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Assessment of Handoff Effect and Various Response Time in HOT SPOT Environment

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Abstract
Currently, there is a strong need of internet. The overall working is depend upon online system and need to improve it. Wireless network is that network which provides freedom from wired network. IEEE 802.11 Wireless LAN has many advantages and provides services at low cost. In this research paper we will discuss about task response time for CRM (customer relationship management), online banking and hot spot with the help of ACE. We have study the handoff effect.

Key word
Wlan hotspot, handoff, ACE, MEAP,CRM

I. Introduction

Wireless LANsmean any local area network (LAN) that a mobile user can connect to through a wireless (radio) connection. WLAN as its name mean LAN but without wires. Wlan is a wireless network technology that is based on IP addressing **[2]**. Generally, Wlan has medium range data transfers i.e. 100 to 300 feet in indoor. This provides movement in networking. WLANs are deployed as an extension to the existing fixed/wired LANs and due to the fact that the nature of WLANs are different from their wired counterparts, it is important to raise the security of WLANs to levels closer or equal to the wired LANs **[5]**. Wlan can be used for both peer to peer networks and point to point and point to multipoint applications. Wireless lan covers small area networks like office and campus area. A local area network generally provides high-bandwidth communication over inexpensive transmission **[4]**. All local networks are wired together and location remains static. It supplies lan& Ethernet technology without confusing network of wire & cable. A wireless LAN is based on a cellular architecture where the system is subdivided into cells, where each cell (called Base Service Set or BSS*) is controlled by a Base station (called Access point or AP) **[3]**. The target of Wlan gives mobility at low cost to devices like as mobile, laptop and tab by wireless internet signal in the form of waves (radio wave) at home, college, hospital etc. Thus it means data transmit and receive in air. It is cheaper medium as everybody wants freedom from wires. Using Radio Frequency technique, wireless LANs transmit and receive data in air, reducing the demand for wired connections **[1].** Wireless Local Area Network (WLAN) gives direct access to internet resources on the move. The landlord cost is reduced without influence on other resources. Wlan offers wireless Ethernet network & mobile access in remote areas. It gives access to the people who can't be touched through wired Ethernet connection. An Access Point (AP) is used to deliver connection for longer internet. Generally, Wlan is the data packet announcement network but in limited area or in limited range. It is very easy to develop, maintain as compare to outdated wired internet but also facing a number network relucted challenges such as security, low speeds, difficult in operating and Radio Signal Interference. Wireless Local Area Network (WLAN) committed two or more devices using a wireless communication method.

Customer relationship management is one of the strategies to manage customer as it focuses on understanding customers as individuals instead of as part of a group. CRM manages the relationships between a firm and its customers. CRM and knowledge management are directed towards improving and continuously delivering good services to customers. There are three components; which are customer, relationship and their management. Managing customer relationships is important and valuable to the business. ACEstands for Application Characterization Environment. ACE is a tool for the 3D visualization, analysis and prediction of traffic in network applications. It helps us with the activity analysis of existing, and the development of new applications. This module allows the importing of captured traffic, Diagnosing application problems, predicting application behavior. ACE Analyst embeds expert knowledge about network protocols and application behavior as seen from a network perspective to provide a detailed understanding of the end-to-end performance of networked applications. MEAP (Mobile Enterprise Application Platforms) are pre-built environments that allow an individual to fabricate a mobile application with the intended purpose of deploying the application to multiple mobile operating systems. The development environments are usually fairly straightforward, and require minimal programming experience to develop functions for the application. MEAP environments are great for device-agnostic solutions that span multiple types of devices. Sometimes, a MEAP will be used in conjunction with a mobile device management (MDM) platform. MEAPs can support more than one type of mobile device and operating system without having to maintain separate sets of code. MEAP typically contains a mobile middleware server where integration connectivity, security, application management are supported. MEAPs can also be run on the clouds.

II. Proposed work

We have measure the task response time at various subnets for online banking user and for CRM (Customer relationship management) user. Task response time is the total quantity of time; it takes to response to a request for service. The response time is the calculation of the package time and wait time. The package time is the time it takes to do the work you requested. We have used ACE to create traffic in network.We have designed a scenario with the help of MEAP which provides a plat form and environment to design scenario. There are some hotspots; each hotspot has some users, which are business user and leisure user. There is one mobile user. Mobile agents are special software objects that are autonomous and have the ability to migrate from one node to another node, carrying logic and data, performing actions on behalf of the user. We have study handoff effect due to

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movement of mobile user from one place to other place. Handoff is that when a mobile user travels from one area of coverage or to another zone within a call's time the call should be transferred to the new cell's base posting. We measure the task response time at hotspot due to disturbance create by user. There is one ISP (internet service provider) which provides service to every hotspot.

