IEEE 802.1Qat and IEEE 802.11 Quality of Service Inteworking

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Abstract

This presentation describes methods for the QoS interworking between IEEE 802.11aa and IEEE 802.1Qat. Interworking include signaling, parameters, and priority . The objective is to start the discussion.

.1Qat to .11 Interworking

- **In IEEE 802.1Qat:**
  - Talker declaration announces streams that are supported by the talker (source).
  - Listener declaration specifies the stream that a listener (destination) desires to join.
  - Resource allocation is performed during the propagation of the Listener declaration.
- **In IEEE 802.11:**
  - Station generates ADDTS Request frames including TSPEC IE requesting resource allocation
- **Mapping is needed for:**
  - Traffic parameters
  - Priority
  - Signaling messages

Traffic-Related Parameters

- **IEEE 802.11 TSPEC**
  - Nominal MSDU Size
  - Maximum MSDU Size
  - Minimum Service Interval (HCCA Operation)
  - Maximum Service Interval (HCCA Operation)
  - Inactivity Interval
  - Suspension Interval
  - Service Start Time
  - Minimum Data Rate
  - Mean Data Rate
  - Peak Data Rate
  - Maximum Burst Size
  - Delay Bound
  - Minimum PHY Rate (WLAN Specific)
  - Surplus Bandwidth Allocation (WLAN Specific)
  - Medium Time (EDCA Operation)

- **IEEE 802.1Qat**
  - Bandwidth: maximum rate in units of 1024 bytes/sec
  - Frame Rate: max. number of frames a Talker can transmit in 1 second interval.
  - Accumulated Latency: from Talker to Listener
  - Rank
  - Data Frame Priority

IEEE 802.11 TSPEC parameters are consistent with the IP RSVP parameters (p, r, b).

Priority Mapping

- **IEEE 802.1 SRP streams make use of priority 5 and priority 4 for transporting audio/video streams**
- **A possible mapping is**
  - AC_VO (UP 6) <---> priority 5
  - AC_VI (UP 5) <---> priority 4
- **Alternatively TGaa can follow the IEEE 802.1Qat lead and assign two priorities for supporting the two AVB classes.**
  - Need to examine the related issues.

Priority	UP	IEEE 802.1D	AC	Designation
	1	BK	AC_BK	Background
	2	-	AC_BK	Background
	0	BE	AC_BE	Best Effort
	3	EE	AC_BE	Best Effort
	4	CL	AC_VI	Video
	5	VI	AC_VI	Video
	6	VO	AC_VO	Voice
	7	NC	AC_VO	Voice

Signaling Mapping

- **Resource reservation will be needed at both the IEEE 802.1Qat and the IEEE 802.11 sides of the network.**
- **As signaling messages flow from one side of the network to the other, there is the need for signaling messages at one side to trigger the appropriate signaling message at the other side.**
  - For example Talker or Listener Declaration message at the IEEE 802.1Qat side may trigger the ADDTS Request message (frame) at the IEEE 802.11 side.

References

- **Virtual Bridged Local Area Networks – Amendment 9: Stream Reservation Protocol (SRP), P802.1Qat/D1.3, May 19, 2008.**