

# 1588 over MPLS Update

***draft-ietf-tictoc-1588overMPLS-04***

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Shahram Davari (editor)

# Scope

- Transport 1588 messages over MPLS network
- Support Master, Slave, Boundary Clock and Transparent Clock at LER
- Support Transparent clock at LSR
- Backward compatible with non-1588-Capable LSRs

# Recap of the Solution

- Use standard Encapsulation
  - IP/MPLS or PW
- Use ***Dedicated*** LSPs to carry Timing messages
  - To detect Timing messages without DPI
- Timing LSP may be signaled
  - RSVP-TE extensions
- Routers advertise their 1588-capability
  - OSPF, IS-IS extensions

# Draft-04 Highlights

- Is generic to support any Timing Protocol
  - PTP, NTP, Shim Timing, etc.
- Describes only data-plane functions
- Control, Signaling are described in other drafts
  - OSPF extensions
  - ISIS extensions
  - RSVP-TE extensions

# Draft-04 Highlights

- Supports Time-stamping and Correction Field update
- Support various Timestamp field formats
- Support Signaling “offset” from BoS to Timing PDU
- Mandates CW to guarantee the proper parsing

# Draft-04 Highlights

- Explains how multiple customer timing domains can be supported
- Clarifies how P2MP Timing messages are transported
- Explains how non-event messages (Such as announce messages) are transported
- Explains how Peer-Delay messages are transported
- Explains security issues related to customers manipulating the service provider's Clock.

# Status

- Draf-00 published Jan 2011
- Draft-02 published Oct 2011
- Draft-03 published in Oct 2012
- Draft-04 published in Feb 013

