IEEE 802.1Qcx (CFM) Data Model Update

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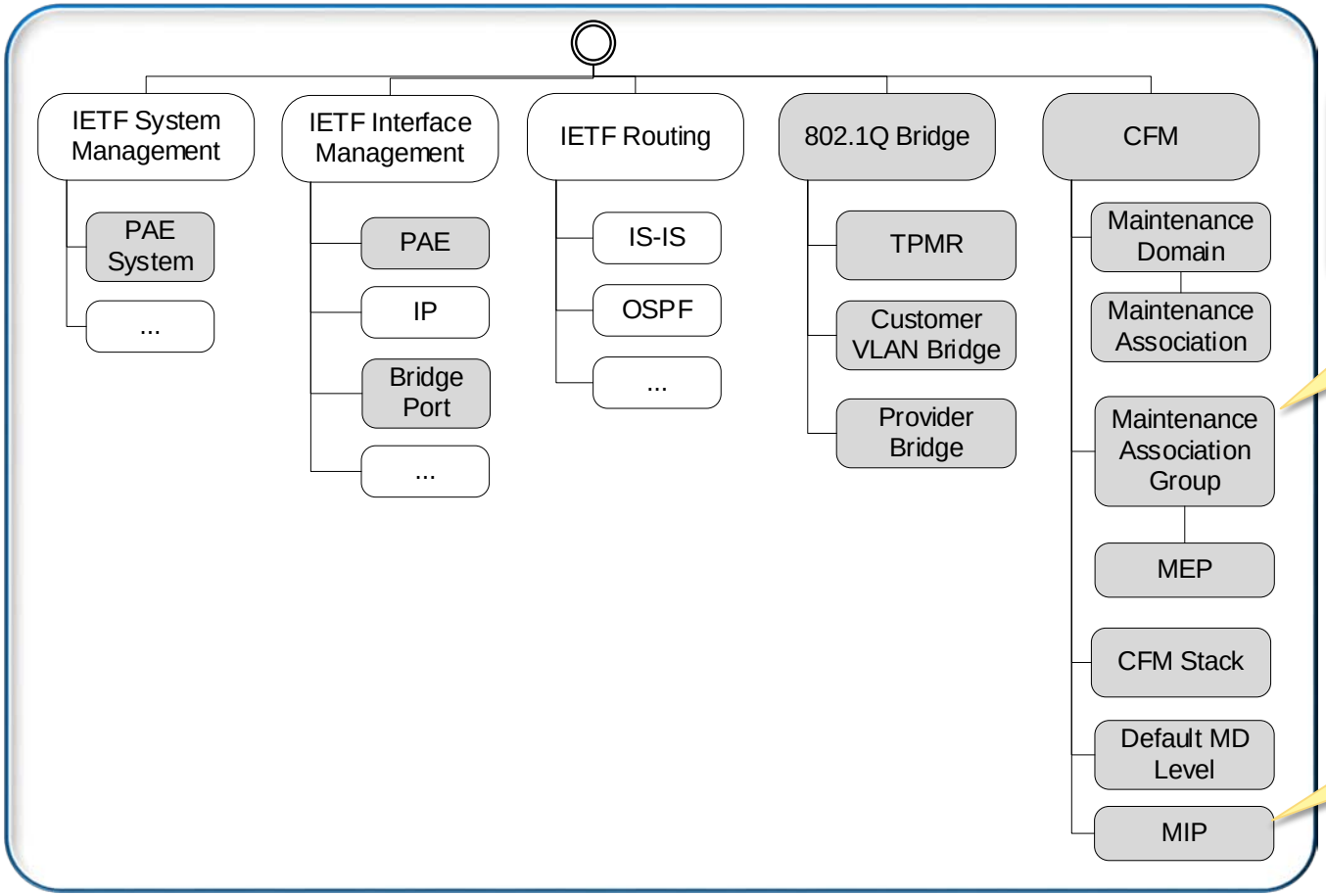
P802.1Qcx CFM YANG Data Model

1) IEEE 802.1Q Bridges
   - The CFM YANG model makes reference to the Bridges YANG modules introduced by 802.1Qcp
2) ITU-T Q14/15 developing a G.8052.1 YANG data modeling for Y.1731 Ethernet OAM
   - The (P802.1Qcx) CFM YANG model is structured such that it can be gracefully extended to support G.8052.1 modeling
3) BBF that would like to apply CFM to their devices
   - The (P802.1Qcx) CFM YANG model is structured such that it decouples 802.1Q Bridge specifics from the base/generic CFM model
4) MEF that would like to revise MEF 38 (and MEF 39)
   - The (P802.1Qcx) CFM YANG model is structured such that it can be augmented to meet the MEF members needs
5) Etc.

