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Cisco Packet Tracer for an EnterpriseNetwork Infrastructure

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Abstract: *Computer network have become a very important part of current world. Without network we cannot communicate within the pc's, LAN is the best example of network in which the university, or a small organization can make their pc's communicate to share a data. Andwhen want to design any network like this, we can design it with Cisco packet tracer so that we can simulate & configure our devices and we can have rough idea of it. In this paper, we tried to describe how the tool can be used to develop a simulation model. Studyprovides topology design. IP address. Configuration & how to send information in the formof packets in a single network.*

I.INTRODUCTION

Cisco packet tracer provides the path to calculate the effect of a hardware upgrade, changing topology, & increase of network traffic, or using of latest applications on the networks. A LAN network for an enterprise infrastructure is developed with the use of Cisco packet tracer in this document. The paper describes how to use the Cisco packet method to build a LAN simulation system for a enterprise infrastructure. This study delivers awareness into multiple concepts such as the configuration of IP addresses, & how to transmit information" to single network in the form of packet. This Cisco packet tracer software allows us to connect different computers like routers, Switches & different user to establish communication" between each other to exchange data

II.USER INTERFACE

The monitor will be shown in the city's digital topology.

- The Cisco Packet Tracer [5][7] network emulator is easy to implement and provides a clear appeal to thegraphical user interface.
- The interface of the command line (CLI) will allow you to adjust it or customize it.

Hardware Requirements:

We need certain basic requirements for the usage of cisco packet simulator, which are:-
1.A system with minimum RAM of 512 MB
2.a system contain storage of 500MB minimum disk space

Software Requirements:

1. The system with operating system of windows 7 or above
2. The system with the installation of cisco network simulation tool.

Cisco Packet Tracer:

Cisco packet tracer is a Simulation Tool which is design by Cisco systems. It allows users to design topologies and modern computer network.it is a Software which allows user to simulate the configuration of router and switches with the help of simulated command line interface.

III.IPV4 ADDRESSING

An IP address is an address given to every system to identify each system during communication and it is in numeric form., Every device is assigned by an its own individual IP address for communication. An ipv4 address is in size of 32 bits of data, This IP address is derived into different classes based on the requirements, it is a logical address given to users to establish network communication and 232 address can be given to users. It is in the form of 132.148.20.100 in which each number is of 8 bits. The ip address is of two various types one of it is network address and also called as service address and another is receiver address. The IP address is designed to establish communication between server andthe host and to provide the address to the users to establish the secure communication.

Classes of Addresses:

There are classified into five various classes and are shown below.

Table 1: Types of IPv4 addressing modeAddress class Range

Class	Class Range
A	1-127
B	128-191
C	192-223
D	224-239
E	240-255

Subnet Mask:

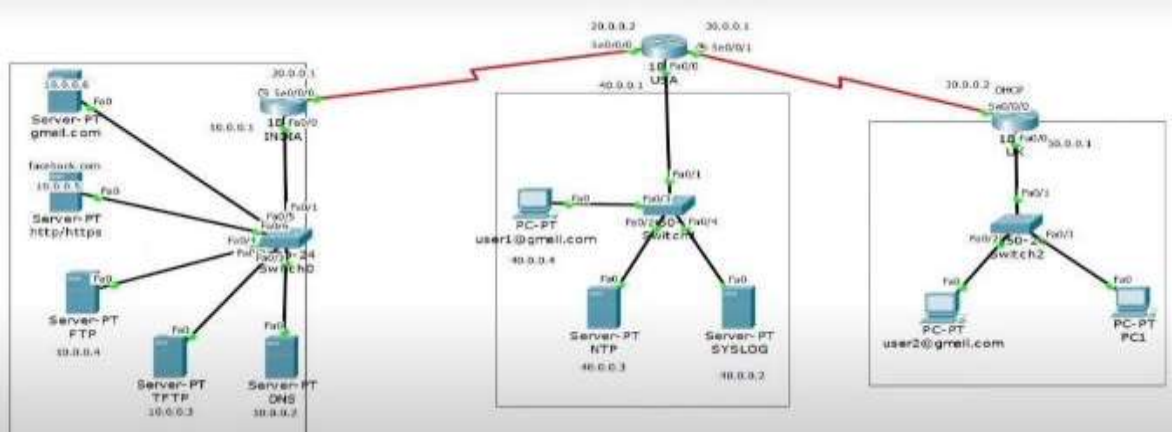
The subnet mask is used to identify the subnet allocated to the ip address. The ip address are divided as two parts oneis receiver address and another is server address. The subnet performs bitwise AND operations to identify the networkaddress of ip address.

