INTEGRATED SERVICES OVE
TOKEN RING NETWORKS

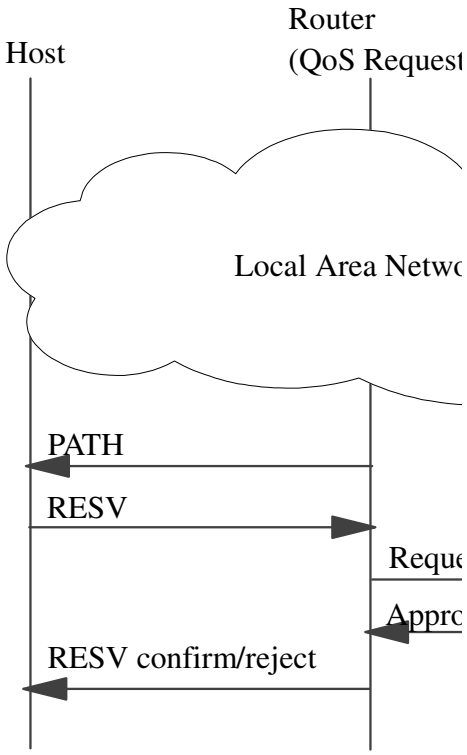
draft-ghanwani-istr-00.txt

TOPICS

- QUALITY-OF-SERVICE MANAGEMENT
- SOURCE ROUTING
- USER PRIORITY
- MULTICASTING
- NEXT STEPS

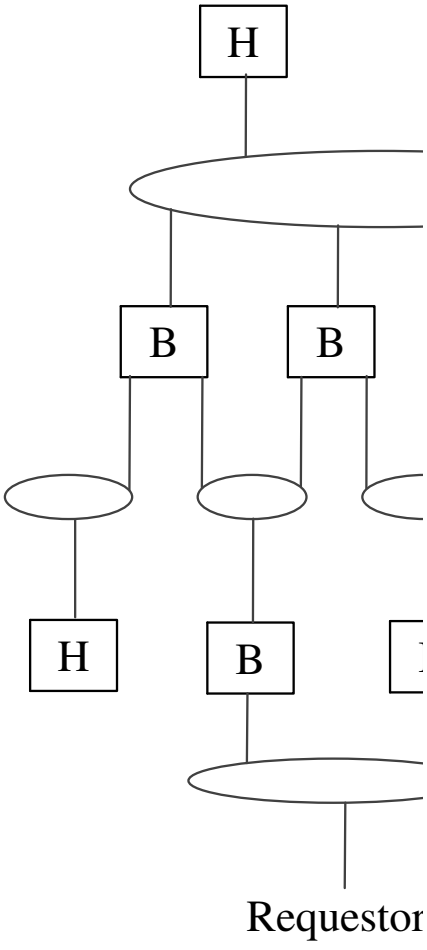
RSVP operation on LANs

- PATH message initiates RSVP interaction
  - Flow from the router
  - Multicast destination
  - MAC multicast destination
  - MAC source is router
- RESV message from the receiver to the router
  - IP destination is router (PHOP)
  - IP source is unicast receiver
  - MAC destination is router
  - MAC source is the unicast receiver
- Layer 2 resource reservation with Requestor/Allocator
- RESV confirm/reject



