DIWANS: Workshop on Dependability Issues in Wireless Ad Hoc Networks and Sensor Networks

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Widespread proliferation of wireless RF technology has brought the possibility of infrastructureless networking to the forefront. Infrastructureless networks are often referred to as wireless ad hoc networks and they include sensor networks as an important subclass. Dependability issues such as security, reliability, availability, and quality of service are complicated by the wireless and infrastructureless environment. For example, security mechanisms must deal with the single wireless channel shared by a potentially large number of devices, by the resource limitations of many devices connecting to such networks, and by the lack of trust relationships between participants in an ad hoc environment. Reliability and availability solutions must account for the varying characteristics of a wireless channel, which is subject to interference, fading, and multipath effects, among other problems. The presence of mobile nodes in many of these settings complicates even further the dependability issues. Clearly, these dependability challenges must be met before the full promise of ad hoc and sensor networks can be realized.

To date, no conference or workshop has specifically addressed dependability-related issues for ad hoc and sensor networks. Although there are a number of conferences focused on wireless networking and a growing number dealing with sensor networks, each of these forums typically includes only a few papers on dependability issues. Thus, one of the goals of this workshop is to bring together researchers to focus exclusively on this important topic, to outline its specific and unique research challenges, and to identify some of the most promising candidate solution methods and techniques to address those challenges. A second, and equally important, goal is to promote synergy between the networking and dependability communities on this topic of mutual concern.

Topics of interest to the workshop include, among others:

- Adaptive network protocols
- Network lifetime modeling and evaluation
- Energy conservation techniques
- Dependability techniques for resource-constrained environments
- Distributed algorithms for dependability
- Impact of mobility on dependability
- Data availability and consistency
- Fault-tolerant and/or secure routing
- Asymmetric cryptography for resource-constrained devices
- Countering denial of service and energy-draining attacks
- Establishing trust in ad hoc environments
- Security against physical attacks
- Error-tolerant aggregation in sensor networks
- Handling coverage loss in sensor networks

DIWANS includes invited talks from several prominent researchers in the field, and peer-reviewed papers on a variety of relevant topics. Most important, however, are the interactions among a diverse set of researchers, working at all network layers and interested in a wide range of problems, from the most fundamental to the most applied.