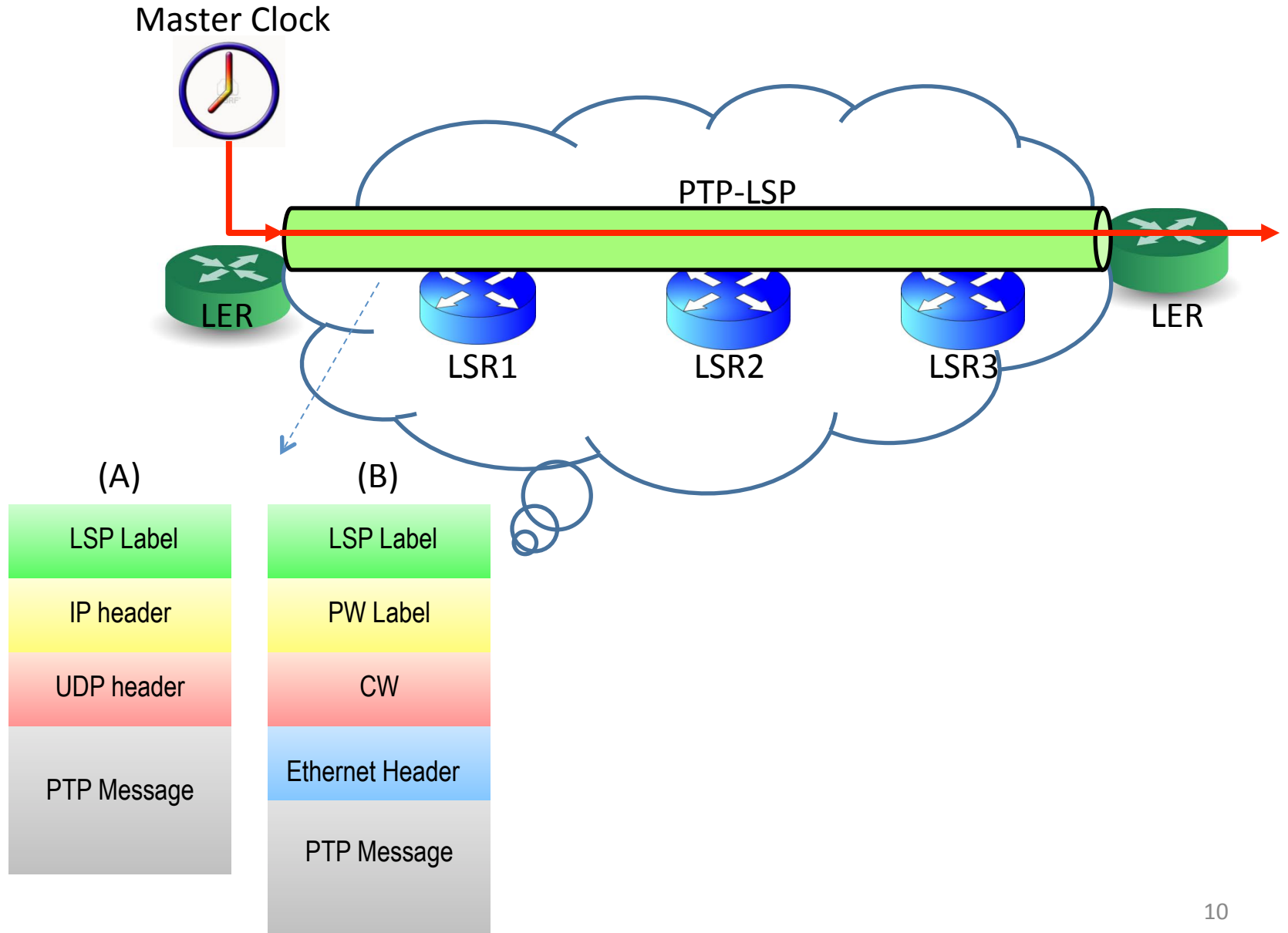
# Next Step

- Release draft-05 in April 2013
  - Draft-04 needs so editorial changes
  - Will resolved comments on draft-04 (if any)
- Send draft-05 to WG last call in April 2013

