

# Hybrid Two-step telemetry collection method

draft-ietf-ippm-hybrid-two-step

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# Protocol Recap

- HTS is a method to collect and transport on-path telemetry information
- HTS can be used for p2p and p2mp cases
- HTS allows for more accurate measurements by separating acts of generating information and its collection and transport
- HTS removes any limits on the amount of telemetry information collected and transported
- HTS supports downstream and upstream modes
- HTS allows for integrity protection of the collected telemetry information

# Hybrid Two-step

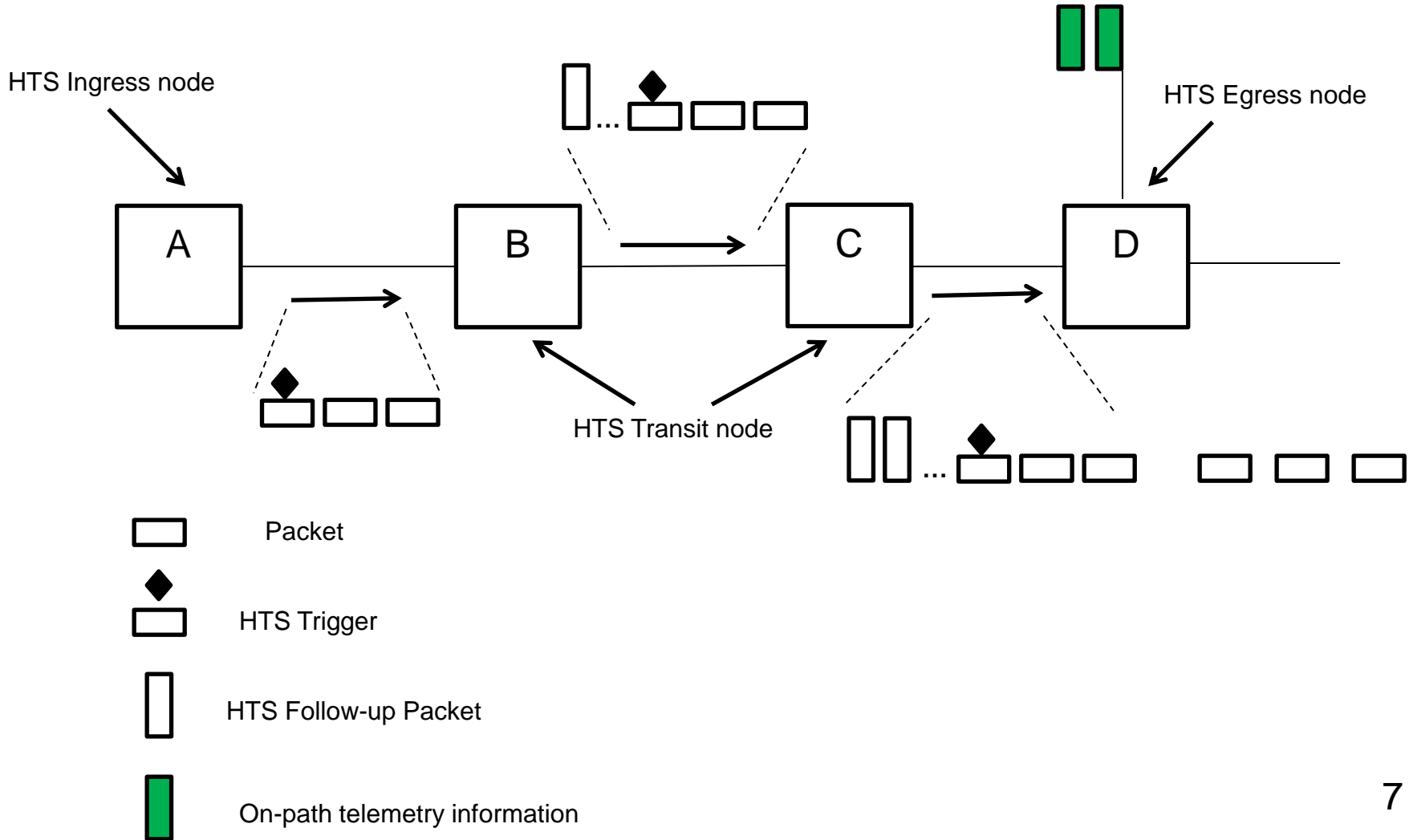
## Hybrid Two-step:

