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Research Topic
Wireless Privacy

Research Problem
How can we encrypt wireless transfers to increase privacy and reduce identifiability?

Problem Statement
Given a wireless device, construct an encryption system that reduces the amount of information one can obtain about the user.

Problem Description
When using a standard encrypted wireless network (e.g., WEP, WPA), the payload is encrypted between transmission and access point, yet there are still pieces of information left that can make you identifiable. The recent and future increase in the use of multiple wireless devices in cars, homes and personal devices allows people to be tracked and profiled more easily. Professor Seshan's research addresses how we can increase privacy and reduce identifiability in the wireless world.

Computer Science Perspective
Computer Science has already addressed similar problems in the GSM phone system with a good amount of success using various encryption methods such as header rotations. The research aims to apply the idea of randomizing lower level communications, which has been successfully applied to wired networks, to wireless space.

Actively Involved Disciplines
Computer Science and Electrical Engineering are the only actively involved disciplines.

Actively Involved Discipline: A discipline from which there is a member involved in the proto-type construction or testing stages of the research process.

Description of Disciplines Involved
Electrical Engineering is providing some of the new technology that is aiding this effort. There is also a fair amount of Public Policy to be dealt with, given that solutions to these problems won't fit in any of the current standards for wireless networks and some of the

proposed methods would involve using bands of the RF spectrum reserved for other communications.

References

General Information about the researcher
http://www.cs.cmu.edu/~srini/
Trustworthy Networks (Joint Project between CMU and University of Washington)
http://www.cs.washington.edu/research/systems/wireless.html

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