Lecture 20

CS625: Advanced Computer Networks
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http://www.cse.iitk.ac.in/users/braman/courses/cs625-fall2004/outline.html

Topic for Today

- Protocol Independent Multicast (PIM) [DEF94]
- Assignment-1 discussion
- *Scribe for today?*

Multicast Issues

- Scaling
- Unicast protocol dependence
- CBT addresses these issues
  - Has *shared tree* instead of *shortest-path tree*
  - Can lead to increased path latency (1.5-2 times)
  - Can lead to traffic concentration
  - Better to have *shortest-path tree* for some applications.

Protocol Independent Multicast (PIM) [DEF94]

- Similar to CBT
- Uses *Rendezvous Points* (RPs) == Core
- Additional flexibility
  - Can switch between shared tree (RP-tree) and shortest-path tree (SP-tree) dynamically
  - Can even have SP-tree for some sources and RP-tree for others

Tree Switching

- Each router has a (*,G) entry for the RP-tree, or/and a (S,G) entry for the SP-tree
- When a router wants to join a specific SP-tree:
  - Send join towards source
    - Mark invalid to begin with
    - Validate on receiving first data packet
  - Prune towards RP
    - If outgoing interface to RP is different from outgoing interface to source
    - Can have "negative" routing entries