Maintenance item #150
Analysis and Response

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This presentation addresses Maintenance Request #150:

- http://www.ieee802.org/1/private/email_mq/msg00149.html

- http://www.ieee802.org/1/files/public/docs2015/maint-messenger-session1-0115-v1.pdf

The issues are with SRP-11 and SRP-12 of the SRP End station PICS (IEEE 802.1Q-2011, Annex B.10, page 1193):

- Cut-and-paste error from similar items in Bridge PICS (Annex A.31, page 1182),

- What is Talker behavior with regard to handling of Talker Advertise if sufficient resources are no longer available? Withdraw Talker Advertise or change to Talker Failed?

- If Transition to Talker Failed what goes in the Talker Failed FailureInformation (35.2.2.8.7)?

These slides were originally presented on a January 2015 TSN call. Changes based on discussions from that call are shown in blue.

Bridges: *Talker Advertise* transition to *Talker Failed*

Bridge behavior is correctly defined and should not change. If a Bridge had been sending a Talker Advertise and resources on the corresponding egress port are no longer available the Talker Advertise shall transition to a Talker Failed with appropriate FailureInformation.

Bridges do not have the option to stop sending the Talker attributes when stream related resources are no longer available, they must transition from an Advertise to a Failed.

Talker: *Talker Advertise* transition to *Talker Failed*

The original intent of SRP with regards to handling a Talker Advertise when resources are no longer available was:

1. Withdraw the Talker Advertise, or

2. Withdraw the Talker Advertise and register a new Talker Failed, or

3. Transition from a Talker Advertise directly to a Talker Failed (see 35.2.6).

Agreed?

Assuming "yes", let's fix the problem…

Fix 1: Clause 35.1.2.1 Talkers

Add the following paragraph after the end station description of
"a) Talker Advertise" and "b) Talker Failed":

A Talker Advertise shall not be declared if there are not sufficient bandwidth and resources available. If a Talker Advertise is being declared and the required bandwidth or resources become unavailable the Talker Advertise shall be withdrawn, and a Talker Failed may be declared. A Talker is allowed to transition directly from a Talker Advertise to a Talker Failed without deregistering the Talker Advertise from the network (see 35.2.6).

If a Talker is declaring a Talker Advertise for a stream and it has determined there is no longer enough bandwidth or resources available to support that stream it shall withdraw the Talker Advertise. The Talker may then declare a Talker Failed to keep Listeners informed of the status of the stream. A Talker is allowed to transition directly from a Talker Advertise to a Talker Failed without deregistering the Talker Advertise from the network (see 35.2.6).

Clause 35.1.2.1 is the only clause that reference end stations as Talkers. The remainder of Clause 35 describes bridge behavior, protocol definition and operation, and bridge attribute propagation (MAP).

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Fix 2: Clause 35.2.2.8.7 FailureInformation

From IEEE Std 802-2014 Clause 3.1 Definitions:

station: An end station or bridge. *See also: bridge; end station.*

However, the word "system" will be used to describe an end station or bridge.

Modify 35.2.2.8.7 to refer to bridges and end stations:

At the point when a Talker Advertise Declaration is transformed into a Talker Failed Declaration, the ~~Bridge~~ ~~station~~ system making the transformation adds information that indicates, to the Listeners registering the Talker Failed Declaration, the cause of the failure, and the identity of the ~~Bridge and Bridge Port~~ ~~station~~ system at which the failure occurred. The subcomponents of the FailureInformation include:

a) The Bridge ID (13.24.1) of the Bridge, or the 48-bit MAC Address of the end station's port (extended to 64-bits by prepending 16 bits of zero), that changed the Declaration Type from Advertise to Failed.

b) The Reservation Failure Code which is represented by a single octet containing the value shown in Table 35-6.

~~1. The most significant 16 bits are zero filled, the remaining 48 bits contain the MAC Address.~~

NOTE - Bridge IDs are normally constructed from MAC Addresses that are unique in the bridged LAN but are not required to be constructed in that manner; therefore there is a possibility of an end station MAC Address colliding with the Bridge ID

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The "bits" wording of note 1 is similar to that found in Q-2014 Clause 14.2.5.

Fix 2 (continued): Related FailureInformation changes

There are several other locations that need to be modified. Those fixes could replace "Bridge ID" by "Bridge ID or end station MAC Address", or replace "Bridge ID" by ~~"station"~~ "system".

- Table 12-14 references "Failed Bridge ID" and "BridgeId",

- Table 12-20 references "ieee8021SrpReservationFailureBridgeId" and "Bridge ID of Bridge". I would suggest ~~"Station"~~ "system" may be preferable here,

- Figure 35-2 references "Bridge ID",

- Table 35-6 uses "Bridge" in descriptions and notes.

Fix 3: Annex B.10 SRP End stations PICS

SRP-11

Does the implementation update the Failure Information ~~Bridge ID~~ end station MAC Address and Code when a Talker Failed is declared? ~~in the event of insufficient bandwidth or resources through a Bridge~~?

Fix 4: Annex B.10 SRP End stations PICS

SRP-12

Does the implementa~~iton~~tion create a Talker Failed in the event of insufficient bandwidth or resources ~~through a Bridge~~?

In addition:

- Change References from "35.2.4.3, 35-10" to "35.1.2.1".

- Change from Mandatory to Optional, allowing "Yes[] No[]".

This is a bit bigger of a change since an erroneously written <u>Mandatory</u> requirement is now being changed to a correctly written <u>Optional</u> requirement. If we decide to stay with Mandatory then my first suggested fix must be reworded.

My recommendation throughout this presentation is to make it Optional.