5QI to DiffServ DSCP Mapping Example for Enforcement of 5G End-to-End Network Slice QoS

draft-cbs-teas-5qi-to-dscp-mapping-03

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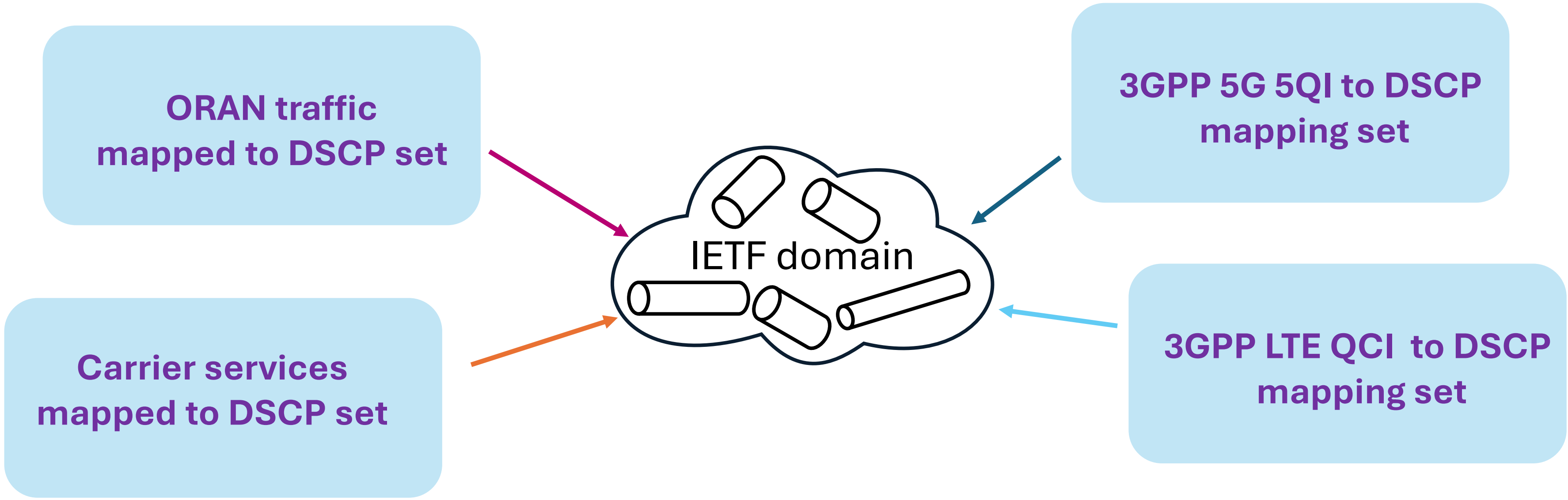
Scope reminder

- This document provides an example of possible mapping of 5QI values to DSCP marking, as well as some groupings that can facilitate the enforcement of the 5G Network Slice end-to-end
  - Provided for illustration purposes only, and should not be considered as deployment guidance
- Rationale
  - Different traffic profiles coexist in the network
    - O-RAN eCPRI, D2 interface, etc
    - 3GPP
      - Slices for MBB, uRLLC, MIoT, different Access capabilities (e.g. RedCap), etc
      - LTE and 3G services
    - Other services e.g. residential broadband, enterprise services, etc
  - Same network for all those services but not necessarily traversing the same network segments

Scope reminder - cont.



Changes from -03
Mostly in Introduction to clarify scope

This document provides an example of possible grouping of 5QI values to DSCP marking that can facilitate the enforcement of the 5G Network Slice end-to-end. The grouping described are provided for illustration purposes only, and should not be considered as deployment guidance. It is not intended to influence the way in which external systems (e.g., 3GPP or O-RAN) identify their traffic types. At the time of grouping, different criteria can be followed according to the network operator interests.

This document focuses specifically on the QoS aspect of overall network slice realization model. The primary goal of QoS in network slicing is to ensure that the specific performance requirements of each slice are met, including latency, reliability, and throughput. As such, this document provides an example of possible grouping of 5QI values to DSCP marking that can be used as one of the building block in overall network slice realization model to aid the enforcement of the 5G Network Slice end-to-end. The grouping described are provided for illustration purposes only, and should not be considered as deployment guidance. It is not intended to influence the way in which external systems (e.g., 3GPP or O-RAN) identify their traffic types. At the time of grouping, different criteria can be followed according to the network operator interests.

Clarification of the work in relation to slicing

The current draft explores the impact of 3GPP traffic mapped to 5QI, being marked with DSCP values, considering scenarios involving multiple slices as well as a single slice.

For details regarding the mapping of 3GPP Network Slices to Transport Network Slices, please refer to the Network Slice Realization document [I-D.ietf-teas-5g-ns-ip-mpls], which describes an overall Network Slice realization model for IP/MPLS networks with a focus on the Transport Network fulfilling 5G slicing connectivity service objectives, and the Network Slice Application document [I-D.ietf-teas-5g-network-slice-application], which describes the overall Network Slice relationship between 3GPP and Transport Network domains.

