RSVP+: Policy based variations on standard RSVP processing

draft-sgai-rsvp-plus-00.txt

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Objectives

- To describe variations on standard RSVP processing from a single overall policy perspective
- To consider an additional extension which fits into that overall perspective

RSVP+: Introduction

- A number of drafts describe variations on standard RSVP:
  - IntServ/Diffsev
  - DiffEdge
  - Aggregate RSVP
  - Tunneling RSVP
  - DCLASS
  - Qualitative QoS
  - Policy Control

RSVP+: Introduction (Continued)

- These variations require support in PEPs including:
  - Mapping from IntServ to DiffServ
  - Aggregation/Deaggregation
  - Router Alert processing
  - **Policy driven** modification of RSVP messages
    - DCLASS Generation.
    - Modification of Flowspecs
  - Resv (Path ??) Proxying
- These behaviors are Policy Driven (Not Only)

RSVP+ Key characteristics

- Application assumes the host model of RSVP including additions defined in the extensions mentioned
- The policy server is expected to drive variations in RSVP processing. This is determined by the policy configured by the network administrator.
- The switch/router acts as a COPS client [COPS] in communicating with the policy server

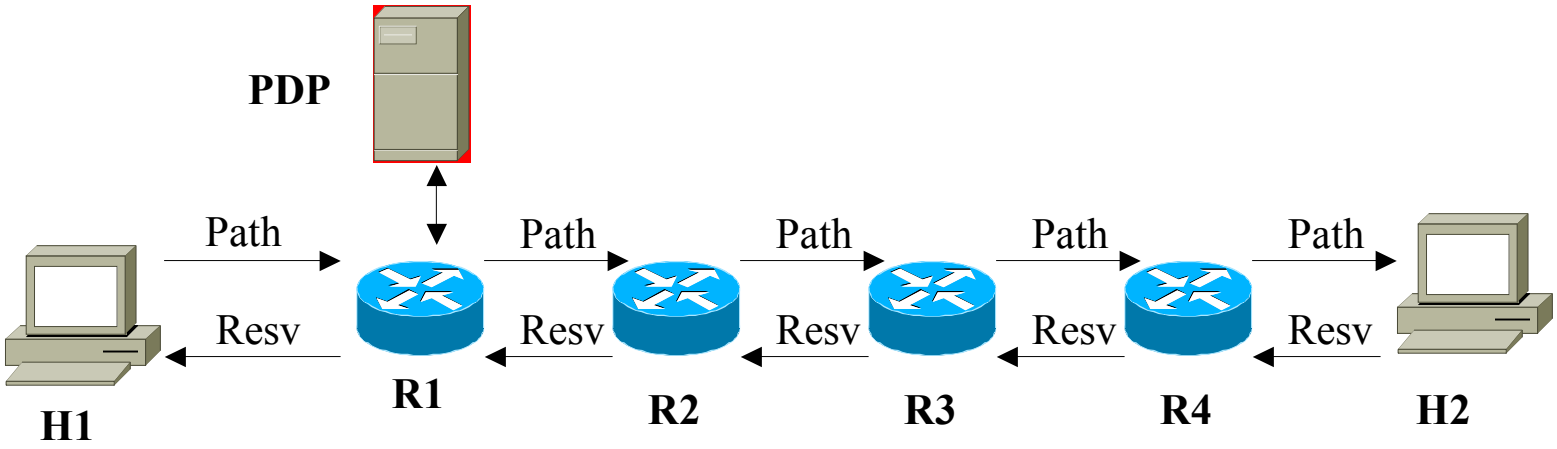
MF Classification
Consensus ?!

- Classification of packets is subject to control by Policy
- Typically MF classification (under policy control) is based on:
  - Info in the packet
  - preferably in IP/TCP/UDP/IPSEC headers
- However, some policy criteria are not available to MFC:
  - A SAP print job
  - A CTO's session
  - an encrypted session

