

Improvement of the Adhoc Mobile Wireless Network with the Cisco Packet Tracer

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Abstract— The purpose of this research is not only to reduce the total cost but it also help us to increase the efficiency of the network. ADHOC is temporary network. Now a days ADHOC is most frequently used. In today scenario most of us having are smart devices which can make us easier to share a file or transfer a data through ADHOC because without ADHOC we can't connect with each other without any physical medium like wire, cable etc. Which can make us more difficulties or time consuming. To enhance the performance of network we use cisco packet tracer software. The enhancement will be due to average cost, stability, power consumption. We can us NAT, Access list , DHCP protocols to design a network

Keywords- IEEE802.11, Routing, NAT, DHCP, Cisco Packet tracer, P2P File Sharing

I. INTRODUCTION

The networks with ad hoc and are wireless are self-arranging dynamic networks where all the nodes in that network are free to move. The wireless networks do not possess the complexities of infrastructure setup and the administering allowing various devices to construct and join the network at any instance of time.

Cisco Systems designed the tool for cross-platform visual simulation with the help of which users can create network topologies and to resemble today's computer network.

Users can mimic the composition of Cisco routers and switches with the help of an imitated command line interface.

It's also equipped with drag and drop service to let users add and remove imitated network devices as per the requirements.

This paper with contain some defined routing protocols like DNS, NAT, ACL, DHCP that are needed to communicate the data packages.

The action of Wireless security in this mechanism is necessary.

WPA/WPA2 can be used for security in this also.

ADHOC DEFINATION

The ad-hoc network is a local area network (LAN) that has been built in the form of device connects. Instead of relying on the base station to match the movement of messages on each node on the network, each network converts the node packets

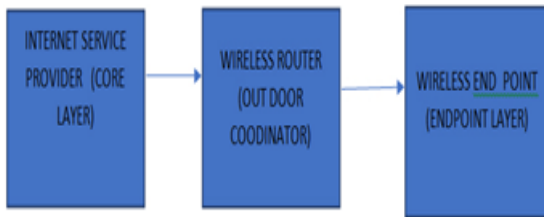
to each other. In the Windows operating system, ad-hoc is a communications function that allows the computer Allows to communicate directly with each other without the router.

An adhoc network is a secure network based on respectable devices that are communicating directly with each other. These words refer to auto-generated or generated constructions, because these networks generally ignore the gatekeeping hardware or have a central access point such as a router.

II. METHODS

Packet Tracer designed the tool for cross-platform visual simulation with the help of which users can create network topologies and to resemble today's computer network .Our main goal to make the adhoc terminal only under the coverage area and always connected, but also with a very good communication timing during sending and receiving The desired design was limited into 3 stages (Core Layer, Intermediate Layer and the Endpoint Layer), in every layer a commands were placed to let the device work probably and use the right routing protocol (Static routing & default routing is used in this paper). So, the 3 layers can communicate with each other. In the other hand, the adhoc mobile end points don't need to route the sent message to the core layer. In our case it just sends the message to the coordinator and it has the lead to distribute the message to the destination end point. Adhoc

wireless network can be especially applied in enterprise business compounds or military campuses.



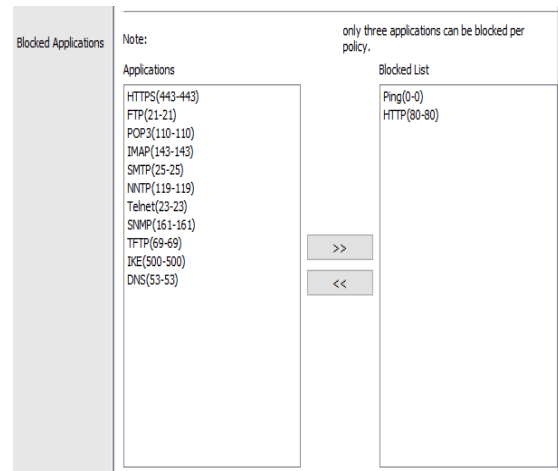
METHODOLOGY USSED IN ADHOC NETWORK

1. DHCP
2. ACL
3. ROUTING
4. NAT

DHCP:- The protocol to provide dynamic IP addresses to the gadget on the dynamic host configuration protocol (DHCP) network. With dynamic addressing, a gadget can be a unique IP address every time it connects to the network. In some systems, the device's IP address key can also be switched off when it is still connected. DHCP can support static as well as static IP addresses.

