



AVB WG Proposal - 802.1Qat Handling on 802.11 Network

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Abstract

- 802.11 already has BW reservations...
but what if 802.11 is one of several hops?
- 802.1Qat defines end-to-end LAN reservation protocol but must be mapped to existing 802.11 reservation scheme.
- This presentation is a proposal from the AVB WG describing one approach to internetworking between 802.1Qat and 802.11 which **tries to minimize the network dependent part** to optimize the deployment of 802.1Qat on heterogeneous networks

Some Background on 802.1Qat

- What is **802.1Qat** ?
A protocol that provides end points with the ability to reserve network resource that will guarantee the transmission and reception of data streams across a network with the requested quality of service.
- **MSRP** - Multiple Stream Registration Protocol
reservation of resources for multicast streams with a single source across a Bridged Network.
- **MSRPDU** - MSRP Protocol Data Unit
- **Talker** - A device that produces a data stream
- **Listener** - A device that consumes a data stream

.Qat Declarations

Declaration

Meaning

TalkerAdvertise

“Talker has a stream if Listener want it”

TalkerFailed

“Talker has a stream, but not available for the Listener due to network resource constraints”

ListenerReady

“Listener(s) want the stream and have network resource available to receive it”

ListenerReadyFailed

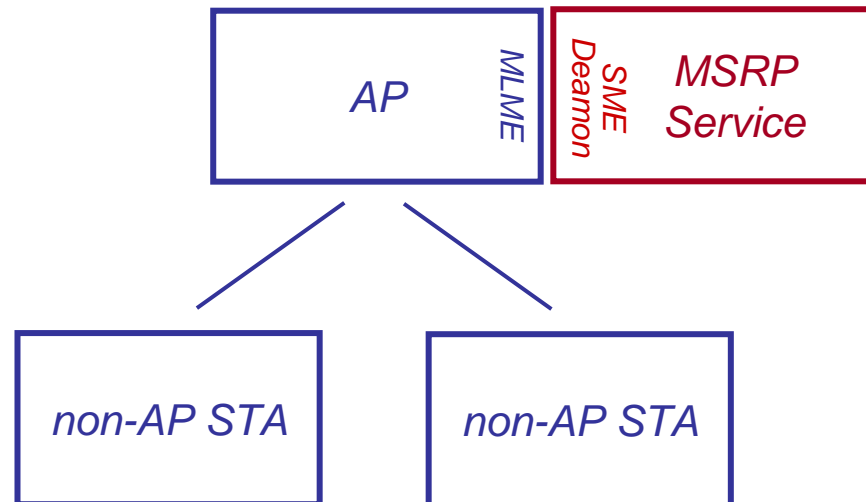
“Listeners want the stream and some can receive it and some can NOT”

ListenerAskingFailed

“Listener(s) want the stream but do NOT have network resources to receive it”

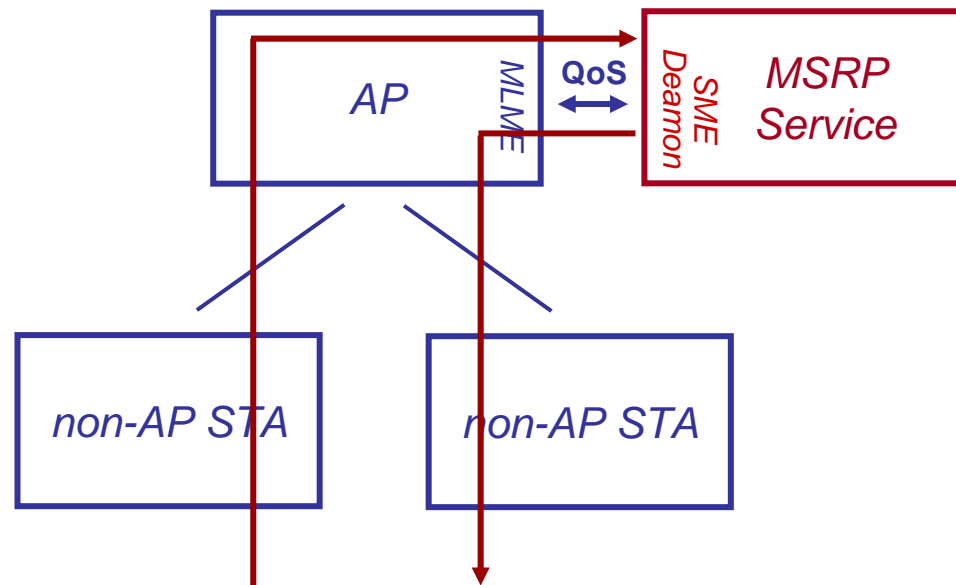
Designated MSRP Node

- On a 802.11 BSS, Access Point acts as the Designated MSRP Node (DMN).
- DMN runs the (sole) MSRP Service for the shared media network
 - MSRP Service manages the network QoS resources for its streams through the network's native QoS commands

