

Decoupling TSN YANG modules from .1Q bridge

P802.1Qcw/D1.2 comment resolution

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Comments #13, #14, #15, #16 against P802.1Qcw/D1.2:

<https://www.ieee802.org/1/files/private/cw-drafts/d1/802-1Qcw-d1-2-pdis-v00.pdf>

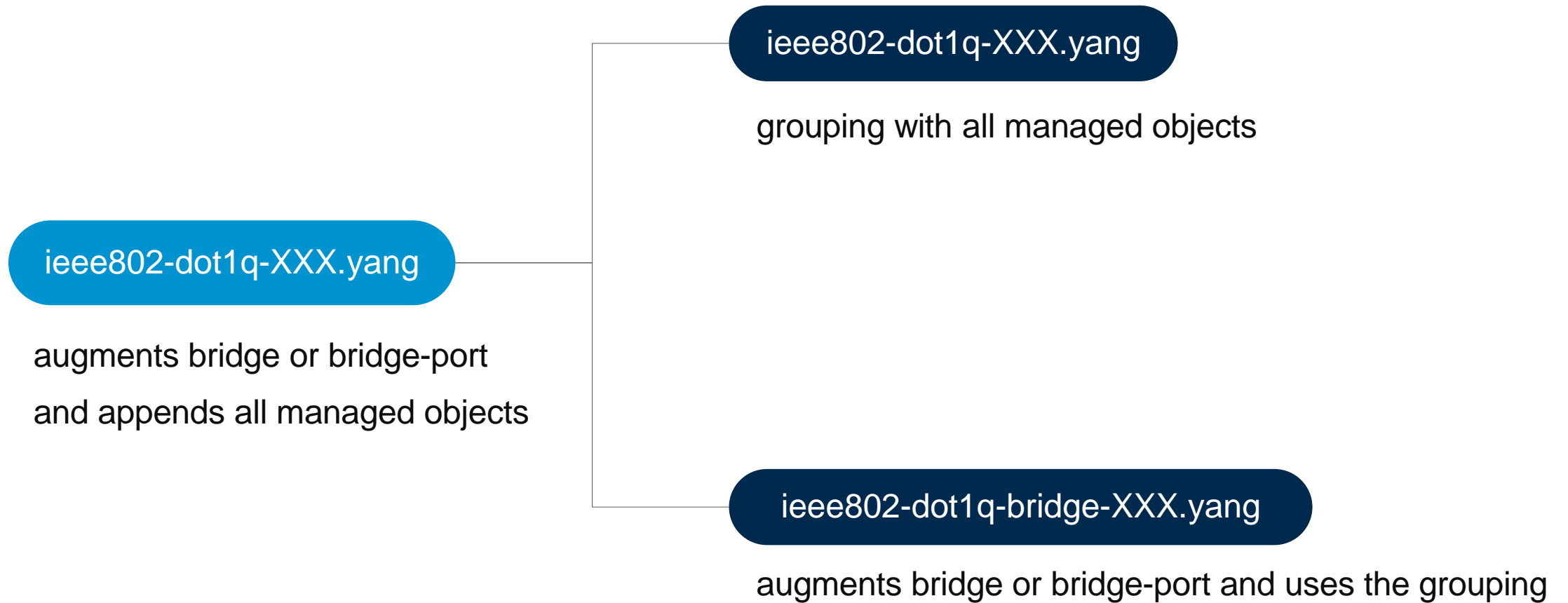
→ *“Tie QoS variables to Interfaces, not bridge-port.”*

<https://www.ieee802.org/1/files/public/docs2020/cw-finn-interfaces-not-ports-1120-v04.pdf>

Proposal from YANGsters (Scott Mansfield)

→ Copy Qcx!