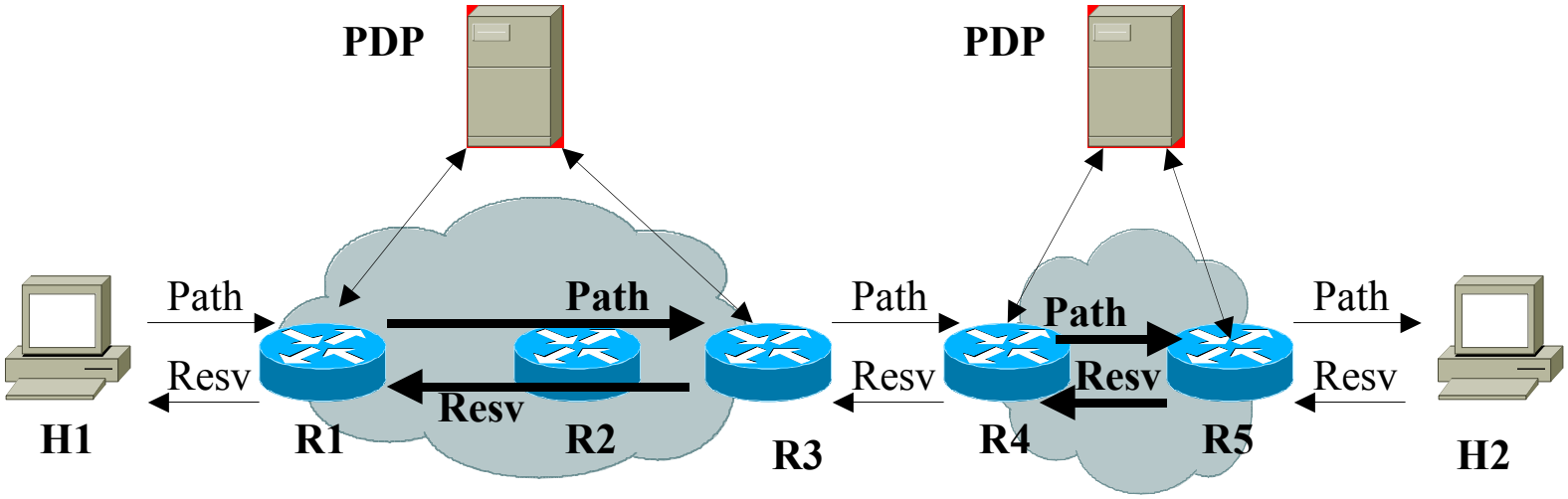
Classification for DiffServ

- Those criteria are typically available in the Source and/or destination.
  - ⇒ A protocol can be used to provide these criteria to a Policy controlled router on the flow path.
  - ⇒ RSVP is the best available protocol for this purpose
- A difference from conventional usage of RSVP:
  - Destination or source might not be able to, want to, or be required to take part in the signaling process.
  - ⇒ RSVP Proxying
  - We have focused on Resv Proxying.

