

SRP and non-1722 applications

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There will be more uses than IEEE 1722

- When I try to use SRP (and AVB, in general) with applications **not** using IEEE 1722, there are problems. Problems include:
- Multicast address allocation
 - Any non-1722 Layer 2 application that wants to use SRP requires a (**nonexistent**) mechanism for allocating a multicast address.
 - Any Layer 3 application that wants to use SRP has to have a mechanism for allocating an L3 and an L2 multicast address to use for the stream.
 - There are partial answers for L3 applications (e.g. MADCAP RFC 2730), but not for L2, and Googling RFC 2730 along with common home router vendors produces no hits. How are multicast addresses allocated in the home?
- Unicast streams
 - Certainly, unicast SRP streams are common. What are the obstacles to using unicast addresses for streams, and how might they be overcome?
- VLAN choice
 - The current choice of VLAN 2 for SRP makes it difficult to build a device that does both SRP and ordinary IP traffic.

L2 multicast address allocation

- If SRP requires an L2 multicast address, then we must provide an address allocation mechanism.
 - This would be easy for IS-IS, using short bridge IDs.
 - This would be much harder, but perhaps possible, for MSRP on its own.
- Any such mechanism has to deal with the merging of two networks that have streams with colliding addresses.
 - “Deal with” can mean change an address on the fly while the stream runs.
 - “Deal with” can mean shut down one stream and require re-allocation.

L3 multicast address allocation

- It is not clear whether there is a problem, here; it is only clear that I do not know the answer.
- Perhaps there has been no demand for a simple local L3 multicast address allocation scheme, and SRP provides one.
- IETF is the most likely source for a solution to this problem. Getting their interest in solving it requires making SRP important to the market, which requires a solution to to the L3 multicast allocation problem, which requires ...

Unicast streams

- The need for unicast streams is clear:
 - Most of the use cases discussed in this forum have had a single destination.
 - Unicasts sidestep the problem of multicast address allocation.
- When a multicast SRP stream must be torn down while it is running, it is easy for the bridges to cut off the stream as the tear-down works its way from the problem bridge to the Talker.
- If an SRP stream using a unicast address were to be torn down from some point in the middle, the bridges could install entries to black-hole traffic to that address until the stream is stopped, but this is drastic.
 - There could easily be multiple streams to the same destination. This would kill all of them, even if only one needed to be torn down.
- This leaves only the possibility of doing the tear-down in the control plane, e.g., not allowing the new stream to start until the old Talker has stopped. **Perhaps this is necessary, now.**

VLAN choice

- During 802.1BA sponsor balloting, it was noticed that, by default, VLAN 1 is transmitted untagged, so unconfigured bridges would lose the SRP priority when relaying an SRP frame.
- The solution adopted was to require an SRP station to find out from SRP what VLAN to use for SRP traffic. The default is VLAN 2, which of course defaults to being tagged on output.
- But, most end stations implement VLANs as separate virtual Ethernet ports. If IP is used, each port has its own IP address.
- Thus, if one wants to send IP traffic using SRP guarantees in the home, the home router, its DHCP service, etc., must be configured for multiple VLANs, making plug-and-play unlikely.
- We've made the bridges plug-and-play at the cost of requiring router configuration! **This is a serious obstacle to deploying 802.1BA.**

VLAN choice

- One possibility is to say that, when an SRP-capable bridge discovers that all of its neighbors on a given port are also SRP-capable, it shifts VLAN 1 to being tagged on output to that port.
- A port on an SRP-capable bridge that is connected to both one or more SRP-capable bridges (thus requiring VLAN 1 to be tagged), and one or more non-SRP-capable end stations (requiring VLAN 1 to be untagged), has to be marked as non-SRP.
- Then, we can default SRP to VLAN 1.
 - Which raises interoperability issues with existing 802.1BA bridges. **Painful!**
- Or, we can continue to default SRP to VLAN 2.
 - Which raises interoperability issues with IP. **Unacceptable!**
- Or, perhaps there is another solution.

Thank you.

