# PSE module

LI, Fei
Zhuang, Yan
Huawei Technologies

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# Outlines

- Comments received
- Major updates
- Module discussion
  - PSE module
  - Poe Power management module
- Open questions to discuss

# Comments from Interim meeting

- Power management is beyond current Clause 30 and should be removed to another module.

- PoDL PSE as single pair PSE is suggested to be considered as well.

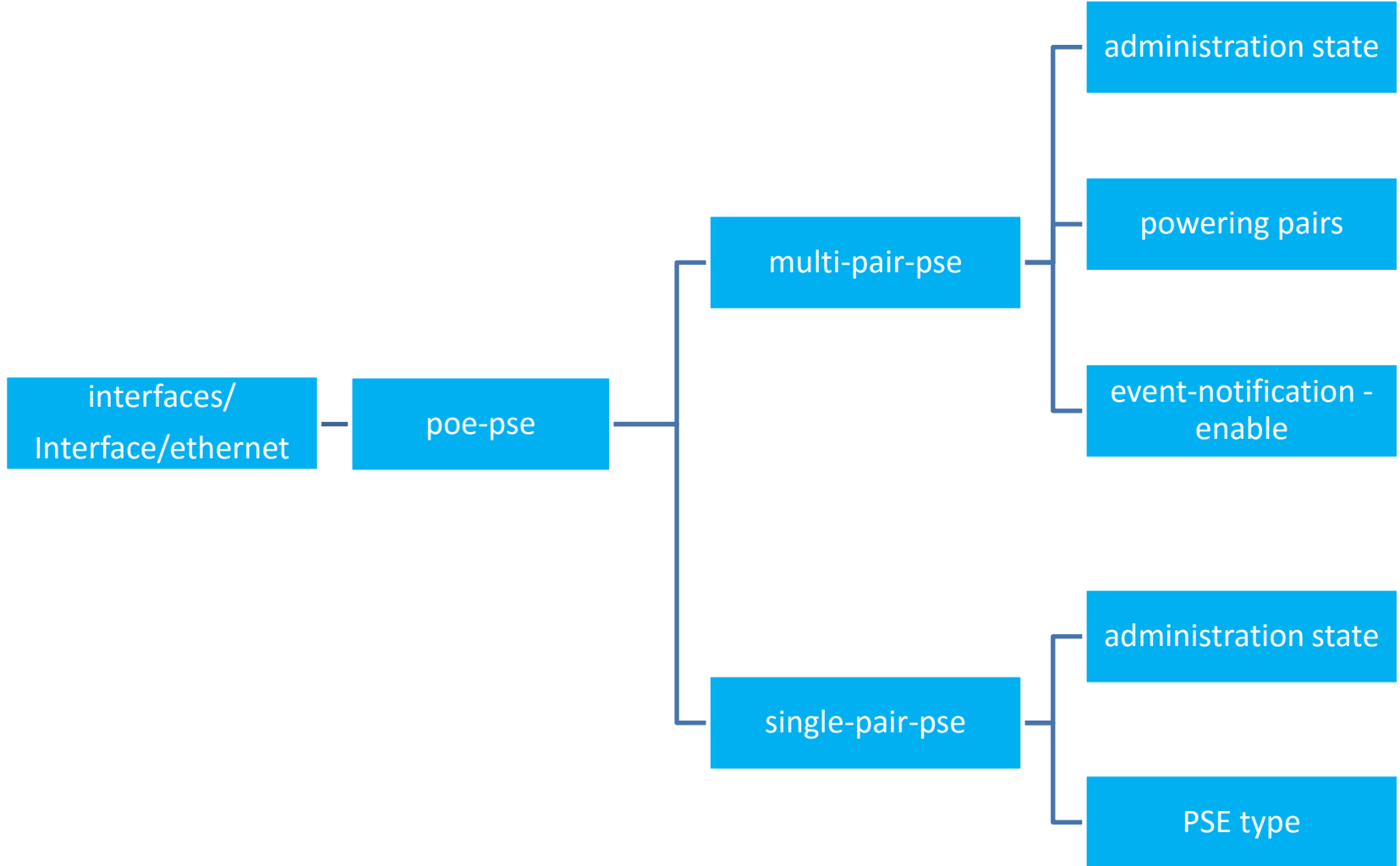- Check naming and container definitions

# Major Updates

- Separate the main power source configuration/state/notification with port power management into another poe power management module.