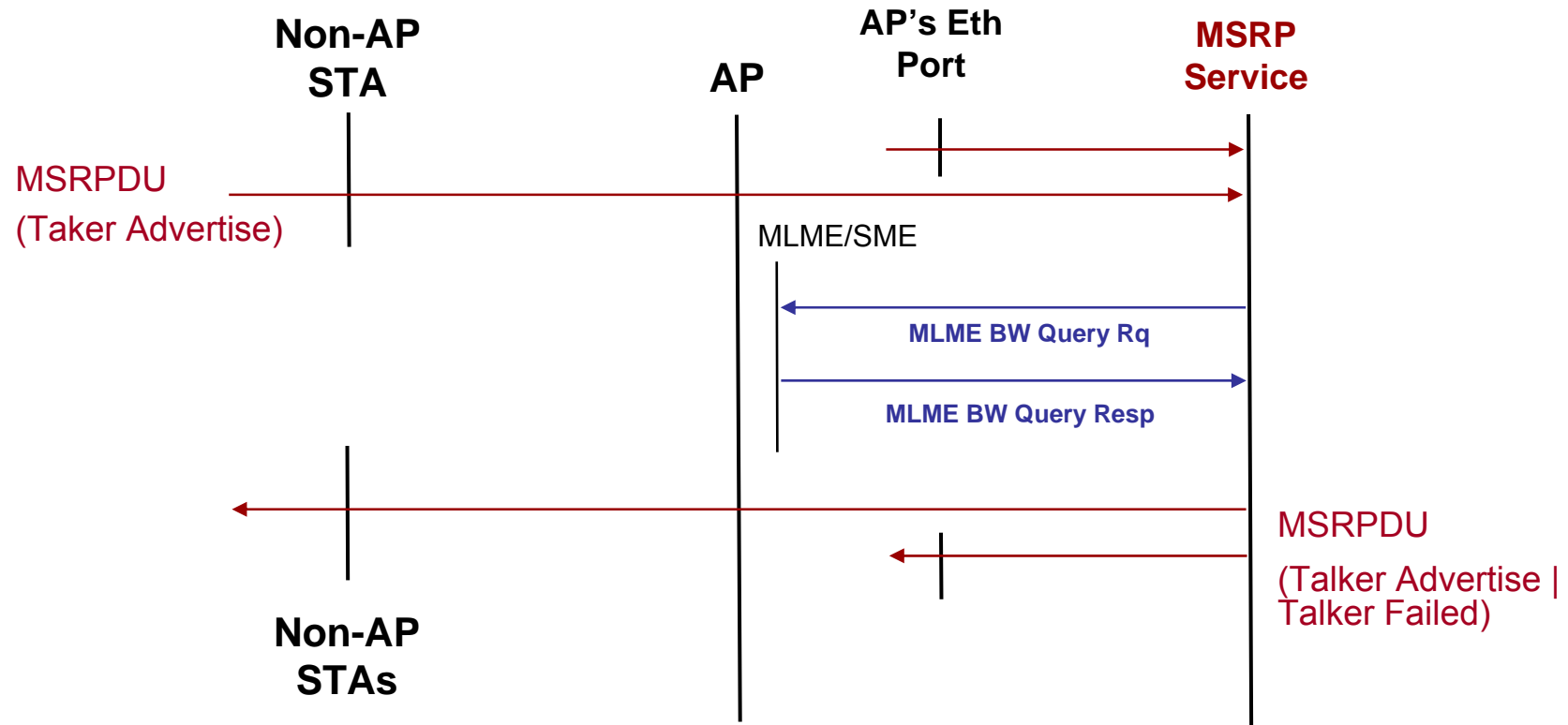


MSRPDU Handling

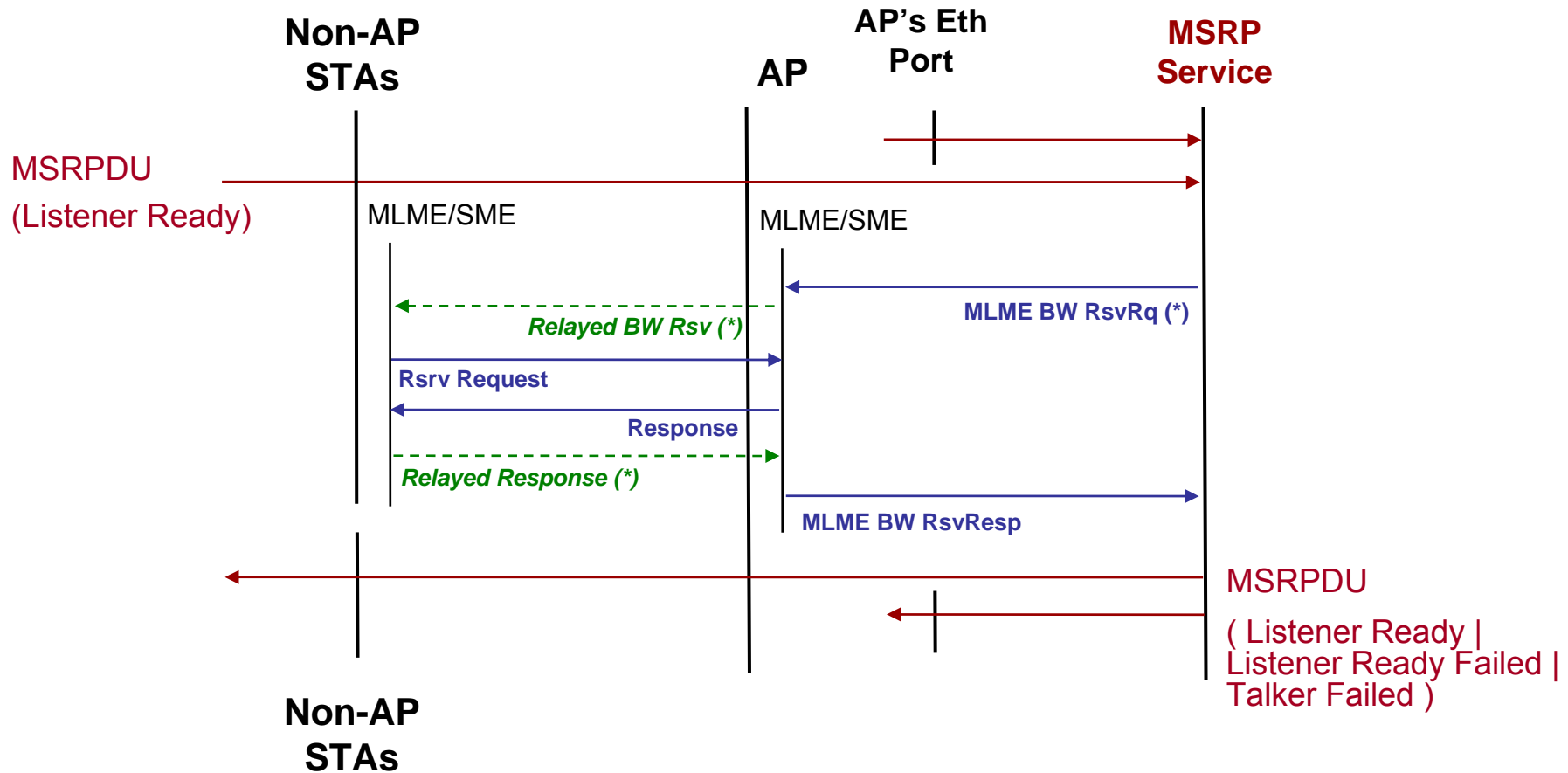
- MSRPDU are transparently transmitted by STAs to AP as 802.11 data frames to be delivered to the MSRP Service
