



Project Report On

Configuration of LAN & WAN using Cisco Packet Transfer

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BONAFIDE CERTIFICATE

Certified that this project report "**Configuration of LAN and WAN using Cisco Packet Transfer**" is the bonafide work of "**Prince Kumar Sinha (16SCSE105131)**" who carried out this project under my supervision.

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TOPIC NAME	PAGE NO.
Certificate	i
Abstract	1
1.0 INTRODUCTION	2
1.1.0 Introduction to Lexical Grammar	3
1.2.0 Introduction to Token	4
1.3.0 How scanner and tokenizer works ?	4
1.4.0 Platform used	7
2.0 PROPOSED METHODOLOGY	9
2.1.0 Block Diagram	9
2.2.0 Data Flow Diagram	9
2.3.0 Flow Chart	11
3.0 APPROACHED RESULT AND CONCLUSION	13
4.0 APPLICATIONS AND FUTURE WORK	14
REFERENCES	15

ABSTRACT

A LAN (local area network) is a group of computers and network devices connected together, usually within the same building. By definition, the connections must be high speed and relatively inexpensive (e.g., token ring or Ethernet). Most Indiana University Bloomington departments are on LANs.

A LAN connection is a high-speed connection to a LAN. On the IUB campus, most connections are either Ethernet (10 Mbps) or Fast Ethernet (100 Mbps), and a few locations have Gigabit Ethernet (1000 Mbps) connections.

A WAN (wide area network), in comparison to a MAN, is not restricted to a geographical location, although it might be confined within the bounds of a state or country. A WAN connects several LANs, and may be limited to an enterprise (a corporation or an organization) or accessible to the public. The technology is high speed and relatively expensive. The Internet is an example of a worldwide public WAN.

BRIEF INTRODUCTION TO PROJECT

In today's world, Networking is most necessary but everyone wants a secured network in this project I used NAT which provide us a fully secured LAN network. Security is much more difficult in Network; this project can control the user of wireless network and make a secure wireless network. In this project, we replace a router with a PC.

My Project includes the concepts and configuration of Local Area Networks (LANS), Switching, Wide Area Networking (WAN), and Router Technologies. In my project I used the Windows XP, Windows server. I also used hardware's during practice i.e. Router, Switch, Hub. I also used crimple tools, connectors and cable wires to make straight and cross cable wires. I used NAT (Network address Translation) Technology in my project. I also used ACL in my project to control the traffic from one router or switch from another device.

In my project I made a network using router which acts as an equipment between Local Network and the Internet. I made virtual LANs in a network and uses network address translation to make more different IP addresses from one private IP to make a Local Area Network.

