Dan's Generals Paper

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Abstract

This will be my abstract!

1 Introduction

Introduction to the area and motivation for the problem(s) you propose to solve. Include a proposed principal hypothesis that the thesis will demonstrate, and a synopsis of the likely contributions of the work.

Questions for committee:

- any expectation of the distribution of section sizes?

2 Related Work

Related work including a short section of foundational work in the area of your thesis, a section on directly relevant work and how your proposed work either leverages that work (e.g., techniques you plan to adopt) or differs from it (e.g., novel contributions), and a description of how your proposed work is distinct from the work being done by your colleagues at UW.

3 Preliminary Work

Preliminary work section that describes the system you have built so far and/or preliminary results you have collected. Describe the strengths and weaknesses of your approach to date, including what it can and cannot do (or in the case of results, what those results show and what are the limitations of your results).

- Effective SNR [2].

- Troubadour [?].

- Power management [1].

- Channel measurement stuff that's cool.

4 Proposed work

Proposed work section that describes the main challenges and innovations that are needed to accomplish the proposed hypothesis, with as much description as possible of how you will tackle each one.

Mechanisms:

- capacity and isolation: operation on multiple channels via, e.g., psm

- flexible topology: multihop communication in wireless link

- responsiveness: mobility detection with CSI

- discovery: capability announcement/broadcast

Capabilities:

- Admission to Wi-Fi network

- Relay service

- Packet Buffer

- Fixed (e.g., same channel, always on)

- Power state

- DNS/DHCP

- Access to Internet

- Media (Video/Audio/Pictures/etc. Source/Sink)

- Input device (M, KB, Touch, Sensors)

Algorithms:

- allocation of devices/links to channels, esp. between bands

- decision to switch relays/etc.

- link rate/latency/etc. estimation: what/how to feed up to applications

- assignment of apps to protocols

5 Methodology and Evaluation

Methodology and evaluation: how do you plan to evaluate whether your hypothesis is correct?

6 Timeline

Provide a sequence and a timeline for how you will stage the work to graduate in a timely fashion.

7   Conclusions and Future Work

Conclusions and future work that will not be covered in the dissertation research.

- one device operating on multiple concurrent channels

- shifting work around to balance power consumption among devices

- security – setting up secure channels between mutually untrusting devices

- multicast in network

- spatial reuse on single channel

- coexistence between multiple home networks

- power control of devices

References

[1] D. Halperin, B. Greenstein, A. Sheth, and D. Wetherall. Demystifying 802.11n power consumption. In *USENIX HotPower*, 2010.

[2] D. Halperin, W. Hu, A. Sheth, and D. Wetherall. Predictable 802.11 packet delivery from wireless channel measurements. In *ACM SIGCOMM*, 2010.