



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

draft-cbs-teas-5qi-to-dscp-mapping-06

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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
 - The draft focuses on the methodology to follow, not in the specific values to be considered when applying such methodology
- 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

Changes from -04 to -06

- New sections
 - Security Considerations
 - Operational Considerations
 - Implementation Status
- Update on Krzysztof's affiliation

6. Security Considerations

Systems following the mapping methodology here described could suffer from adversary attacks in case such adversary is able to inject mapped traffic competing in terms of resources with legitimate traffic. The defense against this type of attacks can consist on traffic conditioning on the mapping elements (e.g., UPF) so that the queueing resources are not exhausted, together with securitization of the network infrastructure to avoid the connection of vulnerable elements from where the mapping attack can take place.

7. Operational Considerations

The process here described with the definition of 5QI grouping and the subsequent mapping to DSCP codes requires of a careful planning in terms of traffic volumes, priorities and queue configuration across the network, so to avoid congestion or undesired effects impacting the overall QoS.

Implementation Status

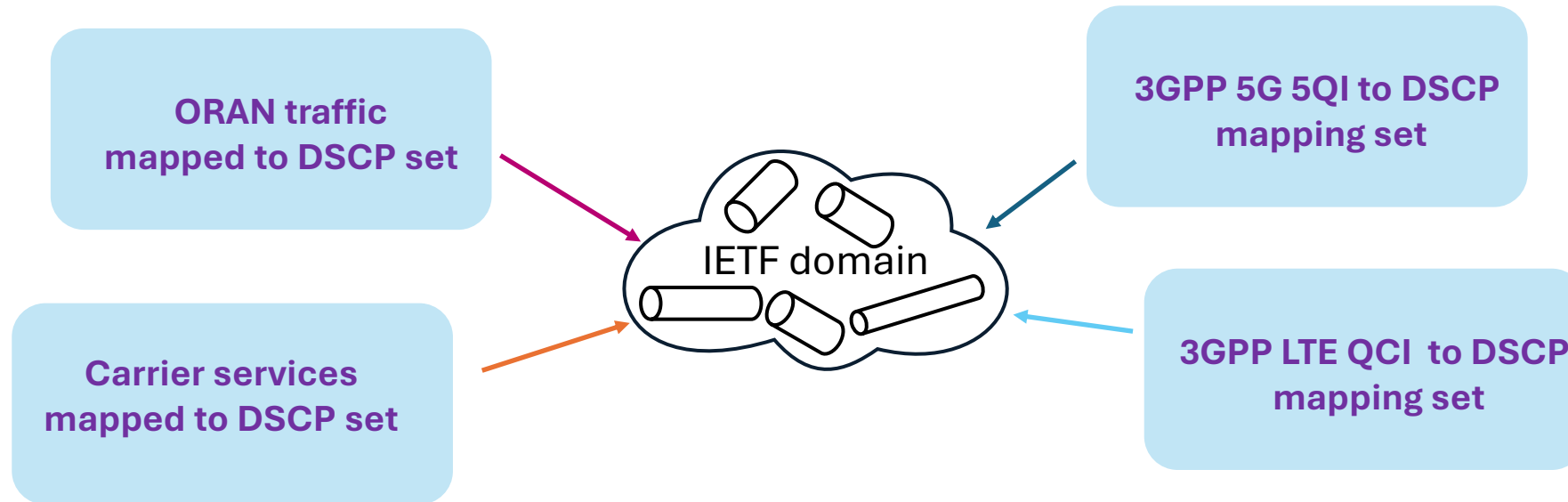
This section is a placeholder for future reporting of an on-going experimental implementation of the application of the 5QI to DiffServ DSCP mapping enforcement in IETF network slices.

