

# Research Methods in computer science

Fall 2013

Lecture 7

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# Agenda

Research Conference Updates

Distributions/Statistics (live Python)

Experiment Design

Feedback from HW3

HW4

HW5 and HW6 preview

# Metric Design Exercise

Project: Instruction system (HCI)

Goal: Make furniture assembly faster

Possible metrics and experiments?

# Metric Survey Exercise

List and define all the metrics used in the ten research papers from HW2.

We will collect them and look at them together in next class.

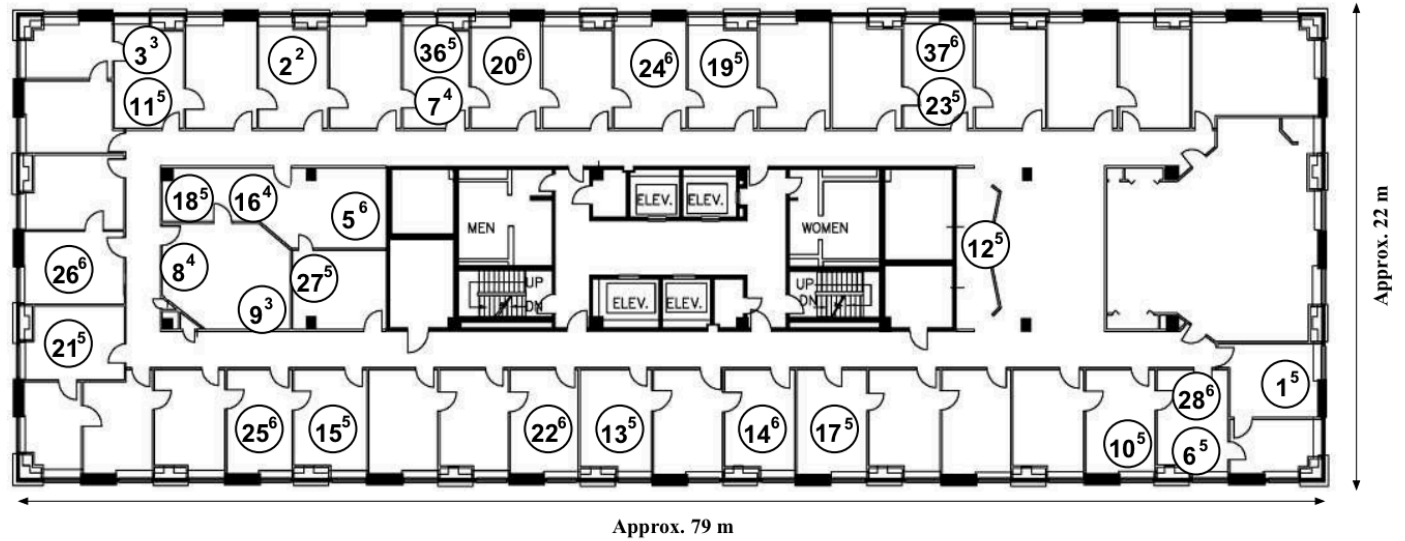
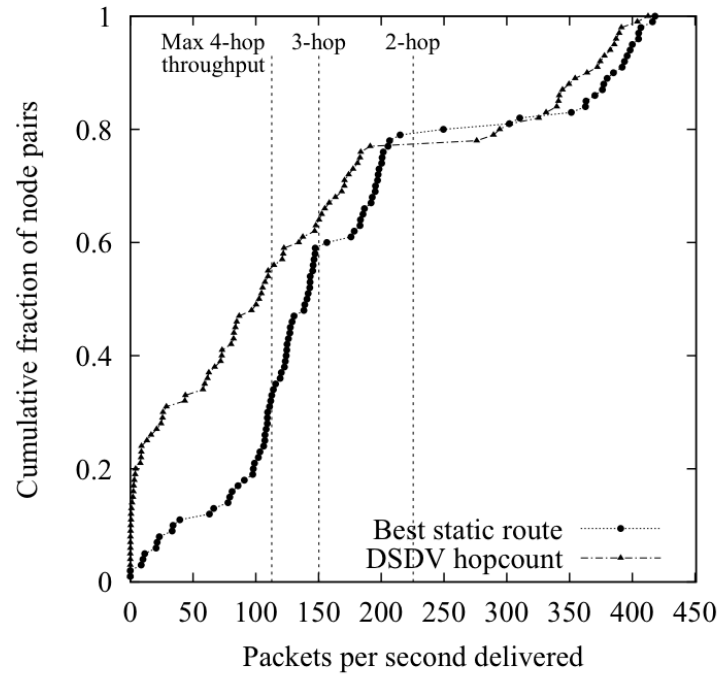


