, A MAN mostly works on the data link layer, which is layer 2 of the open system interconnection (OSI) model. Distributed queue dual bus (DQDB) is the MAN standard specified by the institute of electrical and electronics engineers (IEEE) as ie. 802.6 using this standard a MAN extend up to 30-40 km or 20-25miles. Advantage of a metropolitan area network (MAN) Less expansive:-It is less expansive to attach MAN with WAN. MAN gives the good efficiency of data. In MAN data is easily managed in a centralized way. Sending local emails: - On MAN you can send local emails fast and free, high speed. Man uses fibre optics so the speed of data can easily reach upon 1000 mbps .files and databases can be transfer fast. Sharing of the internet in some installation of MANs uses can share their; internet connection so multiple users can get the same high-speed internet.

## 6. CONCLUSION AND FUTURESCOPE

Future work can be continued with refinement in the framework with inclusion on upcoming technologies like 802.11ac. More improved estimation for coverage area and placement of access points are possible with algorithms and simulation tools that can work for both indoor and outdoor simultaneously. Single integrated tool for performance measurement will definitely help network administrators to keep an eye on WLAN and delivery of content can be monitored. Optimizing the content delivery over wireless network is based on many aspects of the wireless network. One of these aspects is wireless network design. The

following objectives were set prior to start the research work. To analyzes weather the physical architecture of wireless network play an important role in content delivery or not? To develop model architecture that fits the best for online Learning systems. To evaluate the impact of fine tuning the device evaluate these device evaluate these device for this specific purpose for the better delivery system. Analysis of media content which performs best for the application under study and to access need of media conversion before the delivery.

## 1. REFERENCES

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