- Use a specially constructed message, follow-up message, to collect telemetry information along the way of the data flow packet that triggers information's origination.
- A trigger packet is network layer-specific, and the corresponding follow-up packet uses the same transport network encapsulation.
- The follow-up message originated by the ingress node—The follow-up message is intended to cross the same set of nodes and links as its trigger-packet.
- The follow-up packet may share the same QoS treatment by the transport network, or its QoS may differ. The former is referred to as “in-band”, and the latter is out-of-band HTS.
- The follow-up message is terminated by the egress node, thus not leaving the domain.
- Only one outstanding follow-up message may be “in-flight”, i.e., one set of telemetry can be held for the next follow-up message.

# IOAM with HTS

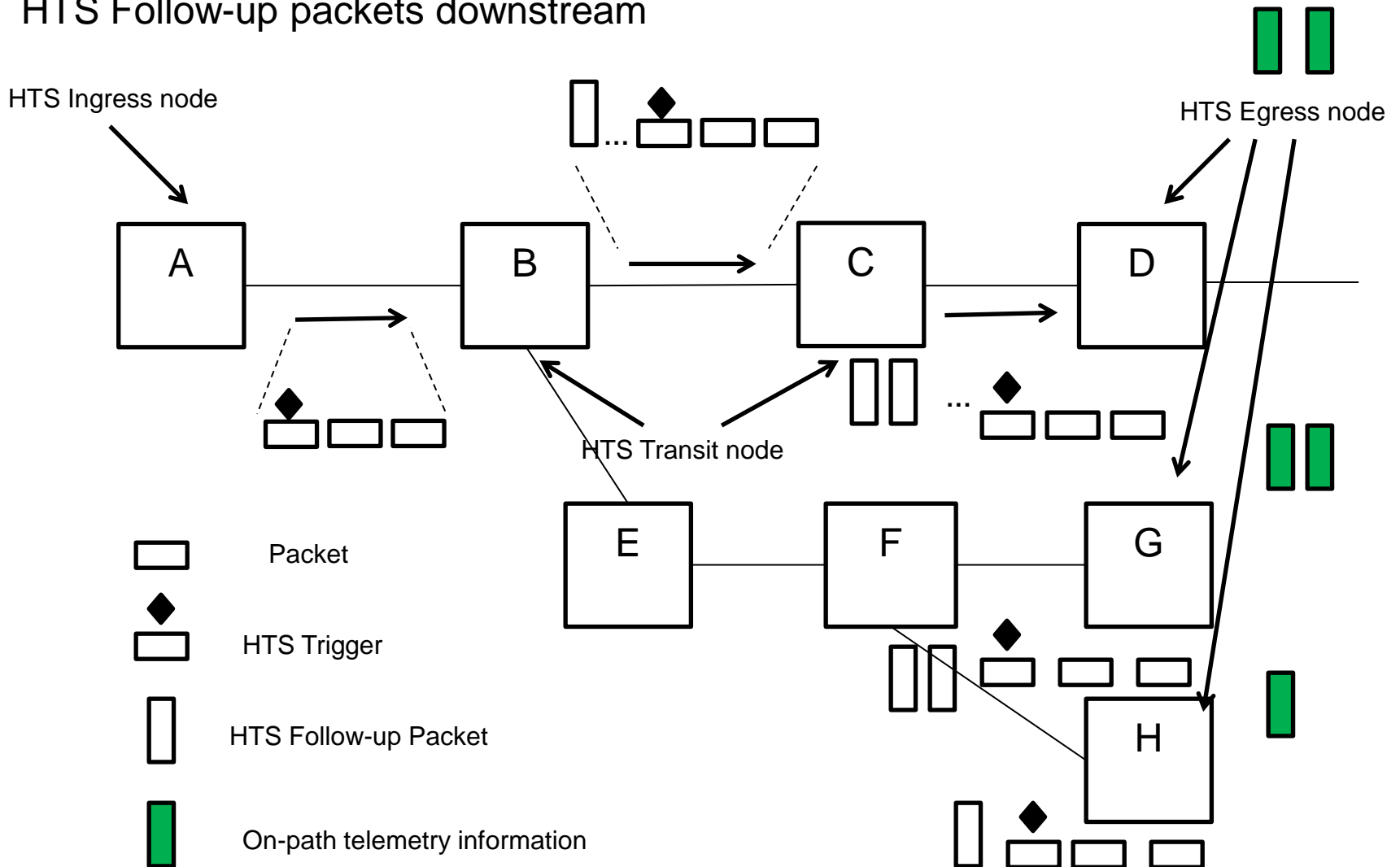
- Using HTS in an IOAM domain is one of the interesting cases.
- A trigger packet includes IOAM Namespace-ID and IOAM-Trace-Type.
- The ingress HTS node copies IOAM Namespace-ID and IOAM-Trace-Type into the follow-up packet's Telemetry Data Profile field.
- IOAM-Trace-Type information defined in RFC 9197 can be used in the Telemetry Data Profile field.
- HTS can be used in combination with IOAM-DEX (RFC 9326)

