Data Model for PSE

LI, Fei, Huawei Technologies
HUA, Rui, Huawei Technologies
FU, Shiyong, Huawei Technologies

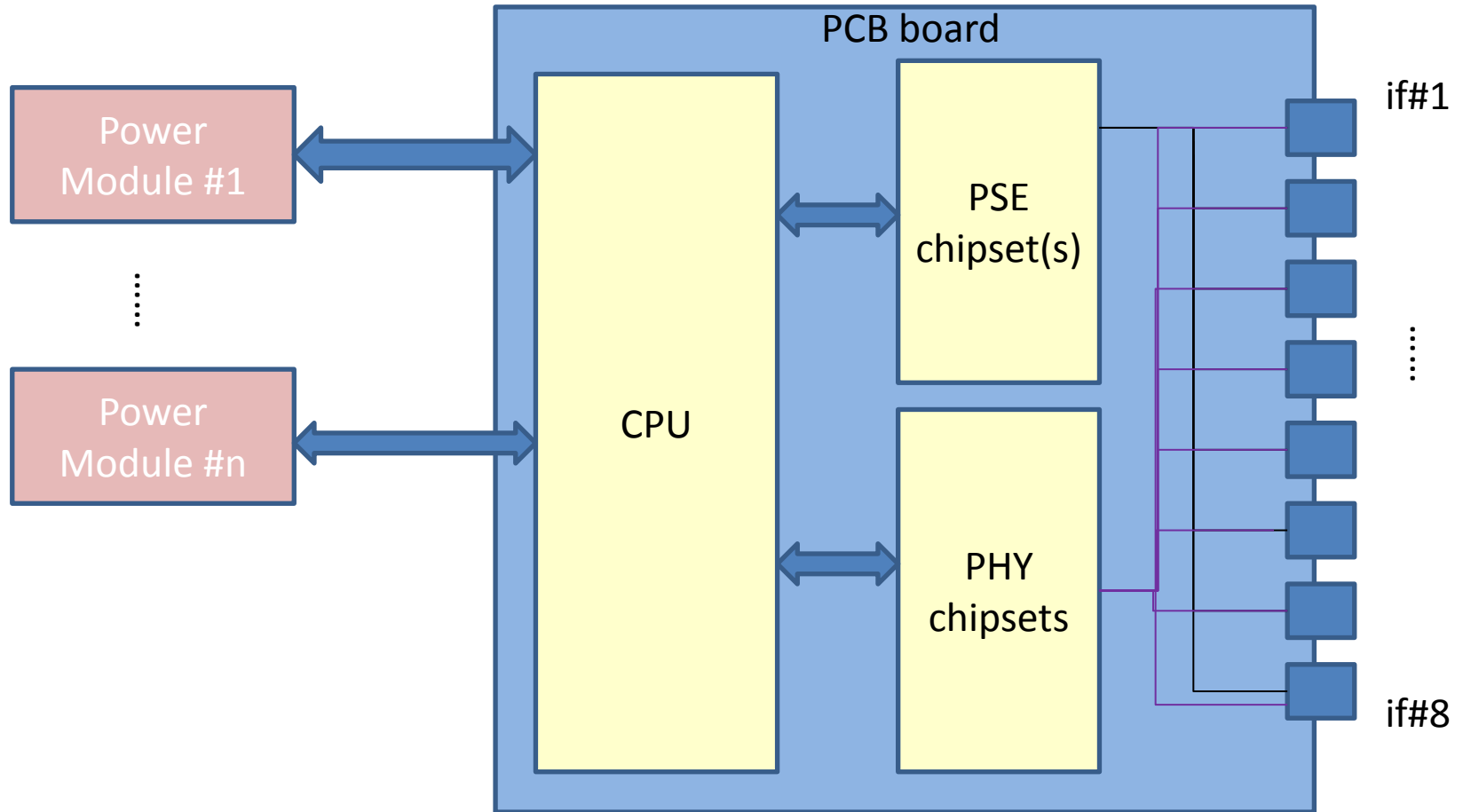San Antonio, TX, US, Nov. 08, 2016

Outlines

- Modelling Basis
  - Principle
  - Power management for PSE devices
- Modelling PoE YANG data model
  - Selected managed objects and attributes
  - Model structure
    - Configuration
    - Operational
    - Notifications
  - Tree hierarchy
- Open discussions

Modeling Principle

- Basis as we said in CFI…
  - YANG models will be developed based on objects from IEEE Std 802.3, Clause 30.
  - No translation of existing MIBs into YANG will be done
  - Provide statistics, state information, and configuration hooks required by network management system

Power management for PSE devices

The PoE power management is composed of the main power source as well as the PoE ports.