YANG models and its relationship with .1Q bridge



Scheduled Traffic and Frame Preemption

ieee802-dot1q-sched.yang

```
...
grouping sched-parameters {
  container gate-parameter-table {...}
}
```

ieee802-dot1q-bridge-sched.yang

```
...
augment
"/if:interfaces/if:interface/dot1q:bridge-port" {
  description
    "...";
  uses sched:sched-parameters;
}
```

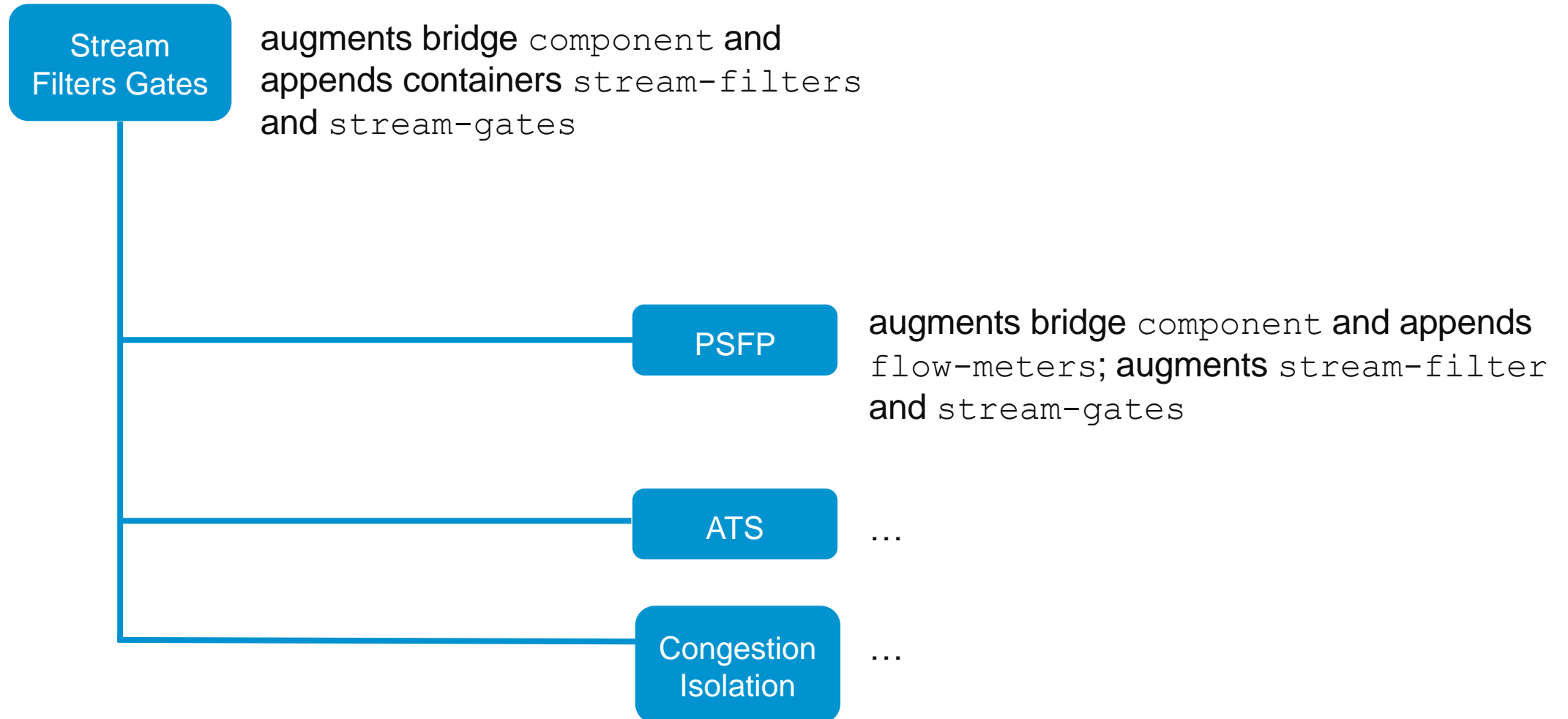
ieee802-dot1q-preemption.yang

```
...
grouping preemption-parameters {
  container frame-preemption-parameters {...}
}
```