- PSE module augments the ieee802-ethernet-interface module with PoE attributes and features

- Include PoDL PSE feature into the PSE module.

- Change name 'poe' to 'pse' to be clear.

# Configuration for PSE

- Configuration

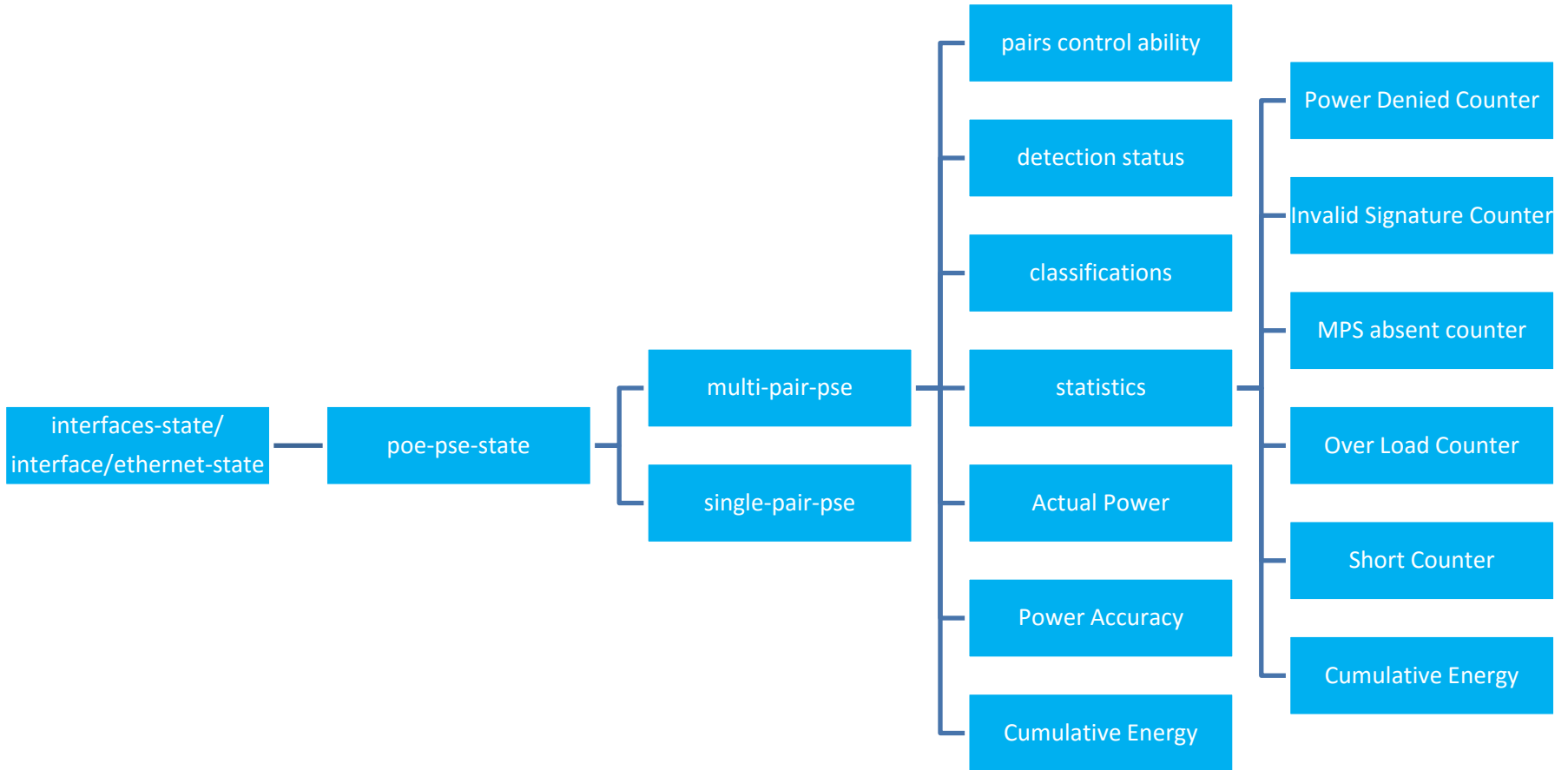| Managed Objects | Attributes | r/w | description |
|---|---|---|---|
| multi-pair-pse | poe-enable | r/w | 30.9.1.1.2 aPSEAdminState |
| | powering pairs | r/w | 30.9.1.1.4 aPSEPowerPairs |
| | event-notification -enable | r/w | Poe port event notification switch |
| single-pair-pse | poe-enable | r/w | 30.15.1.1.2 aPoDLPSEAdminState |
| | pse-type | r/w | 30.15.1.1.4 aPoDLPSEType |

