



# How to Document RAP Specification

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# Overview

This slide deck is intended to discuss the following issues

§ **RAP's relationship to 802.1Qat (MSRPv0)**

§ **RAP's relationship to 802.1Qcc**

§ **RAP's relationship to P802.1CS (LRP)**

§ *Should RAP be specified as an amendment to LRP?*

§ *Should RAP be stand-alone or in 802.1Q?*

# Relation to 802.1Qat - MSRPv0

## RAP is similar to MSRPv0 in terms of

- § both use as a distributed stream reservation protocol
- § SR classes as fundamental basis for stream reservation
- § reservation flow (downstream advertisement + upstream reservation)
- § sharing most data in attributes( but different grouping and coding, e.g. fixed vs. TLV)

## RAP is different from MSRPv0

- § MSRPv0 defines an application within the registration framework defined by MRP.
- § RAP defines a stream reservation protocol that runs over P802.1CS LRP, which can provide the scalability and performance needed by RAP.
- § RAP supports TSN features, while MSRPv0 is developed for AVB
- § RAP cannot talk to MSRP over the link due to use of a different link-local registration protocol.
  - § But RAP could specify an attribute translation mechanism for propagation of an MSRP attribute from one port using MSRP to another port using RAP on a bridge.

# Relation to 802.1Qcc

## Relation to MSRPv1 in Qcc

- § RAP will support the enhancements in MSRPv1 for distributed configuration model
  - § such as MaxLatency, Talker pruning per port and Talker VLAN pruning.
- § RAP will **NOT** support the enhancements in MSRPv1 for centralized configuration of TSN features like seamless redundancy etc.
- § **But** RAP will support distributed configuration of seamless redundancy, configurable SR classes, etc., which are not yet supported by the distributed version of MSRPv1.

## Relation to UNI data defined in Qcc Clause 46.2

- § RAP will reuse most of the UNI data that are specified as applicable for distributed stream configuration.
- § RAP will **NOT** support those that are for exclusive use by centralized configuration with a CNC.
- § RAP will need to specify new attribute data to support features like enhanced domain detection and seamless redundancy

# Relation to P802.1CS - LRP

## RAP has a clear layering relationship with LRP

- § LRP is an link-local protocol that provides generic data transmission and synchronization services.
- § RAP as an LRP application simply uses the services provided by LRP via its provided primitives.
- § RAP is just one of the potential applications in need of LRP as the underlying protocol.
- § Multiple different LRP applications can share only one LRP instance on each port.

## *Should RAP be specified as an amendment to LRP?* – Not necessarily

- § Unlike MRP, LRP is only a link-local protocol and does **NOT** specify a generic framework to include application components as placeholder in its architecture.
- § RAP will specify its own architecture/components, which are entirely located outside LRP. Thus specifying RAP has **little** to do with amending LRP itself.
- § RAP is much more than just specifying "data"; it is a protocol also defining behaviors and operations. LRP and RAP is **NOT** comparable to LLDP and its TLVs.
- § Keeping LRP and RAP separate but developing in parallel allows both work to interact each other and then improve quality. But clearly, the PAR for RAP needs to indicate dependency on the finish of LRP.

## Discussion: *RAP as stand-alone or in 802.1Q?*

### The major arguments for RAP as an amendment to 802.1Q

- § RAP is quite MSRP-like in terms of functionality, attributes, data flow, etc., while MSRP is in Q.
- § RAP will control the core bridging functions, e.g. dynamic reservation entries in FDB.
- § RAP's attributes will reuse many of the data specified in the Qcc UNI.
- § RAP will need access to some of the managed objects specified in Q relating to
  - § queuing and transmission functions, SR class settings and mappings, VLAN settings, etc.
- § **For extra discussion: *if in Q, should RAP be specified as part of SRP?***

### The major arguments for RAP as a stand-alone specification

- § RAP is built over LRP, which is stand-alone.
- § RAP will support distributed configuration of CB, which is stand-alone.
- § RAP can be used in a mixed L2/L3 environment in collaboration with a higher layer reservation protocol defined by other organization like IETF.

**Thank You!**



**Questions?**