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#### Abstract

APPROVAL

This internship titled "Networking and Payroll", submitted by Asim Mondol, ID No: 152-15-6171to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on spring, 2018.


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I hereby declare that, this Internship has been done by me under the supervision of MD Zahid Hasan, Assistant Professor Department of CSE Daffodil International University. I also declare that neither this Internship nor any part of this Internship has been submitted elsewhere for award of any degree or diploma.

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#### Abstract

System support consists of computer-based information systems including the efficient transmission of information and the storage and analysis of information. This paper provides an introduction to the local area network (LAN) technologies being deployed today. It includes an overview of LAN and general terminology needed to understand the issues. This is followed by a section discussing the various challenges associated with deploying LAN technologies. There is no doubt that information technology has a great impact on the way of business information systems are built today. Here I have worked with Time Attendance and Payroll System.


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## CHAPTER 1

## Introduction

### 1.1 Introduction

The fragments that take after cover the stray pieces of framework design with regards to the going with thoughts:

- Network design overview
- Network design methodology
- Network Design Overview

To meet the standard necessities of affiliations, sort out themselves are winding up amazingly mind boggling.

## - Network design methodology

These business framework should in like way can agree to change advancement weights to keep up strong application reaction times. It isn't any more valuable to create organize by partner various free fragments without attentive masterminding and blueprint.

### 1.2 Building a Good Network

The means required to outline a decent system are as per the following:
Step1. Confirm the business objectives and specialized necessities.
Step2. Decide the highlights and capacities required to address the issues recognized in Step.
Step3. Play out a network-readiness assessment.
Step4. Make an answer and site acknowledgment test design.
Step5. Create a project plan.


## Figure 1.1: Building a Good Network [1]

### 1.3 Advantage of Computer Networking

There are sure favorable circumstances of PC organizing. Some of them are:

- Internet get to sharing
- Connectivity and correspondence
- Hardware sharing
- Data sharing
- Data security and administration


### 1.4 Disadvantage of Computer Networking

Computer networking has some disadvantage. Some of them are:

- Network faults can cause loss of data.
- Network shortcomings could prompt loss of assets.
- Systems open to programmers.
- Could wind up wasteful.


## CHAPTER 2

## NETWORK

### 2.1 Introduction

A spectacular occurrence of a structure is the web, which interfaces a titanic number of individuals wherever all through the world. The following is an illustration picture of a home system with numerous PCs and other system gadgets all associated with each other and the web.


Figure 2.1: Network Architecture [2]

### 2.2 The Open Systems Interconnection (OSI) model

The Open Systems Interconnection model is objective is the compatibility of differing correspondence frameworks with standard conventions. The model parcels a correspondence framework into reflection layers. The first form of the model characterized seven layers.

## The 7 Layers of OSI



Figure 2.2: The Open Systems Interconnection (OSI) model [3]

A layer serves the layer above it and is served by the layer underneath it. Two cases at a comparative layer are imagined as related by an even relationship in that layer.

### 2.3 Transmission Control Protocol (TCP) model

TCP is an association arranged convention, which implies an association is built up and kept up until the point when the application programs at each end have completed the process of trading messages. In the Open Systems Interconnection (OSI) correspondence show, TCP covers parts of Layer 4, the Transport Layer, and parts of Layer 5, the Session Layer.

For example, when a Web server sends a HTML archive to a client, it uses the HTTP tradition to do all things considered. The HTTP program layer asks for that the TCP layer set up the affiliation and send the record. The TCP stack separates the archive into bundles, numbers them and a while later advances them only to the IP layer for transport.


Figure 2.3: Transmission Control Protocol (TCP) model[4]

### 2.4 Cable Networking

Networking cables are networking sorts of structure joins, for example, coaxial association, optical fiber association, and wound unite joins, are utilized relying on the framework's physical layer, topology, and size. The contraptions can be disconnected by several meters or about limitless partitions.


Figure 2.4: Cable Networking [5]
Various foundations use sorted out cabling practices to improve reliability and reasonableness. In some home and mechanical


Figure 2.5: UTP \& STP Cable [6]
applications electrical links are used as framework cabling. There are a few advancements utilized for sort out affiliations. Fix joins are utilized for short segments in workplaces and wiring storage rooms. Electrical affiliations utilizing bowed join or coaxial association are utilized inside a building.