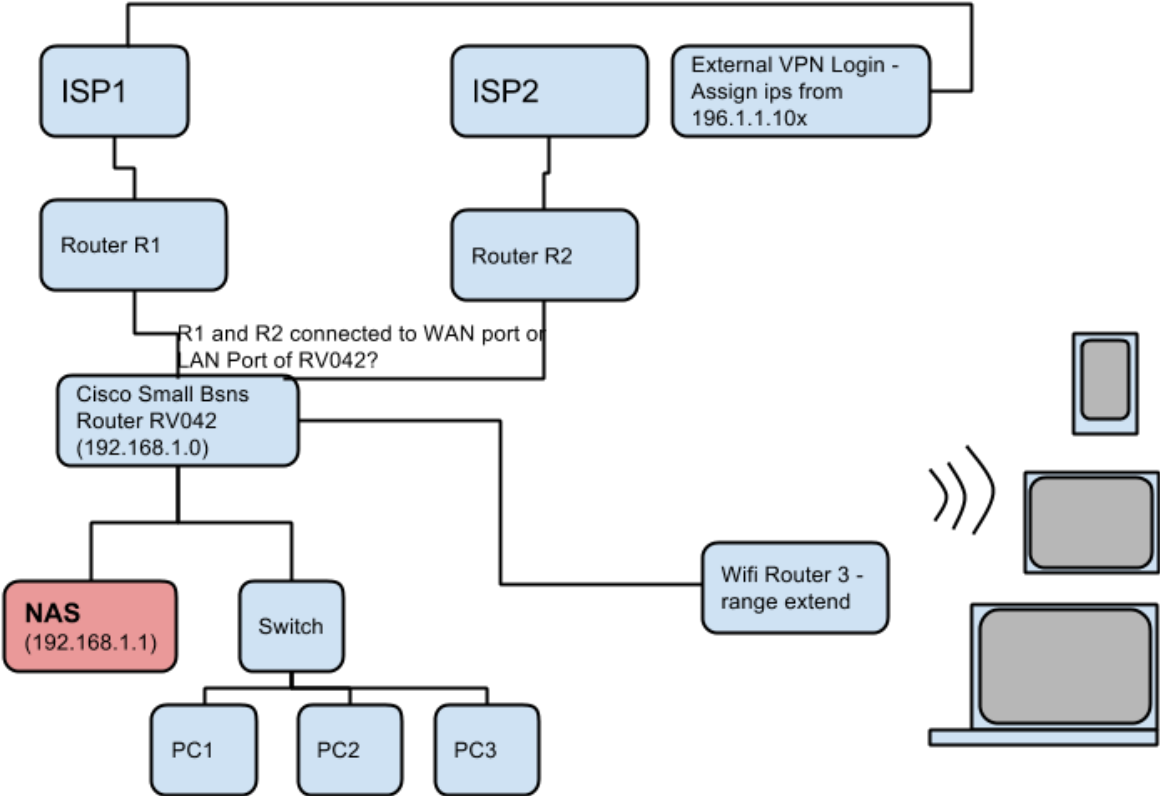
DESIGN OF SOLUTION

In my project I made a network using router which acts as an equipment between local network and the internet. In this I made virtual LAN's in a network and uses network address translation to make more different ip addresses from one private ip to make a local area network. I also apply access control list in my project to deny some features or services to local area network.

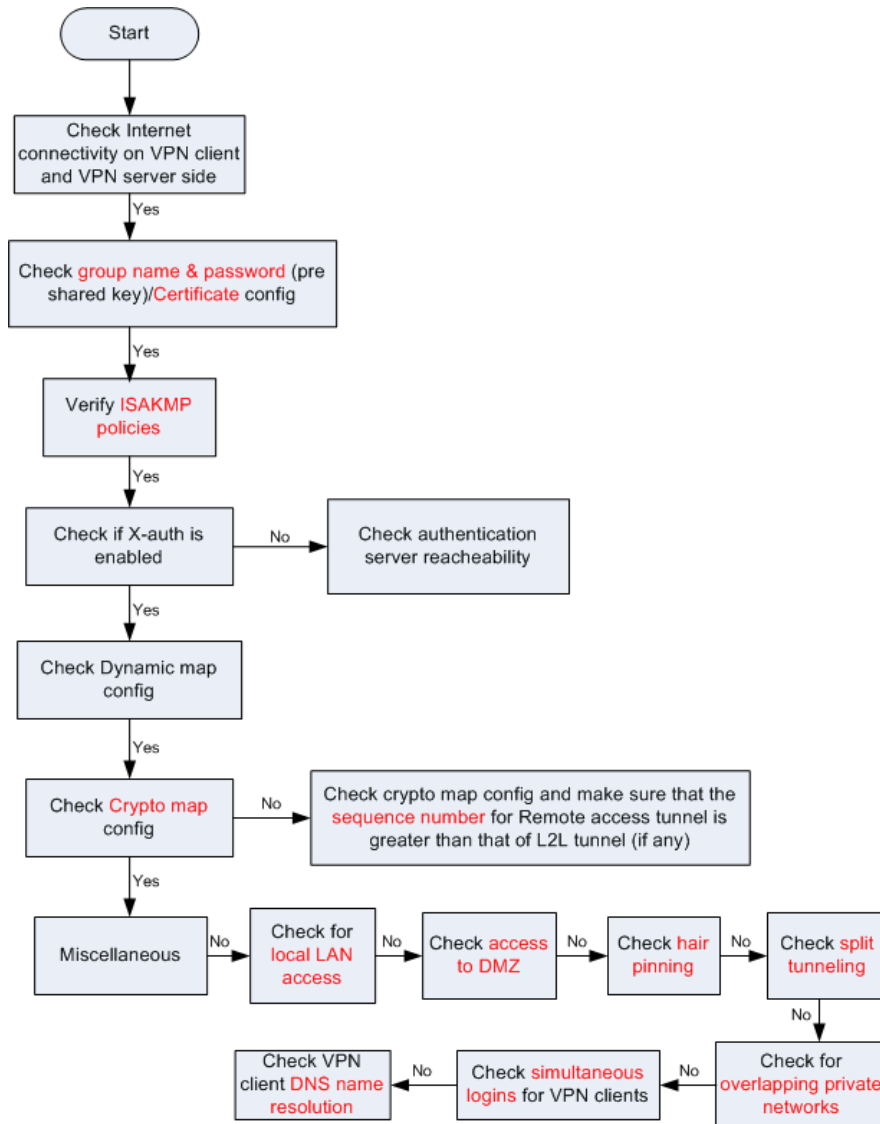
The project includes:

