

A YANG Data Model for Microwave Topology

draft-ye-ccamp-mw-topo-yang-02

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Changes in 02 version

- Change of the YANG model
 - change the type of several data nodes: mw-link-nominal-bandwidth, mw-link-current-bandwidth, mw-link-unreserved-bandwidth, availability, mw-link-bandwidth
 - Change the mw-link-unreserved-bandwidth from RW to RO
 - Change the interface-root(the mount point to the microwave radio link model) to an optional feature
- A new section 3.3 to explain the relationship between Eth topology and mw topology
 - The Ethernet topology is an overlay TE topology on microwave topology.
- A new section 3.4 to leave further applicability to other technology
 - To explore the possibility of use the model to other technology
- Editorial improvement

Data nodes type changes

```
module: ietf-microwave-topology
  augment /nw:networks/nw:network/nw:network-types/tet:te-topology:
    +--rw mw-topology!
  augment /nw:networks/nw:network/nt:link/tet:te/tet:te-link-attributes:
    +--rw mw-link-frequency?          uint32
    +--rw mw-link-channel-separation?  uint32
    +--ro mw-link-nominal-bandwidth?   uint64
    +--ro mw-link-current-bandwidth?   uint64
    +--ro mw-link-unreserved-bandwidth uint64
    +--rw mw-link-availability* [availability]
    +--rw availability                 decimal64
    +--ro mw-link-bandwidth            uint64
  augment /nw:networks/nw:network/nw:node/nt:termination-point /tet:te:
    +-- mp interface-root?
```

Current definitions

- For xx-bandwidth, change the type from `rt-types:bandwidth-ieee-float32` to `uint64`
 - Old: type in `bandwidth-ieee-float32` is not so human friendly, e.g., decimal value 1000 is encoded as `0x1.f4p9`.
 - New: `Uint64` is more straightforward. The change applies to `mw-link-nominal-bandwidth`, `mw-link-current-bandwidth`, `mw-link-unreserved-bandwidth`, and `mw-link-bandwidth`
- For availability, change the type from `rt-types:percentage` to `decimal 64`
 - Old: `rt-types:percentage` is defined in `uint8`. However, the availability usually has the fraction part, e.g., 99.99%.
 - New: `Decimal64` which allows fraction part will be a better choice

Client topology and microwave topology

- The Ethernet topology is an overlay TE topology on microwave topology.

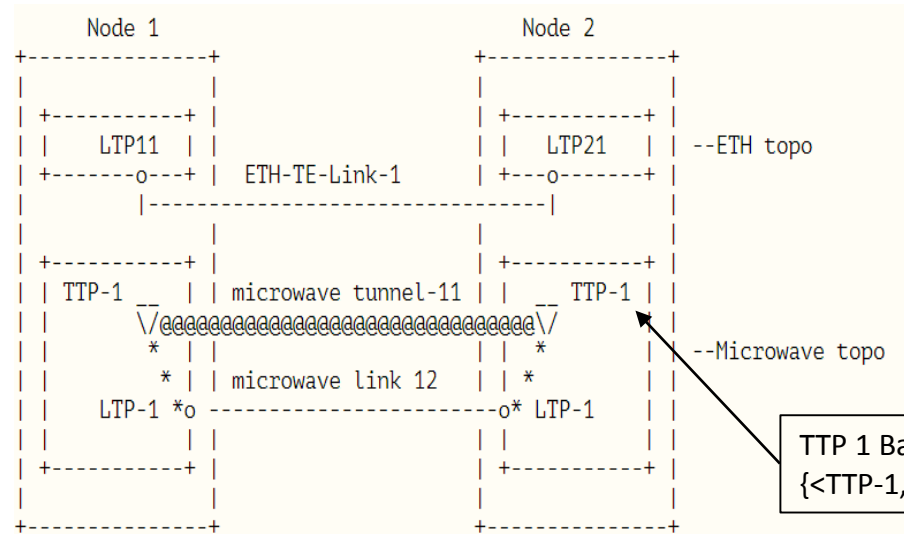


Figure 3: ETH transported on a single microwave radio link

- The ETH link is supported by the microwave tunnel in underlay microwave topology, the microwave tunnel is supported by one microwave link.

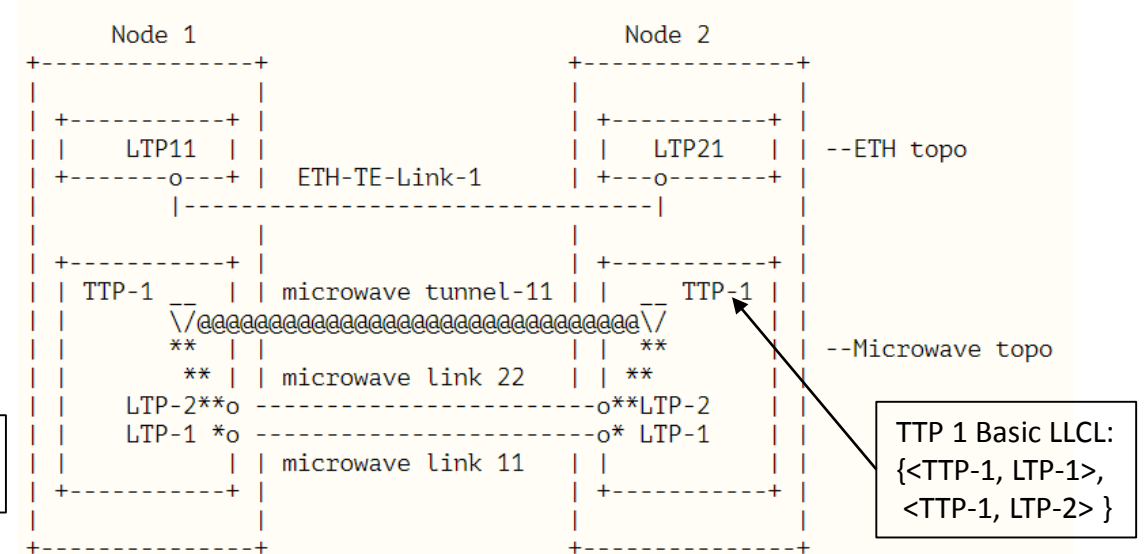


Figure 4: ETH transported on two microwave radio links

- The ETH link is supported by the microwave tunnel in underlay microwave topology, the microwave tunnel is supported by two microwave links.
- Is it possible that a tunnel is supported by two links? Is LLCL (Local Link Connectivity List) the right direction?

Next steps

- Open issue:
 - 1) There was comment to make the model generic, so it could be used by other technology.
 - Email to trigger discussion has been sent to CCAMP mailing list, however no response has been received so far. It seems limited interested.
 - 2) The bandwidth related data nodes, should them be under TE-link-attributes or TE-bandwidth?
- Review and comments are welcome!
- A microwave SDN plugtest will be hosted by ETSI ISG mWT in Jan. 2019. The microwave topology model will be verified in the plugtest, code implementation is beginning.
- It's proposed to use the draft as a starting point to define the microwave topology YANG model, would like to ask for WG adoption