YANG based Config for MAC Privacy 802.1AEdk Second iteration
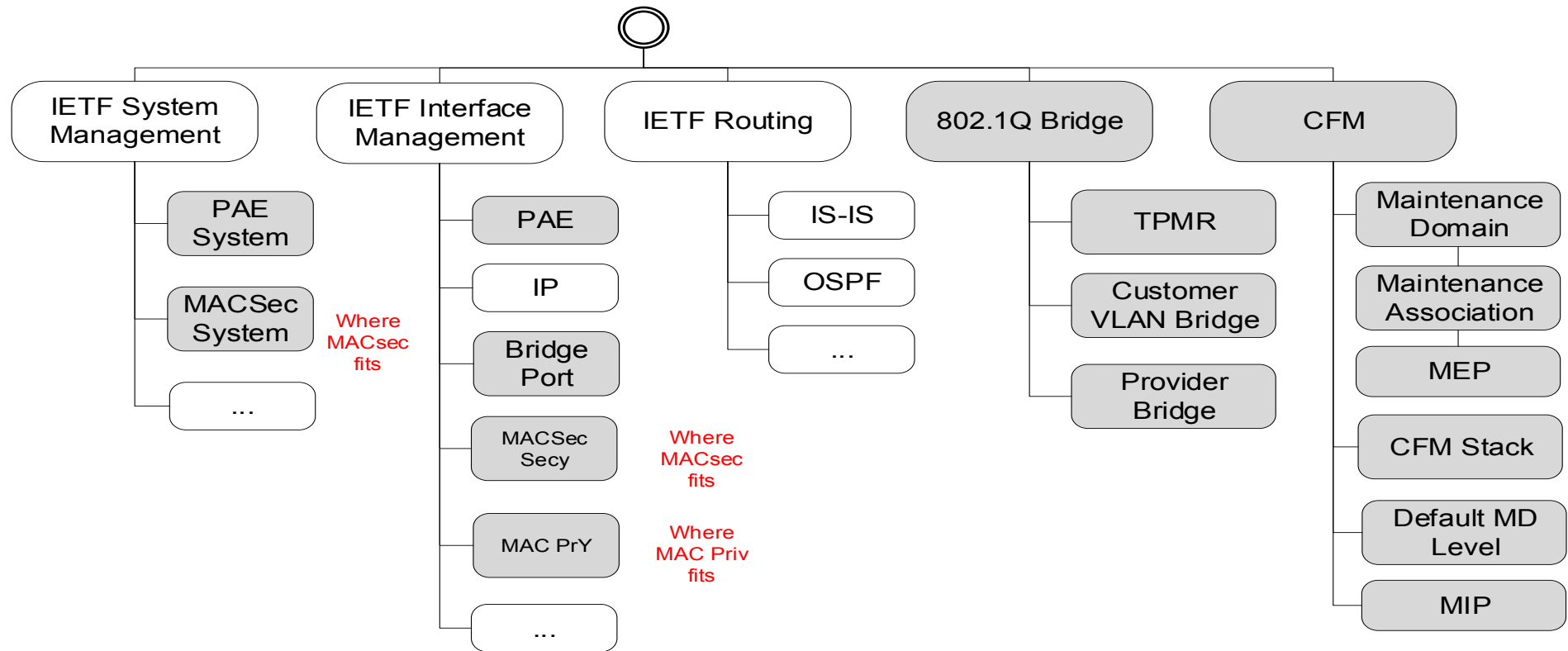
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Outline

