Wi-Fi APPLICATIONS IN LIBRARIES AND MONITORING

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Abstract

Wireless Fidelity (Wi-Fi) is a set of product compatibility standards for wireless local area network based on the IEEE 802.11 specifications. Wi-Fi was intended to be used for mobile devices, Local Area Networks and internet access through Access Points. The importance of communication of information and the technologies required for are stated. The importance of Wi-Fi technology and its application in libraries are stated. If wi-fi broke the shackles of cable networking, wi-max took it a step ahead. Wi-max could just be the most significant technology todate, in making wireless access ubiquitous. 4G will enable wireless subscribers to view high-definition television programming through wireless broadband connections. Wi-fi applications in libraries is like any other implementation, the vital aspect to a successful wireless implementation is also good planning. The technicalities of Wi-Fi and problems are discussed. Suitable solutions to over come these problems are given

KEYWORDS:

Radio waves,

Frequencies,

Wireless Fidelity(Wi-Fi),

Access Points

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INTRODUCTION

Librarians need to see themselves and their libraries as providing bridges to literature of the past and gateways to contemporary information. To meet this situation the Library and Informational Science professionals need to establish partnerships, coalitions and communications like technological, personal and organisation to get maximum satisfaction from users, an important feature in the twenty–first century. It is possible by application of latest facilities available in information technology, particularly information processing and handling. Information Technology has created a sense of urgency and has created new possibilities for the development of new products and delivery of services. The area of services is experiencing tremendous changes at the user level as well as technology level. The Impact of technology in communication processes has challenged the basic assumptions about organisation structure, working relationships, etc.,

Library and library professionals have been passing through a difficult phase due to rising apprehensions about their survival in the context of Information Technology and Digitisation. These issues have a direct impact on the identity, status and esteem of the profession. Library Networking and digitisation may be considered a step in that direction if at all the profession is willing to hold and up keep its identity, status and esteem. Wi-Fi is facility, which brings considerable changes in communication o information.

WI-FI(*WIRELESS FIDELITY) AND LIBRAY AND INFORMATION CENTERS:*

Wi-Fi applications in libraries are like any other implementation, the vital aspect to a successful wireless implementation is also good planning. The librarian's role in the planning is key area and properly planned wireless network will give you the returns you are looking for. The wireless technology has paved our lives – mobile phones, cordless phones, infrared remote control devices are just some of the examples of the wireless devices we use. But before that you need to know why you want a wireless network in your library institutions. Who need this wireless access and what for? Is it needed in the entire library or at selective parts in a building. Implementing even the most complete wireless networks can be easy, if you use the right tools and have done your homework well.

Having worked out the needs, you need to start gathering data about your network. Find out the number and frequency of users who are going to access the wireless network. The wireless access points you need depend upon the user density. Greater under of users would mean more wireless access points. This of course, has to be done in conjunction with two other things – Band with and coverage. The bandwidth again can be raised by the user application usage. Widespread use of wireless connectivity would otherwise never have been possible. The demand for unrestricted mobile communication is the driving force behind the rapid development of technologies such as Bluetooth, WLAN, Home RF and other new technologies with resplendent manes.

When we talk about WLAN or Wi Fi ISM. "ISM" stands for 'Industrial, Scientific and Medical, which means radio services in these fields. The ISM bands can be used without a hence, and they are subject to relatively little regulation. The only restrictions relate to the maximum transmitted power and the bandwidth, which must be kept within certain limits. One of the major reasons for the growth of the wireless networking market in India has been the government is deregulation of the frequencies covered by the 802.11b standard. Since then, companies no longer need to obtain a license for the indoor use of compliant equipment. The 802.11g standard has also been finalised, upping wireless connectivity speeds to 54 Mbps from 11.

WI – FI *(WIRELESS FIDELITY)*

The most common Wireless Technology is called Wi–Fi, Which means '*Wireless Fidelity'*. This is actually a combination of different protocols that use the IEEE 802.11 (Institute of Electrical and Electronics Engineers) specification standard. The Wi - Fi is an option on most computing devices, including notebooks, cell phone, etc.. The growth of Wi – Fi will be due to enterprise demand for mobile connectivity and the technology's ability to affect business process and dissemination of information. The biggest trends in Wi – Fi have been its increased penetration and coverage.

WI-FI (*WIRELESS FIDELITY)*AND ITS APPLICATION*:*

The wireless LAN adapter can be made to fit on a personal computer memory card industry association (PCMCIA) and for a laptop. Different specifications of Wi-Fi are IEEE 802.11 includes 802.11b, 802.11a, 802.11g etc. Wi – Fi is generally meant to refer any type of 802.11 network whether it is 802.11b, 802.11g, etc., Wi – Fi is rapidly gaining acceptance in many institutions as alternative to a wired LAN.

All the different wireless specifications use Ethernet protocol CSMA / CA technology. Instead Wi – Fi (802.11b) uses radio waves operating at 2.4 GHz offering a data rate of 11maps. Wi – Fi is increasingly gaining acceptance in India market. This technology has better scope in India because it is an inexpensive technology that's globally deployed and thus has many takers. Corporate, adopting Wi – Fi.

