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Study review 1

Report

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ABSTRACT

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<p>In this report, we aimed to understand the “Data Link Layer” that we have not learned in “Fundamentals of Data Communications” class yet.</p> <p>The Data Link Layer is about the communication between adjacent nodes and has two sub layer which is called LLC and MAC.</p> <p>In the Data Link Layer, there are two system for reacting a collision of half duplex communication, which is CSMA/CD and CSMA/CA. If CSMA/CD detect a collision, the communication is stopped occasionally and takes a few moments to restart. CSMA/CA take a pause before sending data to avoid a collision.</p> <p>Like the “Network” layer, the Data Link Layer has a data unit divided small pieces called Frame. Frame is consisted by three parts such as Header, Data and Trailer.</p> <p>MAC Address is a number which each network cards have and used in Ethernet communication. MAC address is used for indicating “next” destination and IP address is used for indicating “final” destination.</p>		
Key words Data Link Layer, LLC, MAC, CSMA/CD, CSMA/CA, Frame, MAC Address		

ABSTRACT
CONTENTS

1 INTRODUCTION.....	1
2 WHAT I LEARNED	2
2.1 What the Data Link Layer is.....	2
2.2 LLC and MAC.....	2
2.3 CSMA/CD	2
2.4 CSMA/CA	2
2.5 Frame	3
2.6 MAC Address	3
3 CONCLUSION.....	4
REFERENCES.....	5

1 INTRODUCTION

We've already learned about Network, Transport and Application layers in "Fundamentals of Data Communication" class. However, we must learn some other layers which is Physical, Data Link, Session, and Presentation layers to understand OSI model (Figure 1).

In this report, we aim to understand the "Data Link Layer" by watching some videos and searching for some terms related to the Data Link Layer.