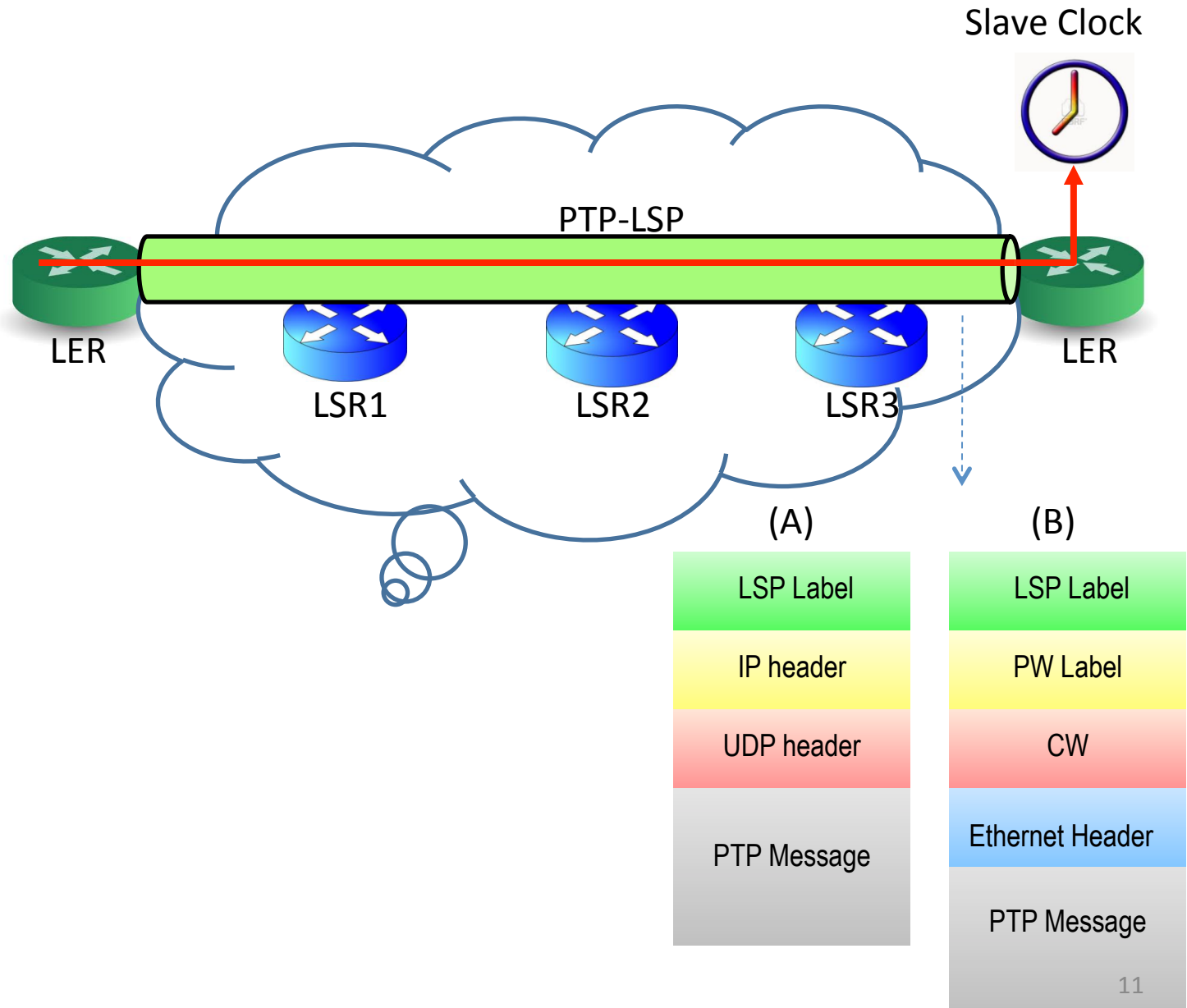


# **BACKUP SLIDES**

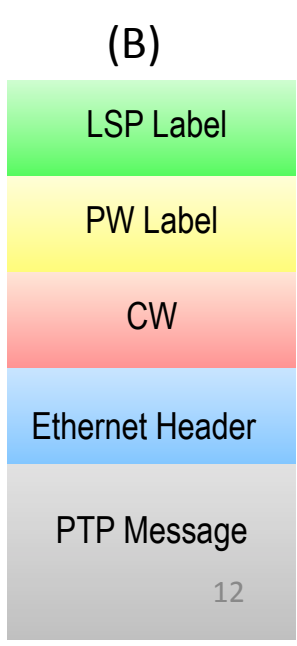
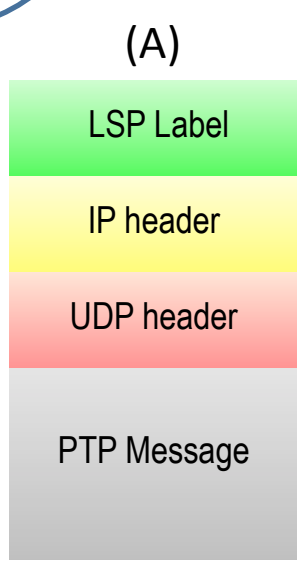