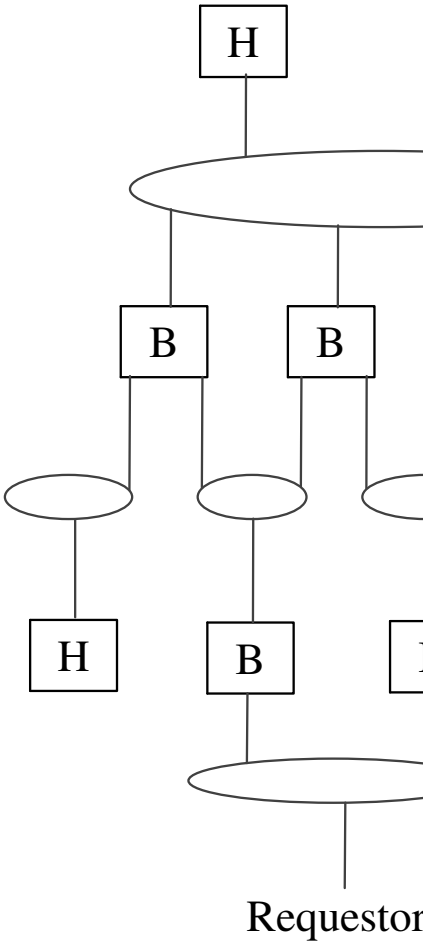
Quality-of-Service Management on LANs

- QoS Requestor
  - Makes requests to reserve resources
  - Interfaces to the RSVP (in a router or host)
  - Perhaps with policing or shaping components
- QoS Allocator
  - Maintains awareness of resource usage on bridges, switches, and segments
  - Makes admission decisions
  - Approves or rejects requests for resources from a QoS Requestor
  - Could be centralized or distributed
- Allocator - Requestor signaling
  - Request/respond
  - change/refresh QoS requests
- IBM's Implementation



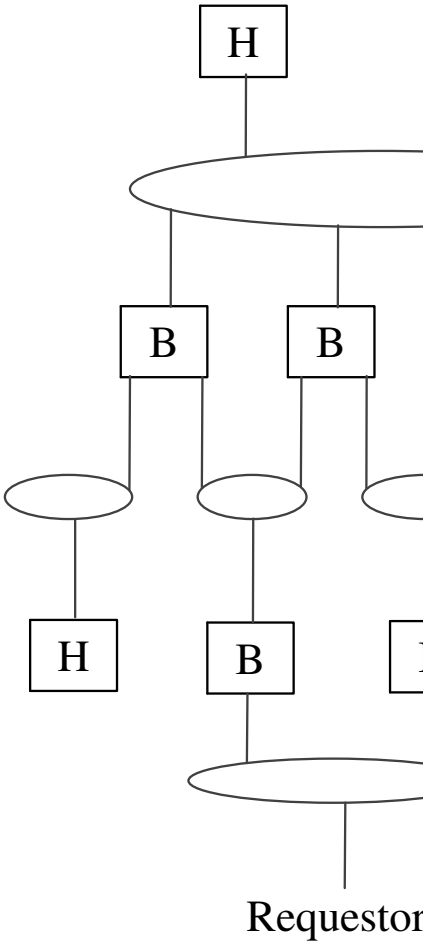
QoS Management Issues

- Requestor - Allocator signaling
  - Traffic class descriptions
  - Traffic descriptors and QoS requests
    - Q.2931, Q.933, or IP based
    - Mapping from Tspec, Rspec to layer 2
    - LAN link layer specifics
  - Use by multiple higher layers
    - RSVP
    - ST II
    - other LAN layer 3 protocols
- Allocator topology
  - Centralized
    - No overhead for synchronization
    - Simpler
    - Scaling issues
  - Distributed
    - Use of SCSP



QoS Management for Token Ring LANs

- Source Routing
  - Token ring can balance the traffic load by using source routing in the layer 2 network
  - Requestor/Allocator protocol could allow the Allocator to designate a particular transit path
- User Priority
  - Token ring frame carries user priority in the FC field
  - End stations and bridges can use FC to give priority access to real time traffic
  - Can be used with or without IEEE 802.1p
  - Requestor/Allocator protocol could allow the Allocator to designate one of 8 priorities for a particular flow
- Functional Addresses



IntServ over Shared/Swithed LANs - Nex

- Ethernet and Token Ring have similar challenges
  - Mapping RSVP to shared/switched LAN specifics
  - Interworking with IEEE 802.1p
- Some Token ring unique components
  - Source routing
  - Frame priority
- Ethernet and token ring should remain linked as in IEE
- Integrated Services over shared/switched LANs
  - Define the RSVP/IntServ mapping and the "QoS Manager" in ISSLL
  - Define RSVP/IntServ mapping in ISSLL with liaison to IEEE 802 to Manager"