## CHAPTER 3

## Fundamental of Networking

### 3.1 Introduction

Giving a capacity in a predetermined place and time is called "System". In better conditions, they give a capacity all around and constantly and its beliefs:

```
provide " everything "in " everywhere " and " every time
``` "

The capacities of water systems, electric systems, street systems, correspondence systems and treatment organizes individually are "water", "power", "movement", "sound", "medicate" so on.

\subsection*{3.1.1 Peer to Peer Network}


Figure 3.1: Peer-To-Peer (P2P) Networking [7]

While P2P systems had already been utilized as a part of numerous application areas, the design was promoted by the record sharing systems Napster, initially discharged in 1999. The idea has propelled new structures and theories in numerous regions of human cooperation.

\subsection*{3.2 Type of Network}

The degree of a framework can be conveyed by the geographic area they include and the amount of PCs that are a bit of the system. System can cover anything from an unassuming bundle of devices inside a lone space to an immense number of contraptions spread over the entire globe. A portion of the distinctive systems in light of size are:
- Personal area network, or PAN
- Local area network, or LAN
- Metropolitan area network, or MAN
- Wide area network, or WAN

\subsection*{3.2.1 Personal Area Network or PAN}

A personal area network, or PAN, is could be inside a little office or living arrangement. A run of the mill PAN would incorporate at least one PCs, phones, fringe gadgets computer game consoles and other individual excitement gadgets.


Figure 3.2: Personal area network, or PAN [8]

\subsection*{3.2.2 Local area network (LAN)}

A local area network is a LAN incorporates PCs and peripherals related with a server inside a specific geographic domain, for example, an office or a business foundation. Computers and other mobile devices use a LAN connection to share resources such as a printer or network storage.


Figure 3.3: Local area network (LAN) [9]

\subsection*{3.2.3 Metropolitan Area Network (MAN)}

The term is connected to the interconnection of network in a city into a solitary bigger network. It is likewise used to mean the interconnection of a few neighborhoods by connecting them with spine lines. Cases of metropolitan zone systems of various sizes can be found in the metropolitan zones of London, England; Lodz, Poland; and Geneva, Switzerland.

A recent trend is the installation of wireless MANs.


Figure 3.4: Metropolitan Area Network (MAN)[10]

\subsection*{3.2.4 Wide Area Network (WAN)}

This wipes out the need to present a comparative application server, firewall or other resource in multiple locations, for instance.
Coordinate fiber optic connections are likewise used to interface districts on a WAN and they regularly offer more vital execution, steadfast quality and security than VPNs, nonetheless they are incurred significant damage prohibitive for most undertakings to get and work.


Figure 3.5: Wide Area Network (WAN)[11]

\subsection*{3.3 Network Topology}

The physical topology of a system is the certified geometric organization of workstations. Classification of system typologies. There are also three basic categories of network topologies:Physical topologiesSignal topologiesLogical topologies

\subsection*{3.3.1 Physical Topology}

Generally speaking, the physical and logical topology is the same, yet sometimes they can differentiate, for instance, in a physical star/consistent ring topology.

\subsection*{3.3.1.1 Bus topology}

In a network, when every one of the hubs are related by a single physical cable and the focal link turns into the foundation of the network at that point, it is called as a Bus topology. For delineation, recall the out-dated computer labs.


Figure 3.6: Bus topology [12]

There, an average copper wire used to continue running over the lab and each one of the Computer swore tapped to the wire. In this way, the wire framed the foundation of the system while PCs shaped distinctive hubs of topology.

\subsection*{3.3.1.2 Ring Topology}


Figure 3.7: Ring Topology [13]
Each networked gadget is associated with two others, similar to focuses on a circle. Together, contraptions in a ring topology are suggested as a ring system. In a ring framework, bundles of data run beginning with one device then onto the following until the point that they accomplish their objective. Most ring typologies empower packs to development only one way, called a unidirectional ring system.

\subsection*{3.3.1.3 Star network}

A Star network is one of the most common computer network topologies. In its simplest form, a star network consists of one central hub which goes about as a channel to transmit messages. In star topology, every host is connected to a central hub. A star arranges is a usage of a spoke- center circulation worldview in computer networks.


Figure3.8: Star network [14]

The middle point supervises and controls all components of the system. It also goes about as a repeater for the data stream.

The star design is generally utilized with turned match link and optical fiber link. Be that as it may, it can likewise be utilized with coaxial link.


Figure 3.9: Mesh Network [15]

Work orchestrates effectively self-make and self-plan, which can decrease foundation overhead. The ability to self-mastermind enables dynamic assignment of workloads, particularly if two or three centers should miss the mark. This along these lines adds to adjustment to inside disappointment and diminished help costs.

