QoS Yang Model

http://www.ietf.org/id/draft-asechoud-rtgwg-qos-model-10.txt

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Topics

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Overview

- This is a QoS YANG model draft in RTGWG
  - It is a RTGWG candidate working group draft
  - This draft was moved from NETMOD to RTGWG
- Presenting an RTGWG draft in TSVWG is intended to promote awareness of QoS work

Model Overview

Three levels of models:

- **Base infrastructure:**
  - Classifier, Action, Policy, Target
  - Frameworks and building blocks
- **Derived Modules:**
  - Diffserv Module
  - Queue Policy Module
  - Scheduler Policy Module
- **Vendor specific:**
  - Typically, vendors would augment base and derived models
  - Stiches some of the building blocks together

QoS Framework Modules

- **Classifier Module**
  - Defines a classifier object referred by a name
  - A classifier object contains one or more filter entries
  - Logical OR/AND operation of different Classification Parameters
  - Same classifier object can be referred by multiple policy objects
- **Policy Module**
  - Defines QoS policy object referred by a name
  - A policy object contains one or more classifier entries and actions
  - A classifier entry may be defined inline or may refer to a classifier object
  - A packet matching the first classifier entry will skip further classification in the policy

Classifier Module Tree Diagram

```
module: ietf-qos-classifier
   +--rw classifiers {classifier-template-feature}?
      +--rw classifier-entry* [classifier-entry-name]
         +--rw classifier-entry-name                string
         +--rw classifier-entry-descr?              string
         +--rw classifier-entry-filter-operation?   identityref
         +--rw filter-entry* [filter-type filter-logical-not]
            +--rw filter-type          identityref
            +--rw filter-logical-not   boolean
```

Policy Module Tree Diagram

module: ietf-qos-policy

```
+--rw policies
  +--rw policy-entry* [policy-name policy-type]
    +--rw policy-name          string
    +--rw policy-type          identityref
    +--rw policy-descr?        string
    +--rw classifier-entry* [classifier-entry-name]
      +--rw classifier-entry-name           string
      +--rw classifier-entry-inline?        boolean
      +--rw classifier-entry-filter-oper?   identityref
      +--rw filter-entry* [filter-type filter-logical-not] {policy-inline-classifier-config}?
      |  +--rw filter-type           identityref
      |  +--rw filter-logical-not    boolean
      +--rw classifier-action-entry-cfg* [action-type]
        +--rw action-type    identityref
        +--rw (action-cfg-params)?
```

QoS Framework Modules

- **Action Module**
  - Defines grouping for metering, marking, Queuing, Scheduling
  - Meter model as one rate two colors, one rate three colors and two rates three colors
- **Target Module**
  - Augments ietf-interface module
  - Policy is applied to inbound and/or outbound Traffic

Derived Modules

- **Diffserv Module**
  - Models Diffserv architecture as defined in **RFC 2475**, **RFC 3260**
  - Diffserv MIB **RFC 3289** is used as reference for parameter definitions
  - Supported filter types are: DSCP, source IP address, destination IP address, source port, destination port and protocol
  - DSCP, source/destination port and protocol are defined as range. Multiple ranges of the same filter type can be configured
  - Source/destination IP address are defined as address value and prefix length. Multiple of address prefix and prefix length can be configured in a filter
  - Inline Queuing and Scheduling Parameters

Derived Modules

- **Queuing Policy Module**
  - Augments Policy module to define Queuing Policy
  - Classification is based on Traffic-Group
  - Actions include Priority, Min-rate, Max-rate

- **Scheduler Policy Module**
  - Augments Policy module to define Scheduler Policy
  - Match all parameters
  - Actions include associated Min-rate, Max-rate, Queuing Policy

Vendor Specific Augmentations

- Vendors specific module may have additional matches and actions
- It may have new policy-types
- Different Vendors may support additional parameters

Summary

- The current model defines QoS framework of Policy, Classifier, Actions, Target
- Derived Modules including Diffserv, Queues & Schedulers Model are augmented to Base framework
- Adaptable to any vendor QoS model. The three examples of Company A, B and C models are added.
- Augmentable to other Matches and Actions
- Extensible through various feature definitions

Next Steps

- Comments from IETF Community