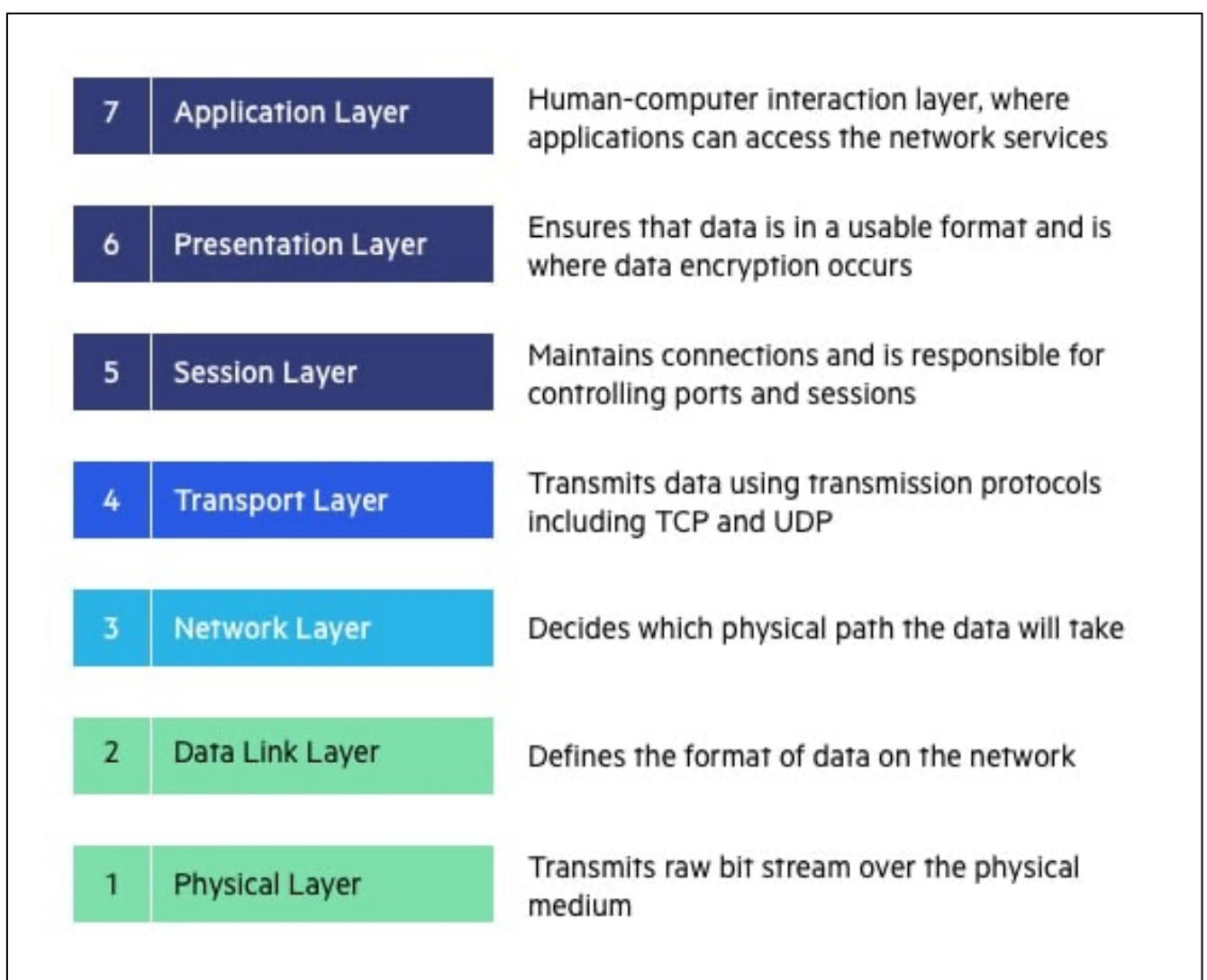


Figure 1. OSI model

2 WHAT I LEARNED

2.1 What the Data Link Layer is

The Data Link Layer is responsible for communication between adjacent nodes. It allows upper layer to access the physical layer and encapsulates Layer 3 “Packets” into Layer 2 “Frames”. It also detects whether data is collapse or not.

2.2 LLC and MAC

LLC is “Logical Link Control” and controlling flow. In other word, it defines how to do multiple communication simultaneously.

MAC is “Media Access Control” and control how devices access to the medium. “Media” means the things used for communicating information such as cables and radio waves.

2.3 CSMA/CD

CSMA/CD is “Carrier Sense Multiple Access with Collision Detection” and one of the systems reacting a collision of half duplex communication.

If a collision was detected, it stops communicating occasionally and restart sending data after a few moments.

2.4 CSMA/CA

CSMA/CA is “Carrier Sense Multiple Access with Collision Avoidance” and one of the systems reacting a collision of half duplex communication.

To avoid a collision, devices pause a few durations before data sending.

2.5 Frame

This is a data divided to small pieces for communication as well as “Packet”. In the Network layer, divided small pieces data is called “Packet” and in the Data Link layer it is called “Frame”.

Frame is consisted by three parts such as Header, Data and Trailer. Header is like an envelop which contain the sending information and Data is like letters in an envelope which contain what you want to say.

2.6 MAC Address

MAC Address is Media Access Control address. MAC address is a number which each network cards have and used in Ethernet communication. To communicate, header of data has a “sending” MAC address and “receiving” MAC address. MAC address is used for identifying “next” destination and IP address is used for identifying “final” destination.

3 CONCLUSION

In this report, we aimed to understand the “Data Link Layer” that we have not learned in “Fundamentals of Data Communications” class yet.

The **Data Link Layer** is about the communication between adjacent nodes and has two sub layer which is called **LLC** and **MAC**.

In the Data Link Layer, there are two system for reacting a collision of half duplex communication, which is **CSMA/CD** and **CSMA/CA**. If CSMA/CD detect a collision, the communication is stopped occasionally and takes a few moments to restart. CSMA/CA take a pause before sending data to avoid a collision.

Like the “Network” layer, the Data Link Layer has a data unit divided small pieces called **Frame**. Frame is consisted by three parts such as Header, Data and Trailer.

MAC Address is a number which each network cards have and used in Ethernet communication. MAC address is used for indicating “next” destination and IP address is used for indicating “final” destination.

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