Interface to packet switching Element (IPSE)

draft-rfernando-ipse-00.txt

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IETF 93, July 2015
Prague

Interface to packet switching element (IPSE) what it is?

- Separated control plane can program packet switching data plane elements connected to an underlay network with routing tables needed to perform a packet switching related functions.
  - Separated data plane can be a thin forwarding layer in size providing packet switching functions for a subset of tenants.
  - Separated control plane can grow and shrink in size based on control functions and features needed.

Interface to packet switching element (IPSE) what it is?

- Distribute to packet switching data plane elements the subset of RIB tables/forwarding entries it needs.
- Protocol agnostic can be carried using NETCONF, Restconf, ProtoBuf,…
- Hardware agnostic, can be used to program data plane running on a server or a Hardware switch/router.
- Use YANG as the modeling language to define data models for routing tables to program.

IPSE
Interface to packet switching Element

- YANG Data model driven API to program a routing/switching system's forwarding data plane.

- Initially define the following tables:-
  - interface-table
  - context-selector-table
  - ip-unicast-table
  - l2-table
  - label-table
  - arp-table
  - arp-proxy-table
  - l2tp-table
  - pse-oam

Interface to packet switching element (IPSE) Motivation/takeaway !!!

- A clean CP-DP separation at RIB tables demarcation point.
- Set of L2/L3 RIB tables objects in most routers and switches for different forwarding engines of different vendors are a handful of objects that can model the RIB plane quite easily.
- A software agent receiving these updates, can program the forwarding plane to both software and hardware forwarders
- Used Yang as IETF standard and wide device support
  - "Network" friendly modeling language to model those L2/L3 RIB objects – and hence went for YANG.
  - Yang provides transport independence.
- Working on a binary protocol to interface, in addition to restconf and netconf

Next steps

- Comments are appreciated.

Thank you