Justification of this work as part of IETF work

The support of L4S [RFC9331] is being introduced in 5G systems as an operational capability for IP ECN marking and remarking. This document is focused on DSCP to 5QI mapping, leaving L4S out of scope.

Reference to L4S as out of scope

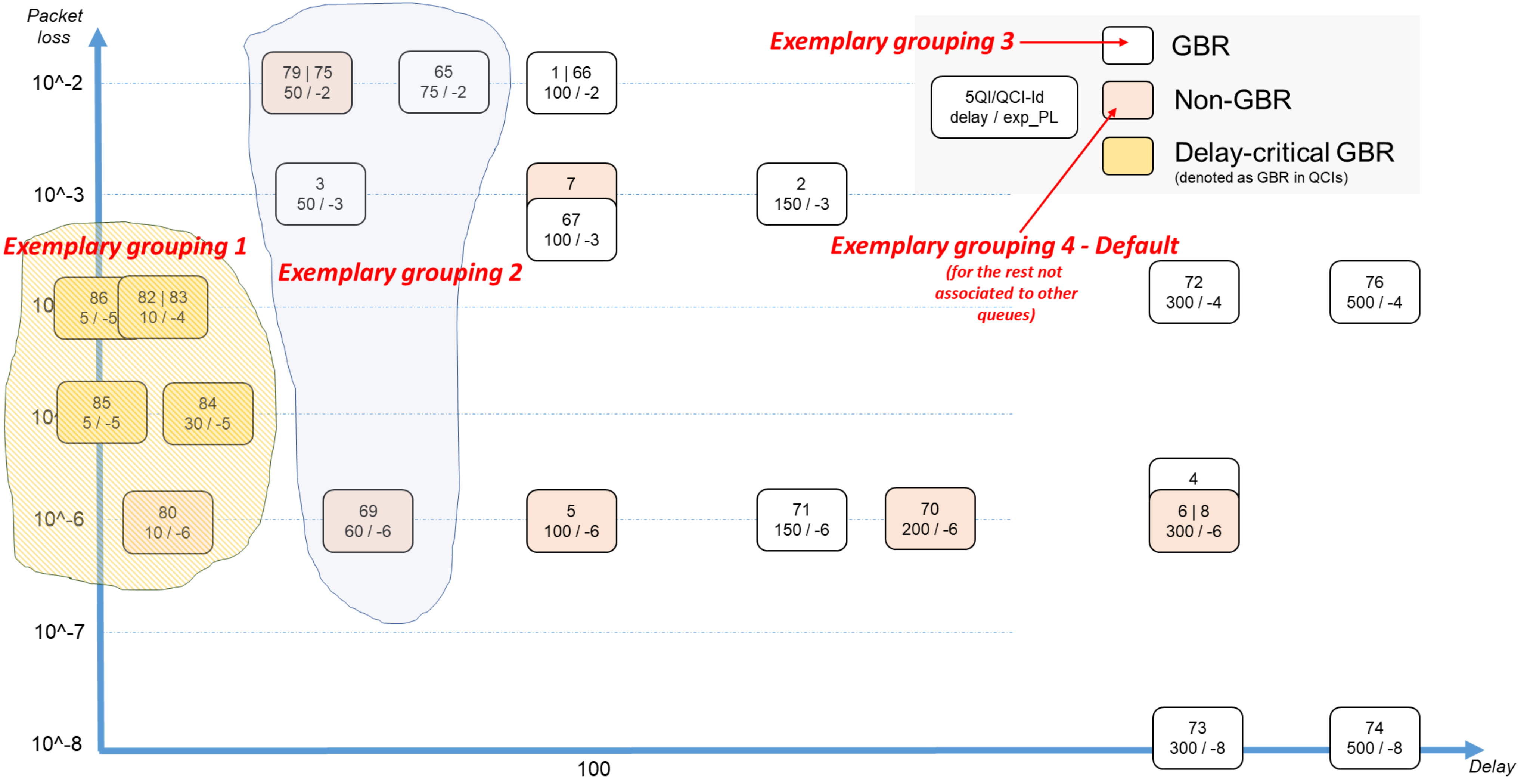
Next steps

- Till now
  - Presented in TEAS WG meetings at IETF 119 and 120
  - Presentd in TSVWG meeting at IETF 122
  - Discussions on both TEAS and TSVWG mailing lists
  - Possitive feedback received so far, with changes introduced in the draft for addressing comments
    - Mail sent to TSVWG socializing latest version (-03), no further comments received

- What's next?
  - Liason to 3GPP to check consistency on the approach
    - This approach is already aligned with O-RAN (O-RAN Xhaul Packet Switched Architectures and Solutions 8.0, Techbical Specification O-RAN.WG9.XPSAAS.0-R003-v08.00)
  - Confirm if TEAS is the proper home for this work
  - Request Adoption of the draft
  - Update Krzysztof's affiliation

Backup

5QI grouping (example)



QoS model with single priority queue (example)