CS598 Tue Sep 22

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Announcements
Projects

• **Tonight**: Proposal comments back to you
• **Oct 22**: Project midterm presentations
• **Dec 10 11:59pm**: Project paper due
• **Dec 15 1:30-4:30pm**: Poster session (it’s official!), location TBA
Midterm presentations

• 10% of your course grade (20% of project)
• 5 minute presentation (<= 3-5 slides)
  • What problem are you solving
  • Why doesn’t the best past work solve it
  • Your solution approach
• Demonstrate progress in your solution
Project paper

• Like a short publishable paper: Abstract, Problem statement, importance of problem, Related work, Your approach, evaluation, and results, Summary of conclusions, discussion of limitations, and future work

• One person projects: about 8 pages

• Two person projects: about 12 pages

• But you will be judged on results, not pagecount!
Workload

• **62%** of you thought the current workload is about right, or worth the effort.

• **39%** of you would rather concentrate on fewer papers.
Routing background
Routing is hard

- Automatic adaptation to failures
- High reliability
- Balancing traffic
- Convergence
- Management complexity
- Scalability
- Sharing of resources
- Security
- Multiple players (policy, privacy, incentives)
Approach One (of N)

- Original ARPANET: distance vector routing
- Remember your distance to each destination (initially: distance 0 from myself)
- Send vector of distances to neighbors
- Receive vector: my distance = min of all my neighbors + 1
- Send packet to neighbor with lowest dist.
- Slow convergence and looping problems
Approach Two (of N)

• New ARPANET algorithm: link state routing (“shortest path first (SPF)’’)

• McQuillan, Richer, and Rosen 1980; Perlman 1983; led to OSPF

• Broadcast the entire topology to everyone

• Locally run shortest path algorithm

• Send packet to neighbor along computed shortest path
Tag switching / MPLS

• Separate data plane (where you send packets) from control plane (deciding where to send packets)

• More flexible control of the data plane
  • e.g., set up any explicit route you want

• A more modern choice of intradomain routing protocol