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DEPLOYING IPv6 BASED NETWORK FOR TOPCORN BANK (NIGERIA)

122 Computer Science and Information Technologies

Abstract of a Master's Thesis

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The thesis has been carried out at the Computer Science Department of Ternopil Ivan Puluj National Technical University, Ministry of Education and Science of Ukraine

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GENERAL CHARACTERISTIC OF THE THESIS

Actuality of the thesis. An Internet Protocol Version 6 address (IPv6 address) is a numerical label that is used to identify a network interface of a computer or other network node participating in an IPv6 computer network. IPv6 is the most recent version of the Internet Protocol, the communications protocol that provides an identification and location system for computers on networks and routes traffic across the Internet. An IP address serves the purpose of uniquely identifying an individual network interface of a host, locating it on the network, and permitting the routing of IP packets between hosts.

IPv6 is the newest version of the Internet Protocol and that is why it has been deployed in my work to fulfill the need for more internet addresses. IPv6 is the successor to Internet Protocol Version 4 (IPv4). IPv6 was designed as an evolutionary upgrade to the internet protocol and will, in fact, coexist with the older IPv4 for some time. IPv6 is designed to allow the Internet to grow steadily, both in terms of the number of hosts connected and the total amount of data traffic transmitted.

That is the major reason why deploying IPv6 rather than its older version is very important for any organization sector and that is why I chose to deploy it into TopCorn Bank.

The aim of the thesis: To develop the method of computer network deploying with the support of IPv6 protocol.

Thesis tasks:

1. To perform the analytical review of computer networks developing methodologies based on IPv6 protocol.
2. To analyze the different approaches of IPv6 deployment into the networks.
3. To develop the computer network for TopCorn Bank.
4. To simulate and analyze the network.

The object of the research: TopCorn Bank(Nigeria); a financial institution that accepts deposits and creates money for the public

Novelty of the results: The approach to the deployment of IPv6 based network has been further developed.

The practical significance: Provision of more routing, directed data flow due to the fact that IPv6 supports multicast more than broadcast, simplified network configuration and good security.

Thesis approbation. The results have been reported at the V International scientific and technical conference of young researchers and students «Current issues in modern technologies», Ternopil, November 16-17, 2018.

The structure of the thesis. The thesis consists of explanatory notes and graphical presentation. The explanatory notes consist of introduction, 6 sections, conclusions,

references. The thesis size: explanatory notes –107 pages of the A4 format, graphical presentation – 7 sheets of the A1 format.

MAIN CONTENT OF THE THESIS

In introduction the importance of using IPv6 network was established.

In the first section critical review of research method has been carried out. That is, the basic of deploying internet protocol (IPv6) over internet protocol (IPv6) have been analysed. This section also analyses the reason for deploying this version protocol because every device on the Internet is assigned an IP address for identification and location definition.

In the second section the version 6 protocol was fully deployed into TopCorn Bank, because that software has been used to implement the program part of the developed technology. An high speed and a well secured connection to the bank was established. Moreso, new features were developed and result output during pinging was succesful.

The third section provides information about the tools, software and applications during the course of this thesis.

In the fourth section the costs estimation involved in deploying IPv6 based network for TopCorn Bank (Nigeria) and estimation of the program's efficiency and calculation of cost of goods sold for monitoring data exchange between networks have been analysed.

Fifth section is devoted to the problems of labour and safety regulations. That is, the problems of electrical safety in the laboratory, static electricity and spark hazards etc. are considered.

The Sixth section deals with ecological examination law of Ukraine, environmental protection and ecological development.

Conclusions

1. Achived the goal of planning and deploying of Ipv6 for Topcorn bank network.
2. Analysis of different approaches of IPv6 deployment into network.
3. Adequate IP addresses are available for feature expansion of the bank.
4. Successful testing results show communication with both main office and the branch office.

LIST OF PAPERS PUBLISHED BY THE AUTHOR OF THESIS

1. Olayinka Vincent Olayinka , Deploying IPv6 based network for TopCorn Bank/ Book of abstract of the V International scientific and technical conference of young researchers and students «Current issues in modern technologies», Ternopil, November 17-18, 2016, vol.2. – Ternopil, TNTU Press. – 1 p.

ANNOTATION

Master's thesis is devoted to the development of deploying IPv6 . In the thesis presented a structure of deploying IPv6, that includes designing IPv6 addresses, pinging the network environment, topological schema, physical and logical topology. As a result, the goal of planning and deploying IPv6 for TopCorn bank was established, successful test results how communication with both the main and branch office.

IPv6 must therefore be applied as an important subject to the goal of any banking sector, because it creates for future expansion of any organization.

That is the major reason why deploying IPv6 rather than its older version is very important for any organization sector and that why i chose to deploy it into TopCorn Bank.

Keywords: Internet Protocol (IP), Network Address, Domain Name Server, Virtual Private Network, Media Access Control, Transmission Protocol, User Diagram Interface, Local Area Network, Internet Service Provider