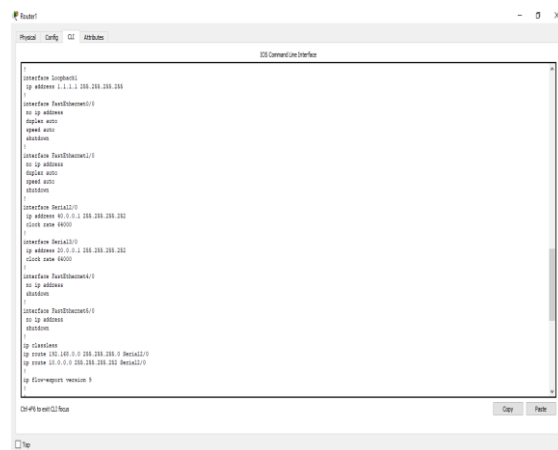
NAT:- NAT (Network Address Translation or Network Address Translation) enhances NAT security and improves IP address. The NAT gateway is installed in both the network, the internal network, and the external network. On the internal network, the system is usually defined by an IP address that can not be used for external networks. The IP address seems to accept the gateway. Gate will retire the traffic from the internal system from the external system. Bring incoming traffic to the appropriate external address and improve the internal system. This helps ensure security as each stop request or incoming request is passed through a conversion process that verifies incoming authentication and provides the ability to match incoming requests.

ACL:- Access control list can control the whole list which can be made by us through which we can easily control the network because of that list we can easily restricted to any device or permit to any device of the network which can be connected to the wireless router. They can help us to easily manage the whole network they can also provide the security to the network



ACL list

ROUTING:- Routing can help to communicate with different network without the routing protocols we can't communicate with other network or different network. In this we can use Default Routing. In default routing their having no fix route because of that we can use default route .In this route we don't know that where our destination point is so because of that we can use the default routing. It is basically used in client to ISP(internet service provider)



Configuration of default routing

WHAT ARE THE ADVANTAGES OF ADHOC NETWORK OVER WIRED NETWORK

Wireless networks that are also on radio frequencies or microwave signals. It allows internet signals to connect with the Internet through the Internet via wireless internet connection.

A.COST.

Unless your network requires more viruses such as virus vendors or commercial class routers, the cost of implementation on wireless networks is relatively low. Cable types increase signal strength and provide a more reliable, reliable, and more effective protection for the commercial grade router.

B INITIATION

Generally, installing the networking network is quick and easy because it requires a small tool. Due to the fact that it needs wireless accessory devices, it is quick and easy to use in the BMM network. In addition, every computer needs the required time.

C. VERSATILITY

Activation of any network is free of charge with each network accessible with the help of any disadvantaged tool. Physical Cables Limit with Low Deficiency. In this case, your office lacks the wire shortage.

- D. Every device acts as a host
- E. It enables peer-to-peer communications
- F. Also enables peer-to-remote communications
- G. The cost of administration is reduced.
- H. Easy in deploying

STEPS TO MAKE AN ADHOC NETWORK

1. Use cisco packet tracer software to make a network virtually
2. Take the devices as per the requirements of the networks
3. There are having three layer which can communicate with each other (core layer, outdoor layer, end point layer)
4. In core layer we should use default routing (client to isp) and static routing through (isp to client) because of that they can provide the internet to the existing network.
5. outdoor layer help us to communicate or intermediary with other two layer with each other they can also coordinates the end point layer with help of DHCP , ACL , WPA2 security
6. End point layer having an end devices like computer, server and access point in which different operation should be perform.

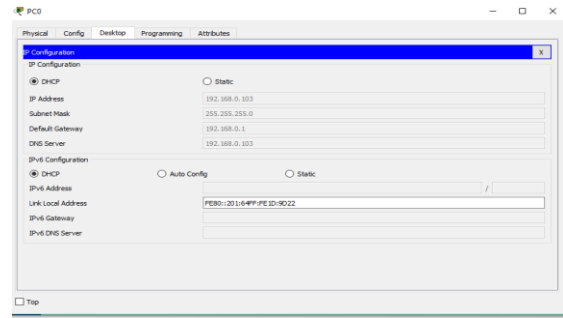
RESULT AND ANALYSIS

The result can be understood by the following pictures taken from the experiment and their further inference. Because of that picture we can easily understand that how we communicate with each other

And how we can cover larger area through the adhoc network

DHCP

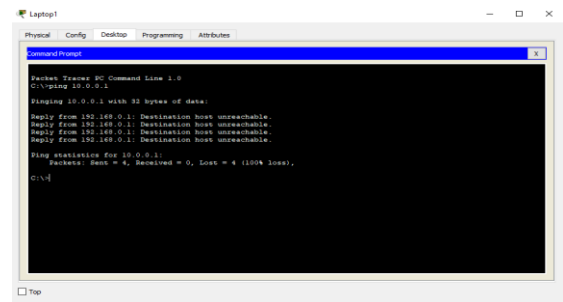
The Dynamic Protocol (DHCP) protocol gateway allows active enabling in the ad editor. With animated address, a gadget may have different IPs at any time with the network. In some systems, Apple continues in IPI changes. DHCP can support other embedded and active IP addresses.



