Draft YANG model for PIM
draft-mcallister-pim-yang-01

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IETF95
Agenda

• Introduction
• Progress
• Open issues
• Next steps
Introduction

• This draft is still under discussion by the YANG multicast design team

• Archive: http://www.ietf.org/mail-archive/web/yang-multicast/current/maillist.html

• Wiki: http://trac.tools.ietf.org/wg/pim/trac/wiki/yang

• This draft is versioned on github: https://github.com/mcallisterjp/pim-yang/
Summary of Progress

• Improved usability.
• Added BFD support.
• Revised RP state modeling.
• Added SM state modeling.
• Modeled BIDIR state data.
• Aligned with new version of ietf-routing.
Improved Usability

• Fixed a few consistency issues:
  – Attribute names.
  – Attribute types.

• Use counter64 for statistic counters
Added BFD Support

module: ietf-pim-base
augment /rt:routing/rt:routing-protocols:
  +--rw pim
  +--rw interfaces
    +--rw interface* [interface]
      +--rw interface if:interface-ref
    +--rw address-family* [address-family]
      +--rw address-family identityref
  +--rw bfd
    |  +--rw enabled? boolean
    |  +--rw local-multiplier? multiplier
    |  +--rw (interval-config-type)?
    |     +--:(tx-rx-intervals)
    |     |  +--rw desired-min-tx-interval uint32
    |     |  +--rw required-min-rx-interval uint32
    |     +--:(single-interval)
    |     |  +--rw min-interval uint32
Revised RP State Modeling

• Supported multiple modes on same RP address.

• Added static RP states.

```
module: ietf-pim-rp
  +--ro rp
      |--ro static-rp
      |   | --ro ipv4-rp* [ipv4-addr]
      |   |   | --ro ipv4-addr inet:ipv4-address
      |   |   | --ro mode identityref
      |   |   | --ro info-source-addr? inet:ipv4-address
      |   |   | --ro info-source-type? identityref
      |   |   | --ro up-time? uint32
      |   |   | --ro expire? pim-base:timer-value
      |   |   | --ro ipv6-rp* [ipv6-addr]
      |   | --ro ipv6-addr inet:ipv6-address
      |   | --ro rp-list
      |   |   | --ro ipv4-rp* [ipv4-addr mode]
      |   |   |   | --ro ipv4-addr inet:ipv4-address
      |   |   |   | --ro mode identityref
      |   |   |   | --ro info-source-addr? inet:ipv4-address
      |   |   |   | --ro info-source-type? identityref
      |   |   |   | --ro up-time? uint32
      |   |   |   | --ro expire? pim-base:timer-value
      |   |   |   | --ro ipv6-rp* [ipv6-addr mode]
```
Revised RP State Modeling

- Used identityref instead of enum for info-source-type for extensibility.

```plaintext
+--ro rp
  +--ro rp-list
    |  +--ro ipv4-rp* [ipv4-addr mode]
    |  |  +--ro info-source-type? identityref

identity rp-info-source-type {
  description
    "The information source of an RP.";
}
identity static {
  base rp-info-source-type;
  description
    "The RP is statically configured.";
}
identity bootstrap {
  base rp-info-source-type;
  description
    "The RP is learned from bootstrap.";
}
```
Added SM State Modeling

module: ietf-pim-sm
    +--ro sm
    +--ro asm
    |   +--ro anycast-rp!
    |   |   +--ro ipv4
    |   |   |   +--ro ipv4-anycast-rp* [anycast-addr rp-addr]
    |   |   |   +--ro anycast-addr inet:ipv4-address
    |   |   |   +--ro rp-addr inet:ipv4-address
    |   |   +--ro ipv6
    |   |   |   +--ro ipv6-anycast-rip* [anycast-addr rp-addr]
    |   |   |   +--ro anycast-addr inet:ipv6-address
    |   |   |   +--ro rp-addr inet:ipv6-address
    |   +--ro spt-switch
    |   |   +--ro infinity! {spt-switch-infinity}?
    |   |   +--ro policy-name? string {spt-switch-policy}?
    +--ro ssm!
    +--ro range-polygy? string
Added SM State Modeling

```
    +-ro sm!
    +-ro passive? empty
    +-ro sm!
    +-ro policy-name? string
    +-ro override?   boolean {static-rp-override}?
    +-ro sm!
    +-ro policy-name? string
    +-ro override?   boolean {static-rp-override}?
```
Modeled BIDIR State Data

  +--ro bidir
   +--ro df-election
    |    +--ro ipv4-rp* [ipv4-addr]
    |     |    +--ro ipv4-addr    inet:ipv4-address
    |     +--ro ipv6-rp* [ipv6-addr]
    |          +--ro ipv6-addr    inet:ipv6-address
   +--ro interface-df-election
    +--ro ipv4-rp* [ipv4-addr interface-name]
     |    +--ro ipv4-addr    inet:ipv4-address
     |    +--ro interface-name    if:interface-ref
     |    +--ro df-address?    inet:ipv4-address
     |    +--ro interface-state?    identityref
    +--ro ipv6-rp* [ipv6-addr interface-name]
     +--ro ipv6-addr    inet:ipv6-address
     +--ro interface-name    if:interface-ref
     +--ro df-address?    inet:ipv6-address
     +--ro interface-state?    identityref
Aligned with new version of ietf-routing

• Adjusted all PIM module for ietf-routing@2016-03-09

• Moved the augmentation point for ietf-pim-base from:

/rt:routing/rt:routing-instance/rt:routing-protocols/

to:

/rt:routing/rt:routing-protocols/
Open Issues

• Group range mappings
  • It is desirable to index on group range
  • Group range may be specified as arbitrary policy structures
Next Steps

- Continuously align with related models when updates are available:
  - Device model.
  - ietf-routing.
  - BFD.
  - ACL/policy.
  - Operational state modeling paradigm.
- Verify if the model covers all necessary constraints.
- Request further review.