Panel Discussion:

Wireless Ad Hoc Networks for Internet Applications: *Real or Hype?*

Panel Organizer & Moderator: 
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Wireless mobile networks and devices are becoming increasingly popular as they provide users access to information and communication anytime and anywhere. Conventional wireless mobile communications are usually supported by a wired fixed infrastructure. A mobile device would use a single-hop wireless radio communication to access a base-station that connects it to the wired infrastructure. In contrast, ad hoc networks do not use any fixed infrastructure. The nodes in an ad hoc network intercommunicate via single-hop and multi-hop paths in a peer-to-peer fashion. Intermediate nodes act as routers between a pair of communicating nodes. Thus the nodes operate both as hosts as well as routers. The nodes in the ad hoc network could be potentially mobile, and so the creation of routing paths is affected by the addition and deletion of nodes. The topology of the network may change randomly, rapidly, and unexpectedly.

Mobile ad hoc networks are useful in many application environments and do not need any infrastructure support. Collaborative computing and communications in smaller areas (buildings, organizations, conferences, etc.) can be set up using the ad hoc networks. Communications in battlefields and disaster recovery areas are examples of application environments where the nodes are highly mobile. Similarly, communications using a network of sensors or using floats over water are other useful applications. Recently, there have been proposals for using ad hoc networks for metropolitan area networks. Multihop wireless routers with directional antennae can be used for facilitating broadband communications. Thus the increasing use of collaborative applications and wireless devices may further add to the needs and usages of ad hoc networks.

During the last few years numerous papers and reports have been published on various issues on mobile ad hoc networks. Prominent and widely studied issues include packet routing, power management, node addressing, fault-tolerance, security, transport layer and media access issues. However, so far, killer applications have not evolved that can exploit or justify the plethora of work already existing in the literature. In this context, it would be worthwhile to discuss if there are potential killer and useful applications of ad hoc networks or is it just a hype? In addition, it is also about time to step back and overview the important research issues and progresses that need to be made to facilitate the potential applications. A forward-looking overview is also essential for formulating the goals of the efforts on wireless ad hoc networks.

To facilitate and instigate the discussions, the panelists will first be requested to provide their personal response to the following questions:

1. What are the potential killer Internet applications for wireless ad hoc networks?
2. What issues and limitations hinder the advances?
3. Is it more of a hype in academia research?
4. What should be the short-term and long-term goals?
5. What are the important issues that need further research?
6. What are some of the futuristic applications?

Following the presentations by the panelists, the floor will be opened up for discussions. A report on this panel will be prepared and will be made available by contacting Professor Mohapatra at prasant@cs.ucdavis.edu.