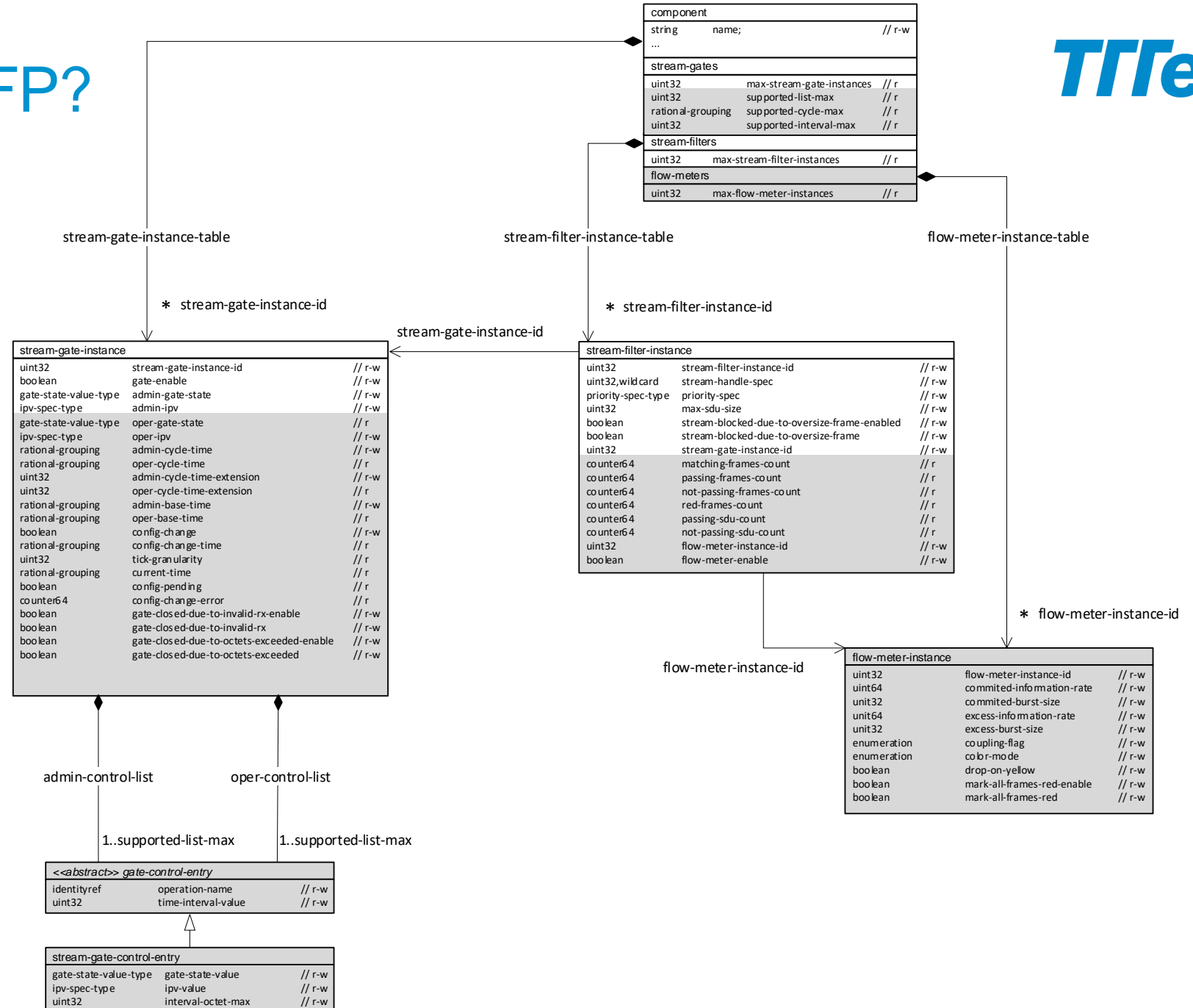
ieee802-dot1q-bridge-preemption.yang

```
...
augment
"/if:interfaces/if:interface/dot1q:bridge-port" {
  description
    "...";
  uses preempt:preemption-parameters;
}
```

What about PSFP?



What about PSFP?