# PSE Configuration
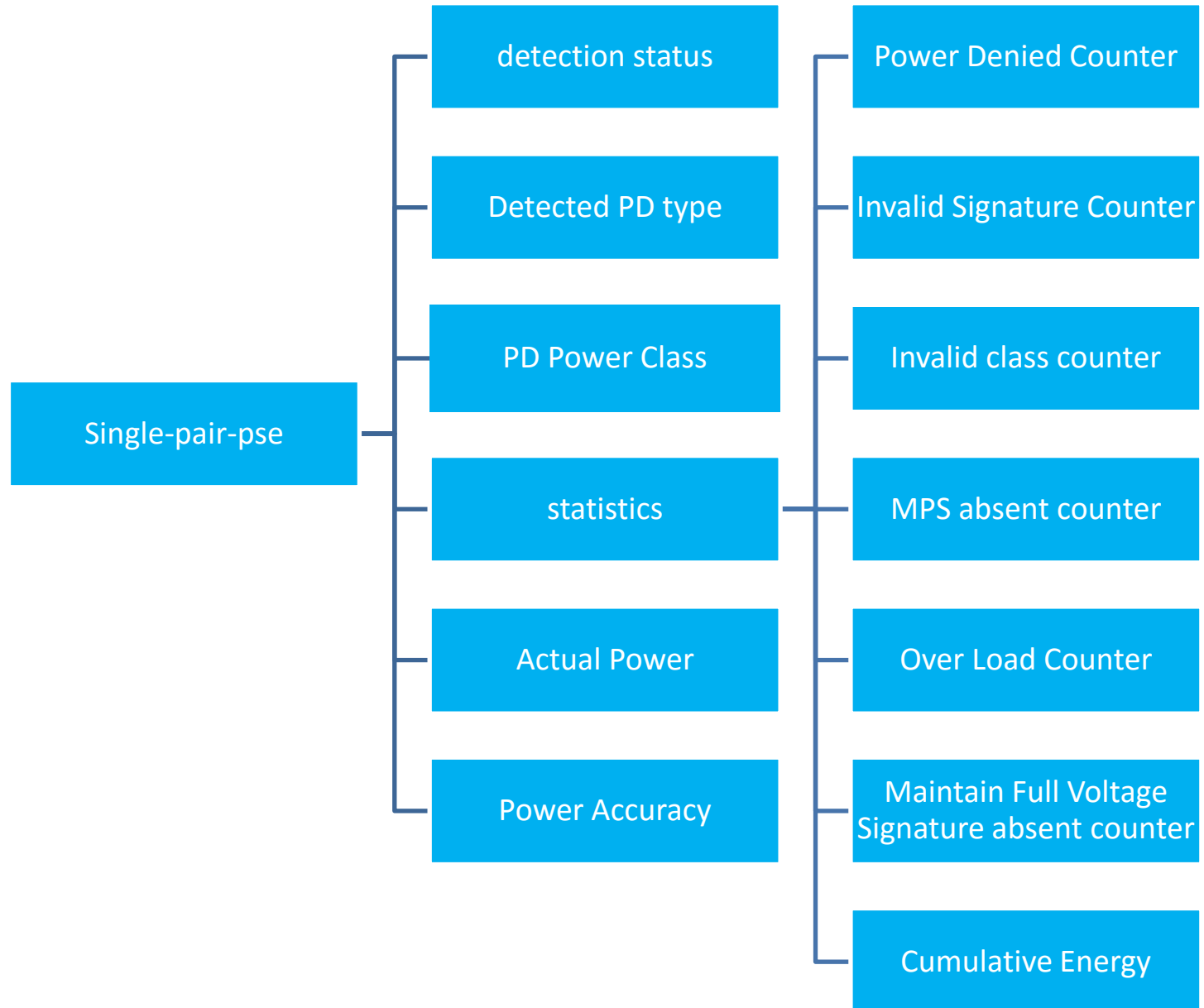
# Operational State for PSE

- Operational State

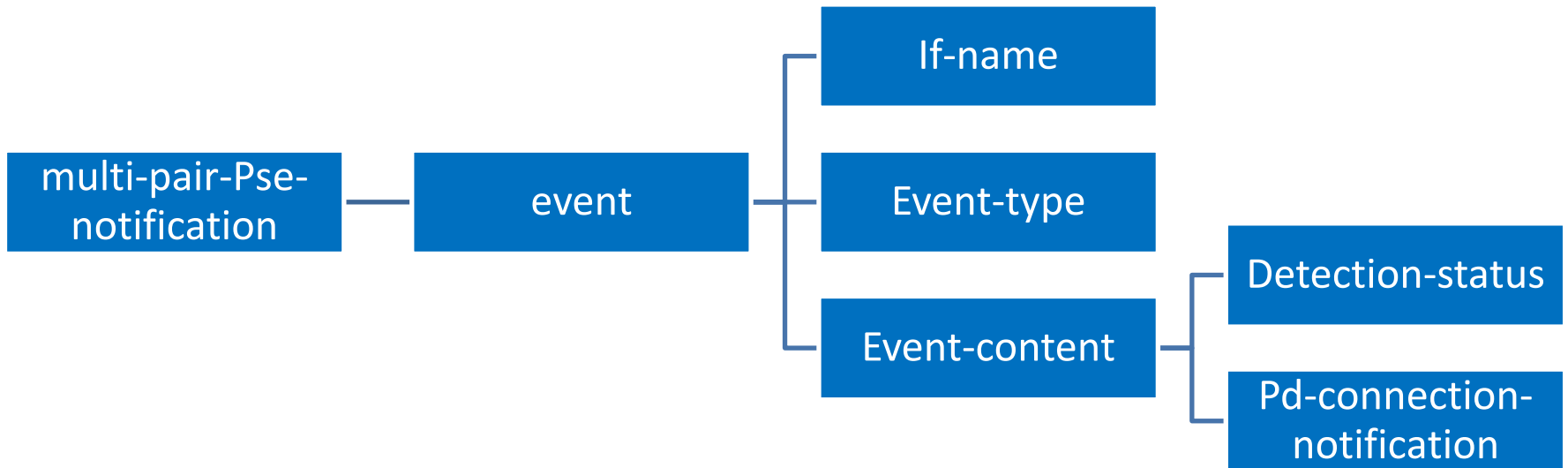| Managed Objects | attributes | r/w | description |
|---|---|---|---|
| Multi-pair-pse | pairs control ability | ro | 802.3 30.9.1.1.2 aPSEAdminState |
| | detection status | ro | 802.3, 30.9.1.1.4 aPSEPowerPairs |
| | classifications | ro | 802.3, 30.9.1.1.6 aPSEPowerClassfication |
| | statistics | 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 | ro | 802.3, 30.9.1.1.13 aPSEPowerAccuracy |

# PSE Operational state

# PoDLPSE Operational state

# Notifications for PSE



Single-pair PSE doesn't have notification defined in CL30.