YANG Model Relationships

- IEEE 802.1 (P802.1Qcx) CFM data model objects will be on its own branch of the hierarchy
  - Facilitates utilization of CFM data model by devices other than 802.1Q Bridges



Maintenance Association Group object is introduced to simplify MEP and CFM operations configuration and operational data retrieval.

MIP object is introduced to support explicit MHF creation.

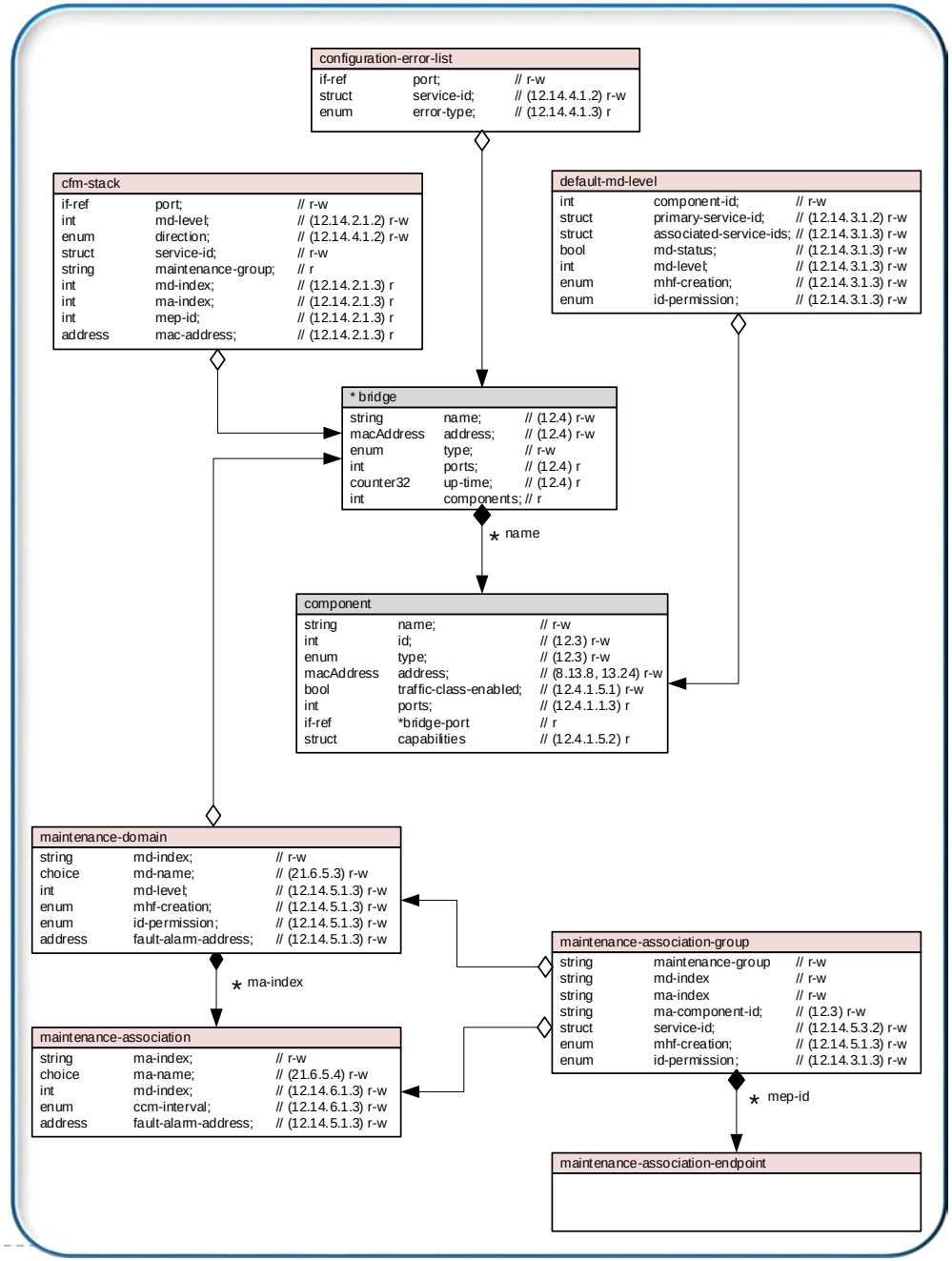
YANG Module Structure

- Structure of model facilitate a diverse user community to apply the CFM data model

Module	Description
ieee802-dot1q-cfm-type.yang	Type definitions for the overall CFM YANG modules
ieee802-dot1q-cfm.yang	Generic CFM YANG model structure. This model in this module can be utilized by users that may not be IEEE 802.1Q Bridge compliant.
ieee802-dot1q-cfm-bridge.yang	Augmentations and extensions to the generic CFM YANG model that is specific to IEEE 802.1Q Bridges.
ieee802-dot1q-cfm-mip.yang	Explicit MIP YANG model structure which is optional.