Managed objects and attributes (1)
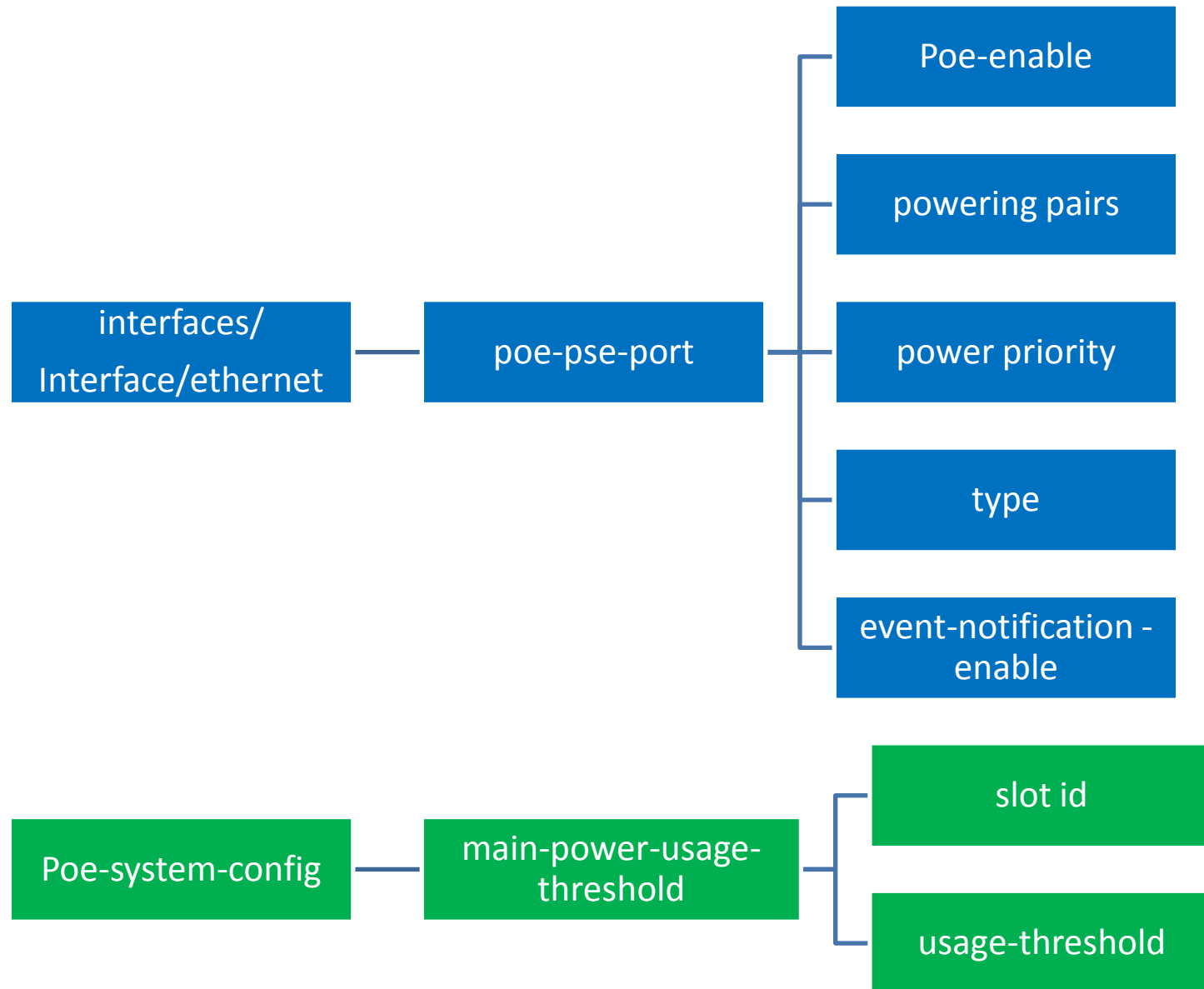
- Configuration

