IEEE802.1Qat: Stream Reservation Protocol

Felix Feng
Samsung
This standard specifies protocols, procedures and managed objects, usable by existing higher layer mechanisms, that allow network resources to be reserved for specific traffic streams traversing a bridged local area network. It identifies traffic streams to a level sufficient for bridges to determine the required resources and provides a mechanism for dynamic maintenance of those resources.

This standard provides a signaling protocol to enable the end-to-end management of resource reservation for QoS guaranteed streams. The signaling protocol facilitates the registration, deregistration, and retention of resource reservation information in relevant network elements. The signaling protocol is an essential component for automatic configuration in bridged local area network applications that require latency and bandwidth guarantees.
Current status

- The latest draft D0.8 can be accessed here:
  - [http://www.ieee802.org/1/files/private/at-drafts/d0/802-1at-d0-8.pdf](http://www.ieee802.org/1/files/private/at-drafts/d0/802-1at-d0-8.pdf)
Purpose

MAC Database

<table>
<thead>
<tr>
<th>MAC</th>
<th>Vector</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:??:??:00:01</td>
<td>00 1000</td>
<td>MMRP</td>
</tr>
<tr>
<td>01:??:??:00:02</td>
<td>10 0000</td>
<td>MMRP</td>
</tr>
<tr>
<td>01:??:??:00:0A</td>
<td>00 1000</td>
<td>SRP</td>
</tr>
</tbody>
</table>
Architecture: Bridge
Architecture: End stations

Talker
- TAE
- SRPTE Participant
- MMRP Registrar
- LAC Service
- Filtering Database

Listener
- LAE
- SRPLE Participant
- MMRP Applicant

Frame Reception
Frame Transmission
How it works

SRP consists of a registration protocol and a reservation protocol. The registration protocol is initiated by listeners.

- Done via 802.1ak “Multiple Multicast Registration Protocol”
- Its operation makes the talker and bridges aware the presence of listeners, and creates a subtree of the spanning tree that provides a forwarding path between a talker and any registered listeners.

The reservation protocol is triggered by the registration and de-registration events. It operates the reception and transmission of reservation messages over the subtree that the registration protocol created.
How it works: Registration
How it works: Reservation
How it works: Failed Reservation