- DMN interacts with the AP through SME / MLME SAP



MSRP / 802.11 Flow for AP – BW Query



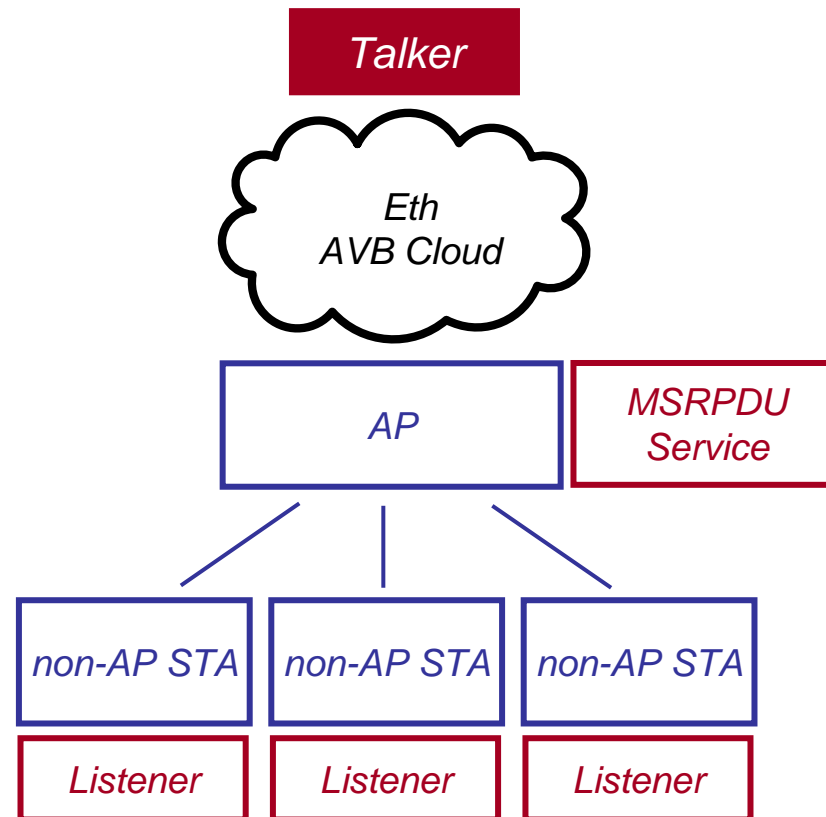
MSRP / 802.11 Flow for AP – BW Reservation