III. Literature Survey

Marwan Abu-Amara *et al.* evaluate the performance of two 3G/ WLAN integration schemes: loose and open coupling, together with two mobility management schemes: Mobile IP and mobile stream control transmission protocol (mSCTP). This paper indicate that integration methods considered have little impact on the application mixes studied in terms of delay but show that FTP and HTTP throughput is better with loose coupling scheme **[1]**

JorgOtt*et al.* exploit regularHot-Spot for Drive-thru Internet. The author pursued that combine access to different service providers or integrate WLANs and cellular networks to enhance connectivity (particularly for WLANs), improve the achievable data rate, and minimize cost (for cellular networks) to keep users always best connected. This research investigate the impact of auto-configuration and authentication and present performance results for a driving user accessing the Internet via a hot-spot using different access link technologies and finally suggest enhancements to hot-spot architectures to facilitate Drive-thru Internet access.**[3]**

UdezeChidiebele. C et *al.* proposed a Conceptual design model for high performance Hotspot network infrastructure and through simulations with OPNET modeler. Author proposed GRID WLAN Hotspot system model utilizes the infrastructure components.

DheyaaJasimKadhim et al. present the performance and handoff evaluation of heterogeneous wireless networks using OPNET simulator. The research paper shows three types of HWNs; WLAN, WiMAX and UMTS were implemented and tested with different selected applications executed on the mobile node. So that three different projects have different types of networks will implement and simulate using OPNET 14.5 modeler simulation.

Vijay Chandramouli"A Detailed Study on Wireless LAN Technologies"Bluetooth is inadequate for serious, security-sensitive work, and it lacks the strength required for a wireless extension to an enterprise or public network**.** Technologies like IEEE 802.11 are the better choice for corporate LANs (and perhaps WAN connectivity with future improvements of the standards) while Bluetooth technology will be the better option for connectivity between computers and small PDAs, digital cameras, mobile phones and the like. With final ratification of the 802.11g wireless standard delayed until spring 2003, researchers are interested in dual-mode access points that let users enjoy Wi-Fi compatibility and higher speeds today.

Sunil Kr. Singh, et al. "Architectural Performance of WiMAX over WiFi with Reliable QoS over Wireless Communication"had proposed In future, Develop the proposed a unified connection-oriented architecture to support the integration of WiFi and WiMAX technologies in broadband wireless networks. This common architecture is supposed to result in an overall advance in technology and a reduction in costs.

IV. Results

A. Application response time for CRM

Figurerepresenting the application response time for business and mobile business user for CRM. Application response time for business user is less as compared to mobile user because business user is permanent user and not moves. From the graph it is clear that the application response time for both user is same for half time, when mobile user moves from one point to another point then application response time for mobile user is change because it is handoff effect. The difference between both lines showing the effect of hand off on mobile user. The red line is showing response time for mobile user, which start to increase gradually when after half an hour mobile user start to move from one subnet to other.

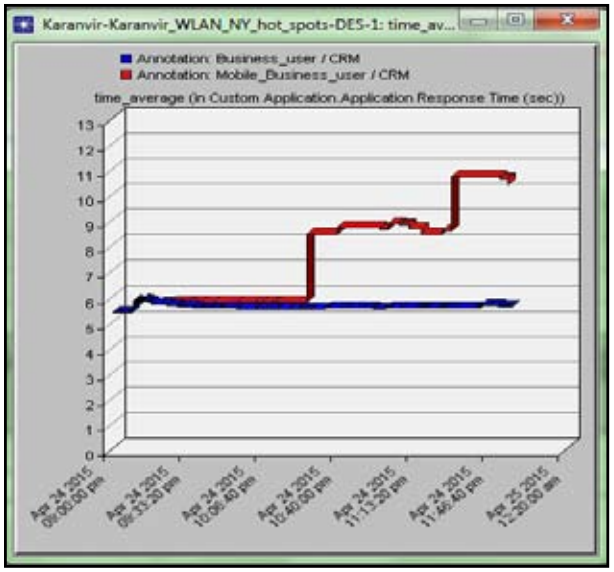

Fig 1 : Application response time for business and mobile business user for CRM

B. Application response time for online banking

In a figure blue line show business user and red line show the mobile user performance. The mobile user is moving across various subnets, whereas business user is static in its subnet. When mobile user enters in to coverage of hotspot then signal range is less and application response time is more as compare to business user. When mobile user is stop moving then application response time for business and mobile user is same. The application time for mobile user has to be increase when he is move again and handoff from one to other subnet.