# Tree hierarchy

```
module: ieee802-pse
  augment /if:interfaces/if:interface/eth-if:ethernet:
    +--rw poe-pse
       +--rw multi-pair-pse!
       |  +--rw pse-enable?                  boolean
       |  +--rw powering-pairs?              enumeration
       |  +--rw event-notification-enable?  boolean
       +--rw single-pair-pse!
          +--rw pse-enable?   boolean
          +--rw pse-type?     enumeration


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?        pse-detection-state
           +--ro pd-connection-events     identityref
```
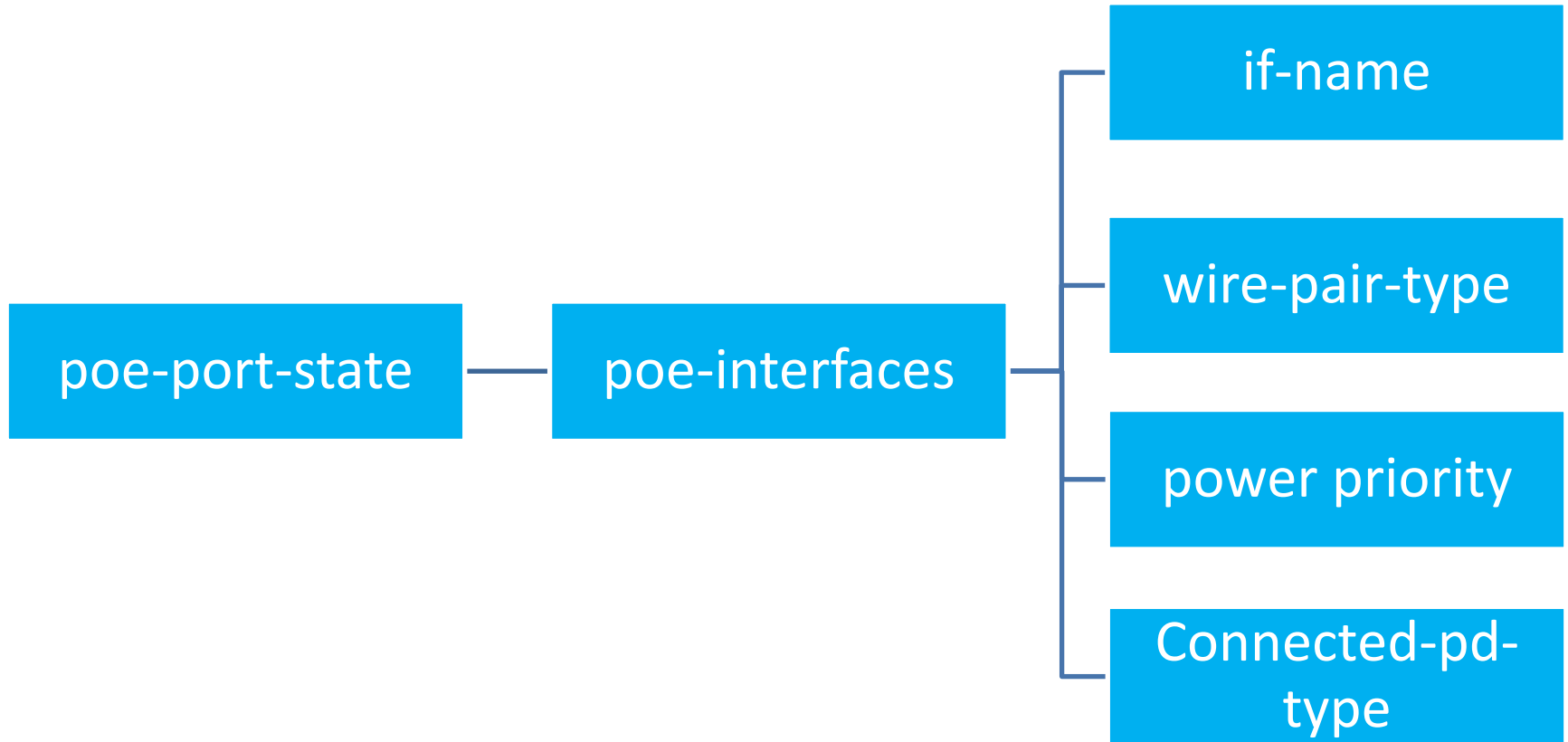
```
augment /if:interfaces-state/if:interface/eth-if:ethernet:
  +--ro poe-pse-state
     +--ro pse-pair-mode?            identityref
     +--ro multi-pair-pse-state
     |  +--ro pairs-control-ability?  boolean
     |  +--ro detection-status?       pse-detection-state
     |  +--ro classifications?        power-class
     |  +--ro poe-statistics
     |  |  +--ro power-denied?        uint32
     |  |  +--ro invalid-signature?   uint32
     |  |  +--ro mps-absent?          uint32
     |  |  +--ro overload?            uint32
     |  |  +--ro short?               uint32
     |  |  +--ro cumulative-energy?   uint32
     |  +--ro actual-power?           decimal64
     |  +--ro power-accuracy?         uint32
     +--ro single-pair-pse-state
        +--ro detection-status?    podl-detection-state
        +--ro detected-pd-type?    enumeration
        +--ro pd-power-class?      power-class
        +--ro poe-statistics
        |  +--ro power-denied?        uint32
        |  +--ro invalid-signature?   uint32
        |  +--ro invalid-class?       uint32
        |  +--ro overload?            uint32
        |  +--ro fvs-absence?         uint32
        |  +--ro cumulative-energy?   uint32
        +--ro actual-power?        decimal64
        +--ro power-accuracy?      uint32
        +--ro cumulative-energy?   uint32
```

