

Interface to packet switching Element (IPSE)

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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 tables needed to perform a packet switching related function.
 - 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 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 forwarding 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.
- Set of forwarding objects in most routers and switches for different forwarding engines of different vendors are a handful of objects that can model the forwarding 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 forwarding objects – and hence went for YANG.
 - Yang provides transport independence.
- Working on a binary protocol to interface, in addition to restconf and netconf
- I2rs might not be the right forum but wanted to present to see if others are interested in pursuing this work

Next steps

- Comments are appreciated.

Thank you