

Role of MANET in Disaster Management

O.P. Vyas , M.K.Tiwari , Kavita Das

dropvyas@gmail.com
mtiwari91@rediffmail.com
myidkavita@rediffmail.com

School of Studies in Computer Science
Pt. Ravishankar Shukla University, Raipur (C.G.), India-492010

EXTENDED ABSTRACT

Mobile Ad-Hoc Network (MANET) is an emerging technology based on infrastructure less networking. In near future MANET may be expected to fulfill the need of advances in computing and communication technologies specially for the areas where there is lack of infrastructure for networking. MANET is a network of autonomous mobile nodes able to communicate with each other over wireless links without the support of established infrastructure. Disaster is an event or a series of event that causes destruction to life and constructions and developments of a place, small or big, to huge extent. So all the rescue operations in disaster-hit areas are hard task due to acute lack of power supply, communication facilities and food and shelter. So MANET seems an ideal option for managing all communication and decision-making issues for all rescue and emergency management operations in Disaster Management. Routing is the act of moving information across an entire network that plays significant role in performance of any networks. Routing protocols of Mobile Ad-hoc Network need different approaches from existing protocols, since most of the existing protocols were designed to support routing in a network with fixed structure in the same way strategies of routing in the disaster areas requires different type of routing mechanism as disaster operations would be done with heterogeneous conditions. In this paper we have studied prominent reactive protocols AODV, DSR and proactive routing protocol DSDV of MANET to suggest the selection of routing protocols in particular disaster scenarios in order to have optimal performance. It also discussed various techniques and characteristics in context of deploying MANET and various issues and difficulties in order to make them suitable for Disaster Management.

CONCLUSION

This paper is an extensive study of characteristics of MANET and its routing strategies for applicability in disaster management. As the different protocols show varying efficiencies in different scenarios so it is proposed that an 'optimal combination' of more than one protocols will give maximum throughput in heterogeneous scenario of disaster management and rescue control. This study suggests that MANET can play an important role in disaster area management. Many efficient routing protocols, caching system,

securities, simulators have been developed to face the real life problems regarding managing disasters and by being able to simulate a disaster location and usage of advanced technologies, disaster management will become automated with minimum of inefficient usage or loss of effort, time, resources.

FUTURE SCOPE

With so much attention and development in various issues of MANET, disaster management may convert to 'disaster engineering' which will simulate, estimate and plan a disaster situation and set its communication aspect including routing, mobility, energy, resource, people and time parameters to control and manage the communication system in disaster and recover from it. Almost all work of MANET relies on various network simulators, therefore it becomes needful to deploy the simulation scenarios in real life implementations and then evaluate the performance of MANET for a particular situation.

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