# Theory of HTS operation

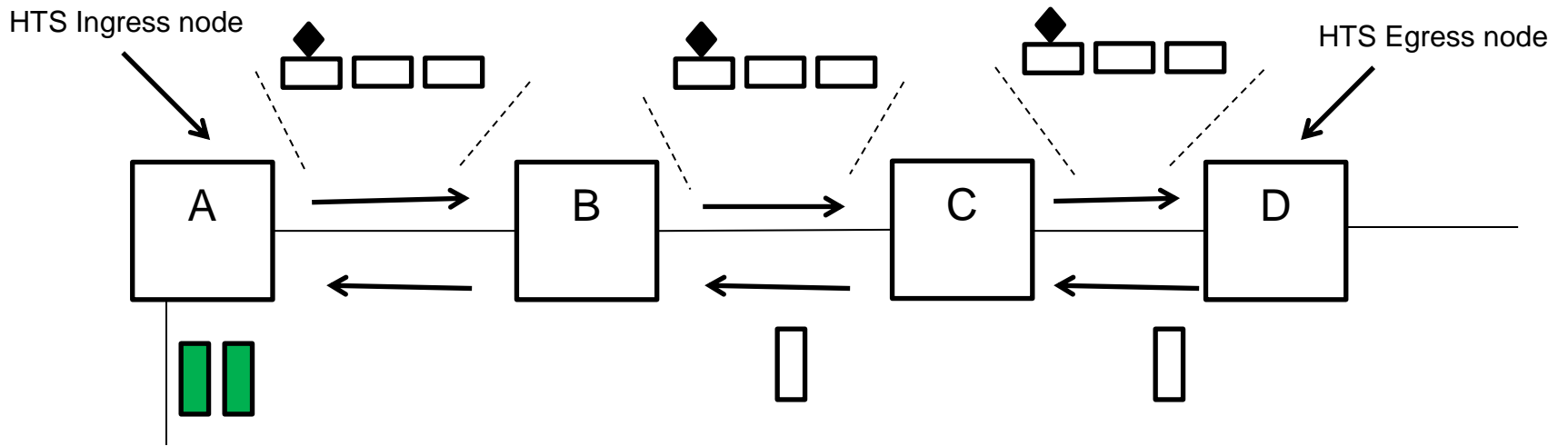


# HTS in multicast distribution tree

Branch Node forwards HTS over the first branch and then originates HTS Follow-up packets downstream



# Upstreaming HTS



- Packet
- HTS Trigger
- HTS Follow-up Packet
- On-path telemetry information

# Next steps

- Address comments received during WG AP
- Welcome your comments and questions

Thank you