- Proto Config for MAC Privacy
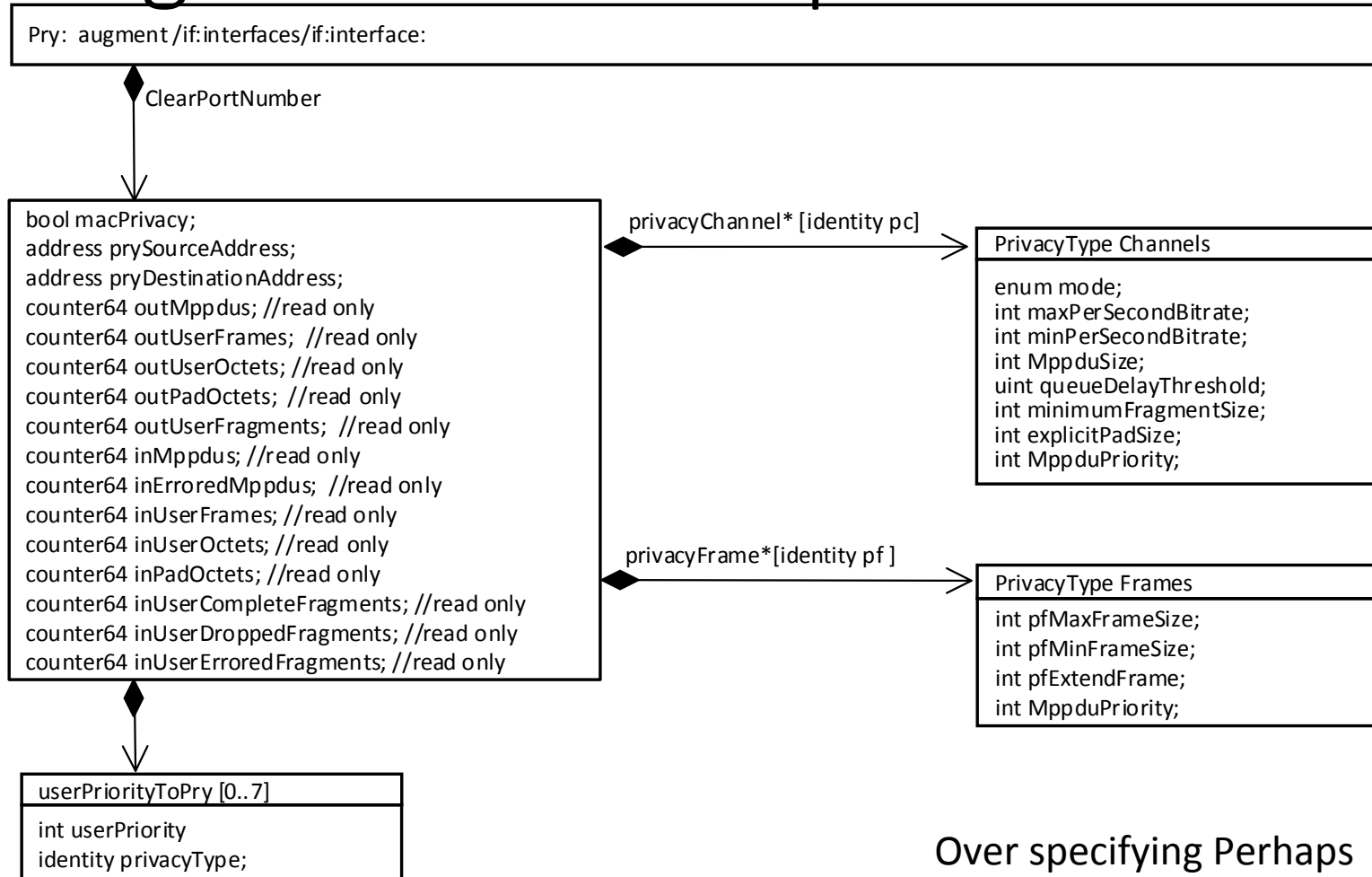- Moving configuration to standard language

Forward

- This presentation is for a discussion on detailed config.

- It may contain errors/omission and should be consider a work in progress.

- An updated version the presentation will be posted after discussion to correct it but it will remain a work in progress.