Table 2: Default subnet masks for all network classes.

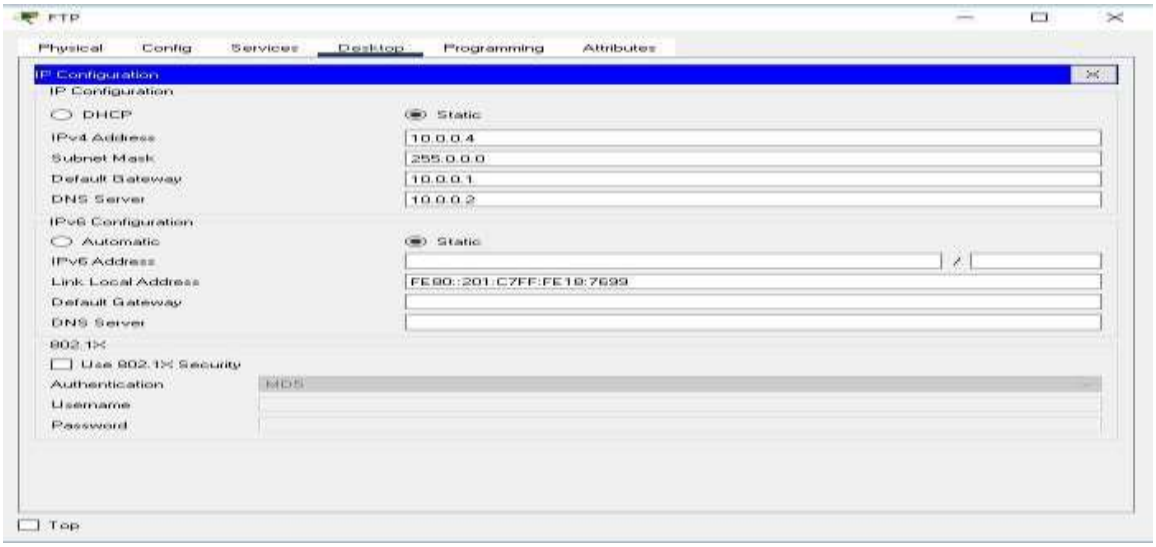
Class Format	Default Subnet Mask
A	255.0.0.0
B	255.255.0.0
C	255.255.255.0

