Transport Options for UDP

draft-ietf-tsvwg-udp-options-02

IETF 94 - Yokohama

Joe Touch, USC/ISI

Overview

- ## UDP has no option space
  - UDP header has ports, len, checksum fields
  - UDPlen is currently redundant:

    UDPlen = IPlen – IPhdrlen – 8
  - We reduce UDPlen to create trailer option space

- ## Potential uses for UDP option space
  - Out-of-band channel that shares fate
  - Soft-state optimizations
  - Optional features (strong cksum, reassy ID, …)

10/30/15

2

Proposed UDP Option approach

- Leverage UDP length field
  - Currently redundant with info in IPlen
  - Set to a **_smaller_** value than currently calculated
    - Larger **_is not_** safe for legacy systems
    - Current tests indicate smaller **_is_** safe for legacy systems
  - Leaves a trailer area for UDP options
- Interpretation
  - Same syntax as TCP options
  - Separate option codepoint valuess
  - MUST be silently ignorable by legacy receivers
  - Uses MUST allow for reordering, duplication, loss

10/30/15

3

Difference from UDP-Lite

	UDP Lite	UDP Options
Transport protocol	136 (new)	17 (same as UDP)
Data to legacy recvr?	N.A.	Yes, up to UDPlen
Checksum coverage	Up to UDPlen	Up to UDPlen
Data after UDPlen?	Send to application	Hide from app layer

Preliminary test results

- Test of backward compatibility
  - IP length = 100, UDP length = 100-20-8=72
  - Legacy receivers should see 72, not 100
  - Checksum calc should not be affected
- Results of legacy (unmodified) OSes
  - Expected behavior on Linux, Mac OS-X, Windows under Cygwin

10/30/15
5

Current plan

- Additional testing (underway)
    - Other OSes (esp. Android, iOS)
    - NAT/NAPT traversal

- Implementation (underway)
    - Linux, BSD

- Document progress
    - Request consideration as TSVWG doc
    - Experimental? PS?

10/30/15
6