Automatic ip provide

ACL

Access control list can control the whole list which can be made by us through which we can easily control the network because of that list we can easily restricted to any device or permit to any device of the network which can be connected to the wireless router. They can help us to easily manage the whole network they can also provide the security to the network

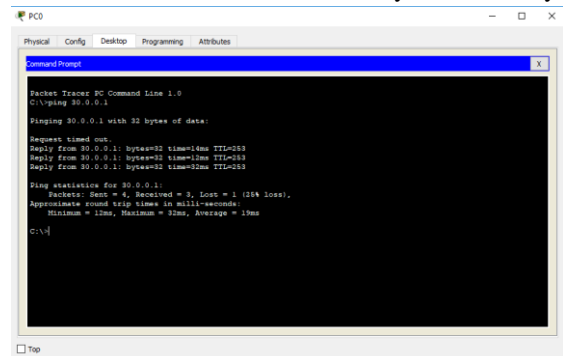


Block icmp through ACL

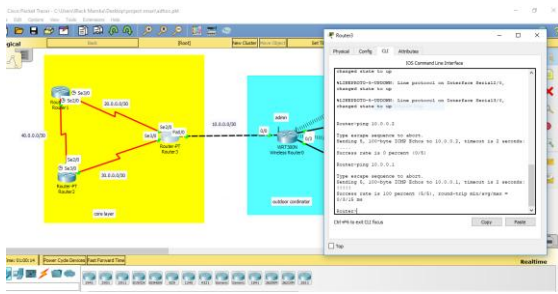
COMMUNICATION

The whole network can communicate with each other using different protocols each device can contribute to communicate with each other with very high speed because of that we can use adhoc network to make a network reliable or easily to connect

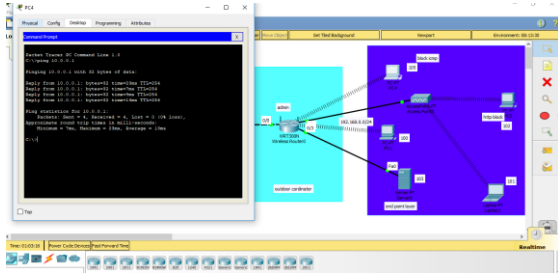
1. Communication between core layer and end layer



2. Communication between core layer and outdoor layer

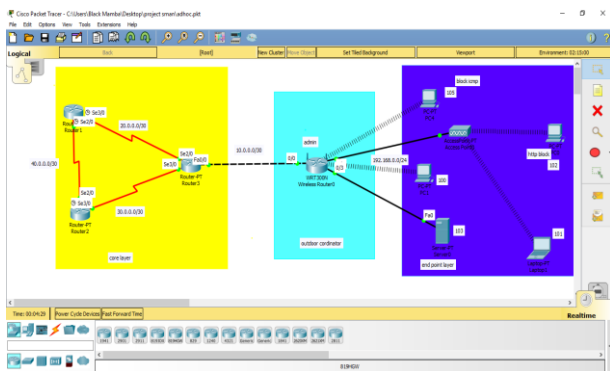


3. Communication between outdoor layer and the end point layer



CONCLUSION

Adhoc wireless network can be used exclusively in business sectors or military campuses. The preferred strategy was restricted to 3 stages (Core Layer, Intermediate Layer and the Endpoint Layer), in each layer a commands were placed to let the device work and use the accurate routing protocol (Default routing is used in this paper). So, the 3 layers can interconnect with each other. In the other hand, the adhoc mobile end points do not require to route the delivered message to the core layer, its waste of time by 66 msec. In our case it just propels the message to the coordinator and it has the principal to allocate the message to the destination end point.



Final image output

FUTURE WORK

Essential and current for future advertiser technology technologies is essential. The initial sector of mobile computer will be speedily spent on the current operation on mobile phones. In the future, mobile computers need to integrate the application technology technique that combines hcl groups

that may be somewhat automatically added to the network automatically and potentially.

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