



# Topology Discovery

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# Requirements

- Support 63 nodes, scalable up to 255 nodes
- Plug and play for RPR ring operation
- Quick convergent time

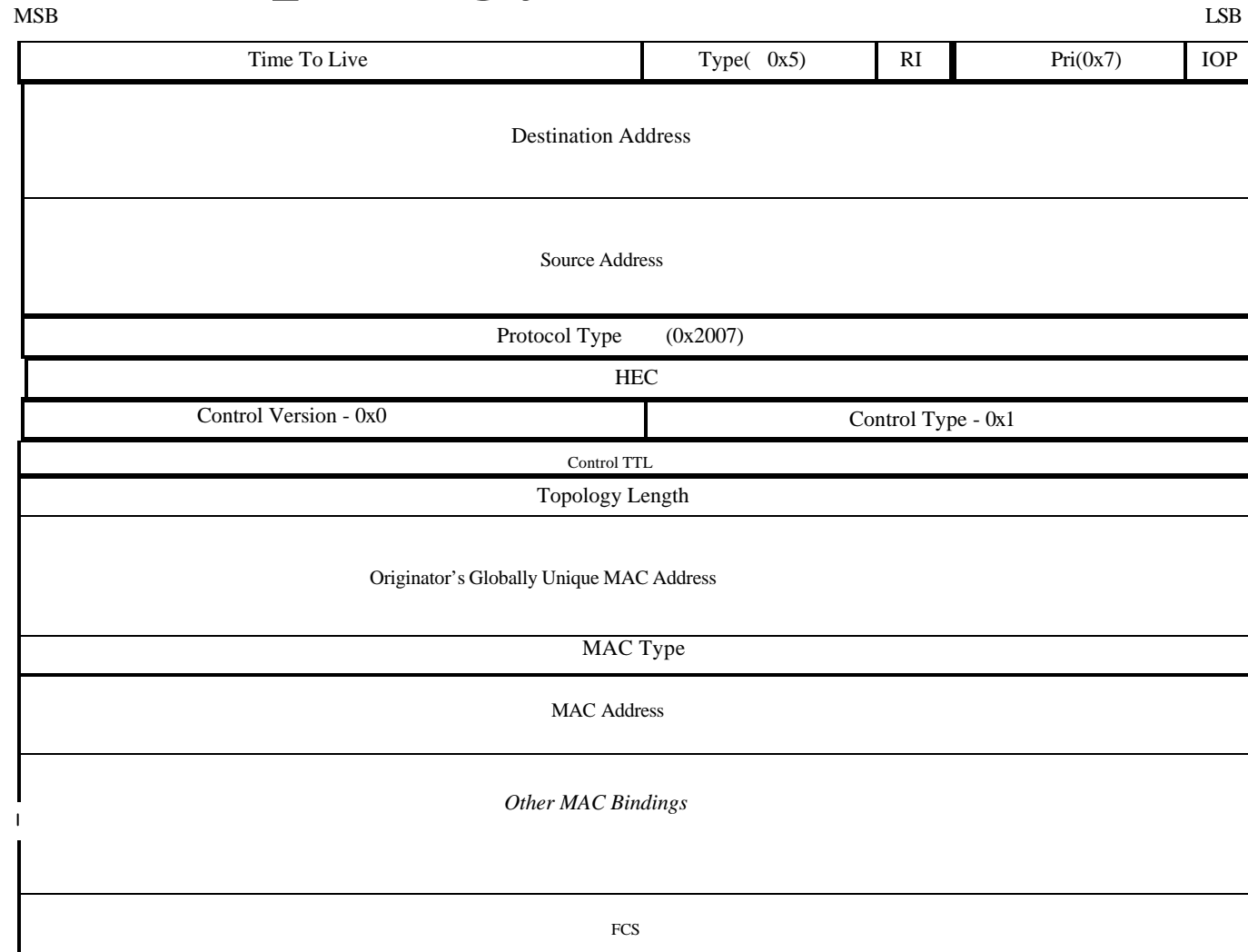


# Topology Discovery

- Triggered by
  - Local fiber detect failure
  - Remote fiber failure message received
  - Periodically
- Topology packets
  - Hop by hop unicast packet and source strip
  - Append node's attribute one by one around the ring



# Topology frame format





# Topology frame format(Cont)

- Control Version
  - The version number is zero
- Control Type
  - The control type value for topology discovery is 0x1.
- Control TTL
  - The control layer hop-count. Default is 255.



# Topology frame format(Cont)

- MAC type

Bit	Attribute
0	Single transit buffer(0)/Dual transit buffer
1	Ring Identifier(1 or 0)
2	Wrapped node(1)/Unwrapped node(0)
3	Wrap protection capable(1)
4	Steer protection capable(1)
5-7	Usage message format version
8	9K Jumbo frame support(1)
9 -15	Reserved



# Topology Packet Process Rule

- If ring identifier of packet is matched with RPR MAC's
  - If the packet is originated by the node(Globally Unique MAC address match)
    - Strip the packet from ring and compute the topology map
  - Else
    - Decrement control TTL by one
    - If control ttl is zero, strip the packet from ring
    - Else Append node's attribute and forward the packet to downstream node
- Else
  - Decrement control TTL by one
  - If the control TTL is zero, strip the packet from ring
  - Else Forward the packet to downstream node





# Conclusions

- Convergent time is propagation delay for the whole ring(ms)