Non Queue Building (NQB) Per Hop Behavior

draft-ietf-tsvwg-nqb-10

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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

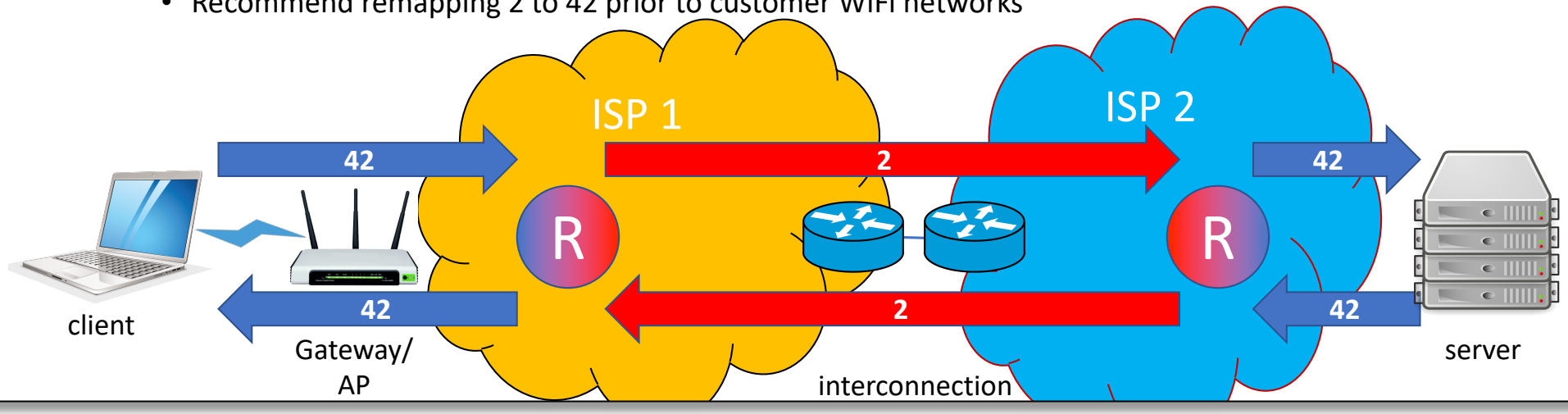
Summary of current DSCP recommendations

- 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):~~ **45**
  - 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):~~ **5**
  - 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.