

MODEL INSTITUTE OF ENGINEERING AND TECHNOLOGY

(AUTONOMOUS)

PROJECT DOCUMETATION ON

ANALYZING NETWORK TRAFFIC FROM A LOCAL AREA NETWORK

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Abstract

In our new era PCs become our part of life for every personal and professional requirement. Majority of organizations depend on the finest possible working of their systems for correspondences, organization, mechanization, online business solutions, and so on. LAN is the best fundamental and significant PC system claimed by discrete organizations and might be utilized for interconnection of wide region systems. A LAN provides effective cost sharing of fast processing information handling gear, for example, mass stockpiling media, centralized server PCs or tiny computers and various types of printers. Asset sharing is generally similar as significant where a Local Area Network (LAN) serves as the entrance path for an Internet. In view of this, framework supervisor’s requirement professional tools to help them with the motivation of improvement of QoS and maintenance of LANs. So in our project, a LAN system is structured utilizing Cisco Packet Tracer. This project explains just how the apparatus can be used to build up a reenactment model of the Local Area Network (LAN) for College of Engineering which contains a department like Bio Technology (BT), Civil, Mechanical, ECE and EEE or any. The examination gives a knowledge into different ideas such as IP address setup, topology plan and how to send data as packets in a solitary network and for the usage of Virtual Local Area Networks to isolate the heavy traffic produced by various systems.

Index Terms

Local Area Network, IP Address, Subnetting, Ping Test, Computer Networks, Cisco Packet Tracer

INTRODUCTION

The requirement for PC systems administration was an effect of the requirement to use PCs for exchanging information in an association in form of messages or packets, exchanging documents and data bases, etc. Regardless of whether the organization is situated in one structure or spread over a huge grounds, the requirement for systems administration the computers cannot be over underscored. As the name assumes, a Local Area Network (LAN) connects PCs in a limited physical territory . It gives high-data transfer capacity correspondence over cheap transmission media .The corporate LAN has developed from an easy basis business segment to a profoundly vibrant, noticeable core asset that activities depend on to help everyday tasks to their market accomplishment. E-Governance is a system of open segment order and is a significant advance in the adjustment of metropolitan organization, with E-Governance joins the utilization of ICT's by government's association. The anticipated calculation utilizes insight of calculation for security of substance in e-governance executing a standard based methodology from computational Knowledge and client's present purpose of area data. On a work area PC, a recreation model had been actualized and assessment utilizing meandering client's continuous position-based data exhibits that proposed system can capably preserve wandering client position secrecy while giving better execution, ensured position privacy, and better nature of administration in e-Governance.

FRAME WORK

Cisco Packet Tracer is designed to be used as multi-tasking, that's been won’t to organize and examine varied network exercises like application of dissimilar topologies, development of apt servers, subnetting and study of different network setups, configuration and different troubleshooting defined commands.

To initialise communication among two networking devices i.e., user networking devices and to organise a network, we intend to demand to pick applicable networking devices like switches , routers and interconnecting devices and build physical change of integrity by connecting cables, quick local area network seaports from the module list of packet tracer. Internet working devices square measure costly and thus it's well to perform 1st on the packet tracer to recognise the conception, performance of the designed network.

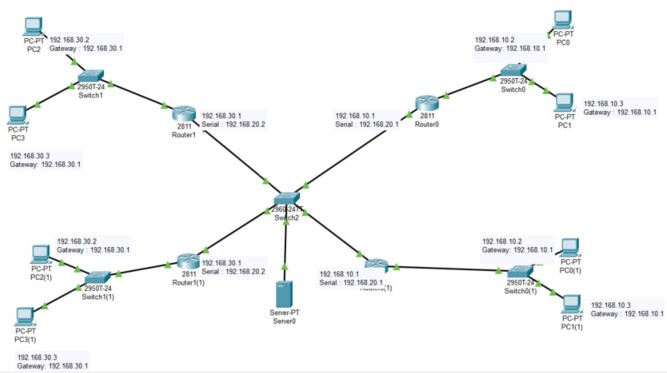


Fig.1:

Framework The graph of Fig. 1 is the finished graph of the LAN and at the center it connected to switch, switch and the servers framing the Network Operating Center and every one of the different departments in College are only a simple expansion of the system at the center. The allloted IP address picked to the inside system is 192.168.0.0 and it has been sub netted to acquire IP address obstructs that are allocated to various divisions and segments of this prescribed LAN.