\subsection*{3.3.1.5 Tree Topology}

In a tree topology, there can be just a single association between any two associated hubs. Since any two hubs can have just a single common association, tree typologies frame a characteristic parent-youngster chain of command.

\section*{CHAPTER 4}

Computer Network Components and LAN Use Device

\subsection*{4.1 Computer Network components}


Figure 4.1: Computer Network Components [16]

These equipment parts include link, Hub, Switch, NIC (network interface card), modem and switch. A portion of the parts can be expelled without impact subject to the sort of system. For example, in a remote system, links and centers are a bit much.

\subsection*{4.2 Major computer network components}

Computer network involves the following components and devices:-
- Network Interface Card (NIC)
- Hub
- Switches
- Router
- Modem
- Cables and connectors
- Software
- Servers

\subsection*{4.3 Network Interface Card}


Figure 4.2: Network Interface Card [17]

By methods for a one of kind equipment addresses modified on the card chip, the datalink protocol uses these addresses to identify different system on the system so it can exchange information to the right goal by means of the wired or wireless network.

There are two types of system cards: wired and remote. There is additionally a compact USB based connector that can be connected to the USB port of the PC.

\subsection*{4.4 Network Card Speed}

Current standard network cards are made with Gigabit (1000Mbps) affiliation speed which reinforces slower speeds, for example, 100 Mbps too. In any case, the bona fide transmission speed is directed by the LAN speed.

\subsection*{4.5 Network Hub}


Figure 4.3: Network Hub [18]

The center gets the demand and communicates it to the whole network. As of now Hubs are relatively out of date and superseded by further developed system correspondence hardware, for example, Switches and Routers.


Printer
Database
Figure 4.4: Network Switches [19]

Utilizing the physical gadget addresses in each pushing toward message, it passes on the message to the right target or port. In any case both switch and center has close highlights: Several RJ-45 ports, control supply and alliance lights.

\subsection*{4.7 Network Router}


Figure 4.5: Network Router [20]

They can effectively animate their organizing information, finding when a course to a system is down and finding if another course is open. Everything considered, switches combine a switch which accumulates that it can be used as a switch as well. The switch flows the structure to the Internet and the switch isolates the PCs to banter with each other and to the web. The decision of wired or remote switches is impacted by on the physical setting, speed and cost.

\subsection*{4.8 Network Modem}


Figure 4.6: Network Modem [21]
These kinds of modem are not commonly fused with a PC motherboard but instead come as autonomous contraptions which can be presented on the PCI spaces found on motherboard or a free device. A modem isn't required for LAN, however required for internet relationship through dial-up and DSL.

\subsection*{4.9 Broadband Network Modem}

Cell modem is utilized when the cell information advantageous framework is utilized to get to the web, by and large gave by cell adaptable heads. Broadband Modem is used to achieve altogether higher speed relationship, in the Gigabits range to the web through optical fiber network.

\subsection*{4.10 Network Cables and Connectors}

Connection is one transmission media which can transmit correspondence signals.

There are several transmission media types, some of which are listed below.
- Twisted pair wire
- Coaxial cable
- Fiber-optic cable

\subsection*{4.11 Wireless Network}


Figure 4.7: Wireless Network [22]

Wireless has turned out to be pervasive in homes and little workplaces attributable to the simplicity and minimal effort of setting up a network. The broadest remote tradition is perceived as WIFI.

\subsection*{4.12 Network Software}

The networking administration organization contraptions won't work splendidly unless. Connection is one transmission media which can transmit correspondence signals. The wired system topology uses uncommon kind of connection to interface PCs on a network.

\subsection*{4.13 Network Servers}

Network utilizes servers to hold the information clients may wish to access and besides to offer storage space. For instance, on the Internet, email suppliers use their servers to store the messages clients send while web has utilize servers to hold a large portion of the information that a website page highlights to guests.

\section*{CHAPTER 5}

\section*{Networking Architecture}

\subsection*{5.1 Introduction}

In telecommunication, the determination of network engineering may likewise incorporate a point by point portrayal of items and administrations conveyed through a communications network, and in addition itemized rate and charging structures under which administrations are adjusted.

\subsection*{5.2 Company Network design}


Figure 5.1: Company Network Design

Each room and each Computer has connected LAN Networking System. Hade office and other company connected MAN networking System.

