SMALL BUSINESS NETWORK

WITH GUEST NETWORK

A PROJECT REPORT

SUBMITTED BY

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ABSTRACT

A small business network has to be designed for an organization. The organization has
occasional guest users (Max 10) visiting the office. There are a total of 70 users in the organization. A FTP server is also available for sharing files.

PROJECT SCOPE

A small business network has to be designed for an organization. The organization has occasional guest users (Max 10) visiting the office. There are a total of 70 users in the organization. A FTP server is also available for sharing files.

NETWORK REQUIREMENT

- There are 80 users which includes staff(LAN) and guest network .
- Server is available
- 192.168.1.2 - 192.168.1.71 are used for staff network (LAN).
- 192.168.2.2 – 192.168.2.11 are used for guest
- Access control lists are used for restricting access between staff and guest network.

NETWORK PLANNING

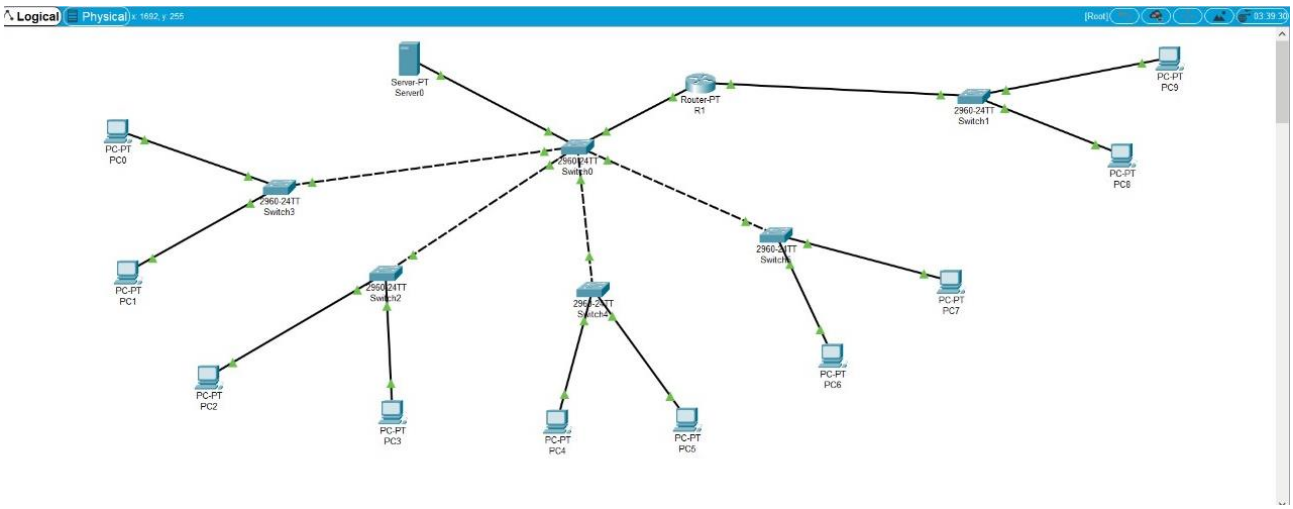
There are totally 80 users including staff(LAN) and guest network . server is also available . There are two network with there ip address. They are staff network with ip:192.168.1.2 - 71 and guest network with ip: 192.168.2.2 – 11. Access control list are used for restricting access between staff and guest network. Routers with two ethernet are proposed for staff(LAN) and guest network.

IP Network design table

STAFF(LAN) USERS	IP ADDRESS
START IP	192.168.1.2
END IP	192.168.1.71
SERVER IP	192.168.1.20
--ROUTER INTERFACE	192.168.1.1
SUBNET MASK	255.255.255.0

GUEST USERS	IP ADDRESS
START IP	192.168.2.2
END IP	192.168.2.11
ROUTER INTERFACE	192.168.2.1
SUBNET MASK	255.255.255.0

Network Topology diagram with IP addresses



NETWORK INTEGRATION PLAN

Connect router to the switch through straight through cable as shown in the diagram. Now interconnect the switches through copper cross over cable Connect the pc's and server to the switch using straight through cable. And also assign the IP address and subnet masks for the pc's.

NETWORK CONFIGURATION ROUTER INTERFACE:

Subnetting is created by the router. The ip address of Fast Ethernet 0/0 is set to 192.168.1.1 and the Fast Ethernet 1/0 is set to 192.168.2.1. The commands for the same are as follows:

router(config)# interface FastEthernet0/0 router(config-if)# ip address 192.168.1.1 255.255.255.0 router(config-if)# no shutdown

router(config)# interface FastEthernet1/0

router(config-if)# ip address 192.168.2.1 255.255.255.0 router(config-if)# no shutdown

EXTENDED ACCESS CONTROL LIST

An extended ACL is used to deny guest users from accessing information on the organizational LAN. It also permits ftp access to the guest LAN on the server. The implementation of the same is as follows:

To deny access to organization LAN:

Router(config)#access-list 101 deny ip 192.168.2.0 0.0.0.255 192.168.1.0 0.0.0.255

