Analyzing a phone tree

- 30 seconds per call, each person calls two.
  - When does person 7 know? Person 15?
  - Number of last person on fifth row?
  - When do they know?

Phone tree analysis continued

- Row 1 has “call 1”, row 1 has “call 2” and “call 3”, what is the number of the last person in row 10? How many calls in this row?
  - 1, 2, 4, 8, ..., 1024 = $2^{10}$, ...

- How many total calls made to notify 15 people? To notify 1,023 people? To notify N people?
  - How do we determine this?
  - For “big” phone trees, N is good enough, don’t need N-1, N-2 or N+1: O(N) is good enough

Final analysis of phone trees

- If we want to notify 2,047 people there will be 1,024 on the last row
  - How many minutes from start does person 2,047 find out the information?
  - If we have N total people, how many on last row?
  - When does last person find out?

- Number of minutes from start, number of phone calls made, ...
  - Parameters of this problem

Understanding analysis of e-voting

- EFF: Electronic Frontier Foundation, eff.org
  - EFF is the leading civil liberties group defending your rights in the digital world. (so they say)
  - Free speech, intellectual property, privacy, ...

- Background to understand EFF testimony before congress with respect to e-voting
  - Open source software, big picture for now
  - FOSS: Free and Open source software
  - Rivalry, freedom, business, personalities
Congressional testimony: eff-link

- One of the key proposals aimed at increasing transparency is to require that election systems contain open source or disclosed source code, rather than continuing with a closed model.
- The right answer from a policy perspective is not only to allow independent access to election system source code and related components after a system demonstrates serious problems, it is to make the source code and other critical materials available for independent expert review prior to the widespread implementation of voting technology.

What is open source/FOSS? Preview

- Cathedral v bazaar
  - Images?
- Origin of FOSS
  - Stallman v Torvalds
- iPhone v Windows
  - Built on what?

Toward Internet Voting

- Michigan ‘04 Democratic primary
  - Internet v absentee
  - Conclusions? Disenfranchised? Helped?
- Authors claim: “we need scientific studies”
  - What does this mean?

How to facilitate Internet voting

- Grants to states to small-scale implementations or experiments
  - Build on licensing, taxes, other web-based digital, deliberative, democratic initiatives
- Research into security and related issues
  - DoS attacks, anonymity, verifiability
  - If we know where the votes go, easy to attack, alternatives? E-government meets bittorrent?
- Change how we vote: move into 21st century
  - Vote over days/weeks, not on Tuesday, ...