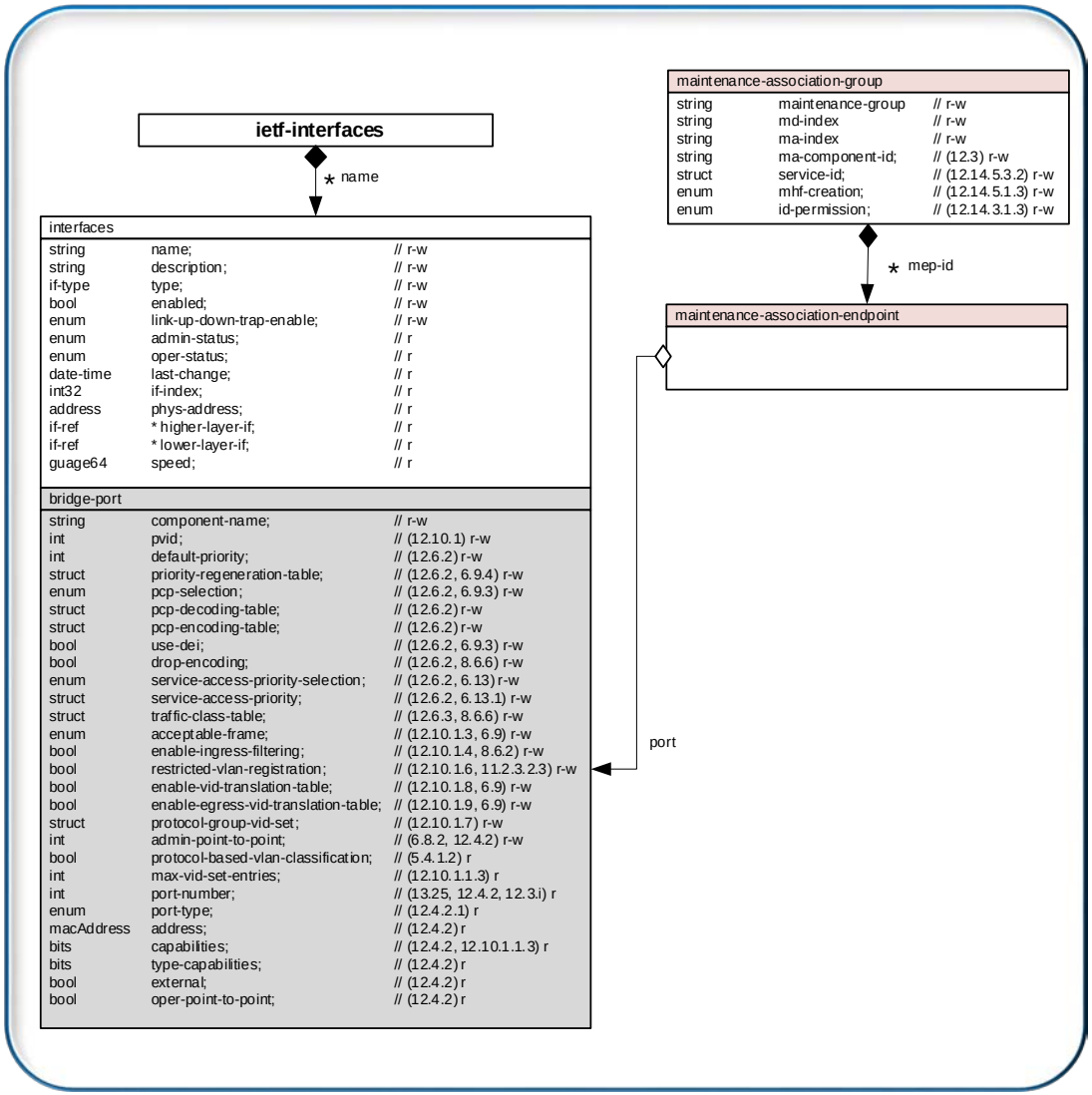
P802.1Qcx Data Model Relationships

- The cfm-stack, configuration-error-list, and default-md-level objects are related to a device (e.g., Bridge and/or Bridge Component)
- Maintenance-associations are associated with a given maintenance-domain
- The maintenance-group object contains the component specific maintenance-association attributes
  - The maintenance-group object provides a reference to a maintenance-association and maintenance-domain pair
  - The MEP the associated with a maintenance-association-group



