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An Architecture for COPS Based Policy Control Management Framework

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Abstract

This document describes an architecture for a COPS based Policy Control Management System Framework. The architecture is designed to be modular, allowing future modification and addition to existing framework. The major units of the architecture are the Policy Decision Points (PDP), the Access Edge Policy Enforcement Points (PEP), the Core Policy Enforcement Points. With Message Processing Subsystem, Security Subsystem, Framework Data Model Subsystem, and Application Specific Data Model Subsystem in each PDP and PEP.

This document further provides a high level description of each unit and describes the relationship among each unit. This document also describes how the subsystems within each unit interact with each other to provide the functionality of a Policy Control Management System.

[1.](#) Introduction

COPS based Policy Control Management System provides a modular and scalable way to management resource access and provisioning. We started with network QoS resources but this is only the initial application of COPS based Policy Control. Other applications includes but not limited to:

- [1.](#) Network Plumbing Resource
- [2.](#) Content Resource

This document provides examples on how Policy Controlled access and provisioning can be done for each of the above resources. Providing some solutions for Policy Controlled End-To-End Services.

[2. Architecture Overview](#)

The COPS based Policy Control Management System Architecture contains two kinds of modular decompositions:

- [1.](#) Functional Units
- [2.](#) Data Models

As described in more details in the following sub sections.

[2.1 Policy Controlled Management System Units](#)

In this architecture, we have broken up the Policy Controlled Management System into two functionalities, each handled by the functional units:

- [1.](#) Policy Decision Point (PDP)
PDPs are the gateways to the centralized policy repository, allowing administrative domain wide policy implementation.
- [2.](#) Policy Enforcement Point (PEP)
PEPs are the gateways to the resource being managed and have direct interfaces to the resource's control planes.

[2.2 Policy Controlled Management System Data Models](#)

In this architecture, the Data Models are tied to the kinds of resource being managed, for example:

- [1.](#) For Network QoS Resource, the DiffServ PIB Data Model is used.
- [2.](#) For Network Plumbing Resource, the TE PIB Data Model is used.

Other Data Models are being defined and more examples will be provided as this document is being developed.

[3. Policy Decision Point](#)

[3.1 Message Processing](#)

[3.2 Security](#)

[3.3 Framework Data Model](#)

[3.4 Application Specific Data Model](#)

[4. Access Edge Policy Enforcement Point](#)

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[4.4 Application Specific Data Model](#)

[5. Core Policy Enforcement Point](#)

[5.1 Message Processing](#)

[5.2 Security](#)

[5.3 Framework Data Model](#)

[5.4 Application Specific Data Model](#)

[6. References](#)

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[9. Author Information and Acknowledgments](#)

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