(*) AP should recognize that the BW Query/Request coming back from the non-AP STA is related to the MSRP StreamID so the AP can notify the MSRP of the available BW or that the BW reservation succeeded or a failed.

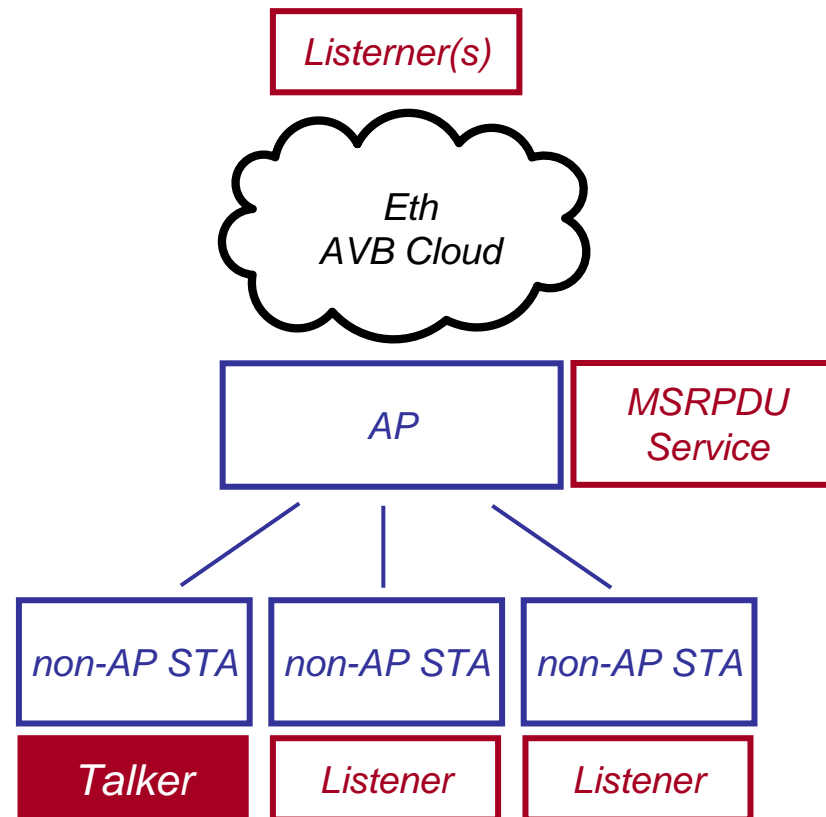
Talker/Listener - Scenario 1

- Talker is “beyond” the AP
- Listeners are non-AP STAs



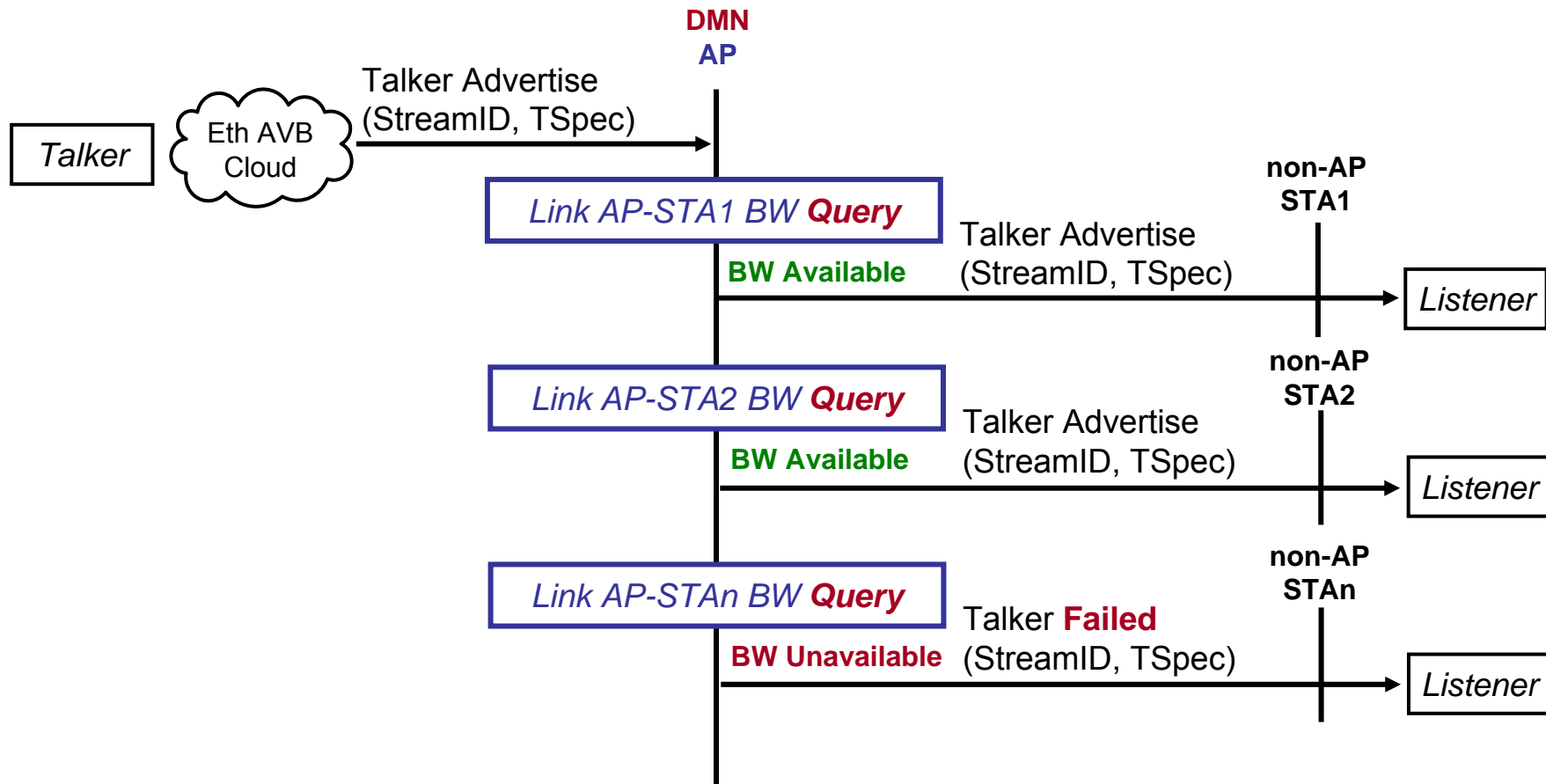
Talker/Listener - Scenario 2

- Talker is non-AP STA