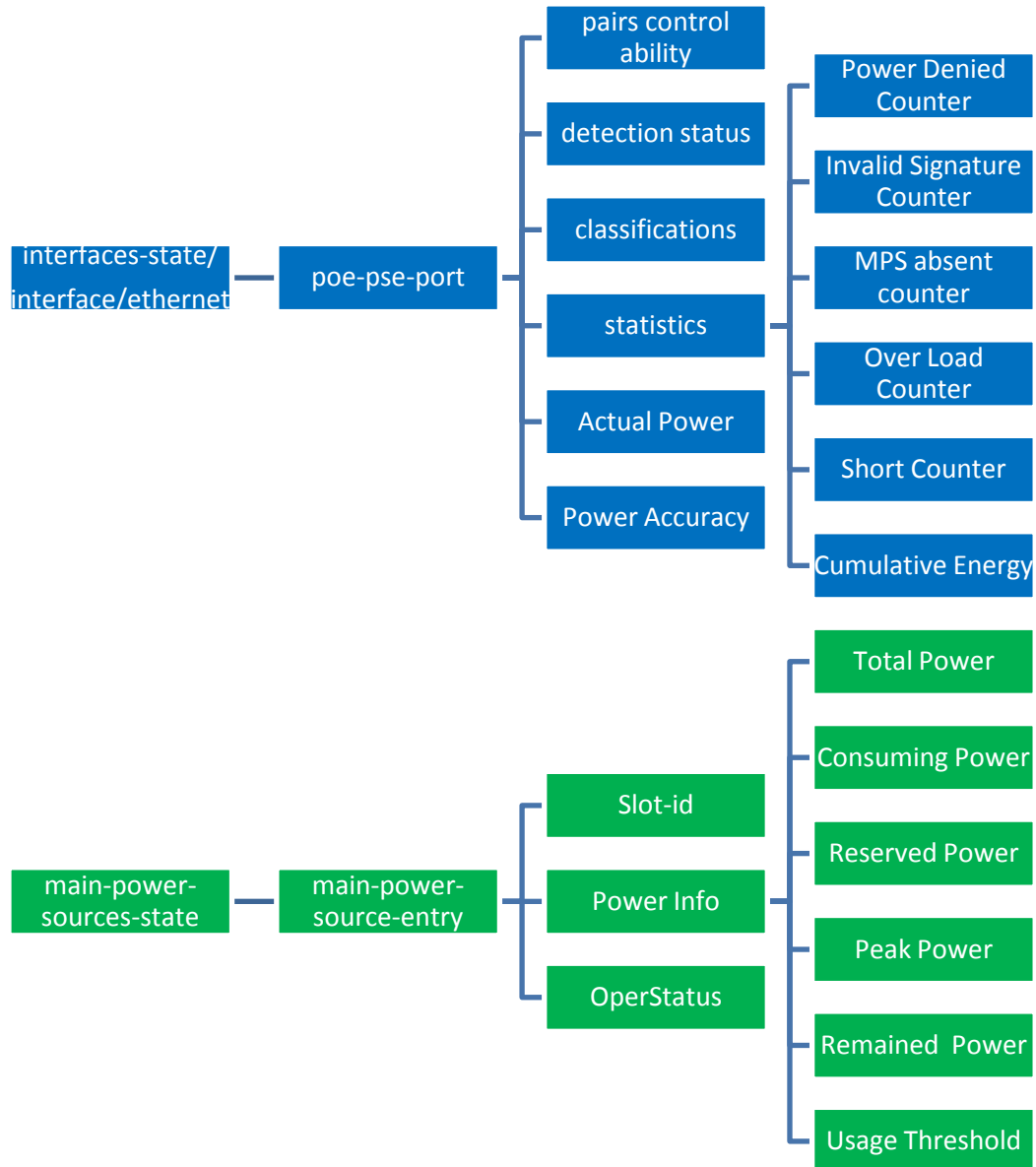| Managed Objects	attributes	r/w	description
Poe-pse-port	poe-enable	r/w	802.3 30.9.1.1.2 aPSEAdminState
	powering pairs	r/w	802.3, 30.9.1.1.4 aPSEPowerPairs
	power priority	r/w	This object controls the priority of the port from the point of view of a power management algorithm
	type	r/w	A manager will set the value of this variable to indicate the type of powered device that is connected to the port.
	event-notification -enable	r/w	Poe port event notification switch
Main power source	slot id	r/w	The slot identifies to which the main power source is connected
	usage-threshold	r/w	Power usage threshold

