Non Queue Building (NQB) Per Hop Behavior
draft-ietf-tsvwg-nqb-01

Greg White, CableLabs
Thomas Fossati, ARM
TSVWG @ IETF108
July 28, 2020
Status

- Adopted TSVWG following IETF105
- Draft-00 published Nov. 4, 2019
  - Restructured to align with other PHB specs
  - Addressed most comments made during IETF105 & on mailing list
    - Interaction with WiFi EDCA not sufficiently addressed
- Draft-01 published March 9, 2020
  - Rewrote section on WiFi interoperability, introduced new requirements to provide safeguards
  - Other minor editorial changes
- Remaining work
  - Examine impact of existing remarking pathologies
  - More detail on what happens if SHOULDs are not followed (incl. traffic protection)
  - Further alignment with PHB spec guidelines (RFC 2474 / RFC 2475)
    - Discussion of implications of tunneling
    - Configuration and Management issues
    - Impact on higher-layer protocols
Common remarking policies/pathologies$^{1,2}$

<table>
<thead>
<tr>
<th>Policy</th>
<th>Outcome for NQB (42/0x2A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleach (set DSCP=0)</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>No differentiation from other traffic</td>
</tr>
<tr>
<td>Set “Precedence” bits to 000</td>
<td>DSCP2</td>
</tr>
<tr>
<td></td>
<td>NQB indistinguishable from AF41, AF31, AF21, AF11</td>
</tr>
<tr>
<td></td>
<td>(as well as 2, 50, 58)</td>
</tr>
<tr>
<td>Set “Precedence” bits to 001</td>
<td>AF11</td>
</tr>
<tr>
<td></td>
<td>NQB indistinguishable from CS5, VA, EF (41, 43, 45)</td>
</tr>
<tr>
<td>Set “Precedence” bits to 010</td>
<td>AF21</td>
</tr>
<tr>
<td>Set Low 3 bits to 000</td>
<td>CS5</td>
</tr>
<tr>
<td></td>
<td>NQB indistinguishable from CS5, VA, EF (41, 43, 45)</td>
</tr>
<tr>
<td>Remark all traffic to X*</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>No differentiation from other traffic</td>
</tr>
</tbody>
</table>

* No observations of X=42 in literature

None of the common remarking policies result in traffic being remarked as NQB

Refs:
Impact on higher layer protocols

• Use of NQB increases risk of out-of-order delivery by networks that implement Queue Protection algorithm
  • i.e. QP could re-direct a subset of a flow’s packets to the QB queue
Next Steps

• Address above topics & revise draft

• Request for comments on mailing list:
  • Consensus on DSCP
    • 42/0x2A/0b101010 is proposed, any objections or concerns?