Transport Options for UDP

draft-ietf-tsvwg-udp-options-02
IETF 94 - Yokohama

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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, …)
Proposed UDP Option approach

• Leverage UDP length field
  - Currently redundant with info in IP len
  - 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

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# Difference from UDP-Lite

<table>
<thead>
<tr>
<th></th>
<th>UDP Lite</th>
<th>UDP Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport protocol</td>
<td>136 (new)</td>
<td>17 (same as UDP)</td>
</tr>
<tr>
<td>Data to legacy recvr?</td>
<td>N.A.</td>
<td>Yes, up to UDPlen</td>
</tr>
<tr>
<td>Checksum coverage</td>
<td>Up to UDPlen</td>
<td>Up to UDPlen</td>
</tr>
<tr>
<td>Data after UDPlen?</td>
<td>Send to application</td>
<td>Hide from app layer</td>
</tr>
</tbody>
</table>
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
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?