LAN SIMULATION MODEL

We require at least 252 hosts for every subnet the quantity of unmasked bits in the subnet mask is 8. Which infers that the amount of masked bits are 8.

Create and assign IP/subnet mask for VLANs:

In this VLAN, we are assigning the default gate ways to all the VLANs with ip address and subnet mask. Which is configured in the main switch of VLAN.

#ena

#config t

#VLAN 2

#VLAN 3

#VLAN 4

#int VLAN 1

#ip address 192.168.30.0(Network ID) 255.255.255.0 (Host ID)

#int VLAN 2

#ip address 192.168.30.0(Network ID) 255.255.255.0 (Host ID)

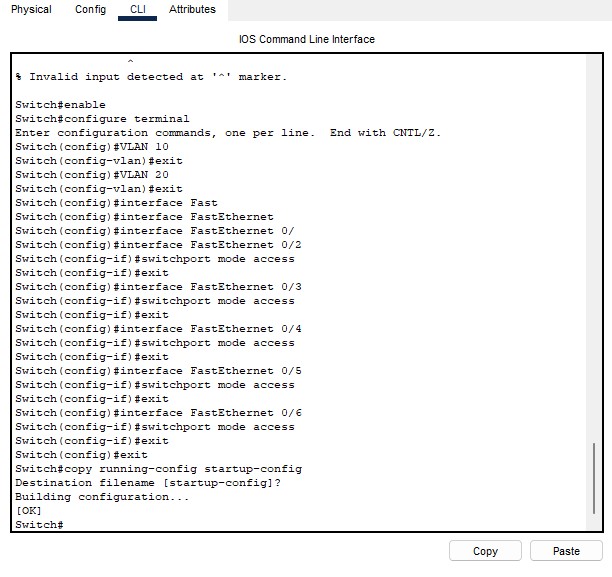
#int VLAN 3

#ip address 192.168.30.0(Network ID) 255.255.255.0 (Host ID)

#int VLAN 4

#ip address 192.168.30.0(Network ID) 255.255.255.0 (Host ID)

Configure mode access/trunk in VLANs:



The configuration is done between the main switch and the primary switchs of VLANs by using the cable interface we can trunk all the switchs. #int fa0/2 #switchport trunk encapsulation dot1q #switchport mode trunk In the primary switch, the interface cable are connect to the laptop and access point. Swhich is used to trunk to the PC and access point. #int fa1/1 #switchport mode access #switchport access VLAN 2

Tell PC in VLANs where to get IP:

In this VLANs, the switch of different VLAN are getting there IP address from server.

#int VLAN 1 #ip helper-address 192.168.30.2

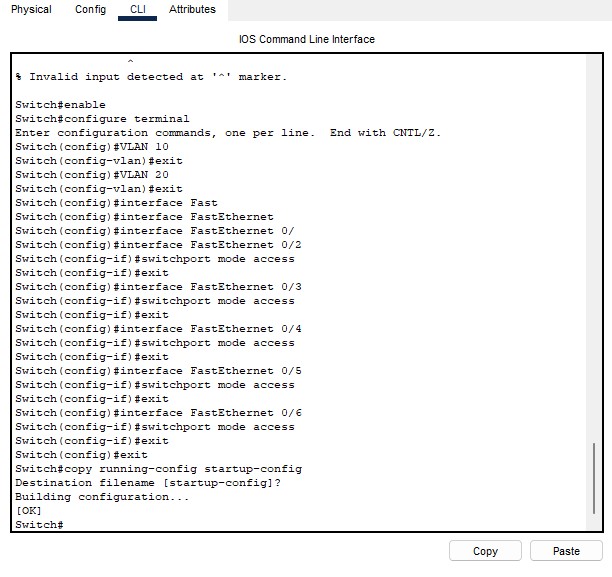
#int VLAN 2 #ip helper-address 192.168.30.2

