Impact of Mobile Ad Hoc Networks in e-Governance

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Abstract: In this Paper we discuss the Services of Mobile Ad Hoc Networks and security & Challenges in different areas for e- Governance like Defense, Crisis, rural and emergency areas. We used the information and communication Technology to solve the problem in these networks. This has no networking & communication to the other person. It has used the mobile Ad Hoc networking. A Mobile Ad Hoc network also is used to provide crisis management services applications such as in disaster recovery. Where the entire communication infrastructure is destroyed and resorting communication quickly is crucial. So we solved & study these issues in this paper and phase the all problems.
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Introduction:

During to present year's mobile devices has become a growth of explosive devices, which mainly include laptops, personal digital assistants (PDAs). An Ad Hoc networks is a collection of wireless mobile nodes dynamically forming a temporary network without the use of existing network infrastructure or access point. and digital devices and handheld digital devices, has impelled a revolutionary change in the computing world: computing will not merely rely on the capability provided by the personal computers, and the concept of ubiquitous computing emerges and becomes one of the research hotspots in the computer science society.[1] In the ubiquitous computing environment, individual users utilize, at the same time, several electronic platforms through which they can access all the required information whenever and wherever they may be.[2] A new framework for ad hoc network applications is under development at the University of Lausanne in Switzerland. This thin layer, based on existing standards, will help developers build applications that include three features: mobility, peer-to-peer operation and collocation. As the framework is independent of the underlying network technology, the proposed solution will be adaptable to the emergence of the next-generation ad hoc network. Figure 1 shown that the nodes can be of different type with different computation, storage and communicational capabilities.
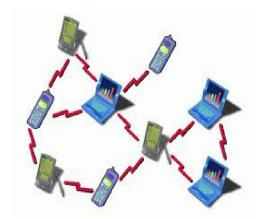

Figure 1 (Ad Hoc Networks can be heterogeneous)

In Ad hoc Networks there is no access point each & every node operate as a router. These types of networks are used in situation where temporary network connectivity is needed.

E-governance: E-Governance is a process of transferring the data in the way Governments work electronically; transfer the information through Information and communication Technology. It is communicate the information to one person to another person, engage citizens and it is deliver the services to external and internal clients from server for the benefit of both government and the clients that they serve the services. Governments harnesses information and communication technologies such as Mobile Ad Hoc

Networks (MANET), Wide Area Networks (WAN), Internet, World Wide Web, and mobile Technology reach to citizens to citizens, business to business, consumer to consumer and other arms of the government to: Improve delivery of services to citizens, businesses and employees. [4]

Features of Mobile Ad Hoc Networks: Mobile Ad Hoc Networks Features are as follows-

1. **Autonomous Terminal:** In MANET, each mobile terminal is an autonomous node, which may function as both a host and a router. In other, since there is no background network words, besides the basic processing ability as a host, the mobile nodes can also perform Switching functions as a router.[5]
2. **Distributed Operation:** In distributed operation the control and management networks are distributed. For the central control of the network operations, the control and management of the network is distributed among the terminals.[5]
3. **MultiHop Routing**: Basic types of ad hoc routing algorithms can be single-hop and multihop, based on different link layer attributes and routing protocols [5].
4. **Dynamic Network Topology**: Since the nodes are mobile and the network topology may change rapidly and unpredictably and the connectivity among the terminals may vary with time. Mobile Ad Hoc Networks should adapt to the traffic and propagation conditions as well as the mobility patterns of the mobile network nodes [5].
5. **Light weight Terminals:** In most cases, the MANET nodes are mobile devices with less CPU processing capability, small memory size, and low power storage. Such devices need optimized algorithms and mechanisms that implement the computing and communicating function [5]

Applications of Mobile Ad Hoc Networks:
1. Local Level: In Local area mobile Ad hoc networks can autonomously link an instant and temporary network using computers to spread and share information to other networks. Another appropriate local level application might be in home networks where devices can communicate directly to exchange information. Similarly in other environments like sports stadium, boat and small aircraft, mobile ad hoc communications will have many applications.[5][6]

2. Crisis Areas: In crisis areas Mobile Ad hoc networks can be used in emergency/rescue operations for disaster relief efforts, like in fire, or earthquake. In other rescue operation mobile ad hoc networks very important in every crisis areas.

Challenges of Mobile Ad Hoc Networks:
1. Routing: Routing protocols in an Ad Hoc Networks need to deal with the mobility of nodes and constraint in power and bandwidth.
2. Security and Reliability: In addition to the common vulnerabilities of wireless connection, an ad hoc network has its particular security problems due to e.g. nasty neighbor relaying packets. The feature of distributed operation requires different schemes of authentication and key management. Further, wireless link characteristics introduce also reliability problems, because of the limited wireless transmission range, the broadcast nature of the wireless medium, mobility-induced packet losses, and data transmission errors.
3. Internetworking: In addition to the communication within an ad hoc network, internet between Mobile Ad Hoc Networks and fixed networks is often expected in many cases. The coexistence of routing protocols in such a mobile device is a challenge for the harmonious mobility management.[9][11]
4. Power consumption: For most of the light-weight mobile terminals, the communication-related functions should be optimized for lean power consumption. Conservation of power and power-aware routing must be taken into consideration.[9]

NETWORK SECURITY:

Network security is the important part of the journal life extends security, but there are other things to consider as well. Computer security is defined as follows:

"Broadly speaking, security is keeping anyone from doing things you do not want them to do to, with, or from your computers or any peripherals- -William R. Cheswick."

Network security is then computer security plus secures communication between the computers or other devices. Not all nodes are computers in an Ad Hoc network, thus nodes cannot be assumed to implement the security services normally existent in computers' operating systems. That is why network security should be defined as: "Making sure that the nodes enforce a proper computer

security and then securing the communication between them". [11]

Advantages of Mobile Ad Hoc Networks:

The following are the advantages of Mobile Ad Hoc Networks:

• They provide access to information and communications services of geographic position.
• These networks can be set up at any place and any time.

Disadvantages of Mobile Ad Hoc Networks:

Some of the disadvantages of Mobile Ad Hoc Networks are:

• Limited resources. Limited physical security.
• Volatile network topology makes it hard to detect malicious nodes.

Conclusion:

Mobile Ad Hoc networks need security and implementation in different areas where security are rare. Mobile Ad hoc networks can be implemented using various techniques like Bluetooth. There is no approach fitting all networks, because the nodes can be any devices. The computer security in the nodes depends on the switches and networks node, and no assumptions on security can be made. In this paper the network security issues has not discussed and this issues discussing in next papers.

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