- Listeners are “beyond” the AP and non-AP STAs



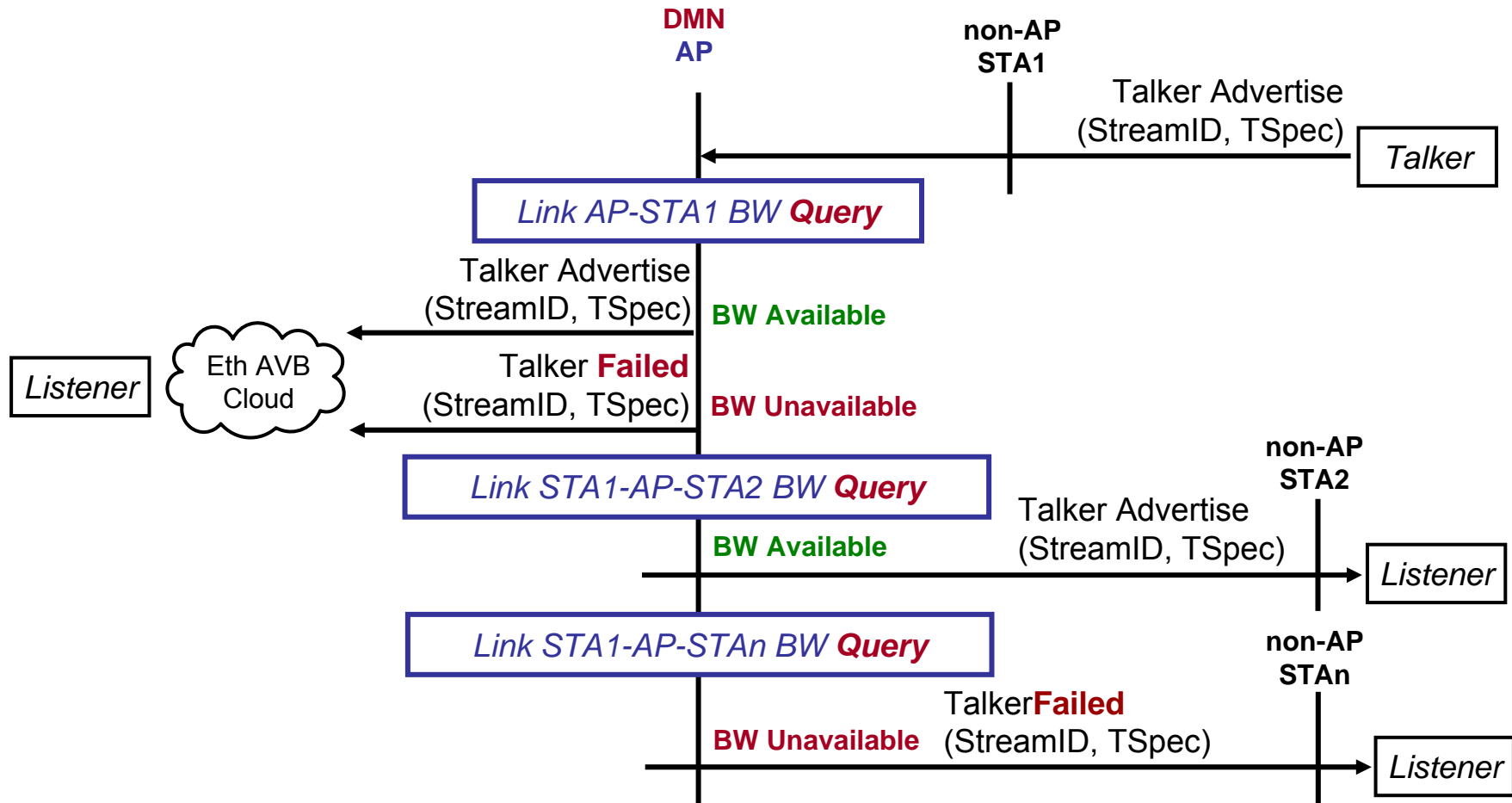
Talker Advertise (Scenario 1)

- Talker Advertise message bridged to the AP



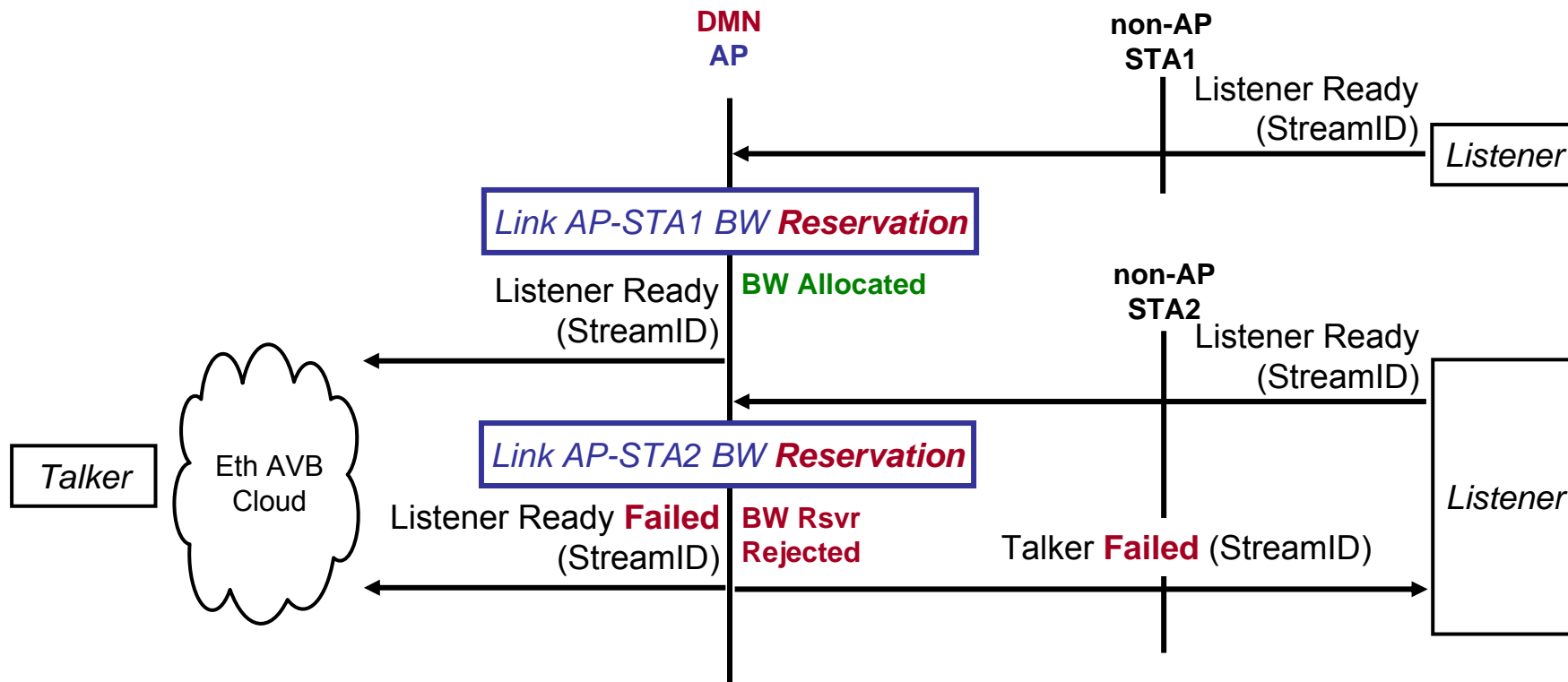
Talker Advertise (Scenario 2)

