ANALYSE THE SCHEME AND IMPLEMENTATION OF FREE INTERNET HOTSPOT USE THE TECHNOLOGY WI-FI IN ENVIRONMENT OF EDUCATION TRIPLE "J"

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This final duty Writing target is to design a computer network technologically wireless base on Wi-Fi, especially to overcome the problem that happened because of scheme of computer network which still base on cable technology which at the moment still be wearied inefficient and also use bandwidth to transfer file.

Method used in final duty writing cover two punch lines that is method analyses and scheme method. Method analyses used to analyses the system which walks and scheme method used to make the topology of network wireless and also new application making to transfer file. Reached result device a network having high mobility and thrift bandwidth which often used to transfer the file which have been overcome by application transfer file. Conclusion got by distorting of network system from network Ethernet become the network wireless improve the amount client which can access into network, and also improve the mobility of consumer notebook which must make a move between space of other space and office. Others also with the addition a application transfer the file newly lessen the traffic of use of bandwidth internet.

Preface

Technological growth of computer mount swiftly, this matter seen in the year 1980 computer network still represent the conundrum which wish replied by academician circle, and in the year 1988 computer network put into use university, company, now enter the this era millennium especially worldwide internet have come to the everyday reality millions of human being on this earth.

Others, hardware and network software have really changing, early its growth almost entire/all network develop; builder from cable coaxial, nowadays a lot of have among other things develop; builder from optic fiber (fiber optics) or communications without cable (wireless).

Along with science growth and technological, expanding also modern society characteristic which high mobility, searching flexible service, completely easy to and gratify, and also pursue efficiency in all aspect. And Backbone of network of information and communications especially in Indonesia practically require the reliable infrastructure backbone, cheap and can be develop; builder according to support requirement of ICT (Information and communication technology) for the prosperity of (e-prosperity). E-Inclusion which involve the cloistered society to access the Internet have to be supported by correct technological election.

And by reality that the increasing of acceptance internet by society marked leaped [customer/client], good business and also consumer, now push the appearance and demand of service internet exceeding from what can be obtained from real world, and this matter cause progressively denseness access the illusory world communications. To anticipate the mentioned of all organizer of service internet develop various system access flexible and easy, among other things technological use wireless or Wi-Fi (wireless fidelity) or often recognized also by the name of Wi-Fi Hotspot.

This time, technological use wireless or network without cable (wireless) felt effective enough efficient and to answer the demand the society requirement will access the internet and also other requirement. For that, one of technology base on the wireless which enough succeeds developed by is Wi-Fi (Wireless Fidelity). This Technology Wi-Fi uses the standard IEEE 802.11 (Institute Of Electrical and Electronics Engineer 802.11) and ETSI-HIPERLAN. However because society requirement progressively increase, especially requirement will access the internet and supported progressively expand [it] world technology, technological hence Wi-Fi start felt less can fulfill the society requirement. This matter because of finding of some in sapience of at the technology Wi-Fi

For that, found a technology newly base on the wireless also which look like by Wi-Fi as well as representing development from technology Wi-Fi. The technology is technology Wimax (Worldwide Interoperability for Microwave Access) Technology Wimax uses the standard IEEE 802.16 and ETSI-HIPERMAN. With all excellence owned, expected this technology Wimax can give the benefit for all people specially Indonesia society, where this technology still in development phase in Indonesia.

And especially in environment of education Triple "J" sum up the student from year to year increasing. Along with that, usage of intranet and internet also mount. While exist facility in this time jar with its amount (in this case computer) compared to a student amount increasing every year.

Environment of education Triple "J" is environment education a consisted of the SMP, SMA, and SMK 1 (SMEA) And SMK 2 (STM) residing in below/under wings of Institution of Education Triple "J" what is located in Jl. Landbouw No.25 Citeureup of Regency Bogor. And July month; moon 2008 Education environment of Triple "J" the start to provide the service of wireless internet connection or ordinary referred by Wi-Fi Hotspot, as solution to reply the above mentioned problem as well as to give the service of wireless LAN including office of public area and administration. Expected with the existence of the solution, [shall] no longer pursue the teacher, student and school party environment of education Triple "J" other in searching information related to process of education and study.

Congeniality of Computer Network

By expanding technology of computer and informatics a single computer model serving entire/all computing duties an organization nowadays have been changed with a group of computer separated however interaction in executing its duty, system like this referred a computer network (computer network).

Term of computer Network to interpret a gathering interconection a number of computers which autonomous the two computers told interconection if/when both earning changing over each other information Forms the connections not have to [through/ passing] strand of metal just copper but can use the optic fiber, micro wave, or communications satellite.

To comprehend the term of computer network frequently bewildered with the distribution system (distributed system). Lock its difference that a distribution system, existence a number of computers autonomous has the character of transparent for its wearer. One can give the command to execute a program, and later; then program will walk and undertake to chosen the processor, finding and delivering file to a processor and its save result correct to in place represent the operating system duty. Equally, consumer of system distribute will not realize there are a lot of processor (multiprocessor), duty allocation to processor, file allocation to disk, file evacuation kept and needed, and also other function from system have to have the character of automatically.