Managed objects and attributes (2)

- Operational State

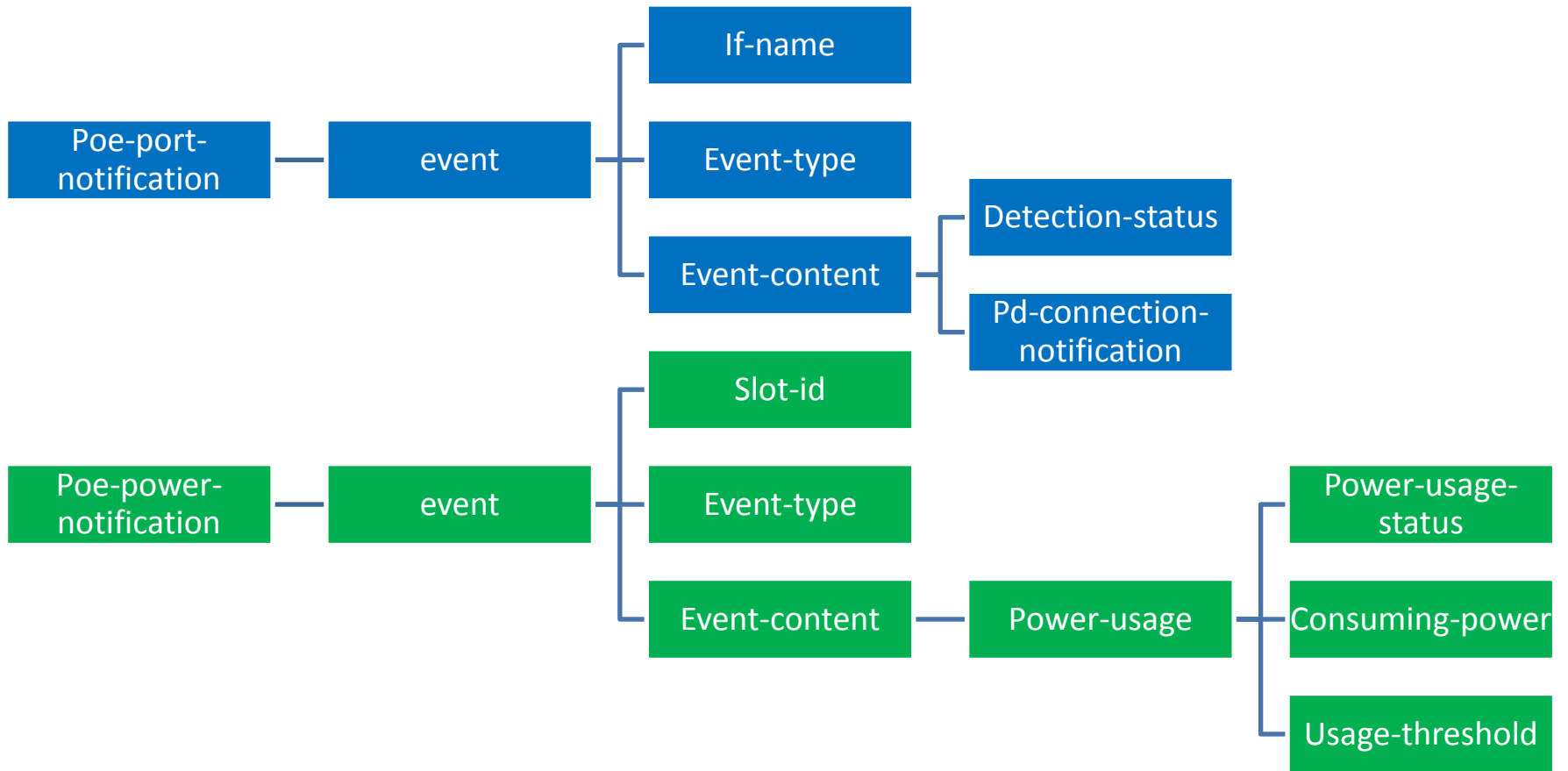| Managed Objects	attributes	r/w	description
Poe-pse-port	pairs control ability	ro	802.3 30.9.1.1.2 aPSEAdminState
	detection status	ro	802.3, 30.9.1.1.4 aPSEPowerPairs
	classifications	ro	802.3, 30.9.1.1.6 aPSEPowerClassfication
	statistics	ro	802.3, 30.9.1.1.8 aPSEPowerDeniedCounter; 802.3, 30.9.1.1.7 aPSEInvalidSignatureCounter 802.3, 30.9.1.1.11 aPSEMPSAbsentCounter 802.3, 30.9.1.1.9 aPSEOverLoadCounter 802.3, 30.9.1.1.10 aPSEShortCounter 802.3, 30.9.1.1.14 aPSECumulativeEnergy
	Actual Power	ro	802.3, 30.9.1.1.12 aPSEActualPower
	Power Accuracy		802.3, 30.9.1.1.13 aPSEPowerAccuracy
Main power source	slot id	ro	The slot identifies to which the main power source is connected
	Power Info	ro	Main power source information
	OperStatus	ro	

