IEEE YANG Modeling of EtherTypes

Marc Holness
Version 1.0
07 November 2017
Introduction

• There is a need to lay the groundwork for a YANG model ethertype definition
• The definition of all the ethertypes is needed, as they are registered with RAC
• A consensus/direction on this would unblock drafts both in IETF and MEF that are dependent on this module and definition
The RAC and ethertypes

• It is an imperative that the YANG model definitions be consistent (or up to date) with the RAC database of ethertypes

• It is an objective to have a process (and mechanism) where we could auto-generate the YANG module based on the RAC maintained ethertypes (found in the database)
Proposed solution

- A script (written in Excel) has been created to auto-generate the YANG module based upon imported ethertypes from the RAC data base
  - All you need to do is hit the “Generate YANG” button, and a file called `ieee802-rac-ethertype.yang` will be created right in the directory where the spreadsheet is located

- The format of the ethertype is important to IEEE 802
  - Decimal value representations are not deemed to be acceptable
  - The enum in the YANG module generated was of a form resembling an alphanumeric string with a pattern of `\[0-9a-fA-F\]{2}-[0-9a-fA-F]{2}`
  - The specification reference is IEEE 802-2014, clause 9.2
The ethertype type

- In the auto-generated YANG module, you’ll notice that the type definition of the ethertype is as shown below:

```yang
typedef ethertype {
  type union {
    type ethertype-enum;
    type dot1qtypes:ethertype-type;
  }
  description
    "IEEE ethertype definition.";
}
```

where ethertype-type is defined as shown below:

```yang
typedef ethertype-type {
  type string {
    pattern '[0-9a-fA-F]{2}-[0-9a-fA-F]{2}';
  }
  description
    "The EtherType value represented in the canonical order defined by IEEE 802. The canonical representation uses uppercase characters.";
  reference
    "IEEE 802-2014 Clause 9.2";
}
```

This is slightly different from how ethertypes are defined by that IETF draft (draft-ietf-netmod-acl-model). In that draft, ethertype are essentially defined as decimal values.