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Network and Communication

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Abstract: ***The purpose of the study is to examine network and communication. The introduction explains what communication is and network used in facilitating the communication process. There is the theoretical background that holds the supporting theory for the research study. The proposed work give insights regarding wireless and wired networks based on the past studies. There is also the results and analysis that gives an analysis of the wired and wireless networks in businesses. The results and analysis also analyzed the benefits of both wired and wireless networks and situations in which organizations could prefer to use any of the networks for maximum benefits.***
Keywords: Network, Communication, Transmission, Wireless Networks, LAN

I. INTRODUCTION

Communication refers to the process in which information and understanding are transmitted from an individual to another. If there is no common understanding brought about by information exchange, then there is no communication (Ted, 2012). Most common elements in communication include the sender and the receiver where the sender is the one that initiates the communication process and the receiver is one that receives the message. Network allows the transmission of message from one party to another and facilitates the communication process (Huang, 2011). For efficient communication services, network allows high speed interconnection between the gadgets of the two parties involved in communication.

The medium for communications through a network connection include phone and computers which are most popular around the world. The network connection comes from a server that the users have to subscribe from at a fee. Network can be supplied through cables as a wired connection and can also be connected through a wireless connection to the allowed users. Network connection can be limited to the authorized people through a secret password know to the users only. In some cases, other people prefer to minimize the connection through the geographical restrictions including a building where the user is required to be the building to access the network. In public blocks, the network can be allowed to only the recognized networks and the rest restricted.

There are different networks that are used during communication and they could be classified based on the specific application. Examples of networks include the Local Area Networks and the Wide Area Networks. The local Area Networks for example helps in data exchange within a locally restricted area. It is mostly used in institutions such as schools, residence, university campus, laboratory, and office buildings. The most common technology that is used for the local area network, are the Ethernet and Wi-Fi. The Wide Area Networks for example helps in data transmission over a wide area such as thousands of Kilometers (Huang, 2011).

II. THEORETICAL BACKGROUND

According Ted, (2011) data communication system has five components which include the message, sender, receiver, the transmission medium and the protocol. The message refers to the data to be communicated and there are various forms in which the message could be communicated which include text numbers and pictures. The sender is the device that used in sending the message; the receiver is the device used receiving the message. Both the sender and receiver devices are referred to as the clients. This is because they are using the shared network resources that are provided by the servers. Therefore, this makes the devices to be customers or users of the network and they request and also receive network services from the servers.

The transmission path is the physical path in which the information is transmitted. The transmission media can include any facilities that are used to interconnect the gadgets that are used for communication mostly the computers. They include the twisted –pair wire, optical fibre cables and the coaxial cables. In other places, the transmission media are referred to as the channel, line or links. Protocols include the rules that govern the communication (Paradis, 2007). The best type of links and network to use in the communication process in a business remains to be question that needs answers.

Network facilitates the transmission of information from one point to another. According to Chen, (2009) Communication network has to meet certain criteria which include performance, reliability and security. Performance of network could for example depend on certain factors which may include the number of users using it, the type of transmission medium and the efficiency of the hardware and software (Paradis, 2007). Reliability of a network for example depends on the frequency of failure. Security of a network for example depends on whether the data can be protected from being accessed by unauthorized individuals. Network

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facilitates the connection of two or more devices which help relay information. Network connections provide the pathway for transferring data from a device to another. Network connections could be point to point or multipoint (Chen, 2009). Point to point connection for example facilitates transmission of messages between two devices. Multipoint network connection is whereby more than two devices share a single link. The question frequently asked is the best transmission that could facilitate reliability, security and higher performance (Walther, 2006).

The Local Area Networks are known as the LAN and they tend to be privately owned and they cover a relatively small geographical area such as a few kilometers. Through the Local Area Networks, it's possible to connect computers, workstations and exchange information. For example, a company may use the Local Area Networks to facilitate communication through the server and the computers within the building. This for example helps to work in seamless way where the different departments can easily access information via the servers.

Wide Area Network facilitates communication within a large geographical area. An example of the Wide Area Network is the internet (Huang, 2011). The internet for example facilitates communication worldwide also the radio network could be an example of a Wide Area Network since it facilitates communication over a wide area. Research is needed to establish how organizations use wired and wireless networks to facilitate communication. Also is wired or wireless networks the best in facilitating communication within an organization?

III. PROPOSED WORK

A study by Paradis, (2007)Indicates that there are many businesses that are making use of wireless networks to facilitate the communication process and to improve the way of operating the businesses; Wireless networks include the computer networks that have not been connected using any cables and help businesses to avoid incurring a lot of costs that would have been involved in building cables that are needed to facilitate connection between various devices within an organization (Walther, 2006). Wireless networks for example make use of radio waves that facilitate connections between devices such as the laptops to cloud and to business applications.

According to Walther, (2006) a great advantage of wireless networks is mobility that facilitates better networking in organizations. Through wireless network, individuals for example can access company information from any terminal within an organization even from the personal computers. Wireless network can bring about more freedom in the way that employees operate which could speed up the work process. Employees for example can even work from home at any convenient time. A study by Chen, (2009) shows that communication through the wireless network could be more cost effective; Cabled network for example could be very expensive especially when it involves a big area. Although installing the wireless network could be cost more, the maintenance cost are quite lower since there are no incremental costs that are required in scaling up the network. However Paradis, (2012) argues that the wireless networks are slower in facilitating the communication process than the wired networks that are known to be faster. The wired networks for example maintain a faster internet speed and are known to be more secure as compared to the wireless networks (Paradis, 2007).

