Problem Statements of FlexE Interface Management

draft-jiang-ccamp-flexe-ifmpps-oo

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What & Why is FlexE?

Definition

Provides a generic mechanism for supporting a variety of Ethernet MAC rates that may or may not correspond to any existing Ethernet PHY rate

Why Flex Ethernet?

• Flexible bandwidth granularity required
• Rate mismatch between Ethernet and transport/WAN
• Simple and efficient mapping mechanism
FlexE Management Overview

* EMF: Element Management Function

106th IETF – Singapore
FlexE Management Overview

CCA: calendar configuration A
CCB: calendar configuration B
CC: calendar configuration in use
CR: calendar switch request
CA: calendar switch acknowledge
Problem Statements of FlexE Interface Management

- **PS1**: provide the function of various MAC rates
  - Bonding of ETH PHY: nx100G over n bonded 100G PHY
  - Sub-rates of ETH PHY: 50G over a 100G PHY
  - Channelization within a PHY or a group of bonded PHYs: e.g., 25G + 75G over a 100G PHY
  - Hybrid of above cases
    - PHY, FlexE group, FlexE client, slot mapping should be managed

- **PS2**: meet requirement of transport network mappings scenarios
  - FlexE Unaware: used/unused slots
  - FlexE Termination: used/unused slots
  - FlexE aware: unavailable slots
    - Slot-status should be enumerated
Problem Statements of FlexE Interface Management

- **PS3**: how to configure FlexE
  - Static: A fixed implementation, **NOT** open to the SDN controller/NMS
    *PHY, FlexE group, FlexE client, slot mapping* should **NOT** be configurable
  - Master-slave: *PHY, FlexE group, FlexE client, slot mapping* should be configurable
  - SDN/NMS: *PHY, FlexE group, FlexE client, slot mapping* should be configurable

- **PS4**: implement overhead information or not
  - A *negotiation protocol* between calendars is introduced
  - CCA, CCB, CC, CR, CA should be data plane internal artifacts, **NOT** necessary to be exposed
Problem Statements of FlexE Interface Management

- **PS5**: provide management of FlexE Clients
  - Add a client or clients
  - Delete a client or clients
  - Resize a client or clients
  - Adjust slot locations for a client or clients
  *FlexE client, mapping slot* should be managed
  *Remote procedure call (RPC)* can be triggered from SDN controller/NMS

- **PS6**: support of bidirectional transport or not
  - FlexE links are all bidirectional symmetric links so far
  - Unidirectional parameters Tx/Rx should **NOT** be considered till the real use case
Thank You