A YANG Data Model for Routing Management

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I-D Status

The I-D was submitted to IESG for publication on 2014-06-03.

A number of changes have been proposed in recent discussions with routing experts working on data models for OSPF and IS-IS.

Connected RIBs

Routing protocols instances should be allowed to manage multiple RIBs even for the same address family, which is currently not allowed.

Proposal: Lift this restriction. By default, protocol routes of address family X will be sent to all connected RIBs with AF X. However, protocol data models may specify different strategies for connected RIBs.

Clarification of routing instance semantics

Terms like “routing instance” or “logical router/system” have connotations, often vendor-specific. The text should make clear that `routing-instance` by itself carries no semantics – cf. `if:interface`.

standard-routing-instance

Identity `standard-routing-instance` was intended for implementations with a sole (system-controlled) routing instance, i.e. plain old routers.

Can this instance be used as the default instance in the presence of other (VRF/VRF-Lite) instances?

Options:

1. Keep `standard-routing-instance` only for single-instance implementations, and define another identity, e.g. `vrf:default-routing-instance`, for the default VRF instance.
2. Rename `standard-routing-instance` to `default-routing-instance` and use it for both single instance and VRF default instance.

Route Preference

Most systems use administratively assigned route preference for breaking tie among routes with the same destination prefix, but differ in granularity: per route or per routing protocol instance ("administrative distance").

Proposal:

- Define `route-preference` as a new attribute of RIB routes.
- Define `route-preference` as a new attribute of routing protocol instances, to be used either as administrative distance or default route preference for the routing protocol instance.
- Define feature `per-route-preference`, and `route-preference` as a new attribute of static routes, conditionally for that feature.

Flag for Active Route

If a RIB contains multiple routes with the same destination prefix, it is important that the client be able to determine which of them is currently the best route.

Proposal: Define a new boolean attribute, `active`, for RIB routes (false by default).

Route ID in RIBs (State Data)

I2RS RIB data model used for comparison after IETF 87 used `route-id` as the key for RIB routes.

"It's just a unique identifier for a route - it has no semantics and can not be used for ordering. It is assigned by the Server, and the Client MUST not interpret it."

A lot of bookkeeping with unique IDs for 200K routes.

Proposal: Remove the `id` leaf – RIB routes will have no key.

Key for Static Routes

The list of static routes currently uses an opaque numeric key (`id` – not to be confused with ID of routes in RIBs).

Options:

1. Do nothing.
2. Use `destination prefix` as the key. This should be mostly sufficient. Systems that need multiple static routes with the same destination prefix could use a new protocol type ("`static-extra`").
3. Use `destination prefix` *and* `id` as the key. Uniqueness of `id` then has to be guaranteed only for static routes with the same prefix. Use case for optional keys (YANG 1.1 issue Y09).

Timing

Can we leave all these changes to IETF Last Call?