Yang Data Model for BGP

draft-zhdankin-netmod-bgp-cfg-01

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Motivation

- Yang – Data definition language used to define the contents of a conceptual data store
  - Allows networked devices to be managed by NETCONF
  - Increasingly used as bindings to other interfaces (ReST)
  - Increasingly used for encoding other than XML (JSON)

- Yang Models are looked as an base for implementing alternative interfaces to CLI and Programatic APIs for router configuration
  - Draft proposes a YANG model for a BGP protocol

Requirements

- Data model must NOT be tied with a given CLI implementation

  - Data model defined in the draft is NOT derived from any well-known implementations. Instead it is defined to suit the protocol

- Data model should try and avoid any forward references as possible

  - Ex: don't allow any address family specific parameters to be configured before address family configuration

- Data model should allow and support vendor specific BGP feature extensions

  - Make use of versioning (Major and Minor version/string)

Requirements

- Data model should ensure that the backend vendor implementations do not add complexity

- Configuration Data model should be able to co-exist with I2RS Data models

- Data model should be flexible enough to accommodate esoteric policy configurations
  - Route-maps, RPL, policy-maps, access-lists, etc

BGP Yang Model

- Covers following base BGP drafts: RFC4271, RFC4456, RFC4760, RFC3065, RFC4274, RFC2439

At a high level router bgp

- 4 main sub-trees – Address families (vrf-name, router-as, afi, safi) for address family specific parameters

  - Vrf name is configured at the router level (BGP simply inherits it)

  - Vrf name "default" indicates a default address family (ex. Ipv4, unicast, vrf-foo or ipv4, unicast, default)

- 4 main sub-trees – Neighbor configuration

  - Neighbor specific parameter's configuration, flexible to support exchange of v6 address families over v4 connection (RFC2283)

  - Neighbor specific address family configuration

BGP Yang Model

- 4 main sub-trees – Router RPKI information
  - RPKI specific server configurations and its parameters

- 4 main sub-trees –Prefix Lists
  - Allows configuration of generic IP based prefix lists

BGP Yang Model

- `module: bgp`

```
  +--rw bgp-routing
  |   +--rw bgp-router
  |   |   +--rw bgp-version?          string
  |   |   +--rw local-as-number?      uint32
  |   |   +--rw local-as-identifier?  inet:ip-address
  |   |   +--rw rpki-config
  |   |   |   .....
  |   |   +--rw af-configuration
  |   |       .....
  |   +--rw bgp-neighbors
  |       +--rw bgp-neighbor-af
  |       |   ....
```

Questions?

Request WG to adopt the draft as a WG document.