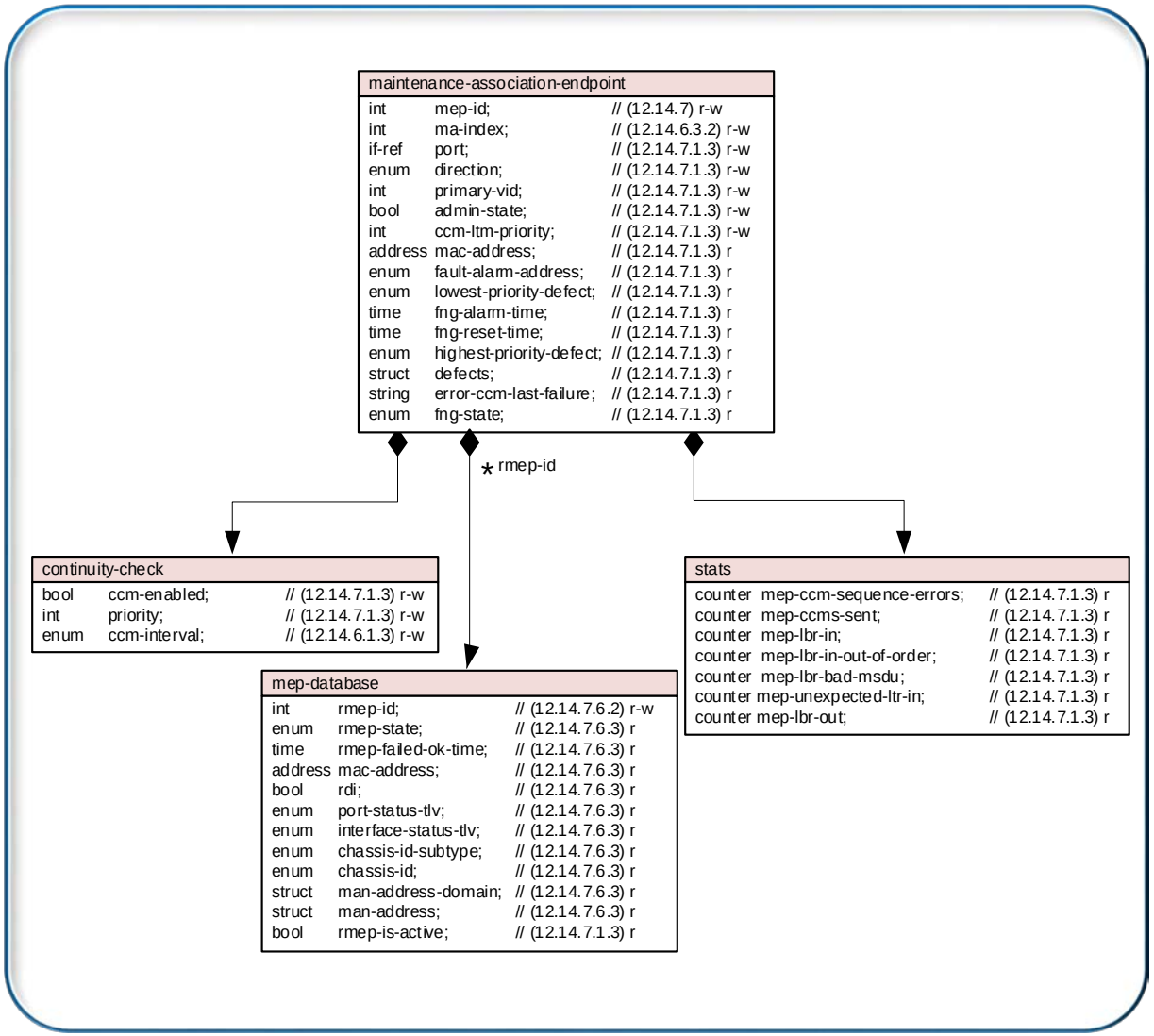
P802.1Qcx Data Model Relationships

- The MEP the associated with a maintenance-association-group and makes a reference to the Bridge port
- This simplifies MEP creation and state information retrieval since we only need to reference a “maintenance-group” as opposed to <*maintenance-domain*, *maintenance-association*, *maintenance-association-component*>
  - This also simplifies CFM operations (e.g., CFM protocol supports) invocations that are related to MEPs