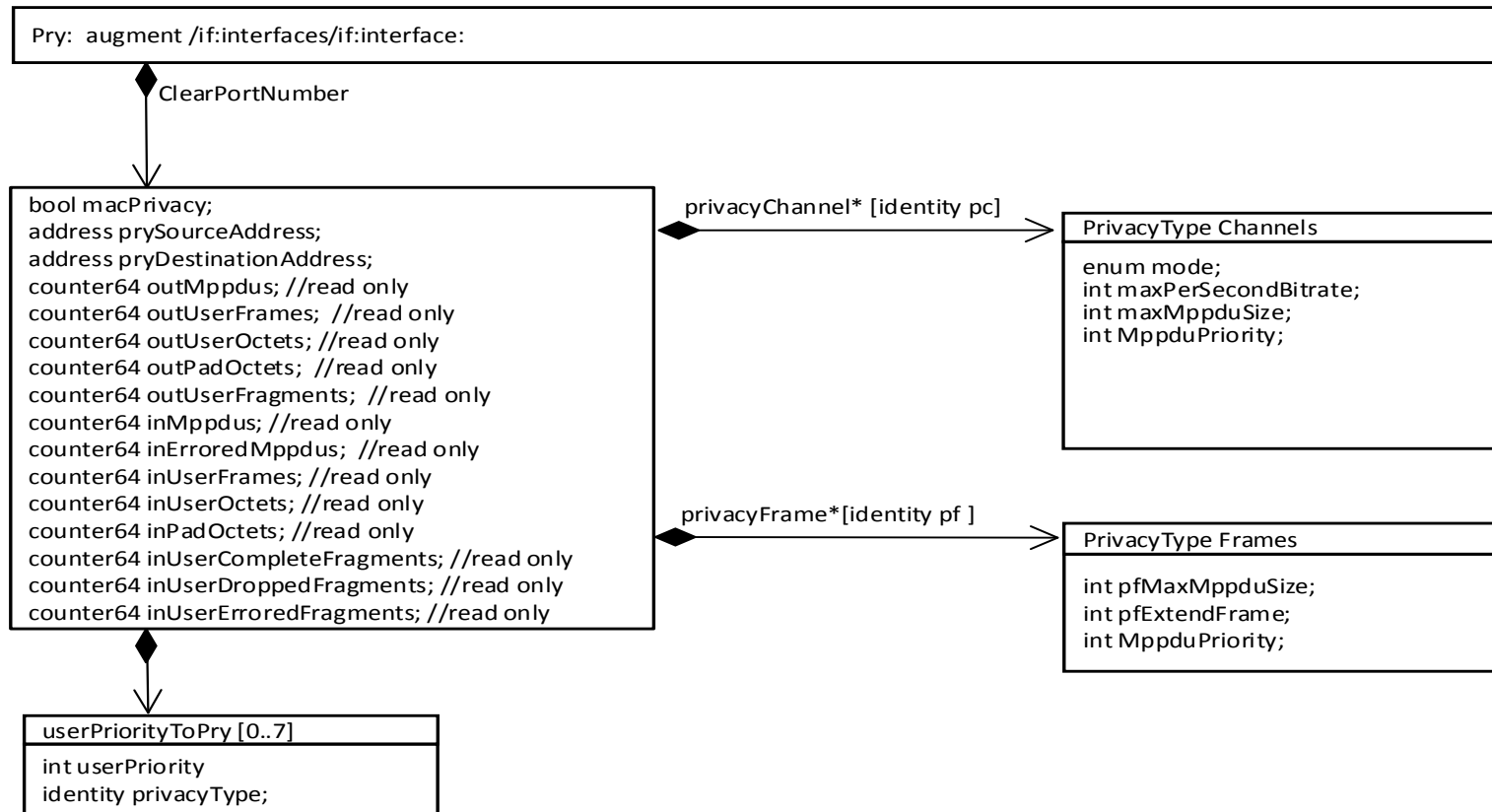# Instance Diagram for MACSec and MAC Privacy

UML Diagram Detailed Specification

Pry: augment /if:interfaces/if:interface:

◆ ClearPortNumber

bool macPrivacy;
address prySourceAddress;
address pryDestinationAddress;
counter64 outMppdus; //read only
counter64 outUserFrames; //read only
counter64 outUserOctets; //read only
counter64 outPadOctets; //read only
counter64 outUserFragments; //read only
counter64 inMppdus; //read only
counter64 inErroredMppdus; //read only
counter64 inUserFrames; //read only
counter64 inUserOctets; //read only
counter64 inPadOctets; //read only
counter64 inUserCompleteFragments; //read only
counter64 inUserDroppedFragments; //read only
counter64 inUserErroredFragments; //read only

privacyChannel* [identity pc]

PrivacyType Channels

enum mode;
int maxPerSecondBitrate;
int minPerSecondBitrate;
int MppduSize;
uint queueDelayThreshold;
int minimumFragmentSize;
int explicitPadSize;
int MppduPriority;

privacyFrame*[identity pf]

PrivacyType Frames

int pfMaxFrameSize;
int pfMinFrameSize;
int pfExtendFrame;
int MppduPriority;

userPriorityToPry [0..7]

int userPriority
identity privacyType;

Over specifying Perhaps

A minimal View

Pry: augment /if:interfaces/if:interface:

