

Considerations for Assigning a new Recommended DSCP

WG ID: draft-ietf-tsvwg-dscp-considerations

Replaces individual ID: draft-custura-tsvwg-dscp-considerations

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Motivation

Interest within the WG for new DSCP assignments...

...however, several pathologies exist (ToS bleaching, Bleaching, Remarking) that should be considered:

- may impact the ability to provide an expected treatment end-to-end
- may lead to priority inversion
- may lead to unexpected traffic aggregation
- WG ID provides considerations for new assignments

Next steps

- Adopted by WG - version -00 just uploaded
- **Input needed from WG** on mappings for:
 - IEEE 802.11
 - MPLS
 - Mobile Networks
 - Carrier Ethernet ...
- Version -01 coming soon 😊

Questions?

**...before moving onto some
NQB DSCP data!**

Example - NQB DSCP assignment

- Some routers still operate on ToS semantics: NQB proposes assigning a pair of DSCPs to mitigate this
- Initial assignment 42/2...but, AF11, AF21, AF31 traffic results in DSCP 2 after ToS bleaching in around 20% of Internet paths
- New proposed assignment 45/5...measurements show identical treatment to 42/2, without drawback of aggregation
- DSCP 5 was a pool previously used for local/experimental assignments; measurements did not detect common issues

NQB DSCP

- No breakage resulting from using DSCP 45 or DSCP 5
- No worse in terms of remarking compared to DSCP 42/2
- DSCP 5 was used locally on only 2/10K paths:
 - Telkom-Internet (South African ISP) bleaches to DSCP 0 at ingress, remarks to 5 for local use and remarks at egress;
 - A network that belongs to DoD remarks to DSCP 5 at ingress; did not remark on egress.
- DSCPs 45/5 travel unchanged on up to 30% of paths
- Bleaching to DSCP 0 happens in the first AS on up to 40% of paths

Methodology

- 10,000 RIPE Atlas probes, many in edge networks
- Sender DSCP set to 0, 42, 45, 2, 5,
- TCP traceroute to port 8080 at UoA server, June 2021
- Each traceroute repeated 3 times
- Collected DSCP seen in all trace route replies

