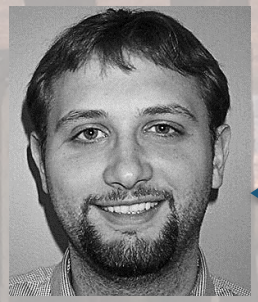
TCP Extended Data Offset Option

IETF 121 – Nov 2023

draft-ietf-tcpm-tcp-edo-14
draft-touch-tcpm-tcp-syn-ext-opt-13



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Status

- TCP-EDO v14
  - Documents post-SYN option space extension
  - Currently TCPM Standards track
  - OFF by default
  - Updated Sep 2024 based on feedback from implementers (clarifications, constraints)
  - Currently believed ready for WGLC

- TCP-SYN-EXT v13
  - Documents SYN option extension via out-of-band segment
  - Currently an individual submission
  - Requesting TCPM Experimental or OK to proceed as Individual Experimental
  - >> important primarily to document the variations that are known problematic and present the only currently known possibly viable approach
  - Plan to resolve all current TBDs in one section as future work
  - Excepting above, ready for WGLC

EDO implementation experience (1) (from Kuniyuki Iwashima)

- Identified unclear points in v13 (updated in v14)
  - Does an invalid EDO packet trigger non-EDO fallback?
    - If EDO has not been negotiated, subsequent segments containing the EDO Extension option MUST be dropped and a RST sent in response
    - Segments with malformed EDO options MUST be dropped and generate RST
  - Does a segment include multiple EDO options?
    - EDO MUST NOT occur more than once in a segment
- Performance
  - Tested with super_netperf between 2 nodes (EC2 c7i.48xlarge)
    - v6.12-rc5 w/o EDO patches : 46.71 Gbps
    - w/ EDO patches (Disabled EDO) : 46.71 Gbps
    - EDO Enabled with Long variant : 46.70 Gbps (-0.02%)
    - EDO Enabled with 64 NOP Options (long variant) : 46.38 Gbps (-0.7%)
    - EDO Enabled with 128 NOP Options (long variant) : 46.07 Gbps (-1.3%)

EDO implementation experience (2) (from Kuniyuki Iwashima)

- Considerations for GSO and GRO
  - Should be disabled for now when EDO is used
    - GSO is automatically disabled when EDO is enabled (as TCP-AO does)
    - GRO needs to be turned off manually

- Current code
  - https://github.com/q2ven/linux/tree/edo-6.12-rc5-241103