وزارة التعليم العالي والبحث العلمي .العراق

جامعة بابل

كلية تكنولوجيا المعلومات

قسم شبكات المعلومات

الدراسة (صباحي)

تصميم وتنفيذ نموذج العميل والخادم مع تطبيقاته

(جدار الحماية، الأمان، قواعد التحكم في الوصول، Mikrotik)

Design and implantation of client server model with its Application

(Firewall , security , Acl , Mikrotik)

مشروع التخرج هو احد متطلبات الحصول على درجة البكالوريوس في تخصص شبكات المعلومات في تكنولوجيا المعلومات.

A Graduate Project Submitted to the department of Information Networks of the College of Information Technology, University of Babylon, in Partial Fulfillment of the Requirements for the Bachelor's degree in the Information Networks of Information Technology.

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ABSTRACT

Networking is an essential thing in organizations, therefore, there can never be establishment of any connection without it. Networking is irreplaceable these days, it must be considered as a very important study in scientific researches. As a result of the importance of networks in the practical life, the design, configuration and connectivity must be done carefully to produce a reliable and scalable networking system platform in a way that it would be flexible and compatible with the development of the technology that is associated with it. The consideration of the network protocols is a critical factor because I t manages and organizes the behavior of networks for a specific purpose. In this thesis, the network tier policy was innovated and created for networking design, while the binomial probability was utilized as a method to obtain the value of system failure probability for a reliable and scalable multi-tiers networking system platform. Multiple networking systems (headquarter, branch and remote home office) were configured and linked with networking protocols, these sites were connected to two internet service providers (ISPs) by fiber connection. Another aim of this thesis was to provide redundancy not only at routing layer or switching layer but also to make sure that the redundancy and the innovated design was provided at each networking tier. Multiple networking systems scenarios were applied to analyses and investigate their performance via two software's: EVE_NG and vm . The results were shown via comparing the reliability rate and failure rate of each network systems behavior. There was also the consideration of providing a balanced and fair system in many aspects such as good reliability, economic budget and reduction in the complexity of programming, configuration and design as much as possible. Keywords: reliability; scalability; networking

tiers; redundancy; load balancing; binomial probability; system model & performance