Figure 1: A map of the test-bed. Each circle is a node; the large number is the node ID, and the superscript indicates which floor of the building the node is on.



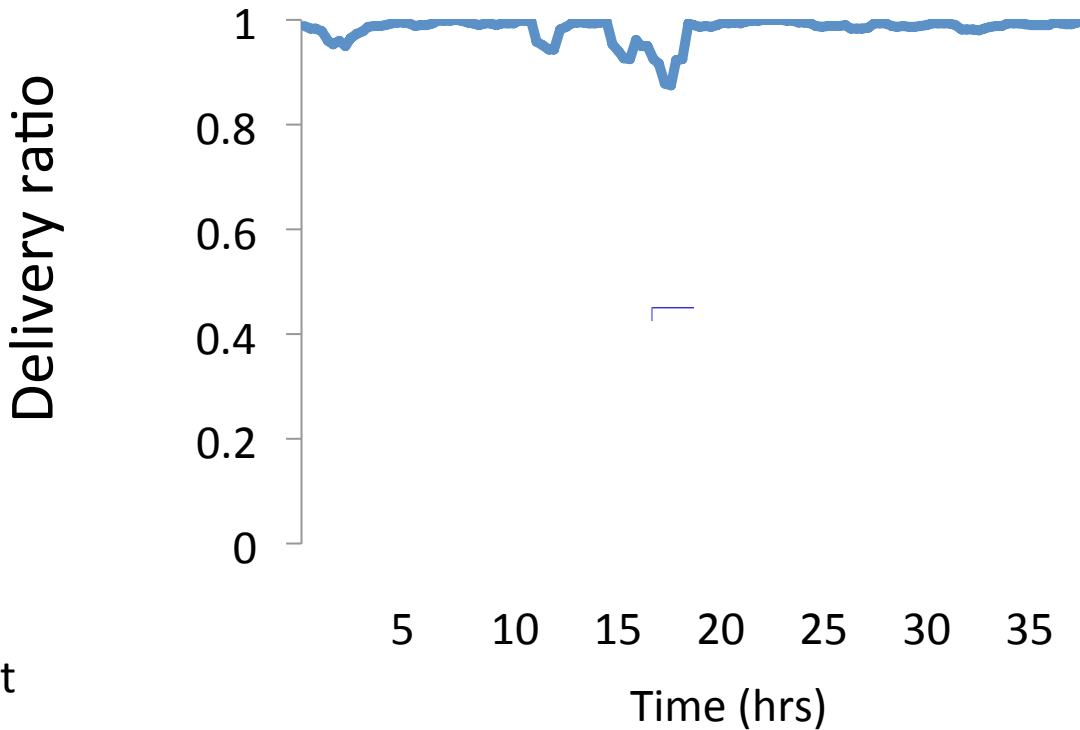
**Figure 2: When using the minimum hop-count metric, DSDV chooses paths with far less throughput than the best available routes. Each line is a throughput CDF for the same 100 randomly selected node pairs. The left curve is the throughput CDF of DSDV with minimum hop-count. The right curve is the CDF of the best throughput between each pair, found by trying a number of promising paths. The dotted vertical lines mark the theoretical maximum throughput of routes of each hop-count.**

# Deployment Experiments

Realistic setup and inputs

Uncontrolled environment

# Repeating Experiments Enough?



Tutornet

**High delivery ratio across time  
(short experiments can be misleading!)**



# HW5

Write a response to the pamphlet on smart meters.

# HW6

Make a list of metrics from the ten research papers you selected

Define each metric in a few sentences.