802.1Q
YANG bridge-address

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Introduction

- In the 802.1Q standard, the bridge-address is read-only.
    - Enables reading the value of a globally unique address allocated by the manufacturer and embedded in the bridge.
- In the YANG model, the bridge(name)/macAddress is read-write and mandatory.
    - Requires a NETCONF server (administrator) to enter a globally unique address to be used by the bridge before any other configuration can be done.
    - Where does this address come from?
- This seems like a problem! Is it?

802.1Q Bridge-Address

- In clause 8.13 Addressing.
  - **8.13.8 Unique identification of a Bridge**
    A unique EUI-48 Universally Administered MAC address, termed the Bridge Address, shall be assigned to each Bridge. The Bridge Address may be the individual MAC address of a Bridge Port; in which case, use of the address of the lowest numbered Bridge Port (Port 1) is recommended.
    .
- In clause 12.4 Bridge Management Entity.
  - Specifies a number of “management operations” that can be performed, each with “inputs” that are sent to the bridge, and “outputs” provided by the bridge.
  - The Bridge Address appears in the outputs, not the inputs.
  - I interpret this to mean it is read-only (there is no operation that sets the Bridge Address).
  - 802.1cp-2018 has Table 48-6 that cross-references managed objects to YANG nodes that says the Bridge Address managed object is “r-w” with a reference to 12.4.

YANG bridge model

```
container bridges {
  description
    "Contains the Bridge(s) configuration information.";
  list bridge {
    key "name";
    unique "address";
    description
      "Provides configuration data in support of the Bridge Configuration
      resources. There is a single bridge data node per Bridge.";
    leaf name {
      type dot1qtypes:name-type;
      description
        "A text string associated with the Bridge, of locally determined
        significance.";
      reference
        "12.4 of IEEE Std 802.1Q";
    }
    leaf address {
      type ieee:mac-address;
      mandatory true;
      description
        "The MAC address for the Bridge from which the Bridge Identifiers
        used by the STP, RSTP, and MSTP are derived.";
      reference
        "12.4 of IEEE Std 802.1Q";
    }
```

What happened?

- This is pure speculation, but it appears this is the result of trying to create a list of bridges with unique addresses.
  - The use of “unique macAddress” in the list requires that the macAddress is config-true and mandatory-true.
  - Why do we have a list of bridges, rather than single leaf, in the first place?
    - Maybe idea is that you can sub-divide a bridge into multiple smaller bridges? Note that each bridge already contains a list of bridge components.

Can anything be done?

- I think what we want is either:
  1. macAddress is “config false”
     - Bridge only uses the address provided by the manufacturer.
  2. macAddress is “config true” but “mandatory false”
     - Provides ability to overwrite the initial value provided by the manufacturer.
- At least two ways to achieve this:
  1. Remove the “unique” statement.
     - Assume that if have multiple entries in the list, the bridge is smart enough to provide different addresses.
  2. Change the list to a leaf.

Neither of these are backwards compatible

Back up slides

Thank You