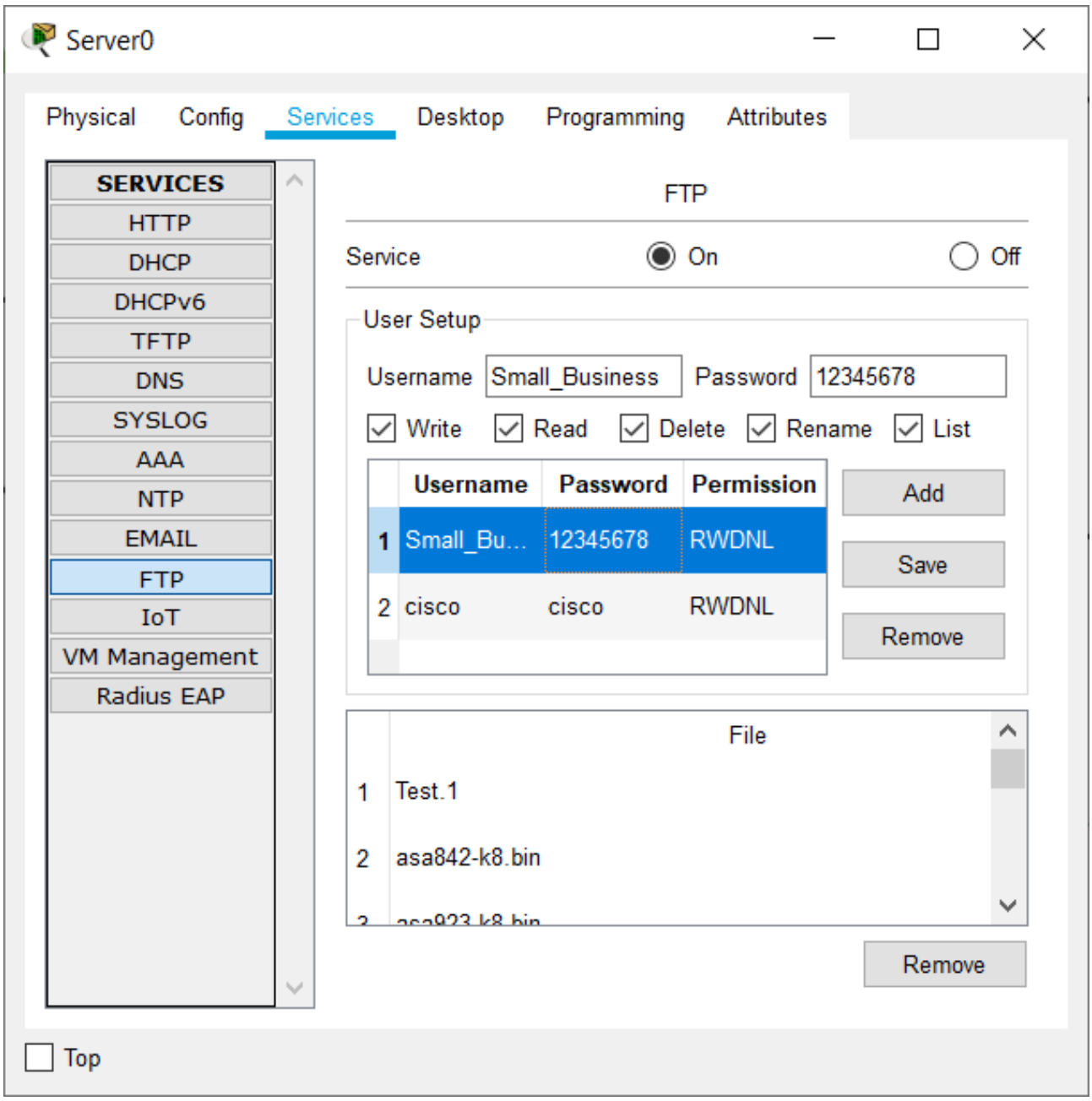
To grant access to only ftp on server:

Router(config)#access-list 101 permit tcp 192.168.2.0 0.0.0.255 host 192.168.1.20 eq tcp

SERVER CONFIGURATION

The server has to be set up to provide File Transfer Protocol service to the network

A user is created with password enabled to perform Read, Write, Delete, Rename and List functions.



NETWORK TESTING AND VERIFICATION PROCEDURE

Establish an FTP connection to the server from the Guest pc. The Guest pc is successfully connected.

After the guest pc is connected enter username and password to access files on the server.

Pinging a Staff PC from any Guest PC return the message from the router 'Host unreachable', meaning the access to the staff network is denied.

HARDWARE AND SOFTWARE

Software used in the small business network design with guest network is cisco packet tracer.

The router to be used can be an IP wired or wireless router which could be connected to a firewall to keep the network protected from foreign attacks.

Unmanaged switches can be used and in this network, we have used 6 switches to accommodate 80 users in total.

The server used is an FTP server.
The wires used are ethernet cables which are made of copper.

REFERENCES

- Cisco Packet Tracer Brochure: http://www.cisco.com/web/learn/netcad

- Meraki.Inc.(2011) “Network Design Guide” • Tutorialspoint