Managing and Monitoring the Wi Fi Network:

Library professionals must know some of the technologies and there are always a million Do's and Don t' s for the situations they can't seen to get themselves out of, or questions they have been dying to ask; wireless networks and devices are no different. Once they have planned and deployed the Wi Fi network, the next part is managing, monitoring and troubleshooting the entire Wi – Fi network from one single place. It sounds difficult, but not impossible. These days wi -fi management software that allows you to manage and monitor the wi-fi – networks from a single console. Otherwise, you have to remember each wi-fi access points IP address and need to manage and configure them from their individual web-based interface.

An Access Point (AP) is a wireless server is also known as a base station, that connects clients to an internal network. AP s are wireless LAN / WAN transceivers that act as a center point of an all – wireless network or as a connection point between wireless and wired network. The number of wireless access points you use, depends upon the user density. Higher number of users would mean more wireless access points. This, of course, has to be done in connection with two other things they are bandwidth and coverage. The application usage will decide the required bandwidth and distances are very important in wireless network. Unlike a wired network, here the

library environment will be dealing with sending signals in the air. So, librarian must ensure that the wireless signals don't leak out of the library building. The wrong connection could extend the wireless network beyond the physical perimeter of the library and this will not allow optimum coverage inside your physical perimeter. Secondly, librarian have to keep in mind that throughput on a wireless network reduces with distance.

Wi-Fi Software:

Wi-fi – management software is the key element for diagnosing the entire network, so it becomes extremely important to choose the right software. Some good software supports most of the popular wi-fi access points and automatically searches the entire network for them. It identifies the connected network devices like switches, router and access points and organizes them according to their type. Once the setup is ready, give some time to the system, so that it can scan deeply into your network and identify the devices correctly. All wi-fi Access Points that the software doesn't recognize are placed under the 'unknown category' and we need to identify the IPs of these devices and put them into the right category.

IMPORTANT CLIENT ALARMS AND TROUBLE MANAGEMENT:

Whatever happens on the network, it gets logged in as a network event. If the event symbolizes a fault or failure in the wi-fi device, an alarm is raised. In case the access point is found to be using default SSID, then an alarm with message "access point uses default SSID" will be generated. Make sure the SSIDs are exactly the same, as SSIDs are case sensitive as well.

Make sure the access point is configured properly. In some cases there may be a checkbox that says something like *enable access point,* which needs to be checked before the access point becomes accessible. Make sure all devices are set to use the same wi-fi channel If you have turned on the access list, make sure that the clients IP addresses and MAC addresses match those in the access points list.

WI-FI PROBLEMS AND SOLUTIONS:

At times multiple network events are logged in for the same network breakdown. In such cases instead of generating multiple alarms, wi-fi software smartly associates the alarms based on the root cause and shoots one meaningful alarm to the IT administrator. Moreover the occurrence of a network failure can be notified to the IT administrator through an auto-generated e-mail or some special sound.

If you are having signal strength problems, consider getting a better antenna-the default 4 dbi antenna can be upgraded to as much as 24 dbi. You could also consider getting a directional antenna, which concentrate the signal in one direction. Update the operating system on the clients. Windows XP SP2, for example, comes with better wi-fi support and inbuilt support for WPA.

Change the position of the access point's antenna and try to get a better signal. Check for disturbances caused by other devices such as Microwaves or cordless phones that work on the 2.4GHz frequency.

And if any critical alarm is found unattended for a considerable period of time then it can be escalated to other IT – support engineer or any other professional be called to attend.

CONCLUSION

When undertaking any major service initiative or materials purchase, libraries must carefully consider their reader needs preferences and expected use of the service or material. Our world is shrinking when you consider the kind of reach Information Technology offers us today. From wireless sensors to 4G mobile communications, data can be transferred and exchanged on any device. And, the best part is that the wireless devices can talk to each other. So, the libraries have real-time data, wherever and whenever users need it.

Implementing even the most complex wireless networks can be interesting and fun if librarian use the right tools and have done proper homework/planning. There are some hitches with wi-fi that many feel are temporary, such as cost and reach. In a wired network, users can gain throughput of anything from 100 mbps to Gigabit speeds vis-à-vis 11or 54 mbps in the case of wi-fi.. Another most important point to consider is a wired network is much more secure than a wireless one. Till such technology differences exist, wired networks will remain the default choice, while wi-fi will be a choice opted for more out of convenience than anything else. Moreover, there are some features, which a wired connection cannot provide, such as mobility.

If wi-fi broke the shackles of cable networking, wi-Max took it a step ahead. Wi-Max could just be the most significant technology, to date, in making wireless access ubiquitous. 4G will enable wireless subscribers to view high-definition television programming through wireless broadband connections. Internet-based multi-channel video on demand will become a reality. “The day is not far off when your

washing machine will send an e-mail to your cell phone informing you about the wash program it's going to use. But since you are driving and can't read the e-mail, your car audio will connect to your cell phone, using Bluetooth, and read out the e-mail. You can then dictate your e-mail in reply, just in case you want to modify the program. And when you reach home, you'll find your laundry all done, while you were away. All thanks to technology."

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