# PoE Power Management

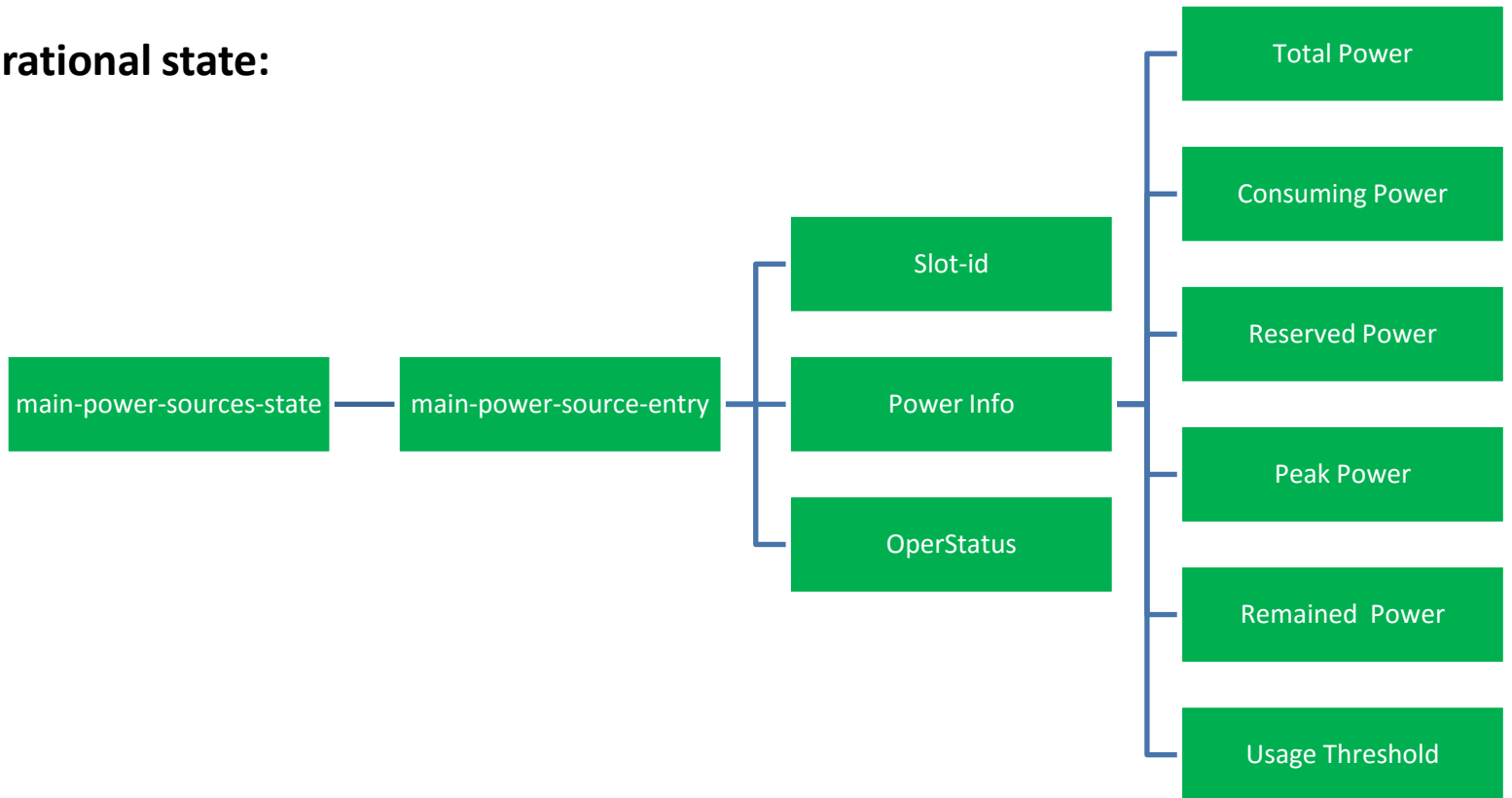| Managed Objects | attributes | r/w | description |
|---|---|---|---|
| poe-system-config | slot id | r/w | The slot identifies to which the main power source is connected |
| | usage-threshold | r/w | Power usage threshold |
| | power Info | ro | Main power source information<br>• total-power<br>• reserved-power<br>• consuming-power<br>• remained-power<br>• peak-power<br>• usage-threshold |
| | OperStatus | ro | |
| poe-ports-state | interface-name | ro | Reference to interface |
| | wire-pair-type | ro | Pse mode (single-pair pse; multi-pair pse) |
| | power priority | ro | This object controls the priority of the port from the point of view of a power management algorithm |
| | connected-pd-type | ro | A manager will set the value of this variable to indicate the type of powered device that is connected to the port. |

