
Checksum Trailer in Timing Protocols

draft-mizrahi-tictoc-checksum-trailer-00

<http://tools.ietf.org/html/draft-mizrahi-tictoc-checksum-trailer-00>

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Background

- ▶ **Timing protocols transported over UDP:**
 - IEEE 1588.
 - NTP.
 - OWAMP/TWAMP.

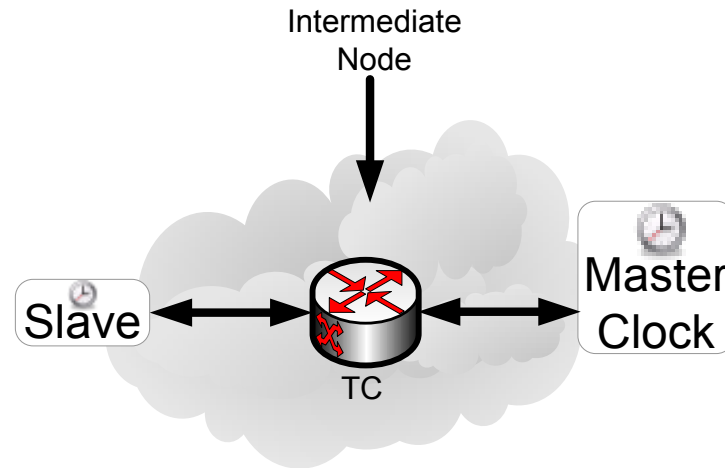
- ▶ **UDP over IPv4 (RFC 768):**
 - Checksum can be 0, causing receiver to ignore checksum.

- ▶ **UDP over IPv6 (RFC 2460):**
 - Checksum is mandatory.

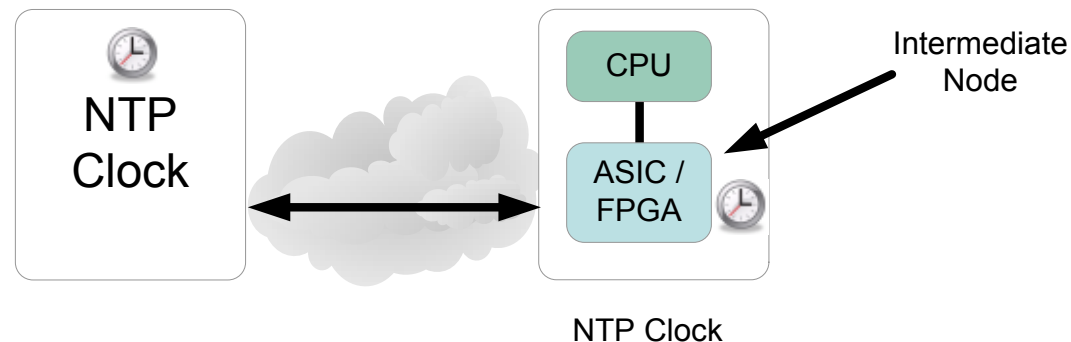
Intermediate Nodes

Intermediate nodes must re-computed the UDP checksum or incrementally update it (RFC 1624).

▶ IEEE 1588 Transparent Clock (TC):



▶ Internal intermediate node (NTP – RFC 5905 / OWAMP – RFC 4656 / TWAMP – RFC 5357):

