IEEE P802.1Qdd Resource Allocation Protocol (RAP)

Preview of Draft 0.5

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Current Status

- This presentation gives a preview of P802.1/D0.5.
  - The draft D0.5 hasn’t been uploaded at the time of this presentation.
  - Thus the eventual D0.5 may slightly differ from the descriptions in this presentation.

- The draft for D0.5 will be available at around the beginning of August 2021.
  - Announced (with a short introduction to draft) at a TSN call.
  - Proceeding with a Task Group ballot for this draft.

Major Work on D0.5

- Incorporation of resolved ballot comments on D0.4
- Changes and also new text in *99.2 Model of operation*
- Some changes in *99.4 RAP attribute and TLV encoding definitions*
- Specification of *99.5 RAP Endpoint*
  - Primitives for RAP Service Interface (RSI)
  - Procedures for handling attributes on end stations (only for non-redundancy in D0.5)
- Specification of *99.7 RAP Propagator*
  - Architecture and variables
  - Procedures for processing/propagating attributes on bridges (only for non-redundancy in D0.5)
  - Resource reservation functions (only abstract functions)
- Specification of *99.8 RAAI (Resource allocation Abstract Interface)*
  - Several APIs for filtering/forwarding stream in FDB, and allocating/deallocating queue resources.

Architecture of RAP Propagator

- Signaling functions
  - handling of attributes for three signaling types.
  - incl. actions in response to dynamic changes of VLAN configuration, MAC address registration, RA class settings, stream resources, etc.
  - procedures for redundancy not yet included in D0.5 and to be provided in next draft.

- Resource reservation functions
  - defined in clause 99 only as a set of abstract functions for use by signaling functions to precheck reservations (in Talker Announce) and to make/unmake reservations (in Listen Attach).
  - detailed algorithms for latency calculation and resource allocation are to be specified in each RA class template for a specific transmission function.

