



## SECURED DATA TRANSMISSION IN MOBILE ADHOC NETWORKS

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**Abstract :** Ad-hoc networks play a vital role in the evolution of wireless networks. Ad-hoc networks are familiar for its wireless link. But it does not require any central control. Ad-hoc used for analyzing radio propagation environment. The mobile Ad-hoc network architecture makes use of entire networking layer from physical layer to application layer. Advantages of Ad-hoc system includes robustness, flexibility, mobility trust is an important factor to be considered in Ad-hoc networks. In Ad-hoc network there exists a communication from source to destination with the help of nodes present between source and destination. Data can be transmitted in a secured way in any Ad-hoc networks. In Ad-hoc network there exists a communication from source to destination with the help of nodes present between source and destination. Data can be transmitted in a secured way in any Ad-hoc network. But it depends on bandwidth, system size, power from battery. In Ad-hoc network a node have a problem in communicating other node, this is due to dynamic changing topology. Ad-hoc have many drawbacks also the problems are bandwidth optimization, power control, transmission quality self routing, configuration advertising and discovery.

**Keywords :** Ad-hoc Network, Central Control, Denial of Service, Routing.

### 1. INTRODUCTION

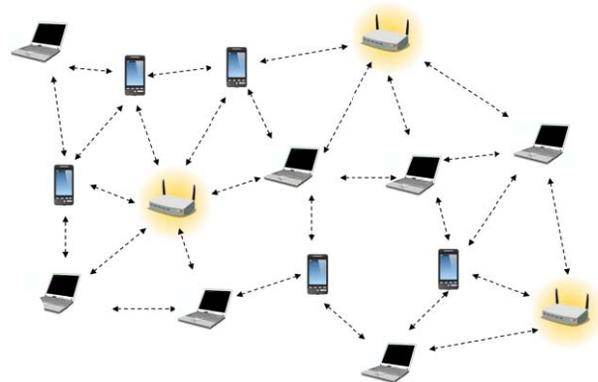
The Ad-hoc networks play an important role in the evolution of wireless network. Ad-hoc networks are self-organising multi hop wireless networks. All the nodes work for transferring a particular information; it does not have any base-stations or a router to control. Nodes called as radio transmitters and receivers. [1] [2]

Ad-hoc Networking is just like a small radio network. Small radio uses small communication to a radio channel than a wired communication. LAN-Local area network will also work based on this principle. A LAN will link the several devices and also provide a security from unknown users [3] [4]. Single Hop wireless make use of cellular phones. Multiple hop wireless will have problems like routing issues, access control is medium wireless communication faces an important issue is interference between the adjacent or neighbourhood channels or nodes. One of the functions of Ad-hoc is it will work irrespective of location. The protocols commonly used for network configuration are DHCP, DNS, MADLAP, LDAP are not suitable for mobile Ad-hoc networks; it requires configuration and maintenance by a qualified staff. It uses a particular frequency in many of the applications. It is not necessary to learn network administration skills, network requires protocols that do not require user configuration and administration.

### 2. MOBILE AD-HOC NETWORKS

Mobile Ad-hoc Networks (MANET) is a standard routing protocol in Ad-hoc network. IP internetworking plays a role in wireless communication and has challenges in network protocol application [5]. Ad-hoc network supports indirectly internet; it has the characteristic. Features like dynamic topology, bandwidth factor, energy constraint factors, security is less. In traditional methods we have two

level hierarchy routing architecture. Security assurance is less in Ad-hoc systems especially at the time of attack and crises [7]. Denial of service is a cyber attack; it makes the network source temporarily unavailable to the users. The network security is achieved by cryptography; it is difficult to handle the cryptography keys.