- Talker Advertise message originated from STA



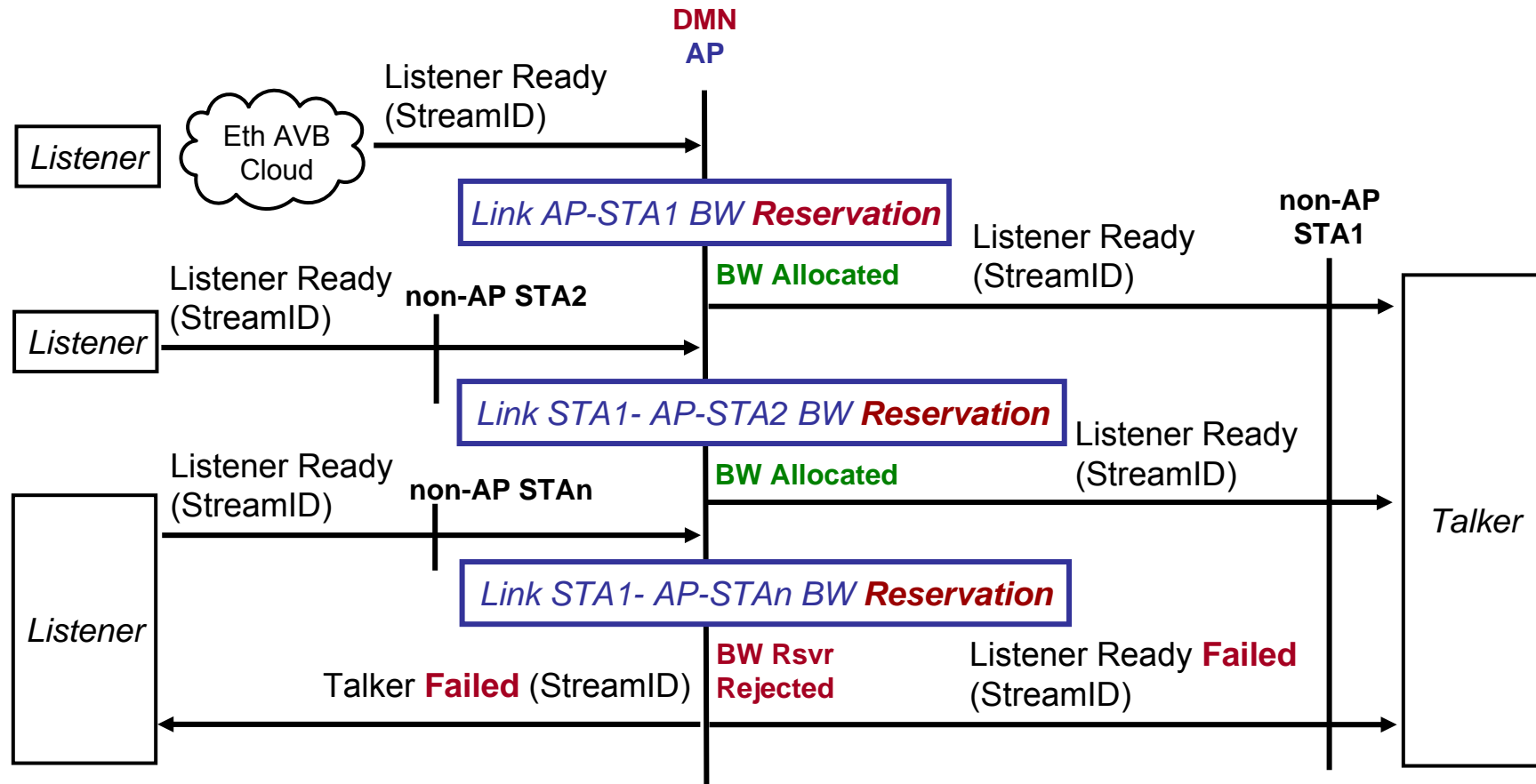
Listener Ready (Scenario 1)

