COPS Extension for Intra-domain Traffic Engineering
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Network Model and Framework

PEP 1

PEP 2

BW Broker

PDP

COPS Extension

User Traffic
What Are We Trying To Do?

PDP -> PEP

• Send commands to setup “tunnels”.

• Send filters to classify user traffic.

PEP -> PDP

• Notify about “tunnel” status.
Definition of a “tunnel”

• Between two edge routers (PEP’s);

• Can be:
  • A classical RSVP flow (RFC2205)
  • A MPLS LSP (per RSVP-LSP extension)
  • A DiffServ “Virtual Leased Line”
Definition of a *filter*

- Used at PEP to classify incoming traffic
- Classification can be based on:
  - 5-tuple
  - DSCP
  - BGP Path Attribute (Next-HOP)
  - MPLS LSP’s
  - …etc.
Protocol Highlights

• COPS extension with a new Client Type

• A few new C-type’s for support
  • client specific data
  • decision types
  • error conditions

• A few new objects:
  • FILTER, FILTER-ID, TUNNEL-ID, etc.
  • TUNNEL-PREF … tunnel’s priority
Example: *Redundancy Support*

1. Two tunnels w/ diff. pref
2. Setup both at init. time
3. When the primary one down
   - switch-over traffic
   - inform PDP