Table : IP Address Allocation

|  |  |  |  |
| --- | --- | --- | --- |
| Broadcast | First Valid Host | Last Valid  Host | Network Address |
| 192.168.1.255 | 192.168.1 | 192.168.1.25 | 192.168.1 |
| 192.168.2.255 | 192.168.2 | 192.168.1.25 | 192.168.1 |
| 192.168.3.255 | 192.168.3 | 192.168.1.25 | 192.168.1 |
| 192.168.4.255 | 192.168.4 | 192.168.1.25 | 192.168.1 |
| 192.168.5.255 | 192.168.5 | 192.168.1.25 | 192.168.1 |
| 192.168.6.255 | 192.168.6 | 192.168.1.25 | 192.168.1 |
| 192.168.7.255 | 192.168.7 | 192.168.1.25 | 192.168.1 |
| 192.168.8.255 | 192.168.8 | 192.168.1.25 | 192.168.1 |

EXPERIMENTAL RESULTS

Fig : 2



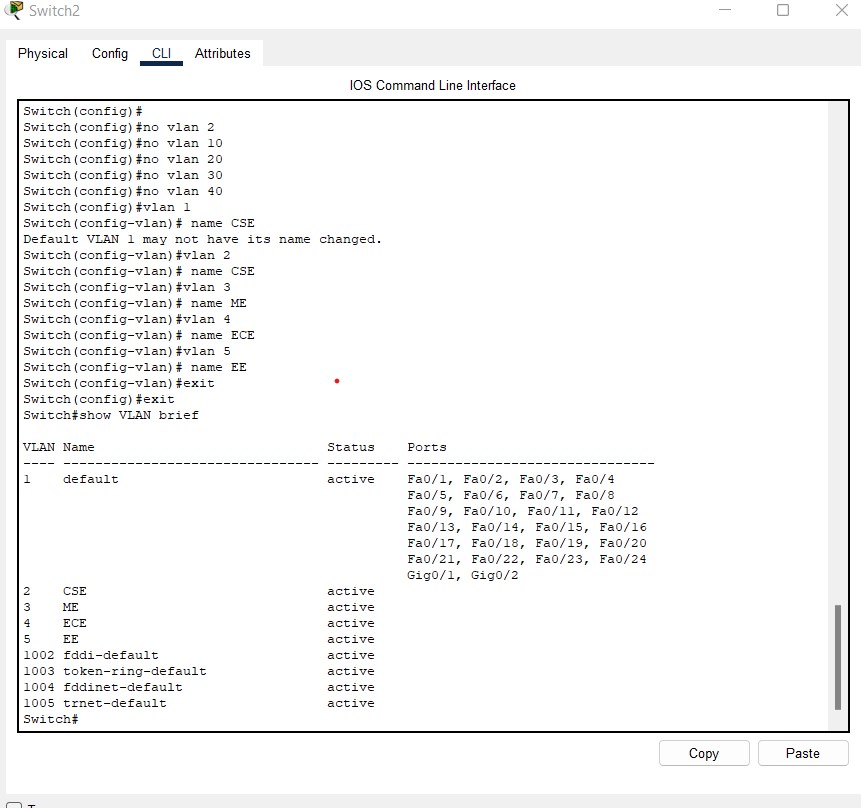
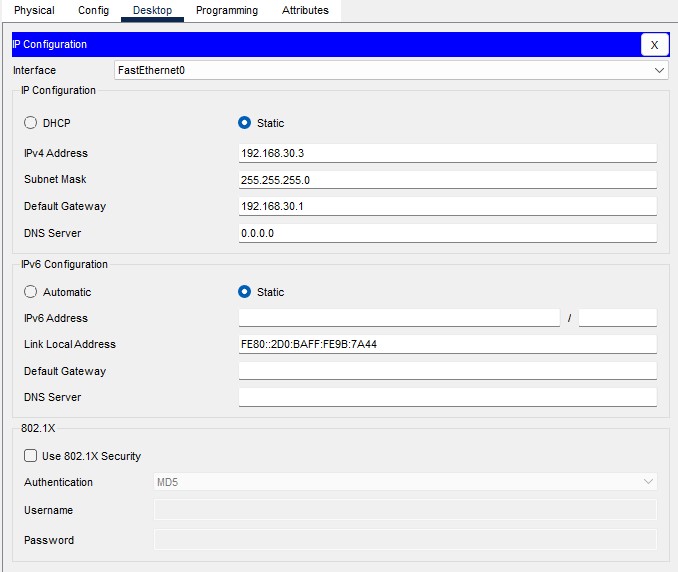
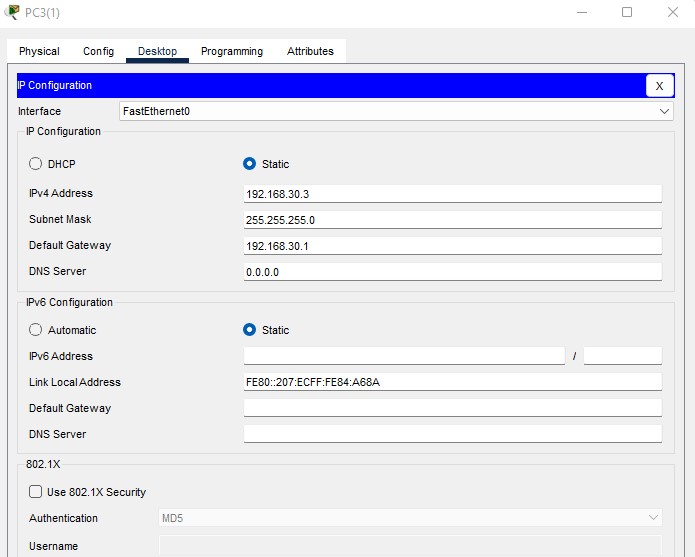
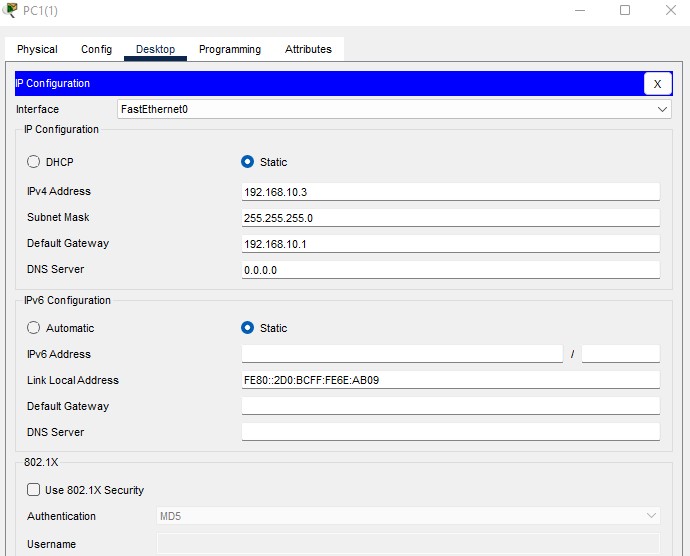