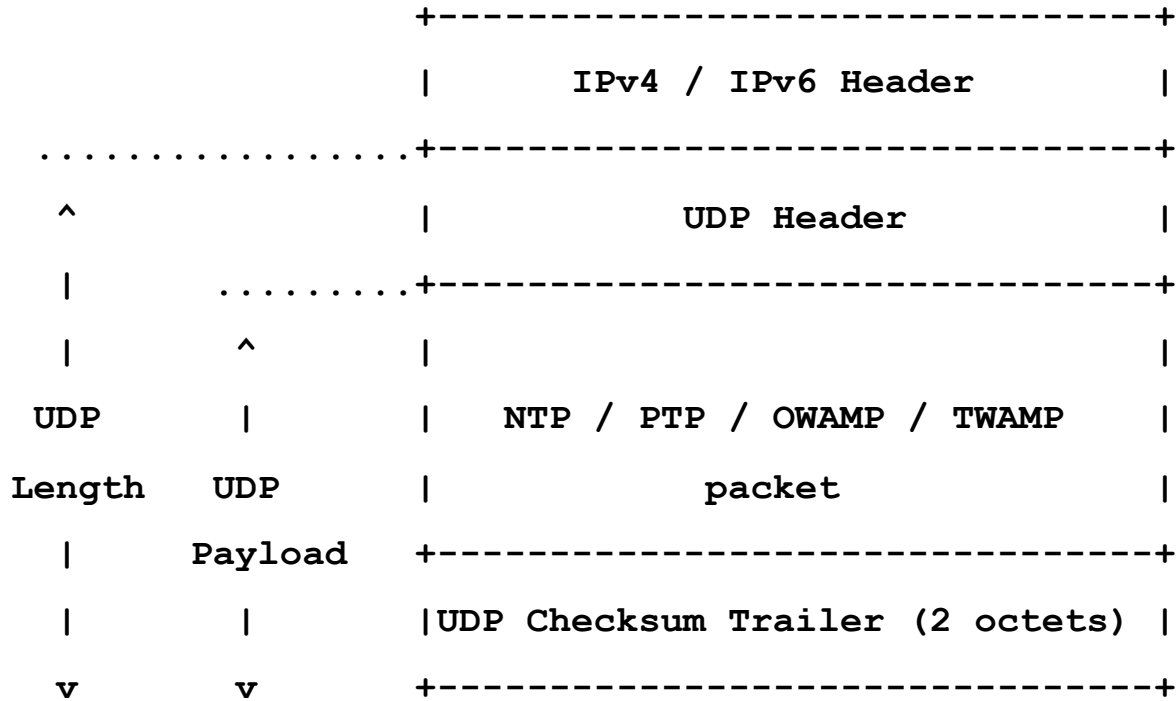


Overview

- ▶ **PTP over IPv6 (Annex E of IEEE 1588):**
 - 2 bytes added to the end of the PTP payload.
 - Can be used by an intermediate node for incremental checksum update.

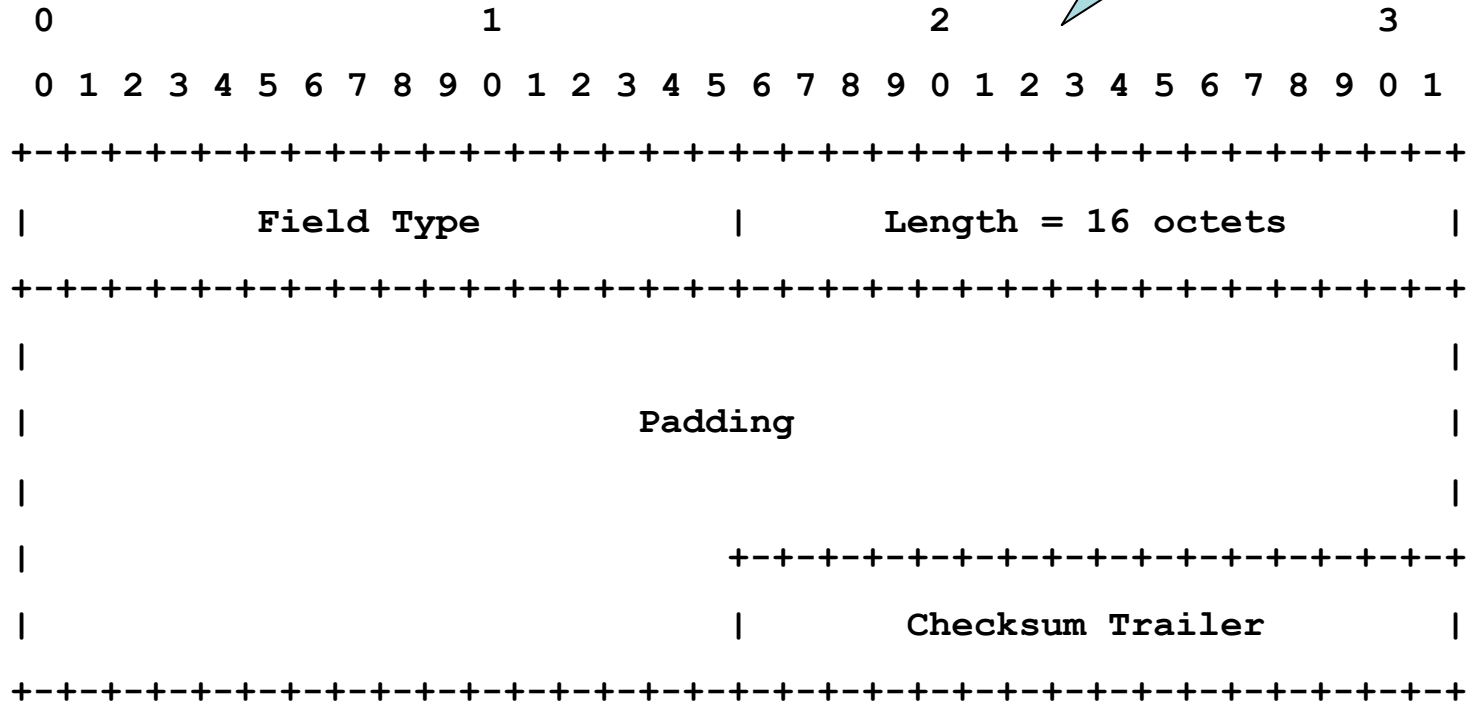
- ▶ **Current draft:**
 - Define Checksum Trailer for NTP and for OWAMP/TWAMP.
 - Allow intermediate node to perform incremental checksum update.