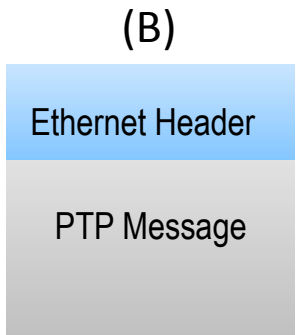
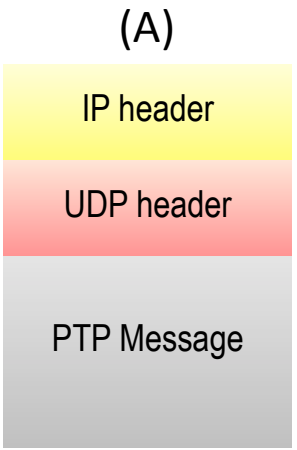
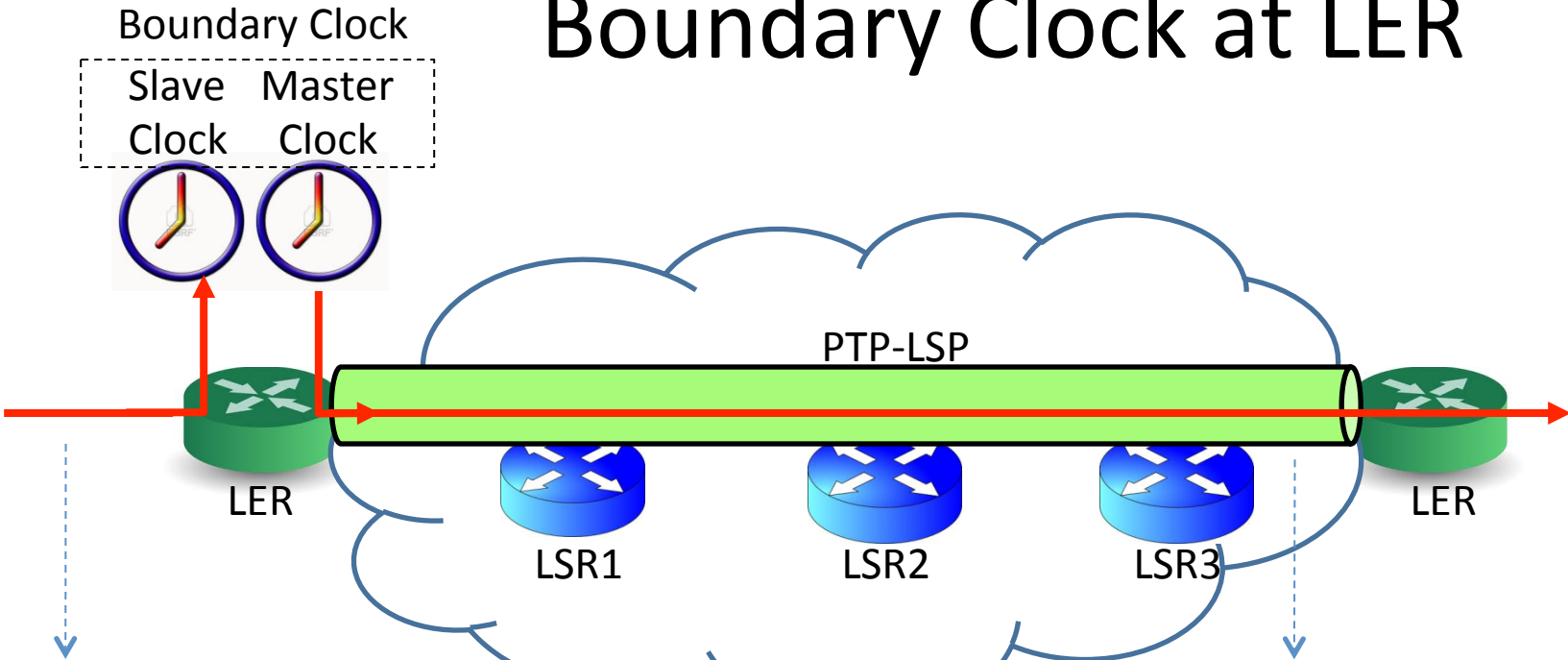
# Master Clock at LER