Configuration

Operational State

Notifications

Tree hierarchy

```
module: ieee-dot3-poe
    +--ro main-power-sources-state
        +--ro main-power-source-entry* [slot-id]
            +--ro slot-id        uint32
            +--ro power-info
            |   +--ro total-power?       decimal64
            |   +--ro reserved-power?    percentage
            |   +--ro consuming-power?   decimal64
            |   +--ro remained-power?    decimal64
            |   +--ro peak-power?        decimal64
            |   +--ro usage-threshold?   percentage
            +--ro operStatus?    enumeration
    +--rw poe-system-config
        +--rw main-power-usage-threshold
            +--rw threhold* [slot-id]
                +--rw slot-id           uint32
                +--rw usage-threshold?  percentage

notifications:
    +---n poe-port-notification
    |   +--ro event* [if-name event-type]
    |       +--ro if-name           string
    |       +--ro event-type        identityref
    |       +--ro event-content
    |           +--ro detection-status?      detection-state
    |           +--ro pd-connection-events   identityref
    +---n poe-power-notification
        +--ro event* [slot-id event-type]
            +--ro slot-id           uint8
            +--ro event-type        identityref
            +--ro event-content
                +--ro power-usage
                    +--ro power-usage-status   identityref
                    +--ro consuming-power      uint32
                    +--ro usage-threshold?     uint32
```

```
augment /if:interfaces/if:interface/eth:ethernet:
    +--rw poe-pse-port!
        +--rw poe-intf-config
            +--rw pse-enable?                boolean
            +--rw powering-pairs?            enumeration
            +--rw power-priority?            uint32
            +--rw type?                      string
            +--rw event-notification-enable?  boolean
augment /if:interfaces-state/if:interface/eth:ethernet:
    +--ro poe-pse-port!
        +--ro pairs-control-ability?   boolean
        +--ro detection-status?        detection-state
        +--ro classifications?         power-class
        +--ro poe-statistics
        |   +--ro power-denied?        uint32
        |   +--ro invalid-signature?   uint32
        |   +--ro MPSabsent?           uint32
        |   +--ro overload?            uint32
        |   +--ro short?               uint32
        |   +--ro cumulative-energy?   uint32
        +--ro actual-power?            decimal64
        +--ro power-accuracy?          uint32
```

Questions?