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IEEE Journal on Selected Areas in Communications

DELAY AND DISRUPTION TOLERANT WIRELESS COMMUNICATION

Modern computer communication has been developed for providing continuous end-to-end connectivity. There are, however, communication services that are tolerant to disruptions and delay and do not require or cannot be given continuous connectivity. It is time to consider the unconnected network.

This issue is dedicated to communication over wireless networks with intermittent connectivity due to planned or unexpected disruptions that may result in long delays for the communicating parties. Communication disruptions occur both in infrastructure and ad-hoc wireless networks. In both cases, it is possible that mobile nodes cooperatively forward data for one another through their own movements. The mobility patterns of nodes affect thereby both the speed and reliability of data forwarding. Intermittent communication occurs also in sensor networks due to, e.g., energy-saving sleep cycles, and in deep-space communication and meteor-burst communication. The communication services that may use such intermittent and high-delay connections are characterized by a low degree of interactivity, e.g., broadcasting, messaging, and data collection. Opportunistic strategies for caching and communicating may improve the performance in terms of reduced delay and improved probability of delivery.

This issue of J-SAC is dedicated to technologies, systems designs and analyses that contribute to the development and understanding of delay and disruption tolerant wireless communication systems.

Original contributions, previously unpublished and not currently under review, are solicited in relevant areas including (but not limited to) the following.

- Data encoding for partial and unordered delivery
- User studies of delay and disruption tolerances
- Opportunistic caching and pre-fetching for concealment of service disruptions
- Mobility measurements, modeling and performance analysis
- Uni-, any-, and multicast routing protocols
- Congestion, flow and error control, per-hop and multi-hop solutions
- Security, privacy, authenticity and traceability of communication
- Energy saving strategies and power management
- Applications to personal communication, sensor networks, road-traffic systems and industrial communication

Prospective authors should follow the IEEE J-SAC manuscript format described in the Information for Authors under http://www.jsac.ucsd.edu/. All papers should be submitted through CRP in PDF format, according to the following timetable:

Submission deadline:	**June 1, 2007**
Acceptance Notification:	November 1, 2007
Final Manuscript due:	January 10, 2008
Publication:	2nd quarter 2008

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