#### 2.1 Properties of Mobile Ad-hoc Network with Internet Routing

- Distributed Operation
- Loop Freedom
- Demand Based operation
- Proactive Operation
- Security
- Sleep period
- Unidirectional unit

#### 2.2 Proactive Protocol

It is just like a traditional method of IP routing protocol. It is similar method of routing without any connection [10]. In this method a packet of information is

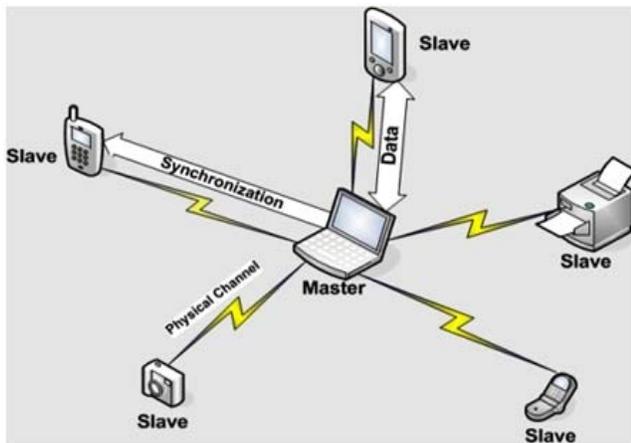
transferred from a source to destination at any time every source node is having the exact packet of information. When there is a change in the network means mobility happens in the network means affects the system [8]. It is not suitable for more number of nodes. Traffic is also a problem in Ad-hoc.

### 2.3 Reactive Protocol

This method is modern method and in this method when there is a request from destination for a particular set of informations, source sends the packets depends upon the requirement. The combination of both proactive and reactive approach is said as Hybrid approach [9]. In this hybrid advantages of both the systems are effectively given and drawbacks are overcomes. It requires good knowledge and balance between proactive and reactive protocol. It also requires control over the operating modes [7] [10].

## 3. BLUETOOTH

Bluetooth is a device used for wireless data transmission. It exchanges the datas with a wavelength of frequency of 2.4 to 2.485Ghz over a short distance. The standard Bluetooth operates in the band of 2.49Hz. The width of the band may differ slightly. The range of Bandwidth is 2.400 to 2.4835Mhz for united states and Europe. The bandwidth in japan are 2.471 to 2.497Mhz. The connection will be effective within 10m, using amplifiers it is possible to bring upto 100m. But it has some interferences [6].



### 3.1 Synchronous connection

Synchronous connection oriented is one of the two possible bluetooth data link. It is symmetric, point to point link between the master device and a specific slave.

## 4. ADVANTAGES

- This system is more flexible to handle
- This system has better mobility
- This system can be turn up and turn down in a very short time
- This system is more economical
- This system has robust network

- The nodes in this system will work independently because it does not depend on hardware and software
- This system works without any central networks.

## 5. DRAWBACKS

- This system has very less physical securities due to wireless transmission
- If there exists any change in the topology means it is very hard to predict
- Due to its wireless links it has lower capacity of transmission than wired network.
- For any design of system energy saving is an important criteria. The functions offered by a node will depend upon the power.
- The network boundaries designed for this system are poor.
- There exists some traffic between nodes.
- Some terminals are hidden, so some packet lossed.
- Device will have heterogeneity

## 6. APPLICATIONS

- Ad-hoc network is a wireless network due to this it is very less in weight.
- Due to its lightweight it is fancy and can be used at anytime due to communicating infrastructure.
- Generally Ad-hoc networks are used in business and corporate sector for its efficiency.
- Generally used Ad-hoc networks are
  - a. Mobile – Adhoc Network (MANET)
  - b. Vehicular – Adhoc Network (VANET)
  - c. Wireless sensors (WSN)
- In Disaster Management Ad-hoc are used
- Military Applications : Ad-hoc Networks plays a vital role in one of our defense department. Informations are transferred from headquarters to entire soldiers by means of Ad-hoc network[8].
- In any conference or in any meetings information from the source is shared to the destination i.e., participants by means of Ad-hoc.
- It has its real time applications people sharing or transferring information through a personal device called personal digital assistant. This will depend upon the operation of person.
- Intraction between people in social media, meme tag are some of the examples.
- It also extend its applications in natural disaster, search and rescue missions.

## 7. CONCLUSION

Several researches have been made by the eminent scientists to transfer the data with minimum loss and reliable communication by providing small delay and small delay variability between the nodes.

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