Fig.2: VLANs created on the switch

Fig.3: Static server pools







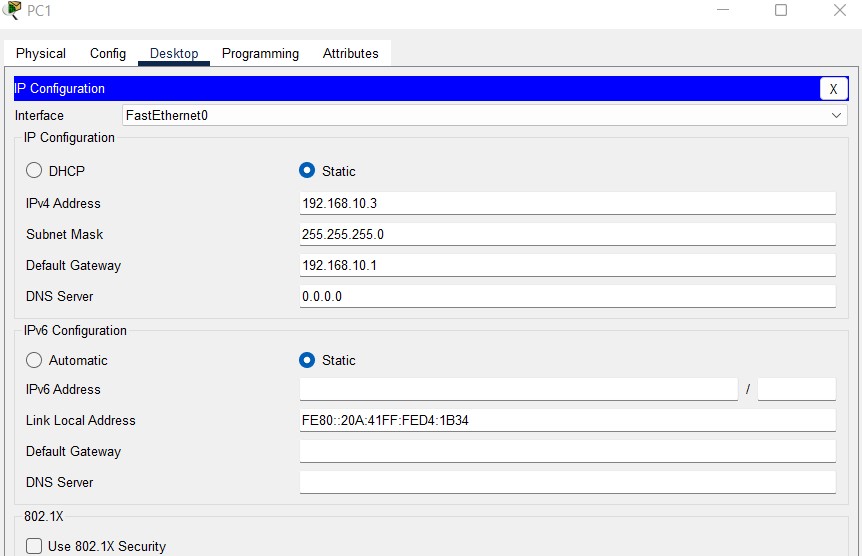


Fig. 2 shows the created Virtual Local Area Networks working on the switch, corresponding ID and switch ports are connected to every VLAN.