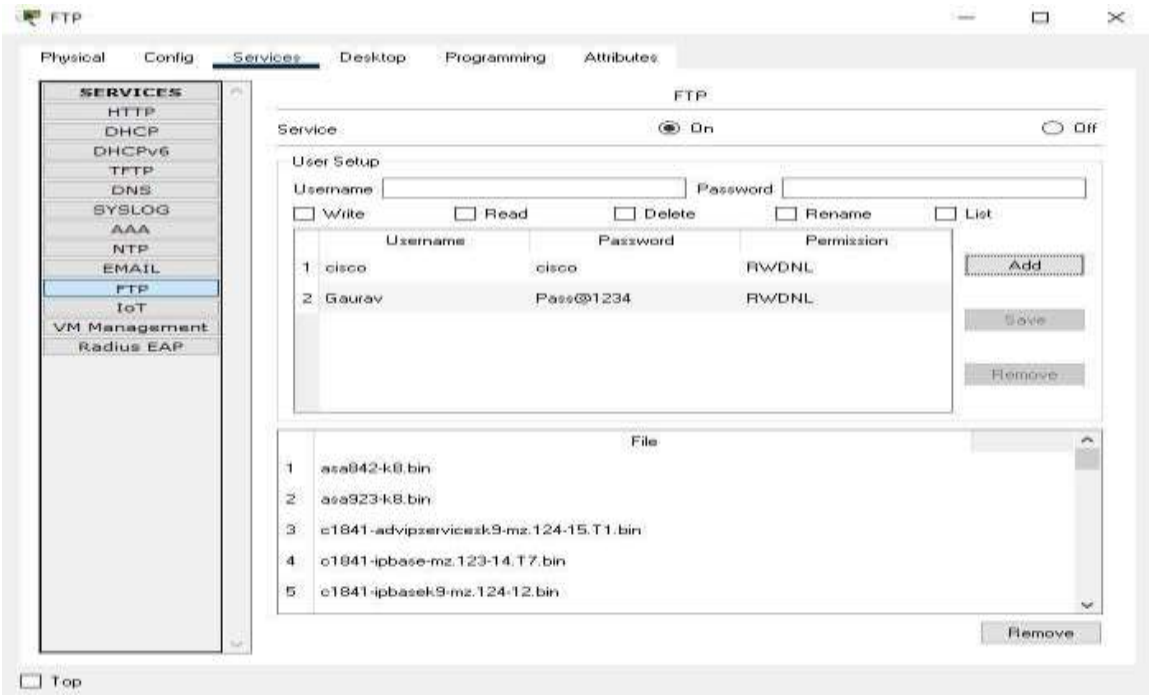
IV. BASIC ARCHITECTURE

Configuration:



Server Configuration: FTP Server





Router Configuration:

1) India Router

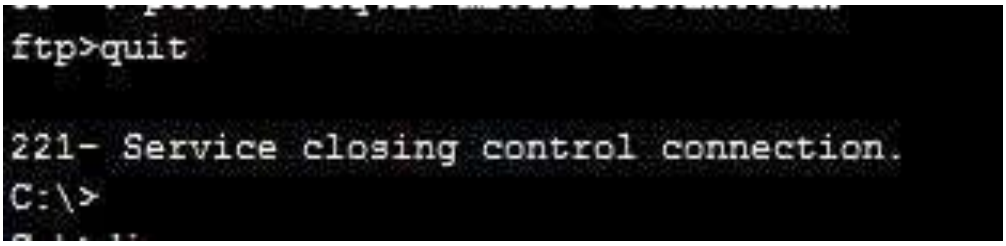
INDIA(config)#
INDIA(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.2
INDIA(config)#ip route 40.0.0.0 255.0.0.0 20.0.0.2
INDIA(config)#ip route 50.0.0.0 255.0.0.0 20.0.0.2
TELNET Server INDIA(config)#enable password redhatINDIA(config)#
INDIA(config)#username Gaurav password 12345 INDIA(config)#username Milind password 123 INDIA(config)#username Ranmore password ccna INDIA(config)#username Dharmendra password 7777INDIA(config)#
INDIA(config)#line vty 0 4 INDIA(config-line)#login localINDIA(config-line)#exit INDIA(config)#exit

2) USA RouterUSA(config)#
USA(config)#ip route 10.0.0.0 255.0.0.0 20.0.0.1
USA(config)#ip route 50.0.0.0 255.0.0.0 30.0.0.2

2) UK Router
UK(config)#
UK(config)#ip route 10.0.0.0 255.0.0.0 30.0.0.1
UK(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.1
UK(config)#ip route 40.0.0.0 255.0.0.0 30.0.0.1

DHCP Commands
UK(config)#
UK(config)#ip dhcp excluded-address 50.0.0.1 50.0.0.10UK(config)#ip dhcp pool LAB1
UK(dhcp-config)#default-router 50.0.0.1
UK(dhcp-config)#dns-server 10.0.0.2
UK(dhcp-config)#network 50.0.0.0 255.0.0.0UK(dhcp-config)#

V.RESULT



VI.CONCLUSION

In this paper, Local Area network (LAN) that uses both wired and wireless topology have been in implemented with someimportant concepts like DHCP DNS, Email in a single network using Cisco packet tracer. WLAN's have been used to logically group clients on network. routers and switches are configured for routing of data packets from one device to another. The configuration and specifications. are for initial prototype and can be further developed and functionality can be added to increase coverage area of network. Cisco packet tracer provides Flexible approach for design of enterprise network for end to end IP network connectivity packet tracer for more complex network architecture int implementation.

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