MINI-PROJECT REPORT

Submitted by

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Under the Guidance of

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Department of Computer Communication

In partial satisfaction of the requirements for the degree of

BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE ENGINEERING

with specialization in cloud computing

SCHOOL OF COMPUTING

COLLEGE OF ENGINEERING AND TECHNOLOGY

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BONAFIDE CERTIFICATE

Certified that this project titled **HOSPITAL NETWORK DESIGN** is the bonafide work done by Dushyant Rao (RA2011028010106), Shubhra Kumari(RA2011028010093), Avipsha Panigrahi(RA2011028010101) who carried out the project exercises under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other work.

SIGNATURE

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COMPUTER COMMUNICATION

HOSPITAL NETWORK DESIGN PROJECT

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ABSTRACT:

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete, or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores. This report describes the network design of Hospitals. In this network topology the nodes (i.e., computers, switches, routers or other devices) are connected to a local area network (LAN) and network via links (twisted pair copper wire cable or optical fiber cable). We have used Cisco Packet Tracer for designing the network topology It's a general design which can be implemented at any higher level to manage network system.

INTRODUCTION:

A perfect networking requires proper maintenance and controlling. This project discusses about how a networking architecture can be designed well. We are team of five students who have developed a network architecture, where many computers are connected and we will show how we will run simulation for a perfect data transmission from sender to receiver. In Health care Network topology, we have desktop Computer, laptops, smart phone. There is a data flow between the devices within the system. We have divided our network into segments like for Hospital wards, clinical area etc. We have also used SSH for security. Our network requirements include network devices like routers, switches, server.

MODULES

Cisco Switch, Cisco Router, Cisco Server

MODULE DESCRIPTION

SWITCH:

Switches are networking devices operating at layer 2 or a data link layer of the OSI model. They connect devices in a network and use packet switching to send, receive or forward data packets or data frames over the network.

A switch has many ports, to which computers are plugged in. When a data frame arrives at any port of a network switch, it examines the destination address, performs necessary checks and sends the frame to the corresponding device(s). It supports unicast, multicast as well as broadcast communications.

ROUTER:

When a device has multiple paths to reach a destination, it always selects one path by preferring it over others. This selection process is termed as Routing. Routing is done by special network devices called routers or it can be done by means of software processes. The software based routers have limited functionality and limited scope.

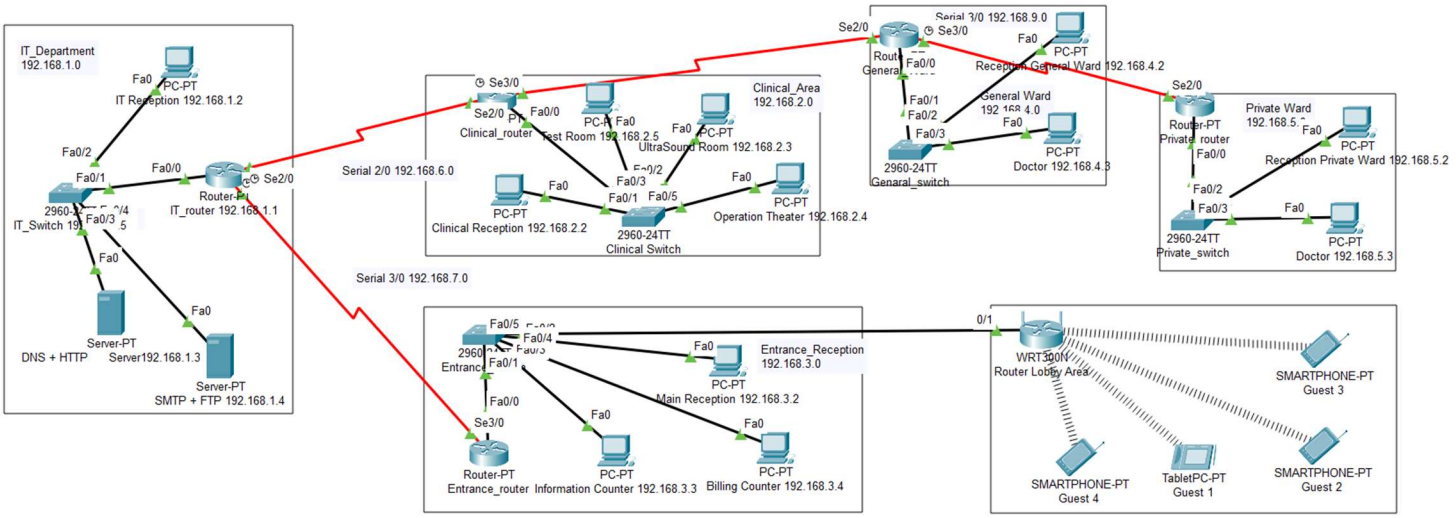
A router is always configured with some default route. A default route tells the router where to forward a packet if there is no route found for specific destination.

SERVER:

In computing, a server is a computer program or a device that provides functionality for called clients which are other programs or devices. This architecture is called the client–server model. A single overall computation is distributed across multiple processes or devices.

Servers can provide various functionalities called services. These services include sharing data or resources among multiple clients, or performing computation for a client.

NETWORK DIAGRAM



WORKING:

- All areas Lobby area, Entrance reception, Clinical Reception, General Ward and private ward communicate through IT department.
- IT departments contains all the servers for storing data from reception and both the wards.
- There is wireless communication in lobby area through router.

INFERENCE

This report describes how we have designed network topology of hospital (Health care Management System). With VLSM for Subnetting, segmented the diagram into 5 segments. This topology can also be implemented on higher level of hospitals.

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