Stream filters gates and PSFP (1/2)

ieee802-dot1q-stream-filters-gates.yang

```
...
grouping sfsg-parameters {
  container stream-gates {...}
  container stream-filters {...}
}
```

ieee802-dot1q-psfp.yang

```
...
grouping psfp-parameters{
  container flow-meters {...}
  uses sfsg:sfsg-parameters {
    augment "stream-filters/stream-filter-instance-table" {...}
    augment "stream-gates" {...}
    augment "stream-gates/stream-gate-instance-table" {...}
  }
}
```

Stream filters gates and PSFP (2/2)

ieee802-dot1q-bridge-stream-filters-gates.yang

```
...
augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
  description
    "...";
  uses sfsg:sfsg-parameters;
}
```

ieee802-dot1q-bridge-psfp.yang

```
...
augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
  description
    "...";
  uses psfp:psfp-parameters;
}
```


[for YANGsters]: leafref or uint32?

stream-filter-instance		
uint32	stream-filter-instance-id	// r-w
uint32, wildcard	stream-handle-spec	// r-w
priority-spec-type	priority-spec	// r-w
uint32	max-sdu-size	// r-w
boolean	stream-blocked-due-to-oversize-frame-enabled	// r-w
boolean	stream-blocked-due-to-oversize-frame	// r-w
uint32	stream-gate-instance-id	// r-w
counter64	matching-frames-count	// r
counter64	passing-frames-count	// r
counter64	not-passing-frames-count	// r
counter64	red-frames-count	// r
counter64	passing-sdu-count	// r
counter64	not-passing-sdu-count	// r
uint32	flow-meter-instance-id	// r-w
boolean	flow-meter-enable	// r-w

stream-gate-instance-id
is modeled as a leafref

flow-meter-instance-id
is modeled as a uint32

stream-gate-instance-id

flow-meter-instance-id

* stream-gate-instance-id

* flow-meter-instance-id

stream-gate-instance		
uint32	stream-gate-instance-id	// r-w
boolean	gate-enable	// r-w
gate-state-value-type	admin-gate-state	// r-w
ipv-spec-type	admin-ipv	// r-w
gate-state-value-type	oper-gate-state	// r
ipv-spec-type	oper-ipv	// r-w
rational-grouping	admin-cycle-time	// r-w
rational-grouping	oper-cycle-time	// r
uint32	admin-cycle-time-extension	// r-w
uint32	oper-cycle-time-extension	// r
rational-grouping	admin-base-time	// r-w
rational-grouping	oper-base-time	// r
boolean	config-change	// r-w
rational-grouping	config-change-time	// r
uint32	tick-granularity	// r
rational-grouping	current-time	// r
boolean	config-pending	// r
counter64	config-change-error	// r
boolean	gate-closed-due-to-invalid-rx-enable	// r-w
boolean	gate-closed-due-to-invalid-rx	// r-w
boolean	gate-closed-due-to-octets-exceeded-enable	// r-w
boolean	gate-closed-due-to-octets-exceeded	// r-w

flow-meter-instance		
uint32	flow-meter-instance-id	// r-w
uint64	committed-information-rate	// r-w
uint32	committed-burst-size	// r-w
uint64	excess-information-rate	// r-w
uint32	excess-burst-size	// r-w
enumeration	coupling-flag	// r-w
enumeration	color-mode	// r-w
boolean	drop-on-yellow	// r-w
boolean	mark-all-frames-red-enable	// r-w
boolean	mark-all-frames-red	// r-w

using leafref...

ieee802-dot1q-stream-filters-gates.yang

```
typedef stream-gate-ref {
  type leafref {
    path
      '/dot1q:bridges'+ '/dot1q:bridge'+ '/dot1q:component'+
      '/sfsg:stream-gates'+ '/sfsg:stream-gate-instance-table'+ '/sfsg:stream-gate-instance-id';
  }
  description
    "...";
}

...
leaf stream-gate-ref {
  type stream-gate-ref;
  mandatory true;
  description
    "...";
  reference
    "12.31.2.4 of IEEE Std 802.1Qcr-2020";
}
```

and using uint32

ieee802-dot1q-psfp.yang

```
leaf flow-meter-instance-id {  
    type uint32;  
    description  
        "Flow meter instance that is associated with the stream filter."  
    reference  
        "8.6.5.5 of IEEE Std 802.1Qcr  
        12.31.2.6 of IEEE Std 802.1Qcr";  
}
```

but leafref doesn't seem to like relative paths...