# poe-port-state

# Main Power source management(1)

**Configuration:**

Poe-system-config — main-power-usage-threshold
- slot id
- usage-threshold

**Operational state:**

main-power-sources-state — main-power-source-entry
- Slot-id
- Power Info
  - Total Power
  - Consuming Power
  - Reserved Power
  - Peak Power
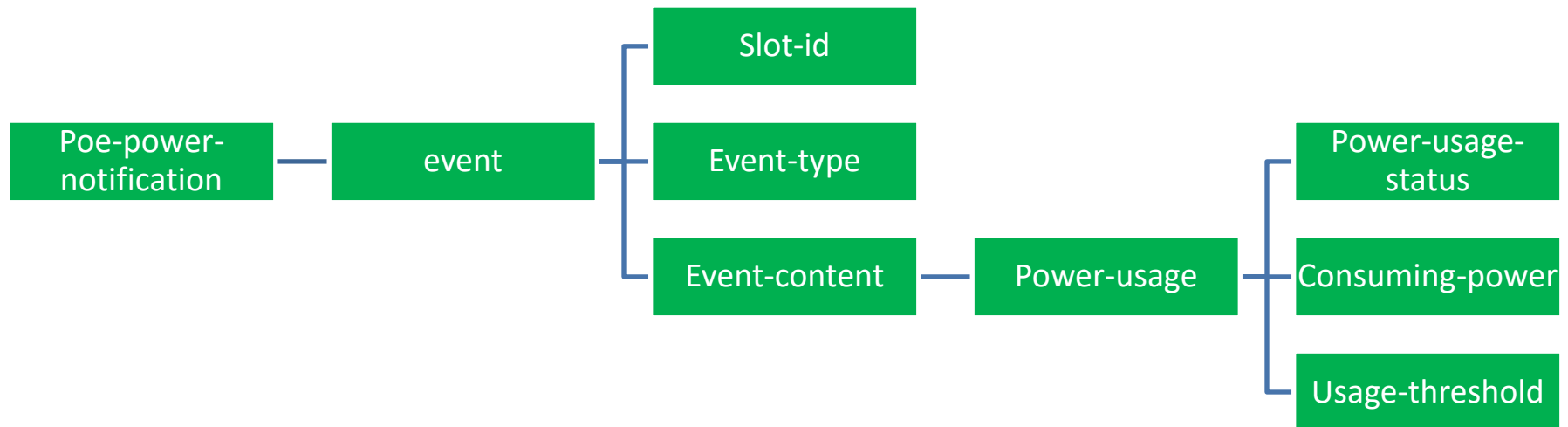  - Remained Power
  - Usage Threshold
- OperStatus

# Main Power source management(2)

**Notification:**

# Tree hierarchy

```
module: poe-power-management
    +--ro poe-ports-state
    |   +--ro poe-interfaces* [if-name]
    |       +--ro if-name               if:interface-state-ref
    |       +--ro wire-pair-type?       identityref
    |       +--ro power-priority?       uint32
    |       +--ro connected-pd-type?    string
    +--rw poe-system-config
    |   +--rw main-power-usage-threshold
    |       +--rw threhold* [slot-id]
    |           +--rw slot-id            uint32
    |           +--rw usage-threshold?   percentage
    +--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

  notifications:
    +---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 consuming-power    uint32
                   +--ro usage-threshold?   uint32
```

# Open Questions

- What does PSE-ID do?
  - aPSEID: the value of aPSEID is assigned so as to uniquely identify a PSE among the subordinate managed objects of the containing object.
  - aPoDLPSEID: the value of aPoDLPSEID is assigned so as to uniquely identify a PoDL PSE among the  subordinate managed objects of the containing object.
- ?

# Questions?