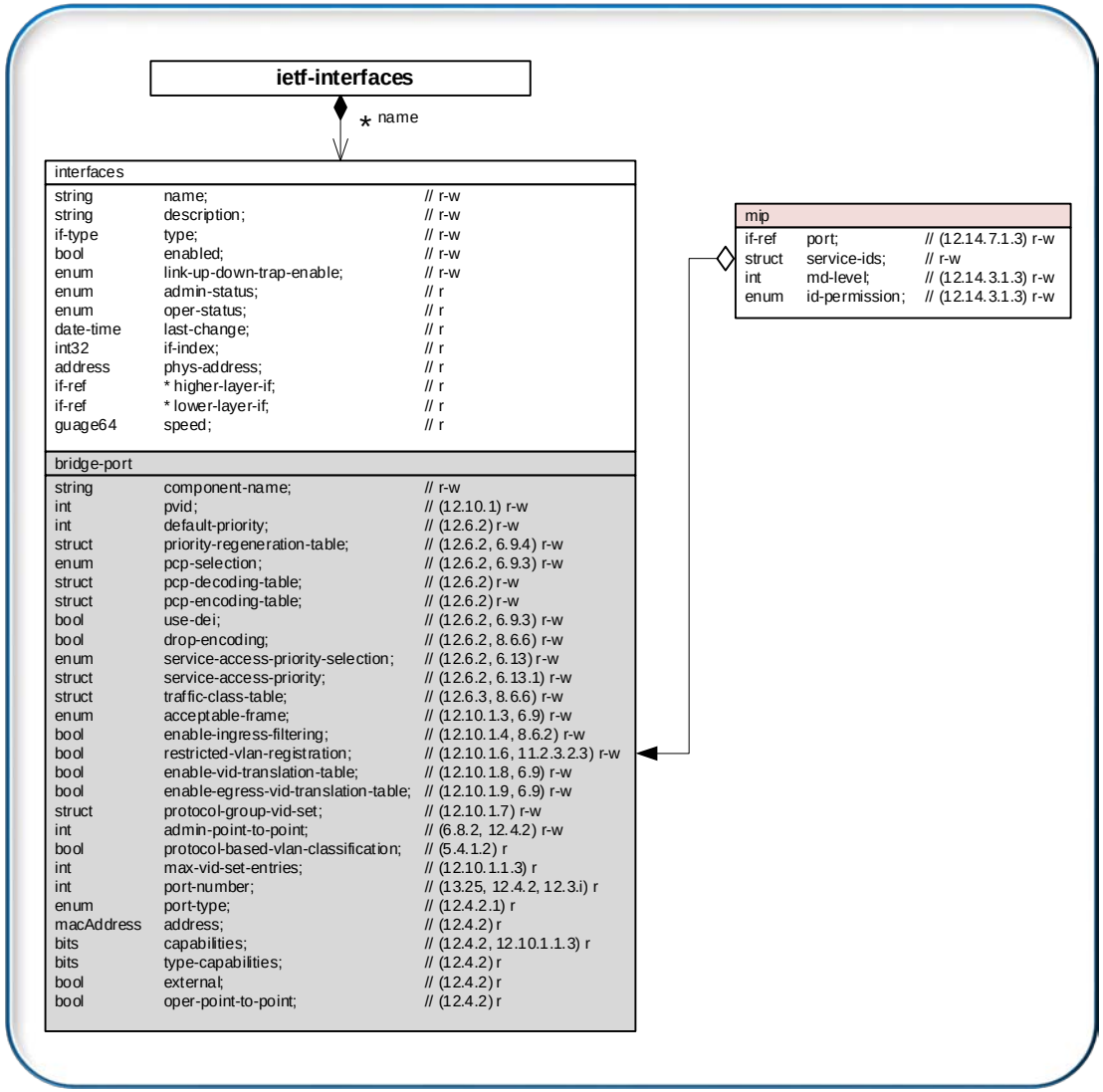
P802.1Qcx Data Model Relationships

- The MEP is associated with the MEP CCM database and MEP specific stats
- In addition, the CFM continuity-check protocol information is associated with the MEP
  - Only CFM protocols that can be persistently run are explicitly contained under the MEP
  - CFM protocols (e.g., loopback, linktrace) which are not persistent (e.g., on demand) are included in the CFM operation object