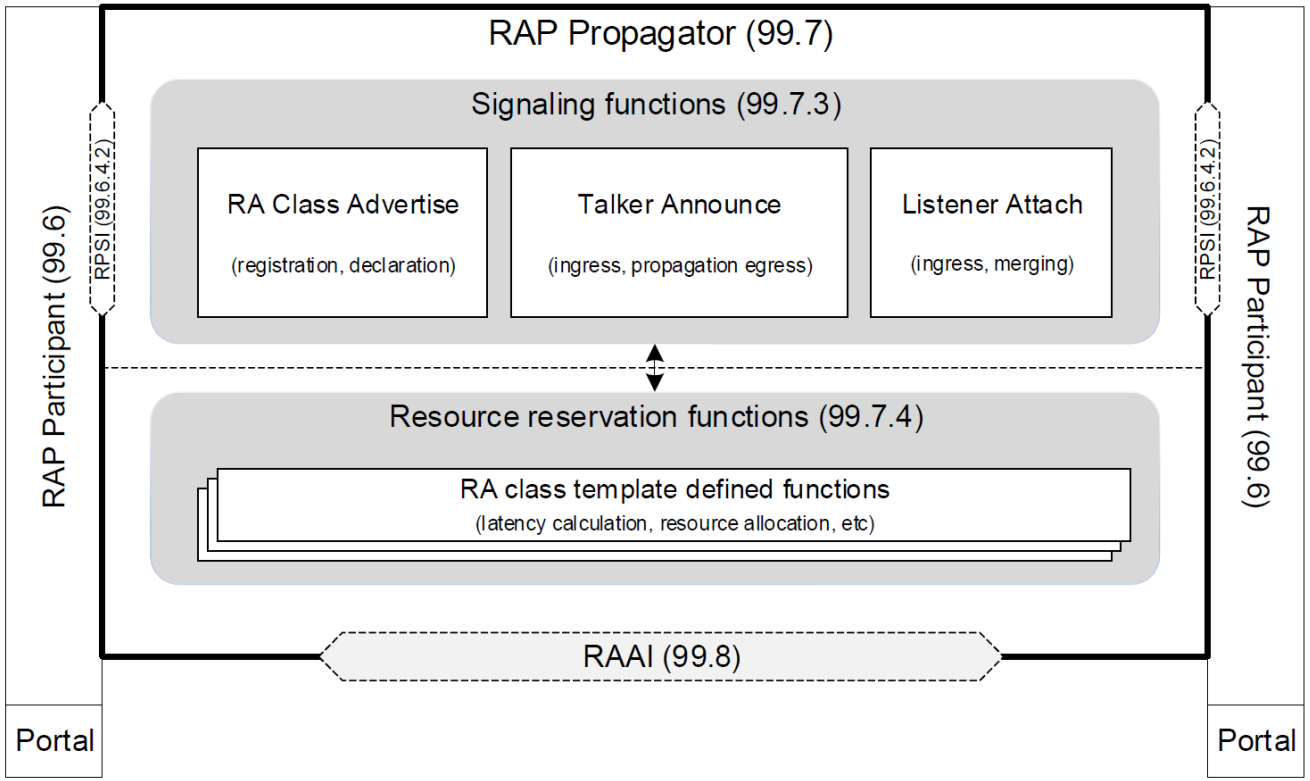
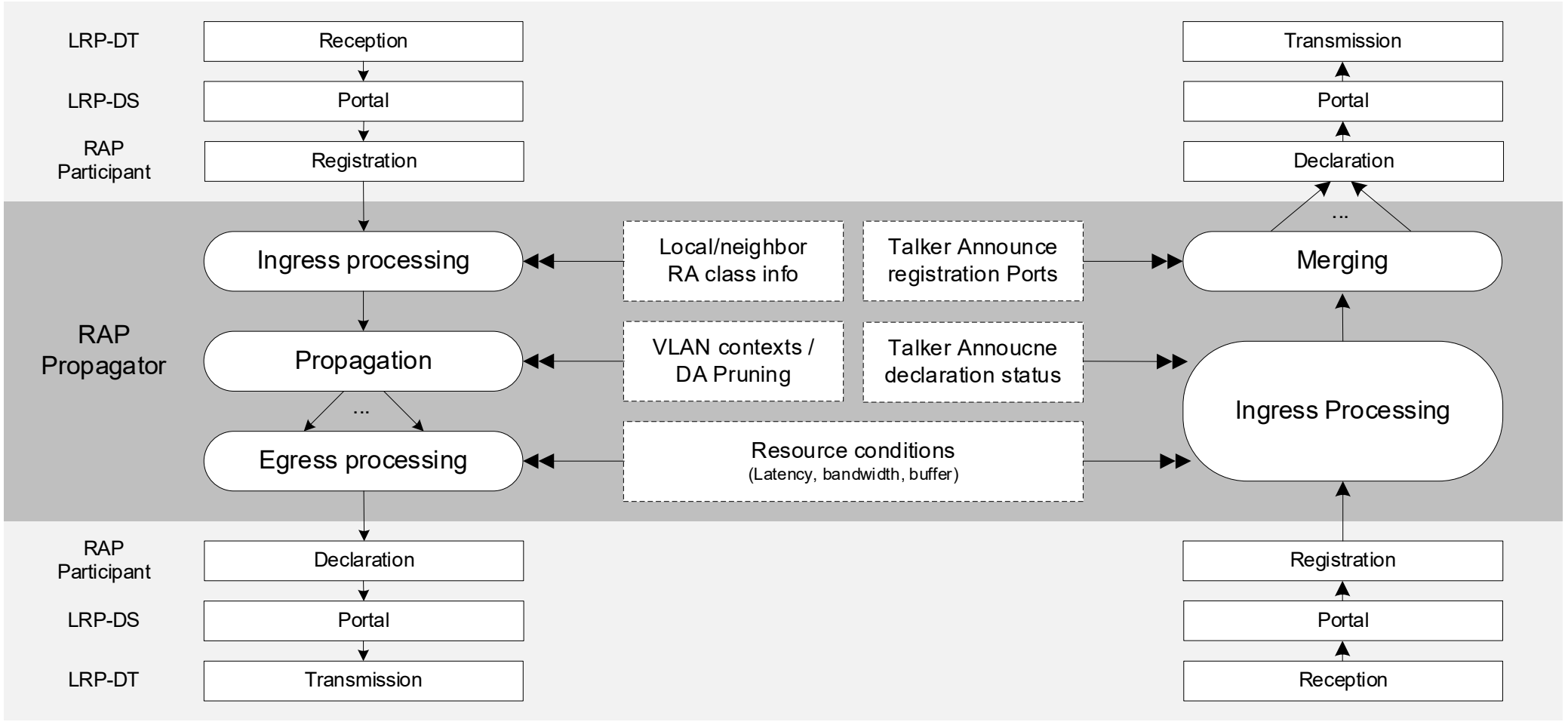


Figure 99-21—RAP Propagator architecture

Signaling Process on a Bridge (Single-contex)



Talker Announce process

Listener Attach process

Major Work Items for Next Draft (D0.6)

- Stream reservation for .1CB seamless redundancy
  - assumption of VLAN configurations for redundant trees/paths.
  - illustrative examples for use of RAP in E2E and network redundancy.
  - multiple-context signaling procedures:
    - augmented single-context signaling to handle VLAN context splitting and merging in Talker Announce on CB end stations and bridges.
    - dealing with merging of accumulated latencies conveyed along redundant paths.
    - triggering local CB configuration based on stream information, reservation status and managed objects.
    - behavior of non-CB bridges located on redundant paths in response to multiple-context signaling.

- RA class Templates
  - starting with ATS and SP in D0.6.
  - More can be added, such as CQF, TAS, CBS depending on contributions.

Thank you