PROBLEM STATEMENT SOLUTION

CISCO – AICTE VIRTUAL INTERNSHIP PROGRAM 2022

Design Secure network for your institution –

Select your college or a building of your college and study the network topology of the same and design the same using a packet tracer tool(Please don't configure just design the network). Once done, apply your learnings of NetAcad cyber security course to upgrade / secure the existing network of your college

Note: **Create a Presentation(in PDF format) describing all your ideas implemented as mentioned above and upload it along with the above project.**

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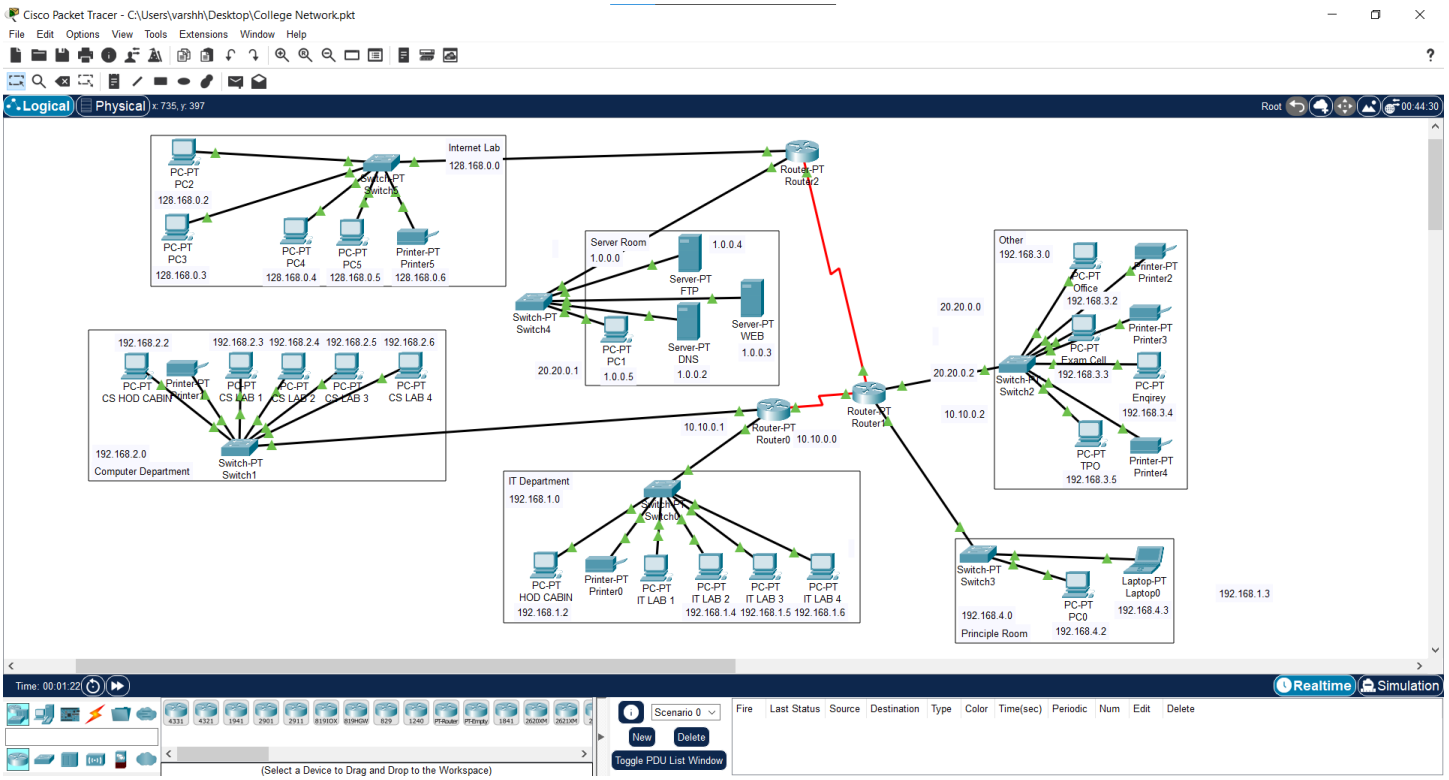
College Network:

A campus network is a proprietary local area network (LAN) or set of interconnected LANs serving a corporation, government agency, university, or similar organization. In this context, a typical campus encompasses a set of buildings in close proximity.

Objective

The main objective is to design the existing network on cisco packet tracer and also enhance its capabilities and increase the security.

DESIGN:



Academic block 1 network is implemented on cisco packet tracer

IP Addressing Plan

IT DEPARTMENT (192.168.1.0)	
HOD CABIN	192.168.1.2
IT LAB 1	192.168.1.3
IT LAB 2	192.168.1.4
IT LAB 3	192.168.1.5
IT LAB 4	192.168.1.6
Printer 0	192.168.1.7

COMPUTER DEPARTMENT (192.168.2.0)	
CS HOD CABIN	192.168.2.2
CS LAB 1	192.168.2.3
CS LAB 2	192.168.2.4
CS LAB 3	192.168.2.5
CS LAB 4	192.168.2.6
Printer 7	192.168.2.7

OTHERS (192.168.3.0)	
OFFICE	192.168.3.2
Printer 2	192.168.3.6
EXAM CELL	192.168.3.3
Printer 3	192.168.3.7
ENQUIRY	192.168.3.4
Printer 4	192.168.3.8
TPO	192.168.3.5

SERVER ROOM (1.0.0.0)	
FTP SERVER	1.0.0.4
PC1	1.0.0.5
DNS SERVER	1.0.0.2
WEB SERVER	1.0.0.3

INTERNET LAB (128.168.0.0)	
PC2	128.168.0.2
PC3	128.168.0.3
PC4	128.168.0.4
PC5	128.168.0.5
Printer 5	128.168.0.6

PRINCIPLE ROOM (192.168.4.0)	
PC 0	192.168.4.2
LAPTOP 0	192.168.4.3

Making the College Network more secure:

- We can configure the switch port security to make the network more secure. Switch port Security is a network security feature that links particular MAC addresses of gadgets (like PCs) with particular switch interfaces. By doing this, you'll be able to limit access to a certain switch interface so that only approved devices can utilize it. If an unauthorized device is connected to the same port, you can define the action that the switch will take, such as discarding the traffic, sending an alert, or shutting down the port.

- Prevent simultaneous sessions and stop password sharing: students continue to share credentials as there is no consequence on their own access to the network. Serious security flaws can be stopped by preventing simultaneous sessions and limiting students to only one possible Windows connection at any one instance.

- Make authorized students accountable for any malicious activity

- Control & Restrict Access that support the Institution’s policies: Controlling user logins according to user, user group or organizational units are the first line of defense for a Windows network and login rights should (and can) be granted based on the role of the user within the organization. Such restrictions should also take into account other criteria such as workstation or device (including personal devices), time, working hours and session type (including Wi-Fi and VPN).

- Empower IT with Remote session management

- Control student wireless sessions and offer security to BYOD.

- Enforcing College Security Policies

- The Cisco Unified Wireless Network is the industry’s most flexible, resilient, and scalable architecture, delivering secure access to mobility services and applications and offering the lowest total cost of ownership and investment protection by integrating seamlessly with the existing wired network