NETWORK DESIGN PROPOSAL FOR INTERNET CAFÉ

Abstract

The project is to prepare a network design proposal for an Internet cafe.

Objectives

The cafe is to support 15 users and requires a web filtering device or software to filter websites based on content. The users need to share one ADSL internet connection. The cafe has to be managed with a billing software.

Network design requirement

To design a network for an internet café which has 30 users. The internet café has one ADSL connection which is to be shared among the users. A café billing management system has to be configured and deployed in the café.

Design requirement analysis

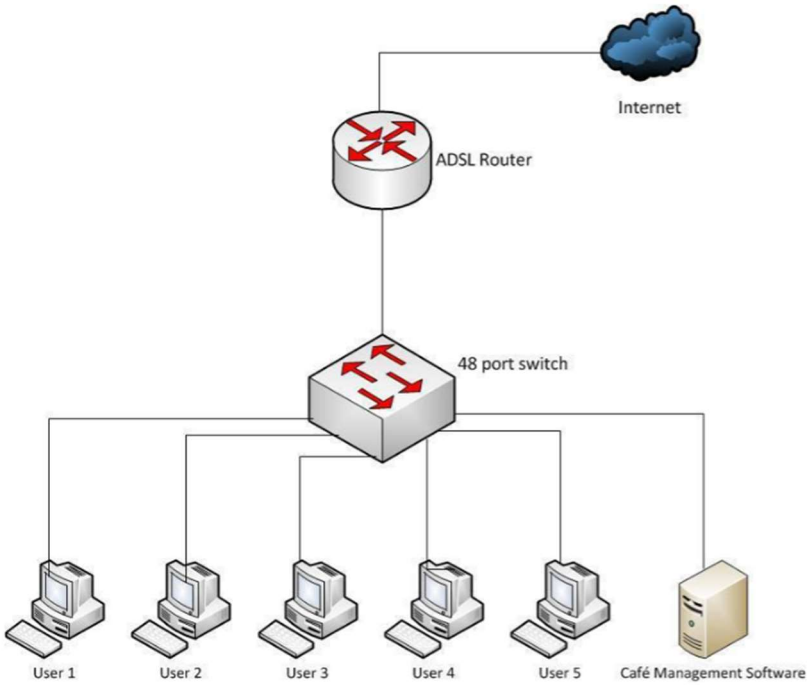
The internet café is to support 15 users. So 15 desktop computers would be required. To for a network for the computers, a switch would be required. Since 15 computers needs be networked, a switch with 15 ports would be required. Switches typically come with 24 ports or 48 ports. Since a 24 port switch would not suffice the requirement, a 48 port switch is recommended.

An ADSL router which is capable of NAT (Network address translation) is required. NAT is a mandatory feature which is required on the router, for sharing the ADSL internet connection.

The router, although not mandatory needs to have the DHCP server feature installed. The DHCP server is required for providing dynamic IP addresses to the users. The availability of the feature on the router reduces rules out the need to setup and configure an additional DHCP server on the network.

As the users in the café needs to be managed with a billing system, additional software has to be installed and configured on the appropriate operating system for which it is supported.

Network Diagram



1. The computers corresponding to the users connect to the ports on the switch. In the above diagram, only 5 users are shown.

2. The switch is a 48 port switch. The computers connect to the switch using Ethernet RJ45 cables.

3. The café management software is installed on the appropriate operating system and setup on the network.

4. The ADSL router is deployed as shown in the diagram. The router has two interfaces. The WAN interface of the router is connected to the internet and the LAN interface is switch.

5. The ADSL router is configured for NAT. When the feature is enabled, internal users would be able to share the internet IP address which would be available on the WAN interface of the router.

6. The DHCP feature on the router would provide appropriate IP addresses, subnet mask, default gateway and DNS server IP addresses for the user's computers.

IP Address Design

1. The internal private IP address range for the users within the café is 192.168.1.0/24.

2. The DHCP scope on the router should lease out IP addresses on the 192.168.1.0/24 scope.

3. The IP addresses of the LAN interface of the router and the computer on which the café management system is setup should be configured with static IP addresses belonging to the 192.168.1.0/24 network.

4. It should be ensured that the static IP addresses provided for the LAN interface of the router and the café management system is excluded from the DHCP scope configured on the router for avoiding duplicate IP addressing.

5. The DHCP scope should be configured with appropriate default gateway and DNS server addresses to be leased out to the clients.

6. The default gateway and the DNS server which is to be provided in the DHCP scope would be the IP address of the LAN interface on the router.

Hardware and Software

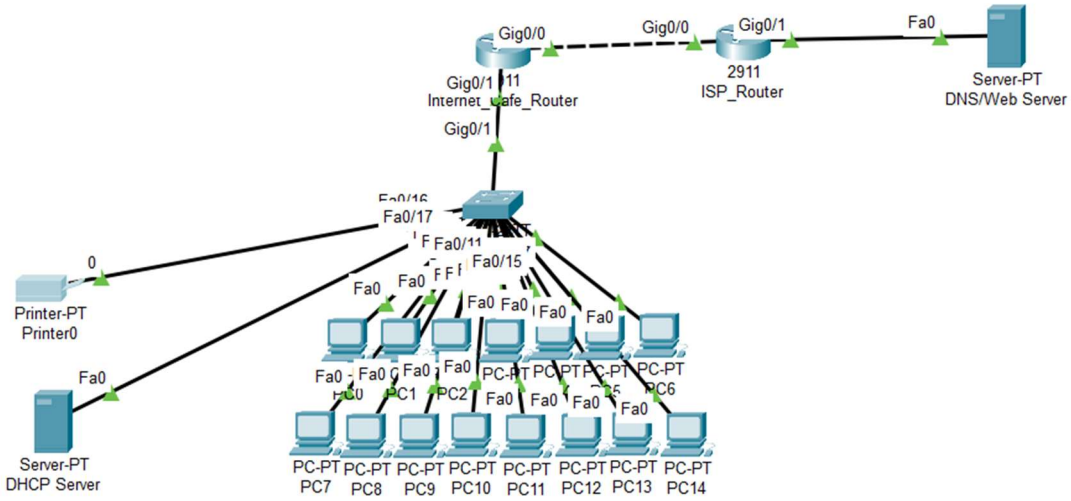
Item

- ADSL Router
- Switch
- Computers
- Operating systems license
- Antivirus
- Café management

Product Quantity

- Netgear DG834 or ZyXEL Prestige
- 660R-D1 or D-Link
- DSL-2540B
- NETGEAR ProSafe 1
- GS748T or D-Link
- DES 1210 Switch or Cisco Catalyst
- 2960S-48TD-L HP/IBM/Custom 30
- Assembly
- Windows 7/XP 30
- Windows anti virus 30 solution or Norton or Mcafee Cafesuite, Cafezee, 1 handycafe

Screenshot:



Result:

Thus, we made a network design proposal for Internet Café that can support 15 users and has a web filtering device to filter websites. The users can share one ADSL internet connection and the café can be managed with a billing software.

References:

1) https://community.cisco.com/t5/other-network-architecture/network-design-of-big-internet-cafe-using-packet-tracer/td-p/4319726
2) https://www.youtube.com/watch?v=AGLfnJkF-mc