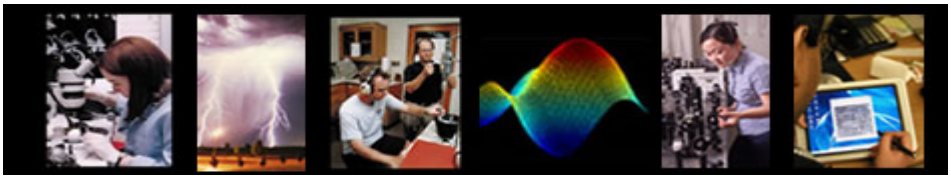
Discovery Park

Cyber Center



LECTURE SERIES

Feb. 7, 2008

2:00 PM

Lawson 3102AB

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Class 2 Opportunistic Networks –A New Paradigm for Specialized Ad Hoc Networks

Opportunistic networks can be divided into class 1- opportunistic networks that use opportunistically only communication resources, and class 2- opportunistic networks, called oppnets in short, that can use opportunistically all kinds of resources – computation, sensing, actuation, storage, including communication capabilities. After introducing oppnets, we discuss basic oppnet ideas and operations, followed by the control flow in oppnets. Next, we present a standard implementation framework for oppnets, named Oppnet Virtual Machine (OVM) and discuss a list of primitives needed for the control center, seed and oppnet helpers and lites; followed by a categorization and description of various oppnet applications and scenarios.

Following this comprehensive discussion of oppnets, we present the design and implementation of a small-scale oppnet experiment, named MicroOppnet. MicroOppnet, originally developed as a proof of concept and is now being extended to serve as a testbed for experimentation and pilot implementations of oppnet architectures and their components. We present control flow of the application with respect to the OVM primitives discussed and presented earlier. Finally, we show some open issues for class 2 opportunistic networks.

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