At one particular computer network, consumer have to by explicitly logarithm to a machine, by explicit submit its duty from a distance, by explicitly remove the file and handle self in general entire/all network management. Distribution systems, nothing that require to be [done/conducted] by explicit, altogether have been [done/conducted] automatically by system without the knowledge wearer (user).

Thereby a distribution system software system made shares a computer network. Peripheral soften determining storey; level of integrity and pertinent network transparency. In consequence network difference with the distribution system more lay in its software (especially operating system), non hardware.

Analyses the Condition Of Early Computer Network

Environment of education Triple "J" is a environment education of private sector residing in below/under wings of Institution Triple " J" standing since August month; moon 1987 have location at Jl. Landbouw No. 25 Citeureup of Regency of Bogor West Java. Environment PTJ consisted of 4 education institute that is SMP (1987), SMA (1990), SMK1 (1995) and SMK2 (2003) and related/relevant unit.

Each; Every education institute [of] exist in environment PTJ own the building [of] each 3 floor and own the space or class amount to 24 space, consisted of [by] 16 space [in] floor 2 and 3 used to process the education and study by sip [is] morning and sip day and also the rest danced 1 used for the space of unit work, except consisted of related/relevant unit building 3 floor and own total 6 space.

In its bearing with the this final duty research, that is in the case of computer network exist in environment of PTJ writer centre the research computer network exist in environment SMK 2 Triple "J" as education institute which blaze the way and develop the information technology and communications, what its management entrusted to Program of Membership of Technique of Computer and Network (TKJ) by the name of " TKJ Center" as center of training, education and enable of information technology and communications.

In the early stand up SMK 2 Triple "J" (2003) each; every existing computer not yet been thought to earn each other in circuit become a computer network because still in settlement phase and not yet too much requirement of data access usher the computer, and specially Lab. TKJ SMK 2 Triple " J" (TKJCenter) in the beginning computer network made only simply for the media of practice which can be unloaded a tide, and newly in the year 2005 made a Laboratory for the network of computer (Wired LAN) as medium practice [of] patent and connection internet speedy

by unlimited (2006) as much 10 unit of computer personal (PC), also this Wired LAN following by other; dissimilar unit like Lab. KKPI And Library and also following by unit exist in secretariat SMK 2 Triple " J".

Network of LAN cable (Wired LAN) what is planned will be developed with the network extension by Wireless LAN for the free of internet hotspot.

Concept of Scheme Wi-Fi

To get the maximal result and mount the loss which is a few/little and also mount the better security, hence in designing a[n computer network require to be paid attention to a minimum step which must be [done/conducted] that is among other things identify the requirement beforehand.

Very important step and crucial in identifying requirement of scheme of computer network organization or company usually before develop; building computer network beforehand [do/conduct] the audit, for example with the method COBIT (Control Objectives for Information and related Technology).

In this time have become a[n compulsion or law obliged to its, a big company or organization to use a good information technology as support or decision [do/conduct] the step make an audit of before applying information technology.

Some important factor paid attention to in identifying requirement, is :

a. Service type to be given by network
b. Scalability that is how big computer network to be made
c. Expandable, whether/what network earn the expand Open-ended
d. condition of Column and building
e. Transmission medium to be used, whether/what using cable or wireless
f. How much/many bandwidth given or will be used
g. Used topology? Protocol to be wearied the
h. Hardware availability, election of other; dissimilar server peripheral or like hub, switch, and router
i. Network software as platform
j. Manageability And system monitoring
k. Security / security
l. cost allocation of equipments Levying
m. Human resource as organizer

Implementation of Network Wi-Fi

For the implementation of can be technological wireless network (Wi-Fi), beforehand have to be comprehended about its base architecture, as have been explained basis for theory CHAPTER II and as according to planning which have been outlined in CHAPTER III which practically very depended field (environment of Triple “J”) and very potential efficacy will technological implementation. The Wi-Fi, especially strength signal and apart the reach (hotspot area) especially in accessing free internet hotspot

Wi-Fi (or Wi-Fi, Wifi, wi-fi, wifi) representing abbreviation of Wireless Fidelity, owning congeniality that is a group of standard used for the Network Of Local Wireless (Wireless Local of Area Network, WLAN) constituted specification of The Institute of Electrical and Electronics Engineer (IEEE) 802.11. Its function connects the network in one local area by wireless. Initially Wi-Fi used for the use of peripheral of wireless and local area network (LAN), but in this time more amount used to access the internet. This matter enables somebody with the computer, with the wireless card or digital personal of assistant (PDA) to in circuit by internet by using dot access the (hotspot) closest.