- Listener Ready message to a “bridged” Talker

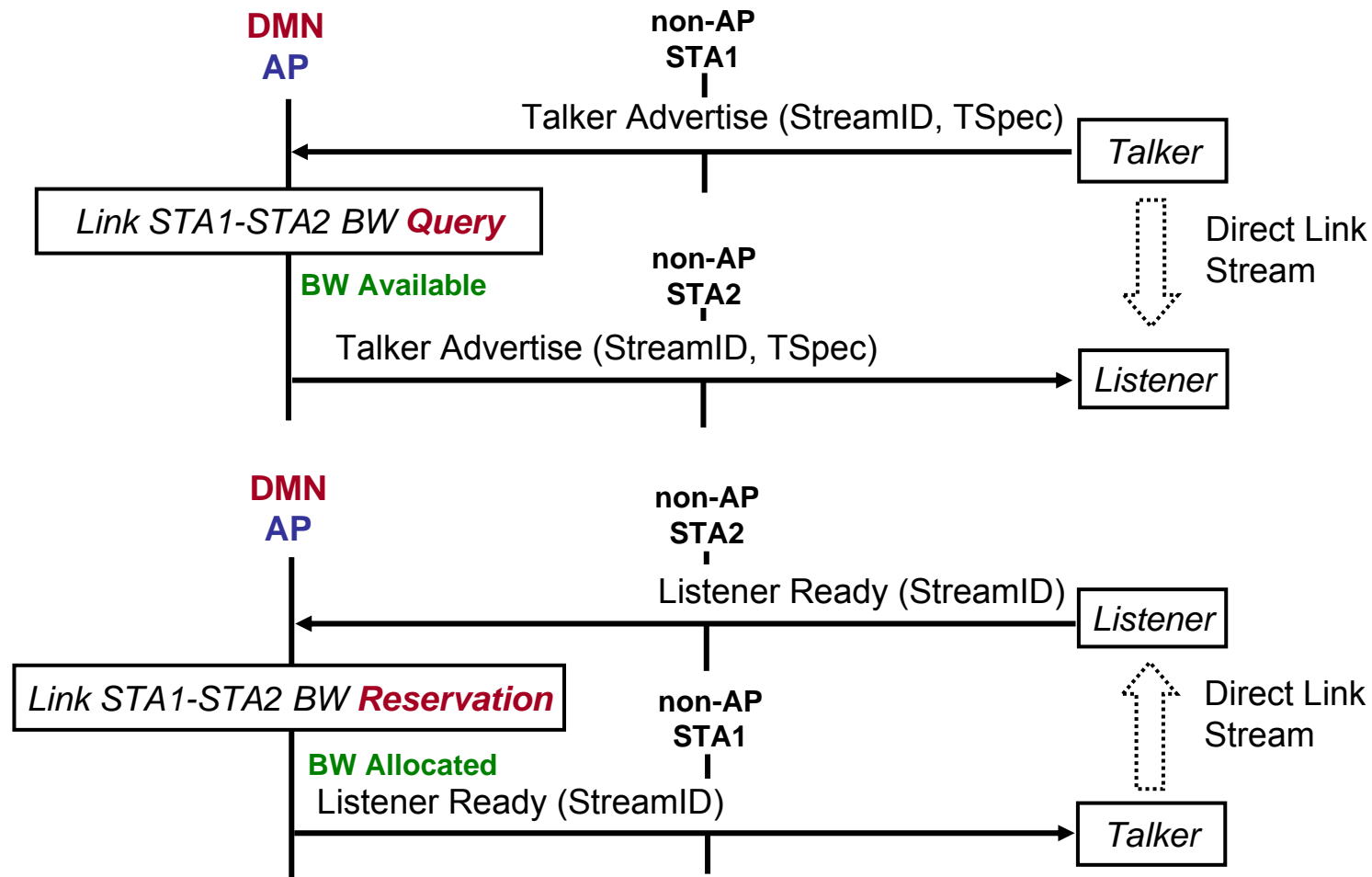


Listener Ready (Scenario 2)

- Listener Ready message to a STA Talker



802.11 Direct Link Setup Scenario



MLME Service Primitive for 802.1Qat Bandwidth Management

1. MLME Primitives

- BW Reservation: MLME-ADDTS
- BW Relinquish: MLME-DELTS
- *AP to non-AP STA* BW Query/ Rsv Request: *missing protocol & primitives*

2. MSRP TSpec to 802.11 TSPEC mapping

- for EDCA mapped
- for HCCA mapped

Thank you