- Introduction to networking
- IP addressing
- Subnetting
- Static Routing
- Dynamic Routing
- Routing protocols:
 - RIP
 - IGRP
 - EIGRP
 - OSPF
- Virtual Lan
- Inter Virtual LAN Routing
- Access Control List(ACL)
- Network Address Translation (NAT)
- Wide Area Networks Technologies
- Frame-Relay

DATA FLOW DIAGRAM



FLOW CHART



Scope:

Active Networking is vital to career growth. Often confused with selling, Networking is actually about building long-term relationships and a good reputation over time. It involves meeting and getting to know people who you can assist, and who can potentially help you in return. Your network includes everyone from friends and family to work colleagues and members of groups to which you belong.

In today's world networking is most necessary but everyone wants a secured network in this project I used NAT which provide us a fully secured LAN network. Security is much more difficult in network; this project can control the user of network and make a secure network. In this project, we replace a router with a pc. In this project ACL used which provide us the service to deny any service from the network.

DESCRIPTION

The project is based on the concepts of networking. It includes configuring different network devices like Router, Switch, Bridge & connecting it with Hubs & PCs by using different types of connecting wires by allocating the IP Addresses to all the interfaces after the sub netting of network id. The beauty of configuring network devices is that it helps users access the network with few constraints like allowing some to access the website but not allowing them to access the mail server on the internet on private IP address which are otherwise excluded by internet service provider (ISP).

We have used inter VLAN technology to make work efficient between 4 different and independent departments.

We have four different departments in an organization. We have purchased a network id and divided that network id into number of small network ids by using Variable Length Subnet mask (VLSM).

We have used 5 Routers & apply various configuration settings on each router.

On Router1 we have configured NAT with translates private range of IPs into public range. We have used Router 2 as Internet Service Provider (ISP). Extended Access Control List has been applied to Router 3. Router 4 is used only to connect Campus LAB with the network. Switch 2 connected with Router 5 is used to create VLANs.

We also have a separate network in our cafeteria and we have used a PC as a router to connect that network to the campus network

HARDWARE AND SOFTWARE REQUIRED:

Hardware:

- Router
- Switch
- Lan cables (cat 5 or cat 6)
cross cable
Straight cable
Console or Roll over cable
- Crimping tool
- Lan tester
- Pc or Laptop

Software:

- Cisco Packet tracer
- GNS-3

FUTURE SCOPE OF PROJECT:

Active Networking is vital to career growth. Often confused with selling, Networking is actually about building long-term relationships and a good reputation over time. It involves meeting and getting to know people who you can assist, and who can potentially help you in return. Your network includes everyone from friends and family to work colleagues and members of groups to which you belong.

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