Architecture 802.11 LAN loop like the architecture sellular where about this system assorted to become some cell Every cell (so-called by Basic Service Set or BSS) controlled by Base Station (so-called by Access Point Or habit shortened AP).

There are 2 type BSS, that is:

1. Independent BSS (IBSS), that is system BSS if Wireless Station (WS) not connected to use the AP.
2. Infrastructure BSS, that is system BSS [of] if there are connective AP WS

Although WLAN can be in the form of the single cell, with a AP, most installation WLAN consisted of some cell, where about AP in circuit [through/ passing] a backbone (referred by Distribution System Or DS). This Backbone usually in the form of Ethernet and in a few cases also can be in the form of the wireless. Network WLAN which have interconetion intact, inclusive of with the different cell, entire/all AP and DS viewed as [by] one network 802.11 for layer above and this network referred by Extended Service Set (ESS).

Method Access the Network Wi-Fi

Method to access the conection to wireless network (Wi-Fi) can be conducted by 2 way of connecting to usher the PC with the system Wi-Fi that is ad hoc and infrastructure. Second way of this own the advantage and weakness of each as according to condition faced the moment [do/conduct] the installation of network wireless according to requirement.

1. System Ad hoc is system of peer to peer; in meaning one computer interfaced to one computer with recognizing each other SSID. If / when depicted easier to possible conceive the system of direct connection from one computer to one other computer by using twist pair cable without peripheral HUB.

Become there are two computers with the peripheral Wi-Fi earn direct correlate without appliance so-called access point mode. System ad hoc [shall] no longer recognize the system central (what usually functioned Access Point). System Ad hoc only need one computer fruit owning name SSID or as simple as name a network a card / computer

Earn also use MAC address with the system BSSID (Basic Service Set the IDENTIFIER - way of this is not [common/ public] used), to recognize a computer name directly. MAC Address generally have been given a special number or sign separate the than each card or peripheral network inclusive of network wireless. System Ad hoc profit for the usage of whereas for example [relation/link] network [among/between] two computer although about there are a appliance of Access Point which work.

SSID name a network card or USB card or PCI card or Router Wireless. SSID only a name to give the sign [of] where name a peripheral reside in the BSSID name of[is differ from SSID, SSID given by wearer for example 'antonetwork' computer which being used and made other computer name 'apanetwork'. While BSSID use the bases of MAC address. If / when a connection wireless wish the interaction, both have to use the setup ad hoc. If / When around column there are peripheral of Access Point, require to be reminded to alter the frequency band in order not to each other bring suit the strength signal which shine in a column.

2. Infrastructure system require a special peripheral or can be functioned as Access Point [through/ passing] software if/when using type of wireless network with the peripheral of PCI card. Look like HUB Network uniting a network but in peripheral of Access Point designate a central network by giving signal ([doing/conducting] broadcast) radio to be accepted by other; dissimilar computer. To depict the connection infrastructure by Access Minimum Point a network of wireless network own one dot a place where other; dissimilar computer searching / accepting accessible signal into network [so that/ to be] interaction. System of Access Point (This AP) at most used because each; every computer which wish in circuit into network earn easily hear the transmission from the Access Point. This Access Point give the sign whether/what somewhere down the network Wi-Fi and continually its name transmission (SSID) and acceptable by other; dissimilar computer to be recognized. The differences by HUB network cable, HUB use the cable but not own the name (SSID). While Access Point not use of cable network but have to own a name that is name for the SSID OF.

As for Advantage this Infrastructure System for Example:

a. For the system of AP in serving a lot of easier PC of courses its arrangement. Client computer can know that a space there a hardware or computer transmitting accessible signal Access Point so that into a network
b. Second advantage if/when using special hardware, hence not needed a PC walk 24 clock to serve the network. A lot of hardware Access Point which can be interfaced to a HUB or a network LAN. And accessible wearer Wi-Fi Computer into a network
c. System Security model AP better guarantied. For the future of peacemaker hardware Access Point own some future like [doing/conducting] block IP, limiting wearer port and other.

Conclusion

From description result which have been studied final duty with the title "Analyses the Scheme and Implementation of Free Internet Hotspot Use the Technology Wi-Fi environment of education Triple " J" this, inferential hence as follows :

1. Technological exploiting Wi-Fi (wireless network) or WLAN serve the purpose of extension from network LAN cable there.
2. Network WLAN use the radio wave (Radio Frequency, RF) or infrared (IR) to [do/conduct] the communications usher the peripheral of computer network
3. Especial excess from network wireless mobility and its free peripheral from complication unfold the cable
4. In sapience WLAN the existence of interference radio by weather, peripheral wireless other; dissimilar, barrier brick up the, building, or even high big tree
5. location of Access point have to be reckoned better performs and reach signal become maximal
6. With the existence of WLAN as technological implementation Wi-Fi environment of PTJ, giving amenity to user to in circuit to network and access the internet without having to use the cable easily and modestly.