IMPLEMENTING SECURITY IN A CLIENT/SERVER WIRELESS LOCAL AREA NETWORK

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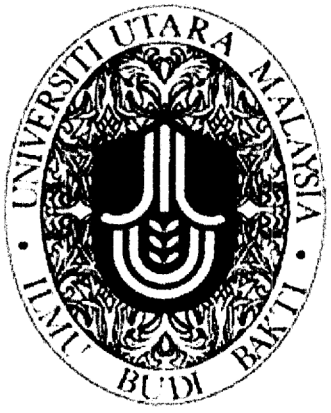

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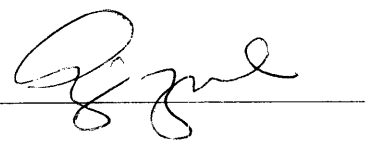
(Signature) : 

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ABSTRAK

Rangkaian network komputer telah menjejak ribuan langkah sejak kelahiran Wireless Local Area Network (WLAN). Faedah yang dicapai dari teknologi ini terdiri daripada kepuasan pekerja dan peningkatan productiviti secara keseluruhan setelah WLAN diimplikaskan. Namun, keselamatan masih lagi penting, biarpun kurang difahami dalam dunia teknologi maklumat. Pada tahun 2001, penyelidik melaporkan kelemahan dalam protokol IEEE 802.11b 'Wired Equivalent Privacy' (WEP). Cadangan langkah-langkah penyelesaian dari IEEE 802.11, IETF, Wi-Fi Alliance and OEMs dikaji untuk keselamatan dalam teknologi tanpa wayar. Suatu dasar WLAN yang menggunakan WEP dibina untuk mengawal keselamatan, dibina. Isu-isu sekuriti dalam WLAN yang dibentangkan oleh Network Computing pada 2002, digunakan untuk membentuk soalan-soalan temuduga dengan jurutera rangkaian untuk mengetahui isu keselamatan dan ancaman semasa implementasi WLAN. Tiga faktor utama menyumbang kepada suatu WLAN yang kuat. Teknologi merupakan faktor yang pertama. Integrasi antara WEP dengan Virtual Private Networking (VPN) dan IPSec, di sampingan 802.1X/EAP dan RADIUS pelayan, serta pangkalan data pengurusan yang berpusat dan polisi keselamatan, amat digalakkan untuk mengukuhkan sekuriti keseluruhan dan membolehkan capaian dihalang di pelbagai lapisan rangkaian. Di samping teknologi, manusia dan proses merupakan faktor-faktor bagi pengawalan keselamatan rangkaian di WLAN. Pekerja sepatutnya kerap menghadiri latihan dalam Polisi Keselamatan Teknologi Maklumat (IT), serta diberi kuasa untuk mengimplimentasikan Polisi Keselamatan IT, kerana ini tanggungjawab semua pekerja. Adalah menjadi mandat untuk membangunkan polisi keselamatan IT bagi mengawal semua dan teknik terbaik bagi meneruskan pengawalan keselamatan di syarikat setiap masa.

ABSTRACT (ENGLISH)

Computer network evolves with birth of Wireless Local Area Network (WLAN). Tangible benefits such as increase employee satisfaction and productivity drive enterprise WLANs adoption. However, security remains the most significant, but least understood in information technology. In the year 2001, academic researchers reported vulnerability in IEEE 802.11b Wired Equivalent Privacy (WEP) protocol. Solutions from IEEE 802.11, IETF, Wi-Fi Alliance and OEMs are studied for secure wireless solutions. A baseline WLAN which is solely secured by WEP is established. Concerns and security issues related to WLAN polled by Network Computing in 2002 is used to formulate the interview questions. Interviews with network engineers reviewed security issues and threats during enterprise WLAN deployment. Deploying and maintaining a secure WLAN is governed by three factors. The first factor is technology. Integration of WEP with Virtual Private Networking (VPN) and IPSec, plus 802.1X coupled with EAP and RADIUS server, on existing centralized administration database and security policy, are recommended to be handled layers to strengthen overall security and enable block access at multiple layers of the network. Besides technology, people and process also dictate security in WLAN. Employees should be trained constantly on IT Security Policy and empowered to enforce IT Security, as security is every employee's responsibility. It is a mandate to establish an IS Security Policy to regulate all process and best known methods to continuously maintain security of the enterprise.

CHAPTER ONE:INTRODUCTION

1.1. The Context of the Study

Wireless Local Area Networks (WLAN) are now in use in essentially every application amenable to implementation on a local area network. Five key application areas of WLANs, which provides networking functionality essentially identical to that on wire, but without the need to be tethered to the wall:

1. Vertical applications these continue to remain an important area of use for WLANs, typically involving data collection, bar codes, and industrial automation solutions. This is commonly exploited in warehouses and even in the cashier who diligently input the price of your purchase items in the shopping mall.
2. The enterprise the major growth area for WLANs over the past few years, microcellular-based WLANs allow roaming across a floor, building, campus, and even between facilities.
3. Small business smaller firms without dedicated network management and operations staff can benefit from the simplicity and ease-of-use inherent in wireless LANs.
4. The residence/home office homes are often much more difficult to wire than businesses, so wireless LANs in the home are rapidly growing in popularity and the mobility especially appeals to anyone who brings a notebook computer home from the office.
5. Public spaces one of the hot growth areas for WLANs over the next few years will be their deployment in "hot spots" within high-traffic public spaces airports, hotels, convention centers, and even coffee shops. In fact,

The contents of the thesis is for internal user only

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