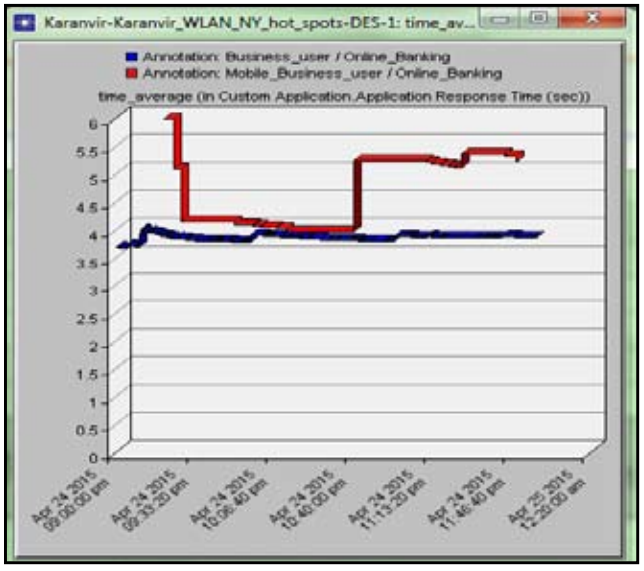

Fig. 2 : Application Response time online banking for both users

C. Online Banking task response time

Online banking response time is desirable to be low, as it involves financial transactions which need high bandwidth. Figure showing the response time for business user and mobile business user. The response time of business user is shown by blue colour, which is quite low in contrast with mobile business user. The handoff effect is not desirable for online banking. The online banking require high data rate to handle the transactions initiated by user. The business users need faster task response time for online banking as they involve financial transactions, which need much attention and security. It clear that the performance of mobile user and business is different, the response time for mobile user is more and change because of handoff from one subnet to other. The response time for business user is low and remains same because of high bandwidth.

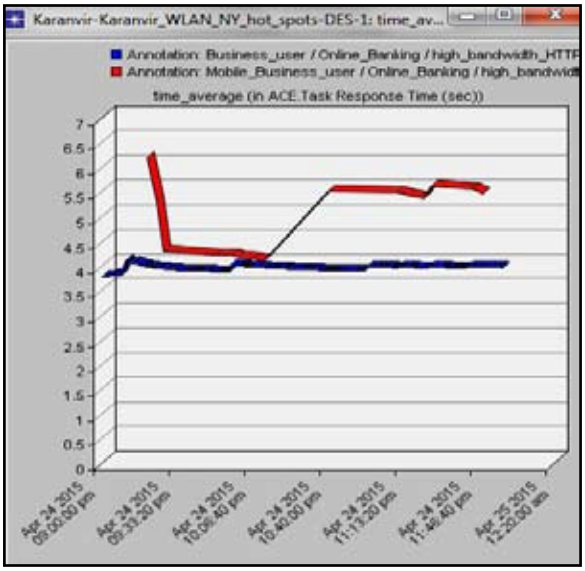

Fig 3 Task response time online banking for both users

IV. Throughput

The throughput is measure of number of requests fulfilled per second. The high throughput rate is quite desirable and higher throughput also signifies the network efficiency. The proposed work aim to design a network which simulates the behavior of CRM and Online Banking in a hotspot environment, where the factor throughput is critically important transaction requests are going on. Figure 5.10 represents the overall network throughput, which is reasonably good.

Fig 4 : Network Throughput

V. Conclusion

Today we know that the overall working like in banks, office, colleges and industrials area is based on online system. The purpose of this research is to measure the task response time and study of handoff effect. When mobile user travels from one area of coverage or to another area then there is handoff and hand off gap is create. The response time for mobile user is more and change because of handoff from one subnet to other. The Application response time for mobile user is low because it is cause of handoff effect. We have measure the task response time using ACE, so it is necessary to solve this gap. This research is help to decrease the application response time for mobile user in future.

References

[1] *SharanbeerKaur, ShivaniKhurana, "Study on Wireless Technologies Wimax and Wlan with Their Interfaced Scenario" International Journal of Emerging Technology and Advanced Engineering (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 11, November 2013*

[2] *Shuang Song and BijuIssac, "ANALYSIS OF WIFI AND WIMAX AND WIRELESS NETWOR COEXISTENCE" International Journal of Computer Networks & Communications (IJCNC) Vol.6, No.6, November 2014.*

[3] *Vijay Chandramouli "A detailed study on wireless lan technologies" https://www.uta.edu/oit/policy/ns/docs wireless paper-vijay.*

[4] *Putman, Byron W. (2005). "WLAN Hands-On Analysis" Author House, 2005.*

[5] *Ahmed M. Al Naamany , Ali Al Shidhani, HadjBourdoucen"IEEE 802.11 Wireless LAN Security Overview" IJCSNS International Journal of Computer Science and Network Security, VOL.6 No.5B, May 2006*

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