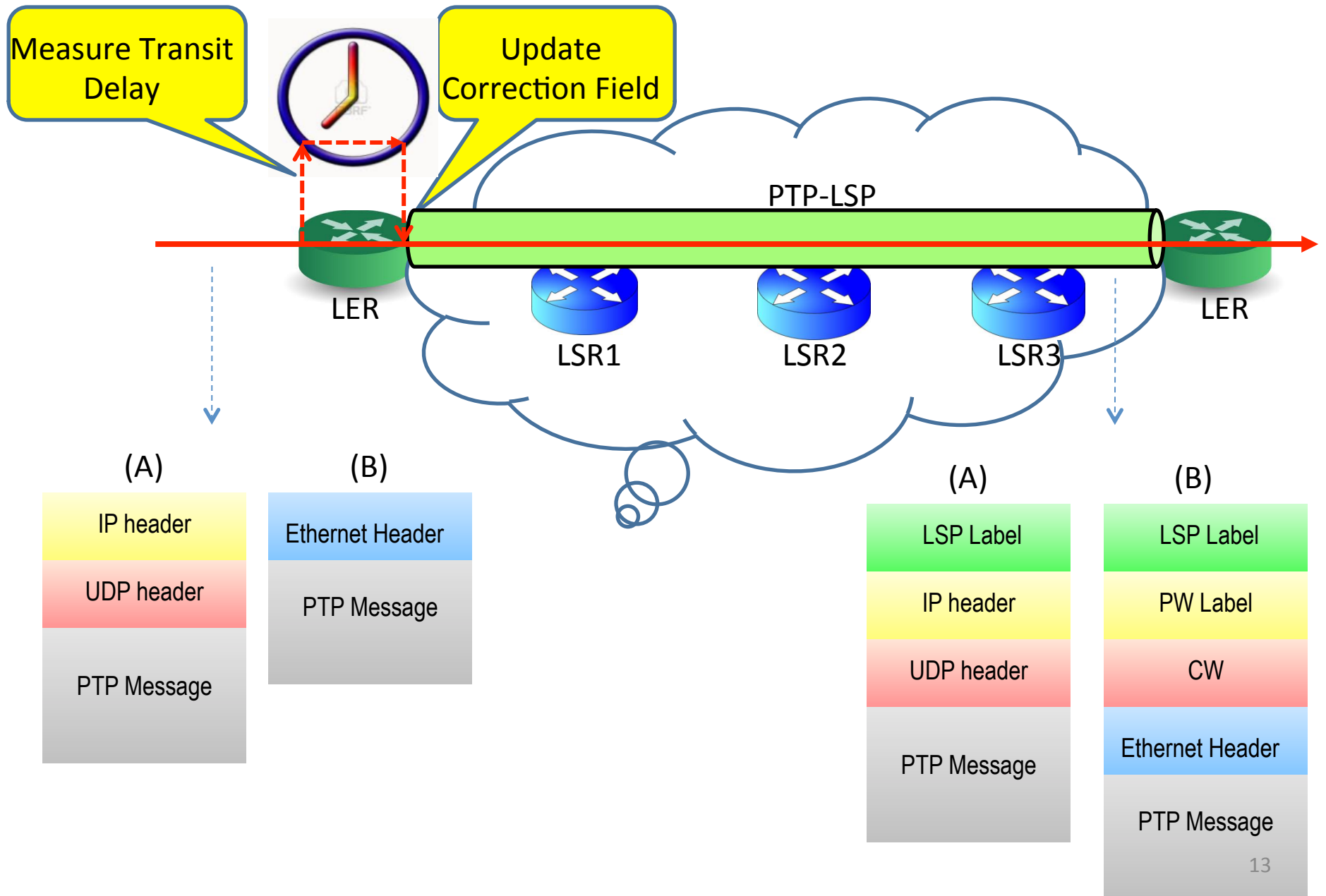
# Slave Clock at LER



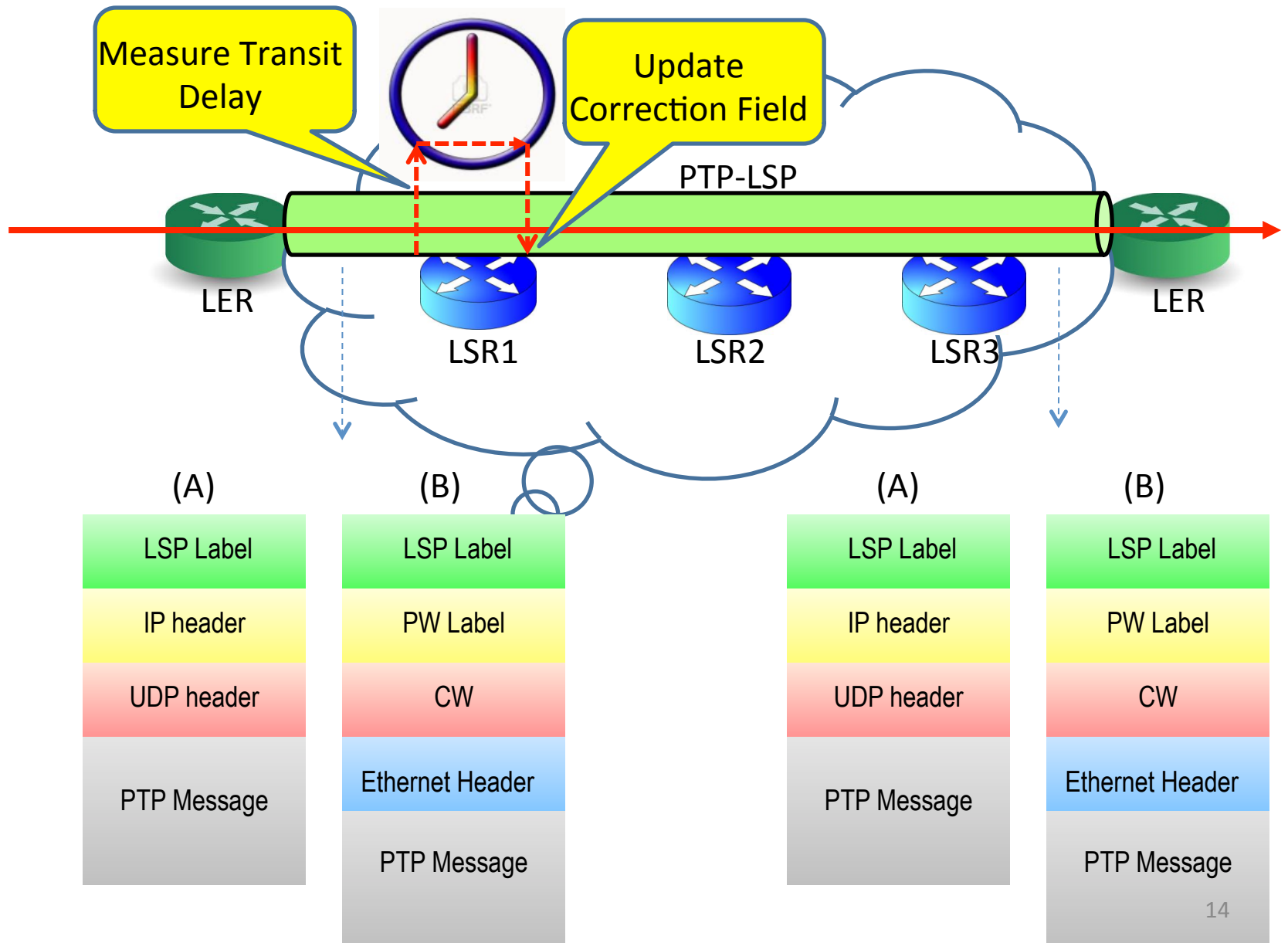
# Boundary Clock at LER



# Transparent Clock at LER



# Transparent Clock (TC) at LSR



# Backward Compatibility