Next steps

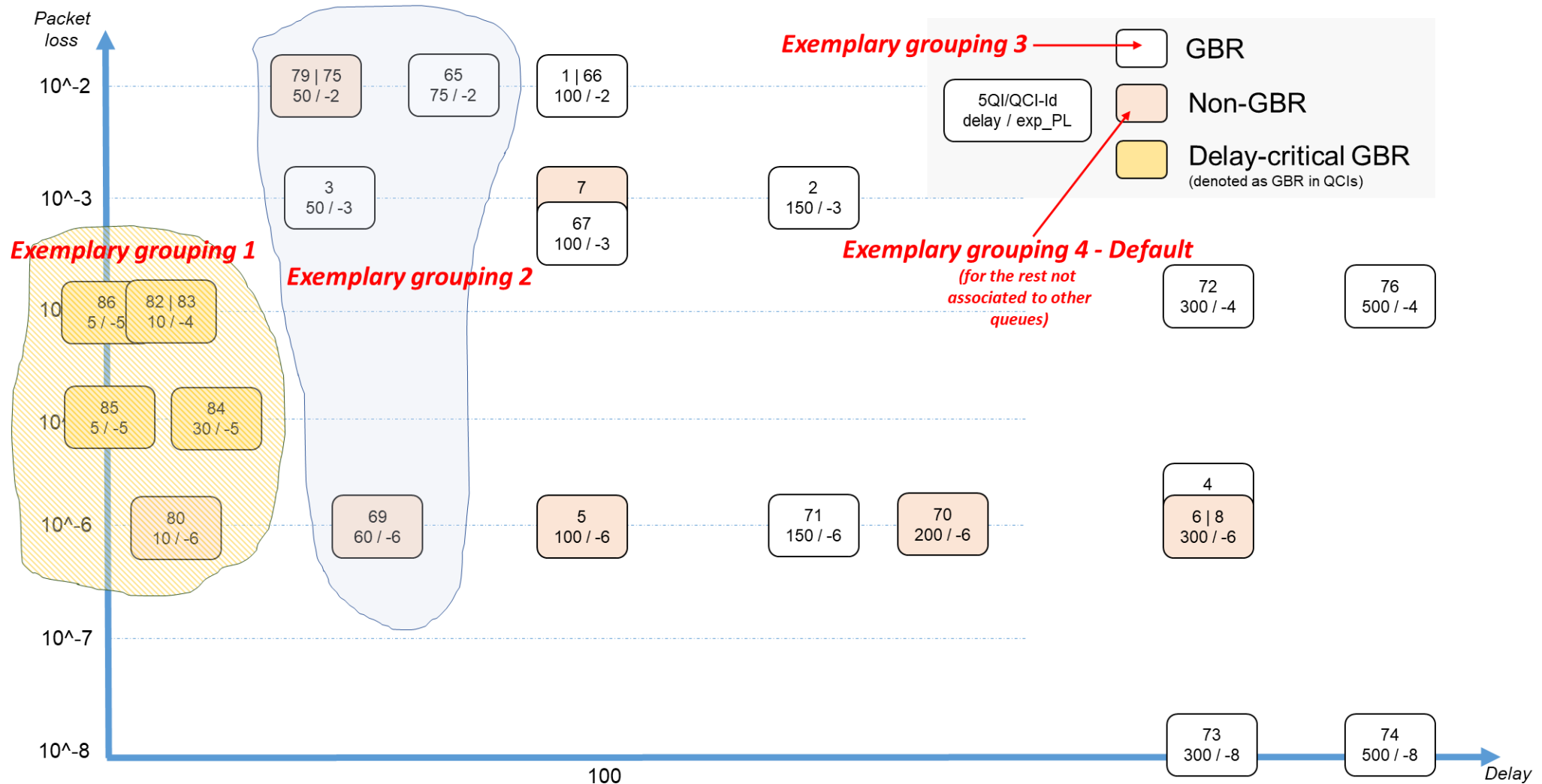
- Till now
 - Presented in TEAS WG meetings at IETF 119, 120 and 123
 - Presented in TSVWG meeting at IETF 122
 - Shared on both TEAS and TSVWG mailing lists
- What's next?
 - Liaison to 3GPP to check consistency on the approach?
 - This approach is already aligned with O-RAN, liaison to O-RAN needed?
 - Included in *O-RAN Xhaul Packet Switched Architectures and Solutions 8.0*, Technical Specification O-RAN.WG9.XPSAAS.0-R003-v08.00
 - Request WG Adoption of the draft

Backup

Scope reminder - cont.



5QI grouping (example)



QoS model with single priority queue (example)

Very high weight (BW over-dimensioning) to ensure frequent enqueueing in order to avoid queue congestion, and thus to keep queue latency to minimum

