

A Cell Biology Inspired Model for Managing Packet Broadcasts in Mobile Ad-hoc Networks

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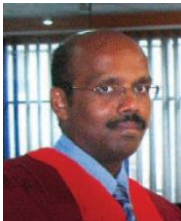
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Abstract—The modern computing paradigm is moving towards personal devices that incorporate wireless networking, mobility, and collaborative applications. The networking paradigm that best matches this scenario is the mobile ad-hoc network (MANET). A common instance of a MANET is the dense MANET that can be expected in any setting where large number of people congregate such as movie theatres, sports stadiums, shopping malls, transportation hubs, lobby of public offices, lecture rooms, etc. The existing packet transmission protocols for MANETs are inefficient for dense MANETs due to packet broadcast storms for stateless protocols and non-availability of anchor nodes for stateful protocols. This paper presents a new packet broadcast model developed based on cell biology and provides simulation results on protocol efficiency. As smart phone devices and collaborative applications proliferate among users, the proposed dense MANET protocol could provide real benefits to Internet enabled users and devices.

Keyword—Mobile ad-hoc networks, Packet broadcasts, Cellular automata.



Sulochana Sooriyaarachchi was born in Anuradhapura, Sri Lanka on the 18th of October 1981. She obtained her BSc Eng. (Hons) in Electrical and Electronics Engineering from the University of Peradeniya, Sri Lanka in 2006. She then joined the Department of Computer Science and Engineering in the University of Moratuwa as a lecturer and obtained her MSc in Computer Science from the same department in 2010. She is currently pursuing her PhD in the University of Moratuwa conducting research in the area of routing and control mechanisms in mobile ad-hoc networks.



Anil Fernando leads the Video Communications group at the University of Surrey, UK. He has been working in video coding and communications since 1998 and has published more than 270 international refereed journal and proceeding papers in this area including a book on video communications. Furthermore, he has published more than 150 international refereed journal and conference papers in multimedia communications. He has contributed to several international (ROMEO, MUSCADE, DIOMEDES, VISNET, etc) projects and currently he is leading an interactive video communications project (ACTION-TV) funded by the European Union on Media communications.



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