\subsection*{5.3 Server Room}

All the connections are distributed from the server room. Here we used D-Link 8 ports switch. There are five computers in this room .Three computer is used as server and another as Client. Another six connections Factory Marcentizer, IT officer room, Graphics Design room, Accounts Office \& payroll system counter General Manager and payroll system counter, IT room \& payroll system counter, Accounts and Admin are distributed from this room.

\subsection*{5.4 IT officer room}

All the connections are maintained from the IT officer room. A D-Link 8 port switch is used to make internal and external network. This room has two computers. It officer control all network in this room.

\subsection*{5.5 Graphics Design room}

They also use D-Link 8 port switch for internal and external network. They can share printer and scanner by using LAN.

\subsection*{5.6 General Manager and payroll system counter}

Same as the other room this room has a D-link switch and three computers. General Manager uses these computers to observe all the room by using camera. This floor has human count and payroll system card scanner counter. Payroll system counter is show; figure- 5.2


Figure 5.2: payroll system Card Scanner counter

\subsection*{5.7 Accounts Officer Room\& Payroll Card Scanner Counter}

LAN is very essential for this room. A D-Link 8 port switch is used to make internal and external network. Through which the admin observe the accounts all the time.

\section*{CHAPTER 6}

\section*{Payroll System}

\subsection*{6.1 Introduction}

Finance programming frequently requires almost no contribution from the business. The business is required to enter representative wage data and hours-at that point the product figures the data and performs with possessions consequently. Most finance programming is consequently refreshed at whatever points a duty law changes and will remind bosses when to document different tax documents.

\subsection*{6.2 Description of Palmal Group Payroll System}

Under the figure system is Human Resource \& Payroll Management System. Total company human information include about this system. This system has some items -
- File Menu
- Employee Setup
- Attendance
- Level Information
- Payroll Management
- Back Office
- Data Control center
- Report Menu

\subsection*{6.3 The Figure of Payroll System}

Employee Setup option has total company employee information. When an employee joints this company then his total information includes. Under the figure this is the front page of human resource \& payroll management system. Show; the figure- 6.1


Figure 6.1: Payroll System Home Screen
Under the figure 6.2 is the employee setup step. This step has all employees information. If an employee leaves this company then the IT officer closing his total information. Include officer easily search and details employees information. Show; figure- 6.2


Figure 6.2: Payroll System Employee Setup
This figure 6.3 is a woman worker her total information .This figure has employee code number, employee name, his father's and mother's name, blood group, sex, contact no, date of birth, present information and permanent information, section, level etc. Show; figure- 6.3


Figure 6.3: Payroll System Employee Information

Under this figure 6.4 is the attendance summary option. The accounts are kept here for how many employees are working. Employees' salary is calculated based on this. This page has section name, total employees and present, late, employee leave, absent and total Percentages. Show the figure- 6.4


Figure 6.4: Payroll System attendance Summery
The following picture contains all information for workers' salary. An employee gets salary on a grade; he has all the information on what to get the bonus and his overtime.

Show thefigure- 6.5


Figure 6.5: Payroll Management System

Under this figure 6.6 is the salary seat. Here salary is made based on the attendance and to work of a worker. This page include employees own code number, theirs name designation, join date, resign code, salary grade, basic salary and total salary. Show the figure- 6.6.


Figure 6.6: Payroll System Salary Shit
When a worker leaves this company, then his information is on this page. This page has emp. Code, emp. Name, department and designation, join date, closing type, closing
reason, closing date etc. This page include by leave information step. Show the figure6.7.


Figure 6.7: Employee Closing Information
This figure 6.8 keeps up total holiday setup information. All information on company holidays is on this page. All information and calculations of public holidays and import holidays are preserved here. For example- International Mather Language day is governmental holiday for this that company was off day. So that day's information included this system. Show the figure- 6.8.


Figure 6.8: Payroll System Holiday Setup

Figure 6.9 has all staff and worker attendance and work information. How long does a worker suffer from general leave, how often ill and women have maternity leave, with information on all working days. Show the figure- 6.9.


Figure 6.9: Payroll System of Worker attendance and Work Information

\section*{CHAPTER 7}

CONCLUSION

\subsection*{7.1 Conclusions}

The findings of this internship showed that the initial step by step setup procedure, how the system works and how the system operated. I can say that this technology or system such a useful technique by which any company can get huge output without invest extra money or man power.

\subsection*{7.2 Problems I Faced}

There are some problems I faced during my internship. Those are
* Sometimes workers don't punch their card (proximity card) properly. So the Software shows workers absent in Daily Report, though the workers are physically Present in factory.
* Sometimes LAN shows disconnected, due to internal problems in computer.

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