A Review Paper on Wireless Network

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Abstract— The arrival of wireless technology has reduced the human efforts for accessing data at various locations by replacing wired infrastructure with wireless infrastructure and also providing access to devices having mobility.Since wireless devices need to be small and bandwidth constrained, some of the key challenges in wireless networks are Signal fading, mobility, data rate enhancements, minimizing size and cost, user security and (Quality of service) QoS

Keywords— Wireless Local Area Networks (WLANs), IEEE 802.11.

I. INTRODUCTION:- The explosive growth in wireless networks over the last few years resembles the rapid growth of the internet within the last decade. Wireless communication continues to enjoy exponential growth in the cellular telephony, wireless internet and wireless home networking arenas. With advent of Wireless LAN (WLAN) technology, computer networks could achieve connectivity with a useable amount of bandwidth without being networked via a wall socket. New generations of handheld devices allowed users access to stored data even when they travel. Users could set their laptops down anywhere and instantly be granted access to all networking resources. This was, and is, the vision of wireless networks, and what they are capable of delivering. Today, while wireless networks [1] have seen widespread adoption in the home user markets, widely reported and easily exploited holes in the standard security system have stunted wireless deployment rate in enterprise environments. The distinguishing feature of wireless networks is that packets (segments) are transmitted with the presence of wireless links. A device can send messages in a wireless network via the wireless medium, air, to another device provided that the receiver is within the transmission range of the sender. This adds flexibility to how a wireless network is formed and structured. Besides, it supports device mobility.

2.Infrastructured Networks :-

The infrastructure operating mode (Fig 1) is a network with an Access Point (AP), in which all STAs must be associatedwith an AP to access the network. STAs communicate with each other through the AP. An infrastructured one with planned, permanent network device installations. It can be set up with a fixed topology, to which a wireless host can connect via a fixed point, known as a base station or an access point. Second, it is more difficult to control or coordinate proper operation of an ad hoc network, since each wireless host may have its own algorithms to perform activities such as time synchronization, power management, and packet scheduling. In an infra structured network, these algorithms are often implemented in and thus harmonized by the base stations or access points.

3.RESEARCH CHALLENGES OF WIRELESS NETWORKS :-

Since wireless devices need to be small and wireless networks are bandwidth limited, some of the key challenges in wireless networks are data rate enhancements, minimizing size, cost, low power networking, user security and Quality of Service (QoS).

A.Signal Fading:-

Unlike wired media, signals transmitted over a wireless medium may be distorted or weakened because they are propagated over an open, unprotected, and ever changing medium with irregular boundary. Besides, the same signal may disperse and travel on different paths due to reflection, diffraction, and scattering caused by obstacles before it arrives at the receiver

B.Mobility :-

Without the constraints imposed by the wired connections among devices, all devices in a wireless network are free to move. To support mobility, an ongoing connection should be kept alive as a user roams around. In an infrastructured network, a handoff occurs when a mobile host moves from the coverage of a base station or access point to that of another one.

C.Power and Energy :-

A mobile device is generally handy, small in size, and dedicated to perform a certain set of functions; its power source may not be able to deliver power as much as the one installed in a fixed device. When a device is allowed to move freely, it would generally be hard to receive a continuous supply of power.

D.Data Rate:-

Improving the current data rates to support future high speed applications is essential, especially, if multimedia service are to be provided. Data rate is a function of various factors such as the data compression algorithm, interference mitigation through error-resilient coding, power control.

E.Security :-

Security is a big concern in wireless networking, especially in m-commerce and e-commerce applications [8]. Mobility of users increases the security concerns in a wireless network. Current wireless networks employ authentication and data encryption techniques on the air interface to provide security to its users.

F.(Quality of Service):-

QoS Quality of Service is a measure of network performance that reflects the network's transmission quality and service availability. For each flow of network traffic, QoS can be characterized by four parameters: Reliability, Delay, Jitter, and Bandwidth. There are several

important issues related to QoS in wireless networks that do not get addressed in the wireline environment. These issues arise because wireless networks are inherently different from wireline networks. Several important wireless network characteristics include handoff, dynamic connections, and actuating transport QoS [11].The traffic QoS parameters (throughput, delay and loss rate) are not sufficient in a wireless environment.

4.CONCLUSION:-

This paper identifies and describes the various research issues and challenges available in the wireless domain. We fist presented an overview of the taxonomy of wireless network. In conclusion, wireless networks are rapidly becoming popular, and user demand for useful wireless applications is increasing. By successfully addressing the issues presented in this paper, end users will not be disappointed.

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