YANG Data Model for FlexE Interface Management

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Backgrounds

- Flex Ethernet is a mechanism specified by OIF
- Used widely in DC interconnection, and wider applications are in prospect for both transport equipment and routers
- ITU-T incorporated FlexE as one of the primary interfaces in recommendations (e.g., G.8023 “Characteristics of equipment functional blocks supporting Ethernet physical layer and FlexE interfaces”)
Requirements on FlexE Interface Mgmt

- Configuration of FlexE Group, binding of FlexE PHYs, and its FlexE Instances, support of slot configuration
- Support of interface management in applications for both SDN and distributed routing
- Remote configuration of FlexE interfaces and FlexE status retrieval
- Support of FlexE 2.0, but backwards compatible with FlexE 1.0
Inheritance Hierarchy of FlexE interface

- Augment to ietf-interface, a FlexE Group can be used as a network interface
module: ietf-flexe
augment /if:interfaces/if:interface:
  +-rw flexe-group //Each FlexE Group is a network interface
      +-rw group-number?      uint32
      +-rw slot-granularity?  slot-granularity-enumeration
      +-rw flexe-phy-type?     flexe-phy-enumeration
      +-rw flexe-calendar-inuse?  calendar-enumeration
      +-rw flexe-phy-list* [phy-number] //Each Flexe Group has a Flexe PHY list
          |  +-rw phy-number          uint8
          |  +-rw flexe-inst-list* [instance-number] //Each Flexe PHY has an Flexe Instance list
          |      +-rw instance-number  uint8
          |      +-rw calendar-slot-list* [slot-id]
          |          +-rw slot-id        uint8
          |          +-rw flexe-slot-status?  slot-status-enumeration //slot states {used, unused, unavail}
      +-rw flexe-client-list* [client-id] //Each Flexe Group has a client list
          +-rw client-id          uint16
          +-rw group-number?      uint32
      +-rw mapped-slot-list* [mapped-slot-id] //Each Client uses a mapped slot list
          |  +-rw mapped-slot-id      uint8
          |  +-rw mapped-phy-number?  uint8
          |  +-rw mapped-inst-number? uint8
      +-ro flexe-client-status?  uint8
Summary & Next Step

- This doc added to the IETF interface the configuration capability of FlexE as defined in OIF FlexE 2.0
- The model is compatible with both YANG 1.1 and NMDA
- Hierarchy Logic of FlexE Group, PHY and Instance are modelled in the module
- Call for WG reviews and adoption?
Thank You