Non Queue Building (NQB) Per Hop Behavior
draft-ietf-tsvwg-nqb-10

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July 25, 2022
Status

• Draft-07 published July 28, 2021
• Draft-08 published Oct 25
• Draft-09 published Feb 11, 2022
• Draft-10 published March 4
• Milestone: Submit as Proposed Standard RFC by September 2022
Summary of current DSCP recommendations

• NQB applications SHOULD mark traffic 45 (decimal)
• Networks that don’t support the PHB SHOULD treat NQB traffic as default (but SHOULD preserve the marking distinction between NQB & default)
• Networks that support the PHB:
  • MUST maintain the marking distinction
  • SHOULD NOT send NQB=45 across interconnection
  • SHOULD send NQB=5 across interconnection
  • SHOULD send NQB=45 across customer access network links
  • SHOULD re-mark between 5 & 45 where needed to implement the above
Rationale for two DSCPs – from IETF110 (March 2021)

DSCP Recommendation – TWO DSCPs

• Rationale for recommending DSCP 42 (101010):
  • The end-host/application chooses DSCP for upstream traffic, no DSCP remapping possible prior to WiFi link. Choosing a value that maps to AC_VI in existing WiFi networks is critical for adoption.
  • Existing Access Network technologies can easily classify/aggregate a lot of “NQB-compatible” traffic (CS7, CS5, EF) with 42 via a masked classifier (i.e. 101xx0)

• Rationale for recommending DSCP 2 (000010):
  • Some existing DSCP interconnections and backbone routers (e.g. MPLS) can easily aggregate NQB(2) with Default, while carrying the DSCP through unbleached

• Current Proposal (included in draft-04/05):
  • Recommend DSCP of 42 for end-hosts (senders)
  • Recommend remapping 42 to 2 prior to interconnection
  • Recommend remapping 2 to 42 prior to customer WiFi networks

(we’ve since moved to 45&5 rather than 42&2)
List (and some offlist) discussion regarding DSCP recommendations

• There is an interest in ensuring that end-to-end traversal of unmodified DSCP remains RFC compliant
  • Thus, the recommendation to re-mark 45 to 5 is objectionable

• There is an interest in minimizing complexity for network operators as much as possible
  • For some, this equates to using 45 end-to-end without re-marking
  • For others, this equates to using 5, with re-marking done by edge networks

• Some applications are hosted in core network locations (e.g. data centers) where the network might prefer 5 (or some other value)
Possible compromise?

• Define 45 as the RECOMMENDED value across interconnections

• If re-marking is necessary, RECOMMEND the value 5
  • Consistent with Diffserv architecture, responsibility of receiver to condition/re-mark at ingress (unless they negotiate something different with their interconnection partner).

• Update application guidance to also mention that in certain cases, 5 might be preferable. RECOMMEND that server applications consult with their network provider to choose an appropriate value.