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# Difference between Y.1731 and P802.1ag

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# Introduction

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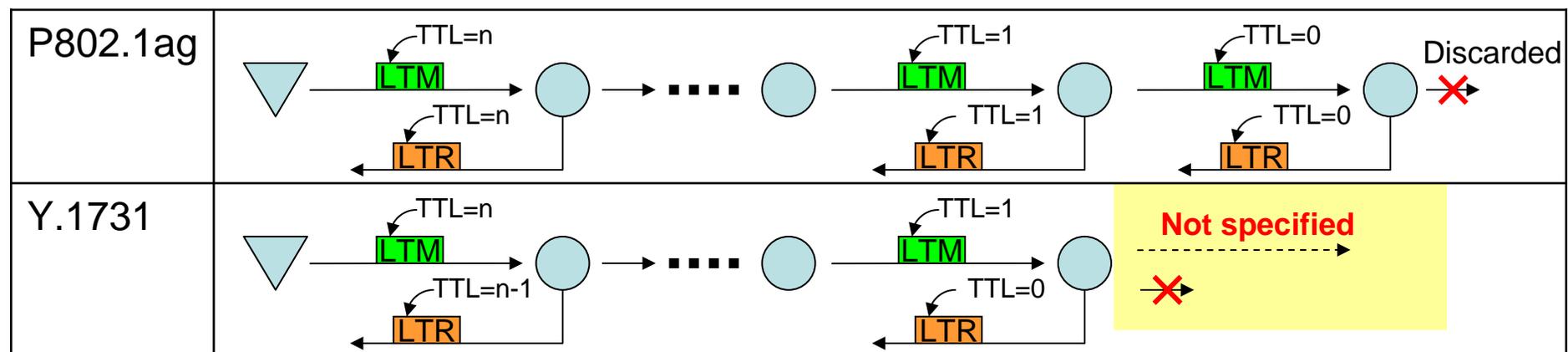
- Although ITU-T SG13/SG15 and IEEE 802.1 are trying to create the same OAM/CFM specifications, there are some differences in ETH-LT (Link Trace) specification.
  - This presentation indicates the differences and proposes how to address them.
  - Since IEEE 802.1 will meet in Jan. 2007 (before the next Q.9/15 interim meeting), it is important to progress discussion on this issue on correspondence and input it to IEEE 802.1 so that Q.9/15 can receive good feedback from IEEE 802.1 before the Q.9/15 meeting in Sophia.
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# Egress Identifier TLVs

- Recently received liaison from IEEE 802.1 mentions that Egress Identifier TLVs helps to recreate the path, **(a) if multiple Bridges are connected to the same shared medium**, and **(b) if the MEP CCM Database is used to resolve the paths.**
- Observations: The case where the conditions (a) and (b) are met is **quite limited**.
  - Condition (a)
    - In carrier networks, only possible case where shared media is used is PON. Although IEEE 802.3ah does not require to implement Bridge functions, PON chips normally have FDB table. As such, it does not cause a tree of responses.
  - Condition (b)
    - Since it is possible to distinguish LTR forwarded based on FDB from ones forwarded based on CCM DB, one can extract a linear path from a tree of responses. If the extracted linear path does not provide enough information, one may get more information by retry since CCM DB can become more stable after a short period of time.
- Proposals:
  - Y.1731: **No change needed**. A MEP ignores the fields of Egress Identifier TLVs. A MIP transparently forwards frames with these TLVs.
  - P802.1ag: LTM/LTRs **with or without Egress Identifier TLVs** should be forwarded/handled properly.
  - There is no interoperability issues if the above conditions are met.

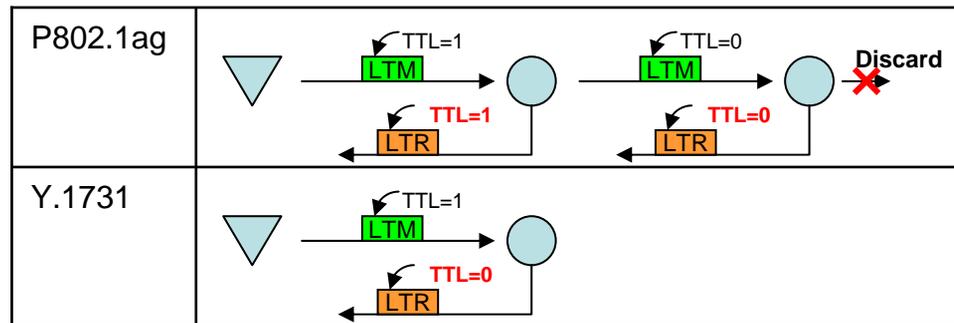
# Responses against received LTMs with TTL=1

- Responses of a MIP or a MEP against a received LTM with TTL=1 is not specified in current Y.1731 (i.e., whether to forward or discard).
- Proposals:
  - The responses should be specified both in Y.1731 and G.8021.
  - According to Y.1731, LTM frames are discarded if the received TTL field value is 0. As such, there is no use forwarding LTM frames with TTL=0.
  - LTM frames with TTL=1 should be discarded (instead of being forwarded downstream) after LTR is sent back upstream.
- From Q.9/15 perspective,
  - we should develop G.8021 based on the above discussion
  - then, send a liaison to Q5/13 asking to align Y.1731



# TTL field values in LTRs

- The policies for setting TTL field values in LTRs are different between 802.1ag and Y.1731, which makes interoperability problem.
  - P802.1ag: TTL value in LTR = (TTL value in the received LTM)
  - Y.1731: TTL value in LTR = ((TTL value in received LTM) - 1)
- Proposals:
  - To ask IEEE 802.1WG to clarify the reason why the policy for setting TTL value in LTR was changed.
  - IEEE 802.1WG should make P802.1ag align with Y.1731 because
    - Y.1731 has already been approved. If the policy is changed, there will be an interoperability problem, and,
    - Adjacent information retrieval is easier by Y.1731 (When an LTM with TTL = 1 is sent in order to retrieve adjacent node information, adjacent node and next-adjacent node would reply with LTR according to P802.1ag while only the adjacent node would replies LTR according to Y.1731).



- Otherwise, IEEE 802.1WG should use different OpCode in LTM/LTR in P802.1ag to avoid interoperability problems.

# Flags Field in LTRs

- Flags field in LTRs have interoperability between Y.1731 and P802.1ag.
  - Bit(8): UseFDBOnly (P802.1ag), HWOnly (Y.1731)
  - Bit(7-1): Reserved
- Flags field in LTRs do not have interoperability between Y.1731 and P802.1ag.
  - Y.1731: Copy from the LTM PDU
    - Bit(8): Bit(8) of flags field in LTRs
  - P802.1ag
    - Bit(8): FwdYes
    - Bit(7): TerminalMEP
- Proposals:
  - In P802.1ag, IEEE802.1 WG should define Bit(8) of Flags Field in LTRs as UseFDBOnly and move the bits for FwdYes and TerminalMEP to other bits of Flags Field in LTRs, in order to align with Y.1731
  - Otherwise, IEEE 802.1WG should change Version of LTR in P802.1ag.