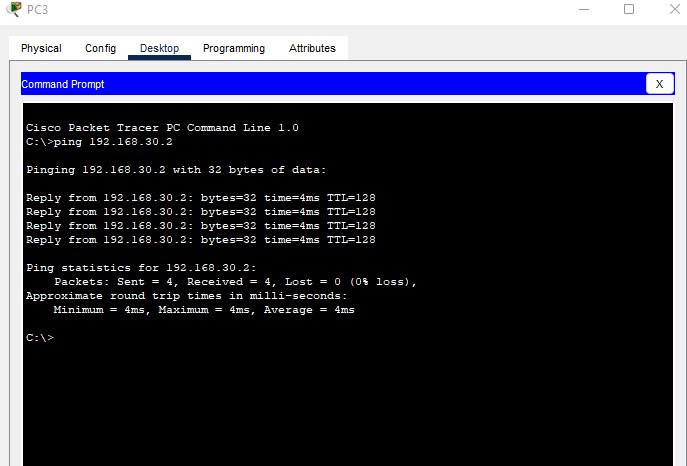


Fig. 3 displays the simulation results after the configuration of the DHCP server, viewing the address pools of every Virtual LAN created in the given Network. A dynamic IP address configuration was performed on the given network, i.e. when a client device trying to connect to the respective network; it is allotted an IP address that is fee and available in that network given address pool, to the pool that the client model is connected to. Fig. 5 displays client devices are successfully gaining an IP address that are proper to the Virtual LAN, to which the devices are associated to.

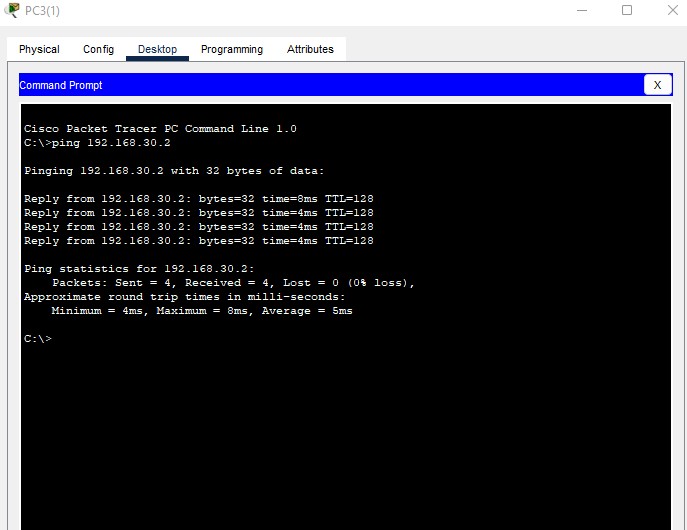


Fig.4: IP addresses data (a-g) From Fig.4, it is clear that every client or device connected to network and is receiving IP address data lethargically, per the subnet the consumer is linked to. 5.1 Network Active checking Test (Ping) Network communications and network connectivity will be verified with the help of ping commands, tracked by the domain significant name of the device one wishes to check

CONCLUSIONS

In our article, a Local Area Network that utilizations both wired and remote topology have been executed with some significant ideas like Dynamic Host Configuration Protocol, Domain Name System, Email, and Virtual LANs in a solitary system in Cisco Packet Tracer. Virtual Local Area Networks have been utilized to intelligently amass customers on the system, and with the guide of a switch and switch setups, information bundles directed starting with one gadget then onto the next. It is likewise important that, the design and particulars are for the underlying model and can further be created and extra usefulness can be added to expand backing and inclusion.

REFERENCES