ieee802-dot1q-stream-filters-gates.yang

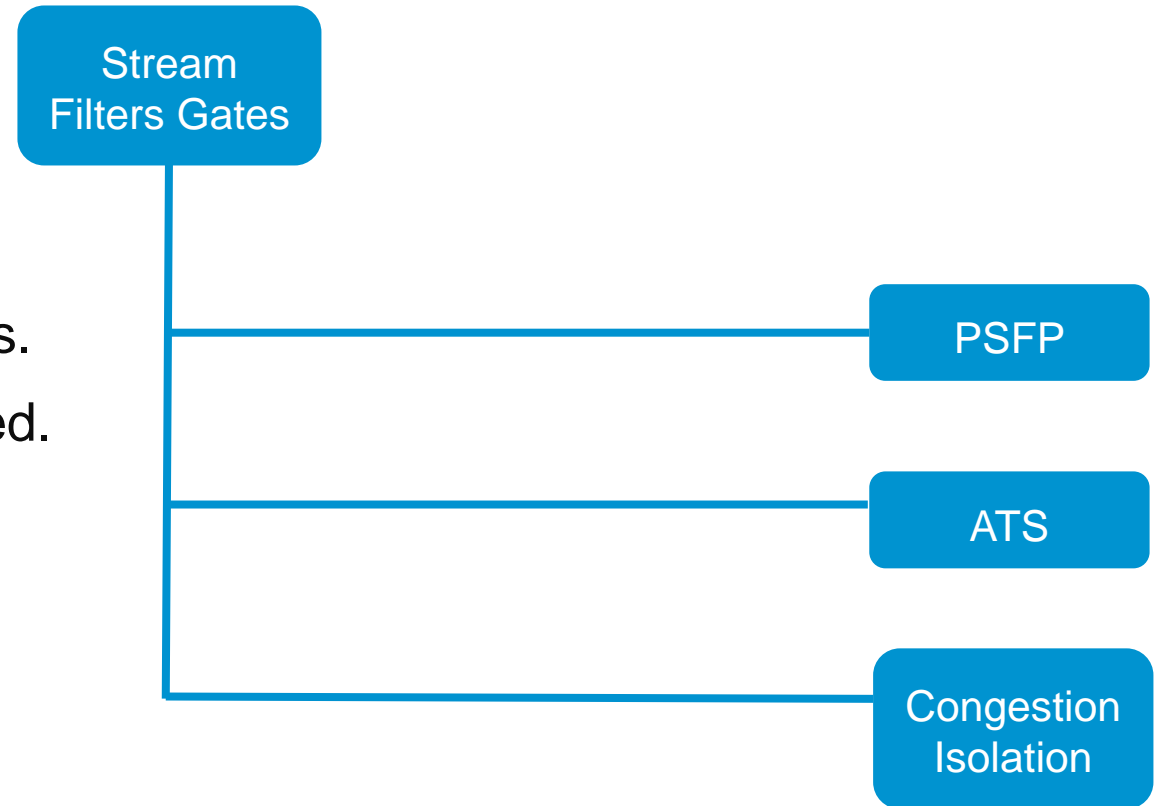
```
typedef stream-gate-ref {
  type leafref {
    path
      '/dot1q:bridges'+
      '/dot1q:bridge'+
      '/dot1q:component'+
      '/sfsg:stream-gates'+
      '/sfsg:stream-gate-instance-table'+
      '/sfsg:stream-gate-instance-id';
  }
  description
    "...";
}
```

```
module: ieee802-dot1q-stream-filters-gates
  augment /dot1q:bridges/dot1q:bridge/dot1q:component:
    +--rw stream-filters
    |   +--rw stream-filter-instance-table*
    |                                   [stream-filter-instance-id]
    ...
    | |   +--rw stream-gate-ref        stream-gate-ref
    ...
    +--rw stream-gates
    |   +--rw stream-gate-instance-table*
    |                                   [stream-gate-instance-id]
    |   +--rw stream-gate-instance-id  uint32
    ...
```

What about other “TSN” modules?

