Issues/Concerns with MMRP
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Approach A

• Approach A’s Assumptions (my understanding anyway):
  – MMRP is not ‘touched by human hands’
  – MMRP runs 1st and then SRP gets its chance
  – MMRP maintains a per port bit (vector) for each multicast Stream address
  – MMRP will update a Stream’s bit vector (the MMRP portion) in the hardware when requested to add or update a Stream’s flow
  – SRP maintains a per port bit (vector) for each multicast Stream address
  – SRP will update a Stream’s bit vector (the SRP portion) in the hardware when the requested Stream is ‘approved’
Approach A

- Two bit vectors are needed
  - Do both need to be in hardware or can one be in software?
- Consider a 48 port switch if two bit vectors are needed in hardware
  - Any MAC Database will need 48-bits per entry just for MMRP
    - Architectures already support this to support IGMP multicast pruning
  - If two separate bit vectors are needed then an additional 48 bits per stream entry (MAC) is needed in the hardware
    - This adds too much cost when it can be easily avoided
Consider this Corner Case A

- Two streams 1 & 2 Setup by MMRP and Approved by SRP
- Everything is OK
- But then a device on AVB Switch 2 wants to join Stream 1
Corner Case A, part 2

- MMRP, not knowing if SRP will ‘approve’ the flow, allows Stream 1 to be mapped to port 5 (in its vector).
- Then SRP ‘sees’ that there is not enough bandwidth so it does not update Stream 1’s SRP vector.
- If the MMRP vector is the only one used then the new Join request will cause Stream 2 to have drops until SRP ‘fixes’ the problem.
Corner Case A’s Issues

- Requires **Two** bit vectors in hardware!
  - Remember the 48 port switch – **This will cost a lot**

- Requires the hardware knows which bit vector to use
  - Remember other ‘legacy’ ports on the switch could be using MMRP for ‘standard’ MMRP flows
    - MMRP flows need to look at the MMRP bit vector
    - SRP flows need to look at the SRP bit vector
  - What does the hardware look at to know which vector to use?
    - Can use PRI 4 or 5 on an AVB port – but this has nothing to do with the address database
    - It is better to use the DA as its part of the address database
Approach B

• Approach B’s Assumptions:
  – MMRP is only slightly ‘touched by human hands’
    • MMRP does not update the hardware Address Database bit vector for a MAC if the Stream is an SRP stream. That is ONLY change!
    • MMRP can know if the Stream is an SRP stream by a range of MAC addresses
      – Something that is good for MMRP anyway!
  – MMRP runs 1st and then SRP gets its chance
  – SRP will update a Stream’s bit vector in the hardware Address Database when the requested Stream is ‘approved’

• Only **One** hardware bit vector is needed
  • Architectures already support this to support IGMP multicast pruning
  • Saves the need and cost of an additional bit per port per address database entry!