◆ ClearPortNumber

bool macPrivacy;
address prySourceAddress;
address pryDestinationAddress;
counter64 outMppdus; //read only
counter64 outUserFrames; //read only
counter64 outUserOctets; //read only
counter64 outPadOctets; //read only
counter64 outUserFragments; //read only
counter64 inMppdus; //read only
counter64 inErroredMppdus; //read only
counter64 inUserFrames; //read only
counter64 inUserOctets; //read only
counter64 inPadOctets; //read only
counter64 inUserCompleteFragments; //read only
counter64 inUserDroppedFragments; //read only
counter64 inUserErroredFragments; //read only

privacyChannel* [identity pc]

PrivacyType Channels

enum mode;
int maxPerSecondBitrate;
int maxMppduSize;
int MppduPriority;

privacyFrame*[identity pf]

PrivacyType Frames

int pfMaxMppduSize;
int pfExtendFrame;
int MppduPriority;

userPriorityToPry [0..7]

int userPriority
identity privacyType;

Privacy Chanel Config

- maxFrameSize;
    - Cannot accept frames larger than this (is overhead included)
- maxPerSecond Bitrate – useful to enforce bandwidth Applications can auto adjust below this level.
- MppduPriority
    - DE can be transparently passed through unless multiple user frames are included in the MPPDU

Privacy Frame Config

- MaxMppduSize;
  - Cannot accept frames larger than this (is overhead included)

- MinMppduSize;
  - Standard states minimum only

- ExtendFrame;
  - Standard recommends only

- MppduPriority
  - DE can be transparently passed through unless multiple user frames are included in the MPPDU

Priority Mapping

Priority (low-high)	Identity Map Union of channel and frame identities
0	channel-standard
1	channel-standard
2	channel-standard
3	channel-express
4	channel-express
5	frame-b
6	frame-b
7	frame-a

identity channel-ident
  identity channel-express
  identity channel-standard
identity frame-ident
  identity frame-a
  identity frame-b
  identity frame-c
  identity frame-d
  identity frame-e
  identity frame-f
  identity frame-g
  identity frame-h

Minor issue that Frames or channels can be defined that are not used. Creates

Priorities of channels and frames are mapped to channels and frames Orthogonal to names.

Statistics

```
+--ro out-mppdus?                    yang:counter64
+--ro out-user-frames?               yang:counter64
+--ro out-user-octets?               yang:counter64
+--ro out-pad-octets?                yang:counter64
+--ro out-user-fragments?            yang:counter64
+--ro in-mppdus?                     yang:counter64
+--ro in-errored-mppdus?             yang:counter64
+--ro in-user-frames?                yang:counter64
+--ro in-errored-user-frames?        yang:counter64
+--ro in-user-octets?                yang:counter64
+--ro in-pad-octets?                 yang:counter64
+--ro in-user-fragments?             yang:counter64
+--ro in-user-dropped-fragments?     yang:counter64
+--ro in-user-errored-fragments?     yang:counter64
```

Other?

- Is there any other config?

Output from the Prototype YANG

```
pry {
    mac-privacy enabled
    pry-source-address 00-00-00-11-11-11
    pry-destination-address 00-00-00-11-11-22
    user-priority-to-pry 0 {
      user-priority 0
      privacy-type channel-standard
    }
    user-priority-to-pry 1 {
      user-priority 1
      privacy-type channel-standard
    }
    user-priority-to-pry 2 {
      user-priority 2
      privacy-type channel-standard
    }
    user-priority-to-pry 3 {
      user-priority 3
      privacy-type channel-standard
    }
    user-priority-to-pry 4 {
      user-priority 4
      privacy-type channel-express
    }
    user-priority-to-pry 5 {
      user-priority 5
      privacy-type channel-express
    }
```

```
    user-priority-to-pry 6 {
      user-priority 6
      privacy-type frame-a
    }
    user-priority-to-pry 7 {
      user-priority 7
      privacy-type frame-a
    }
    privacy-channel dot1ae-pry:channel-express {
        pc dot1ae-pry:channel-express
        max-per-second-bitrate 1000000
        max-mppdu-size 4096
        mppdu-priority 4
    }
    privacy-frame dot1ae-pry:frame-a {
        pf dot1ae-pry:frame-a
        max-mppdu-size 4096
        mppdu-priority 6
      }
    }
  }
```