Audio Video Bridging (AVB) Assumptions
IEEE 802.1 AVB Conference Call
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Green Text = Agreed to on Various AVB Calls
Changes Marked with Red from last version

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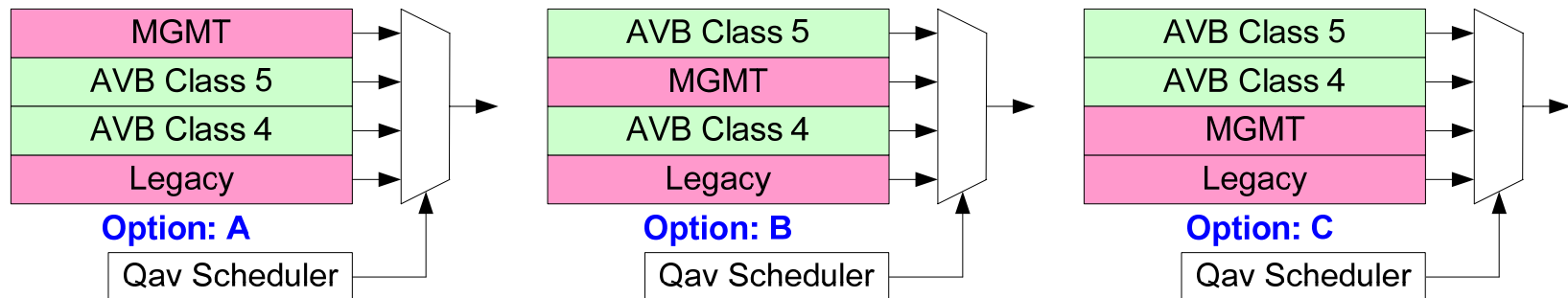dpannell@marvell.com

Revision History

- Avb-pannell-assumptions-0407-v4: After 4/11/07 call
- Avb-pannell-assumptions-0407-v3: After 4/04/07 call
- Avb-pannell-assumptions-0307-v2: After 3/28/07 call
- Avb-pannell-assumptions-0307-v1: Before 3/28/07 call

AVB Assumptions

- **Link Speed**
  - 802.3: 100 Mbit/sec or faster (i.e., no 10 Mbit support)
  - 802.11: Leaf node: ??   Bridged (Core): ??
- **Link Duplex**
  - 802.3: Full Duplex only (i.e., no half duplex support)
  - 802.11: ??
- **Maximum Frame Size**
  - 802.3: 1522 bytes? Or 2000 bytes? (i.e., no Jumbo frame support)
  - 802.11: ??
- **Flow Control**
  - 802.3x is not supported and cannot be used on AVB links
- **802.1 Q Tagging**
  - All AVB Streams will be Q Tagged
  - All PTP frames (for 802.1AS) will NOT be Q Tagged
  - All SRP frames (for 802.1Qat) will be Q Tagged

AVB Assumptions

- Priorities
  - AVB Class 5 Streams will use a Q Tag priority of 5
  - AVB Class 4 Streams will use a Q Tag priority of 4
  - PTP Frame priority? (Residency time concerns – See below.)
  - ~~Legacy frames in the AVB cloud CANNOT use Q Tag priorities of 4 or 5~~
    - ~~What about Vista? Need a Provider Network Model or~~

- Priority Models (do we need to spec this or just spec the latency)?
  - Concern is where to put PTP and/or Management (BPDU type) frames
  - Assume PTP is a MGMT (Management) frame & all MGMT are mapped to the same queue?

MGMT
AVB Class 5
AVB Class 4
Legacy

Option: A

Qav Scheduler

AVB Class 5
MGMT
AVB Class 4
Legacy

Option: B

Qav Scheduler

AVB Class 5
AVB Class 4
MGMT
Legacy

Option: C

Qav Scheduler

AVB Assumptions

- Class Observation Interval
  - AVB Class 5 is 125 uSec
  - AVB Class 4 is 1-5 mSec?
- Latency
  - 802.3: AVB Class 5: Less than 2 mSec over 7 bridge hops
  - 802.3: AVB Class 4: Less than 10 mSec over 7 bridge hops
  - 802.11: ??
- Latency Variation (Jitter)
  - 802.3: Need to discuss objectives – effects shaper
- PTP Clock Quality
  - Bridges: +/- 100ppm or better from a free running >25 MHz clock
  - End point time synchronization accuracy (up to 7 hops) <= 5 uSec
- Media Sample Clock Quality
  - Jitter/Wander: per MTIE in avb-gardner-requirements-summary-r4-060217
  - Endpoint media output synchronization accuracy <= 5 uSec
  - Startup/Settling time: 2 Sec

AVB Assumptions

- Stream Identification (from at-pannell-policy-0407-v2)
  - An AVB Frame is Any Frame with a Q Tag priority 4 or 5 entering an AVB port using an SRP Approved DA
  - An AVB Port is a port mode bit used to differentiate the port from being a Legacy port (AVB ports are part of the AVB Cloud, Legacy ports are at the edge of the AVB Cloud, not connected to an AVB aware device)
  - SRP DA's are differentiated from MMRP DA's in the Address Database by a new SRP indicator in the MAC entry
  - SRP DA's are 'Approved' when entered into the Address Database with the entry's SRP indicator set
- Stream Policy (from at-pannell-policy-0407-v2)
  - Only those frames that meet the Stream Identification (above) can be placed into the AVB Egress Queues
    - Need to decide about PTP and other Management frames (See Slide 4)
  - All other frames are placed into the Legacy Egress Queues
  - Frames that contain an 'Approved' SRP DA with Q Tag priority 4 or 5 entering a non-AVB port (i.e., a Legacy port) must have their Q Tag priority re-mapped to 2 or 3, respectively (i.e., PRI 4 goes to 2, PRI 5 goes to 3)

AVB Assumptions

- VLANs
  - The VID is a VLAN and not a Stream Identifier
  - Stream Identifiers must be unique per VID
- PONs?
- AE Environments
  - Any AVB Streams and PTP & SRP frames can be AE Tagged
  - Need to understand implications of MacSEC on PTP Timestamping
- Provider Networks?
- SRP will currently allocate a Static bandwidth for a flow (i.e., Dynamic support is dependent on contributions from those that need it and may need to become part of a separate PAR)

- Other Assumptions …
  - (this is a growing work in process)