TCB Control Block Sharing: 2140bis

draft-touch-tcpm-2140bis-00
IETF 96 - Berlin

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Overview

- RFC2140 proposed TCP TCB sharing
  - Proposal at the time
- TCB sharing is now widely deployed
  - Useful to discuss experience, caveats
  - Useful to discuss relation to current protocols

- NB: replaces welzl-tcpm-tcb-sharing
  - That was a placeholder for changes
Changes from RFC2140

• Update to present tense
  – Cite more recent IW recommendations
  – Refer to current deployment
  – Add relation to later work: Cong. Manager (CM), MPTCP

• More detail
  – Add PMTU to list of cached values
  – Add equations in use for ssthresh sharing

• Clarification
  – Focus on parameter changes to existing and new state that result from connection start/end only (CM is “ongoing”)
  – Add caveats about impact and ECMP/LAG interaction
### TCB data

<table>
<thead>
<tr>
<th>TCB data</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>old_MSS</td>
<td>Cached and shared in FreeBSD</td>
</tr>
<tr>
<td>old_RTT</td>
<td>Cached and shared in FreeBSD</td>
</tr>
<tr>
<td>old_RTTvar</td>
<td>Cached and shared in FreeBSD</td>
</tr>
<tr>
<td>old_snd_cwnd</td>
<td>Not shared</td>
</tr>
<tr>
<td>old_ssthresh</td>
<td>Cached and shared in FreeBSD and Linux:</td>
</tr>
<tr>
<td></td>
<td>FreeBSD: arithmetic mean of ssthresh and previous value if a previous</td>
</tr>
<tr>
<td></td>
<td>value exists;</td>
</tr>
<tr>
<td></td>
<td>Linux: depending on state, max(cwnd/2, ssthresh) in most cases</td>
</tr>
</tbody>
</table>
Caveats summary

• Impact
  – Directly improves only “goldilocks” connections
    • Not too short, not too long
  – Indirectly improves endpoint and network efficiency
    • Reduces fighting “on the wire” to provide initial feedback

• Endpoint pair issues
  – ECMP, LAG may reduce utility for endpoint pair
  – When known to share bottleneck (e.g. VPN – encapsulation, ESP encryption), share within SYN dest port of a pair
Issues for WG

• Path for adoption
  – Previously individual, informational
  – This update seems appropriate for BCP

• Request for WG adoption
  – TCPM of course ;-) 

• WG task
  – Decide specific MAY/SHOULDs and negatives
  – MUSTs are unlikely – this should stay optional