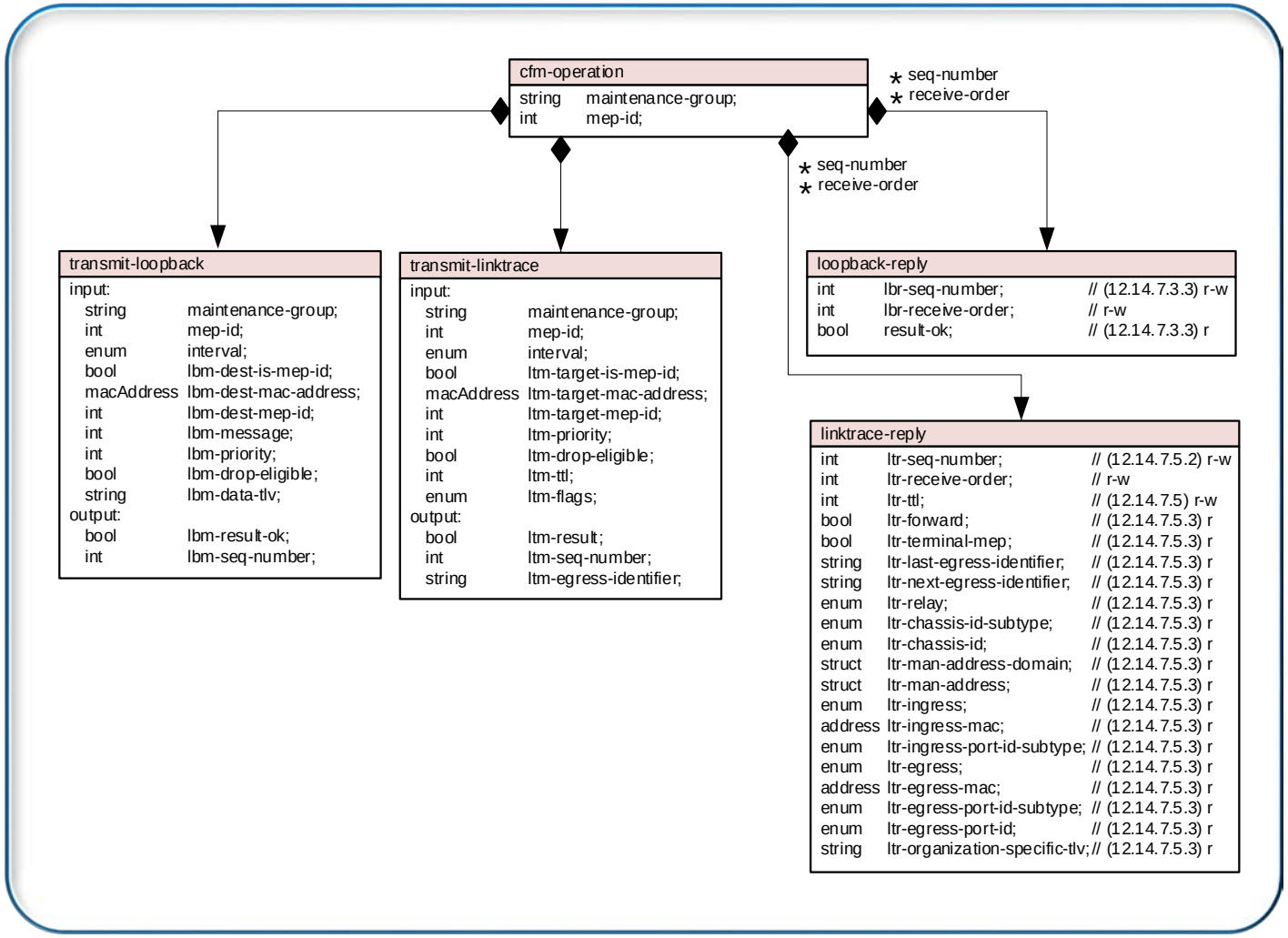
P802.1Qcx Data Model Relationships

- MIPs can be explicitly created by associating them to an Interface and service



P802.1Qcx Data Model Relationships

- CFM operations/commands are supported



P802.1Qcx Project Status

- Current set of CFM YANG modules can be found in GitHub YANG
  - https://github.com/YangModels/yang/tree/master/standard/ieee/802.1/draft

- P802.1Qcx D0.3 draft is available for Task Group balloting
  - 802-1Qcx-d0-3.pdf