Are there other YANG modules that would be impacted / benefited by this change?

- Changing the structure of Stream Filter gates model breaks ATS and Congestion Isolation models.
- ATS and Congestion Isolation should be re-structure in the same way as Stream Filter Gates.
- The effort needed for this change must be studied.



Other models?

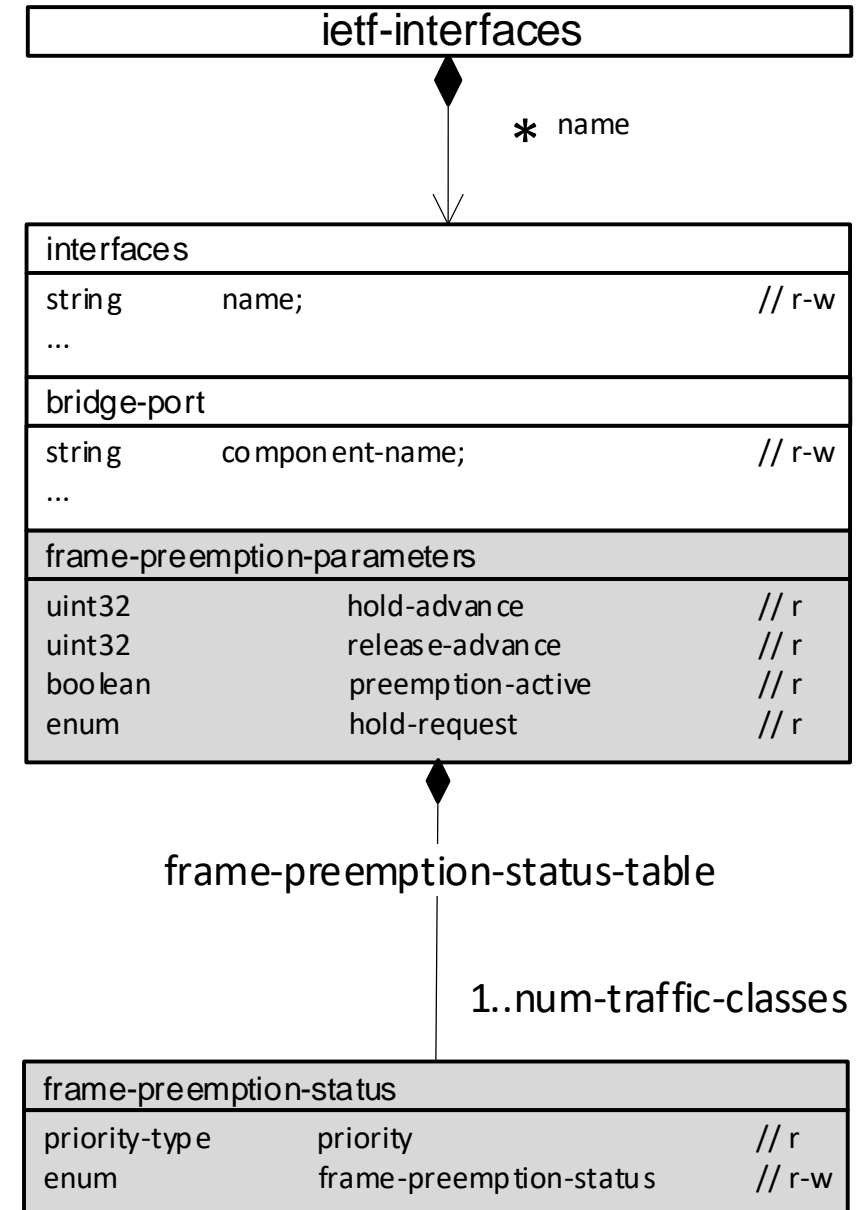
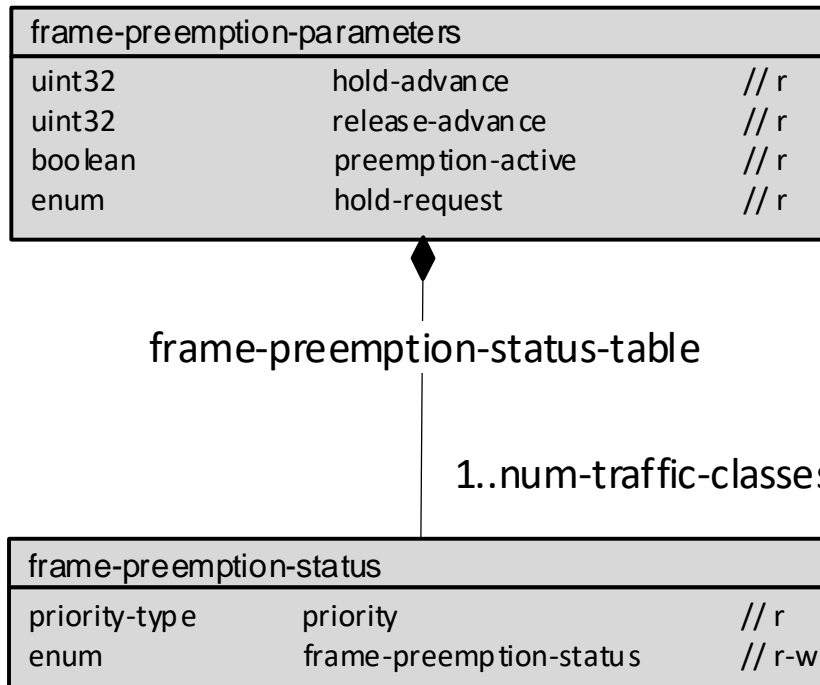
About the general structure of the TSN YANG modules:

- Does the proposed approach satisfy the commenter request?
- Which other YANG modules should be structured this way?
- [YANGsters]: leafref or uint32? How do we solve the `leafref` problem?

What about Clause 48? (1/3)

48.3 802.1 YANG Model:

- Structure is ok.
- Update UML models:
 - Should they reflect the relationship with .1Q bridge model?



What about Clause 48? (2/3)

48.4 Structure of the YANG Model

- Do we want to explain here how to use the models by non-.1Q bridges?

48.4.6 Scheduled Traffic model

A system implementing the Scheduled Traffic model (48.3.4) implements YANG modules as described in Table 48-7.

Table 48-7—YANG module dependencies for the Scheduled Traffic model

YANG Module	Notes
ieee802-types	-
ieee802-dot1q-types	-
ieee802-dot1q-bridge	-
ieee802-dot1q-sched	-

What about Clause 48? (3/3)

48.5 Definition of the 802.1Q YANG modules:

- New modules don't have trees.
- Include trees of the “bridge” modules?
- Structure is ok.

48.6 YANG modules:

- Update modules.
- Add “bridge” modules. One per mechanism?
- Structure is ok.

About the general structure of the TSN YANG modules:

- Does the proposed approach satisfy the commenter request?
- Which other YANG modules should be structured this way?
- [YANGsters]: leafref or uint32? How do we solve the `leafref` problem?

About Clause 48:

- Do we want to include the “bridge” counterpart of each TSN YANG module?
- Do we want to add information about how to use TSN YANG modules in non-.1Q bridges?

What about the procedure?

We need to change Qcw...

Comments against Qcw are on Scheduled Traffic, Frame Preemption and PSFP models.

... and Qcr / Q-2021

The change in PSFP requires updating Stream Filter Gates model.

→ Do we need a maintenance issue for this? or is it enough with the comment resolution?

... and Qcz!

Restructuring Stream Filter Gates breaks ATS and Congestion Isolation models.

→ Can we fix this in Qcz SA ballot? or do we need a maintenance issue?

About the general structure of the TSN YANG modules:

- Does the proposed approach satisfy the commenter request?
- Which other YANG modules should be structured this way?
- [YANGsters]: leafref or uint32? How do we solve the `leafref` problem?

About Clause 48:

- Do we want to include the “bridge” counterpart of each TSN YANG module?
- Do we want to add information about how to use TSN YANG modules in non-.1Q bridges?

About the procedure:

- How do we do it?