IV. RESULT AND ANALYSIS

Although wired network is superior in terms of speed and security, research indicates that there are many businesses that are using wireless network due to the immense benefits that comes along with it. Wired network is mainly used in offices where the network can be dished into different computers within an office or even the entire organization. Wired network is often viewed to be secure as one has to have access to these wires so as to derive information that is shared by the organization. Due to the limitations of share of information through wires, organization that are located in different geographic areas may need to diversify from wired network to wireless networks. Thus the reason as to why wireless network has gained in publicity in companies that are in different geographic locations that need to share information.

Also, businesses that do not need the superfast and ultra-secure network can benefit from the wide range of advantages offered by the wireless network. This includes mobility where the employees for example can easily access information from any terminal which enhances information sharing and collaboration. Wireless communication enhances the productivity of the employees since they can collaborate whenever need arises which brings about more freedom in the way of operation. Output of a company often increases where the employees can work from different locations. This means that the employer may need a work load completed and submitted during later hours of the day where the employee has already left the premise. Wireless connection is a solution to such a challenge as the employee only needs access to the min server so as to complete the task.

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Also wireless communication comes with more convenience where for example the employees can work during their own convenient time including whenever they are far from the institution. For self-driven employees, completion of tasks may be done any time of the day at the day. This means that a business may as well chose to maximize on the benefits of wireless connections as it would save them the trouble of renting an office space and a large team of the human resource department. Such a company would only worry about servicing the wireless networks and improve a network system so that it is fully operational on managing virtual employees who work at the comfort of their homes.

As compared to the wired alternatives, wireless network can offer more cost benefits since the cost of maintenance as they are lesser than the costs of the wired networks. The large wired networks for example have many long-term costs that are needed for maintaining, adding and replacing the cables. Nevertheless, before making the decision on the appropriate network set up, it's important to first establish the priorities of the business weigh the differences and make the best decision that suits the business. This way, a business is able to decide on the best network systems that will earn the greater benefits and minimize liabilities of the company.

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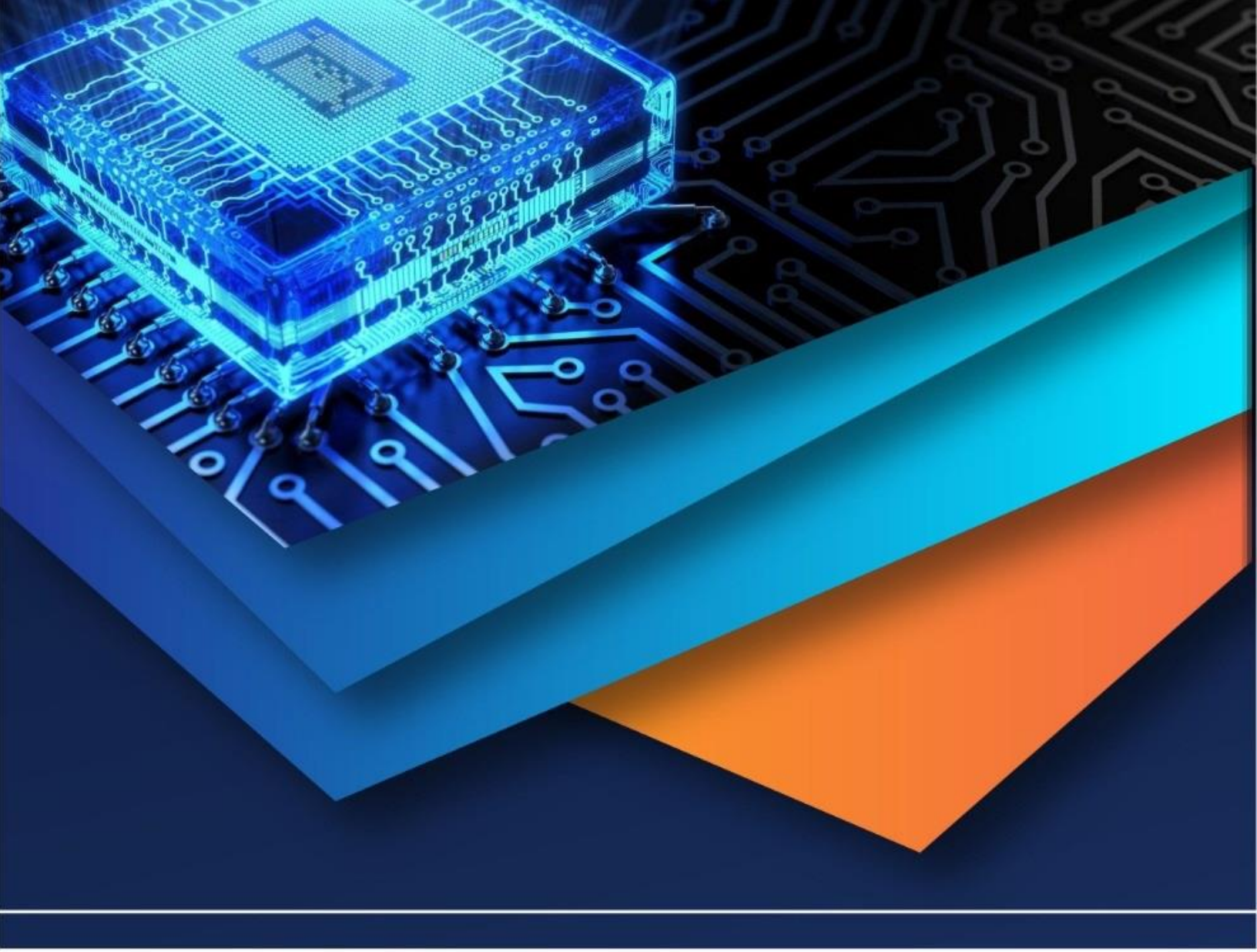

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