Spectrum of Scenarios:
Normal RSVP

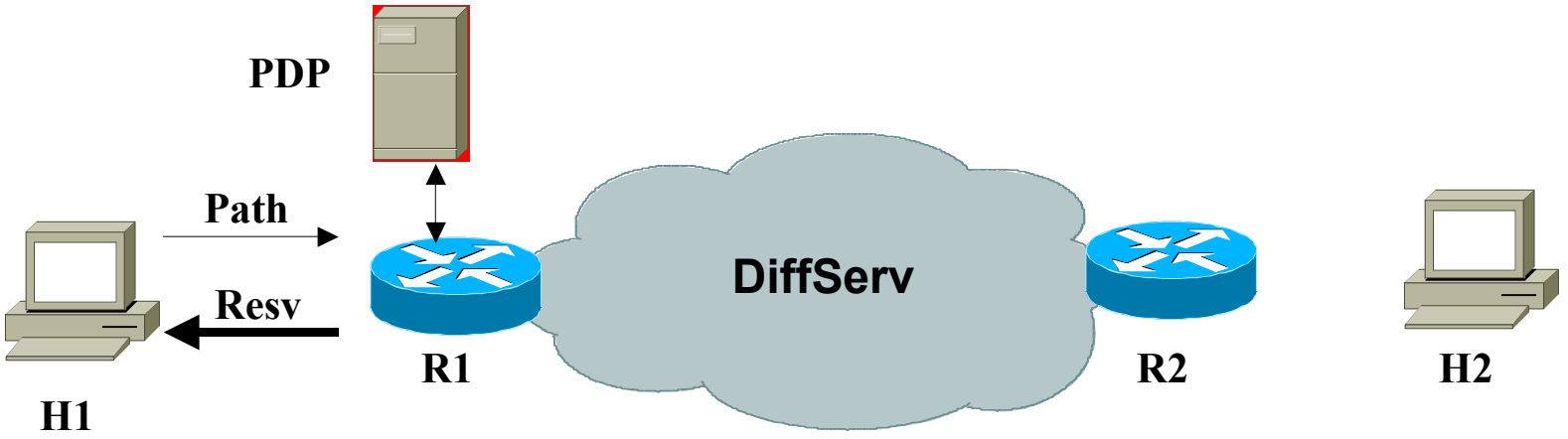


Spectrum of Scenarios:
Tunneling RSVP signaling messages

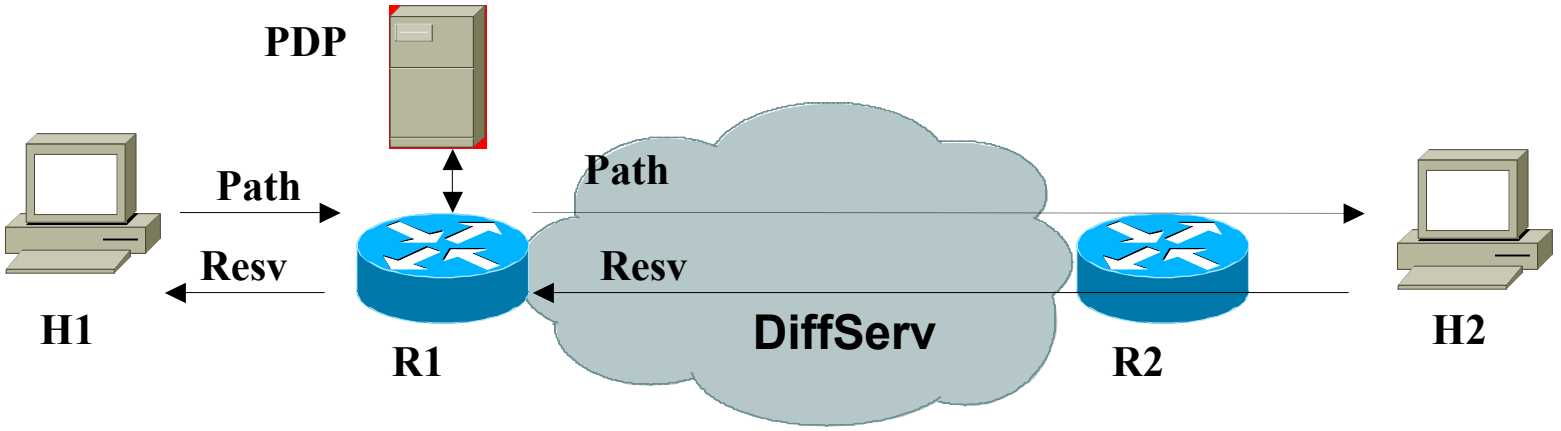


Spectrum of Scenarios:
Proxying Resv

- The host uses RSVP Path to signal policy data to the first hop switch/router R1. R1 does not propagate the Path message further, but terminate it and also Generate a Resv message back as either a Feedback or Action.

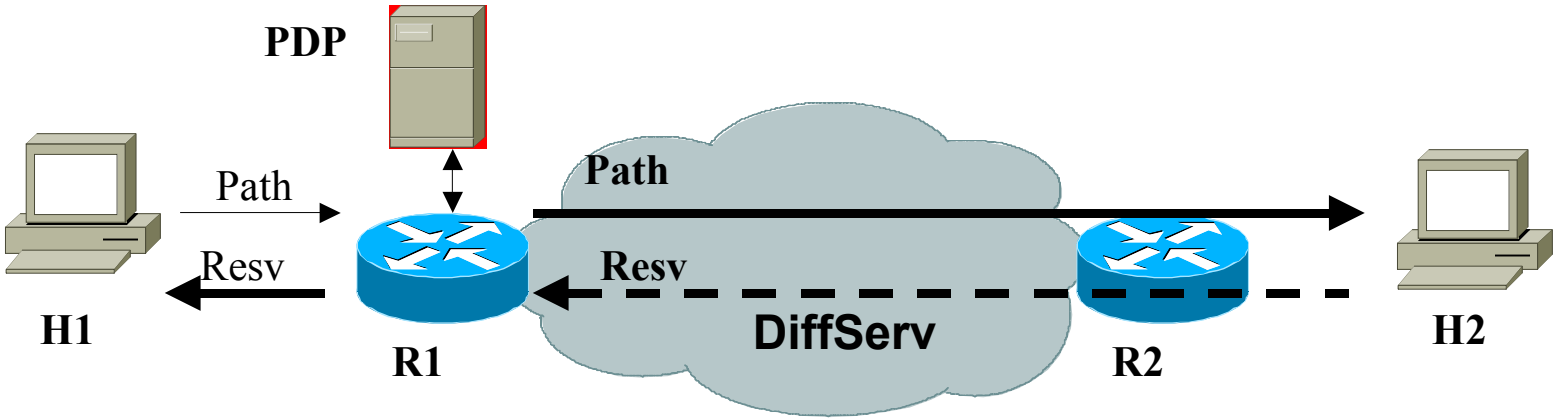


Spectrum of Scenarios:
Bypass intermediate RSVP Hops



Spectrum of Scenarios:

Is the receiver RSVP aware ?



Policy Control

- Which scenario is employed under policy control.
- The policy decision message specifies how the network device behaves with respect to each of the following:
  - Whether to forward Path
  - Whether to tunnel by replacing the protocol number.
  - Whether to tunnel via stripping RA option
  - Whether to originate Resv
  - etc.

ISSUES

- Identify and define those parts that **extend** RSVP.
  - Break the end-to-end RSVP model?
- Local configuration versus Policy based RSVP processing behavior.
- COPS extensions proposal
  - draft-nitsan-cops-rsvp-ext-00.txt