LLDP TLVs required for P802.1au

Simplifying the Congestion Notifiation Domain interchange via LLDP

Rev. 1

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References

- This presentation is available at: http://www.ieee802.org/1/files/public/docs2009/au-nfinn-LLDP-TLVs-0109-v01.pdf

Defending CN Domains

- Receive defenses

  A bridge prevents non-CN frames from entering a CN-enabled network on a CN priority by remapping all frames coming from a non-CN-enabled system to a non-CN priority, so that uncontrolled data streams do not cause uncontrollable congestion.

  A station can prevent non-CN frames from entering a CN-enabled input queue because its functions that process these frames cannot handle non-CN-tagged frames.

- Transmit defenses

  A station or bridge does not transmit CN-tagged frames from a queue on a CN priority if the receiving system is not CN-enabled, so that congestion-controlled streams can be sent to a system that is not CN-aware, and so that CN-tagged frames are not remapped to another priority by the receiver's defenses.

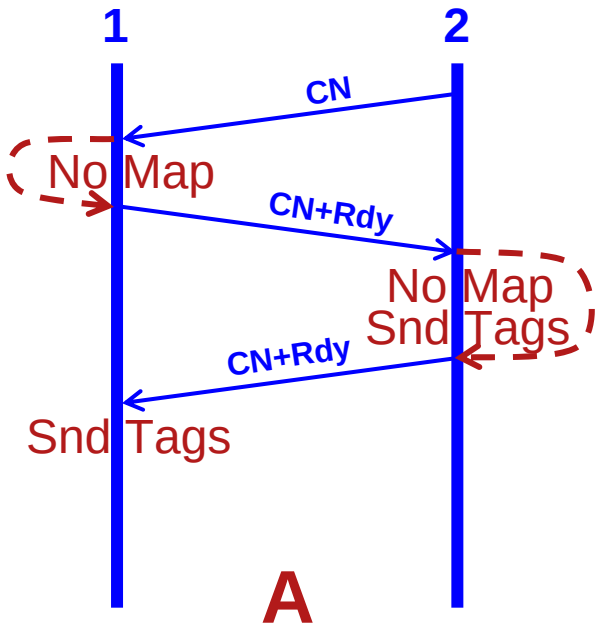
CN Domain protection events

1. **NoMap**
   - The bridge or station turns off its remapping of priorities for ingress frames.
2. **SndTags**
   - The bridge or station turns of its stripping of CN-tags on output.
   - The station enables transmission of CN-tagged frames.

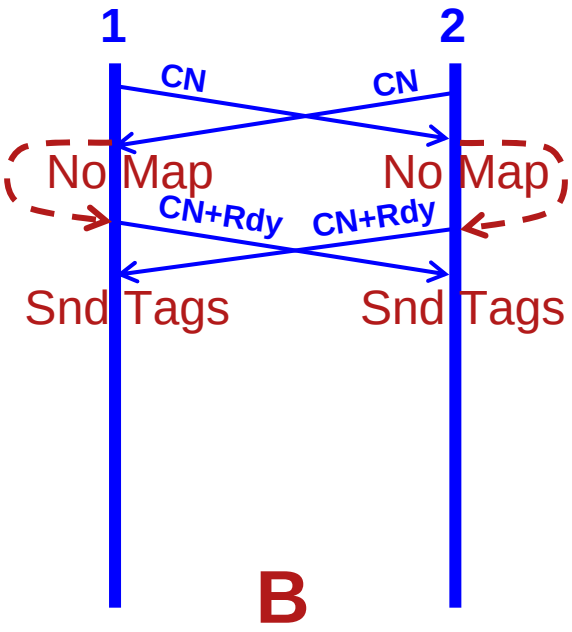
LLDP TLV bits, one bit per priority

1. **CN[n]**
   - This priority is a CN-priority.
2. **Rdy[n]**
   - I have turned off my priority remapping defenses.

Per-priority handshake: Both have receive defenses



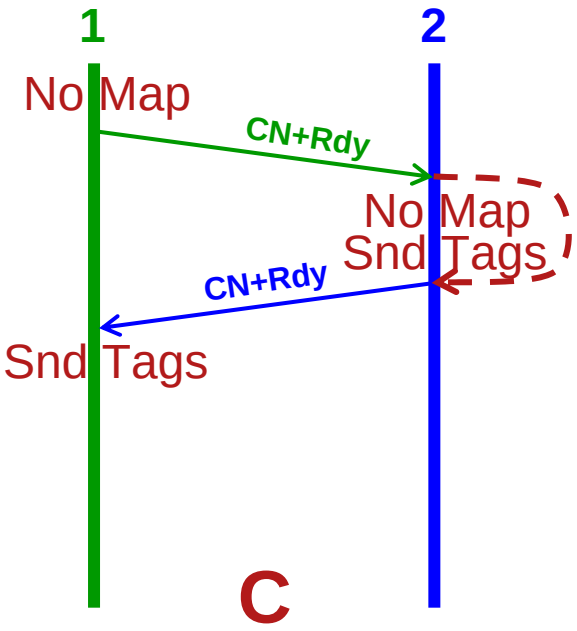
Device 2 first



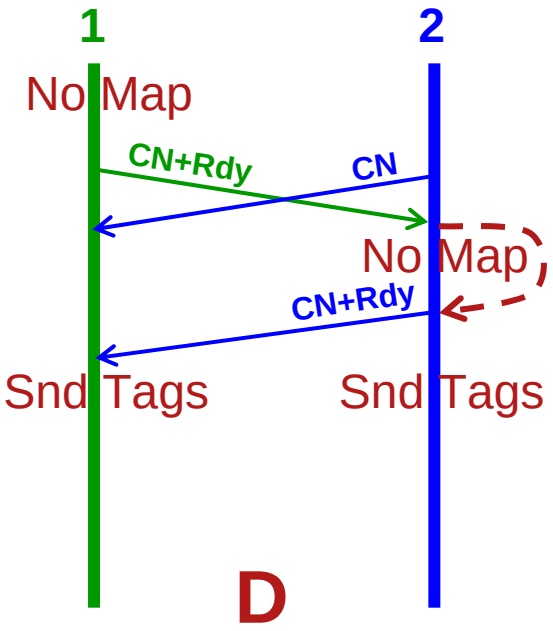
Neither first

- Each turns off its defenses (and turns on Rdy) after seeing “CN” in LLDP.
- Each enables tag sending after seeing the other’s Rdy bit.

Per-proirity handshake:
#1 has no receive defenses



Device 1 first



Neither first (or 2 first)

- #1 is always Rdy; it has no defenses to turn on.
- Neither can send tags until it sees the other's Rdy.
- Device #2's "CN" bit alone is of no interest to Device 1.