Checksum Trailer



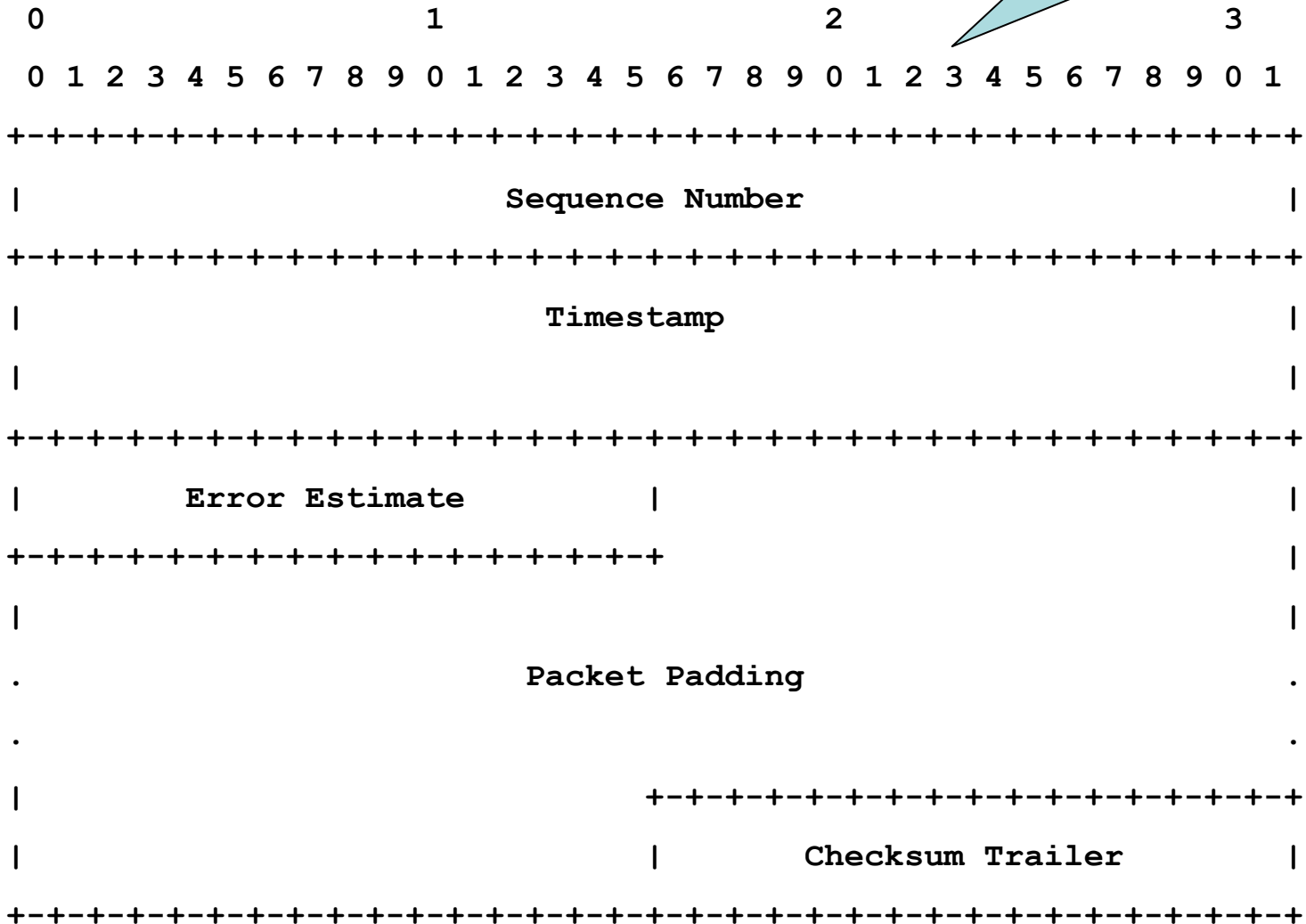
NTP Checksum Trailer

- Use NTP Extension Field.
- Need to define Field Type for Checksum Trailer.



OWAMP/TWAMP Checksum Trailer

- Use the OWAMP padding field.
- Padding length is announced in the Request-Session message.



Interoperability with Existing Implementations

- ▶ **OWAMP padding → no new requirements from receiver.**
- ▶ **NTP extension field – open issue regarding existence of MAC.**
- ▶ **NTP, OWAMP/TWAMP:**
 - The intermediate node and the originator of the packet are managed by the same entity.
 - Either both use the Checksum Trailer, or both do not use it.

Next Steps

- ▶ **July 2011 – draft 00.**
- ▶ **Receive feedbacks from WG.**