



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

draft-cbs-teas-5qi-to-dscp-mapping-02

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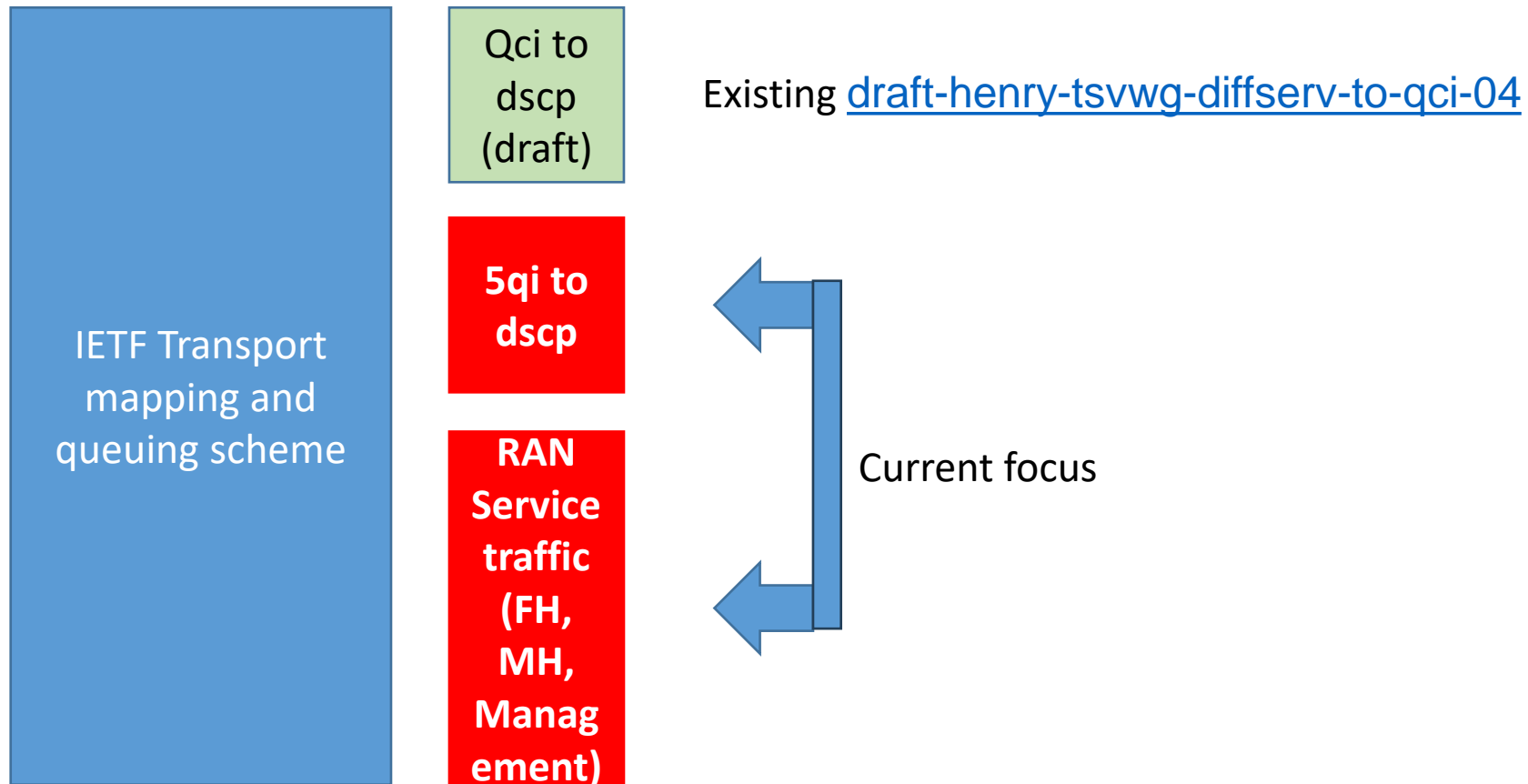
Motivation

- 5G End-to-End Network Slice QoS is an essential aspect of network slicing
 - Expressed as qos-profile in 3GPP
 - Reflected in “slo-sle-template” in draft-ietf-teas-ietf-network-slice-nbi-yang
- 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
- 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

5QI (QCI)

- 5QI is a scalar value used to differentiate QoS characteristics in the 5G System
- 5QI includes parameters such as packet delay budget, packet error rate, traffic characteristics, etc.
- Mapping 5QI values to DSCP in IP network is required to enable the proper handling and forwarding of packets based on their corresponding QoS requirements

Scope of the contribution



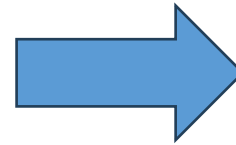
Mapping approaches

1. Individual association of 5QI to DSCP values, as in [I-D.henry-tsvwg-diffserv-to-qci]

- Not always straightforward

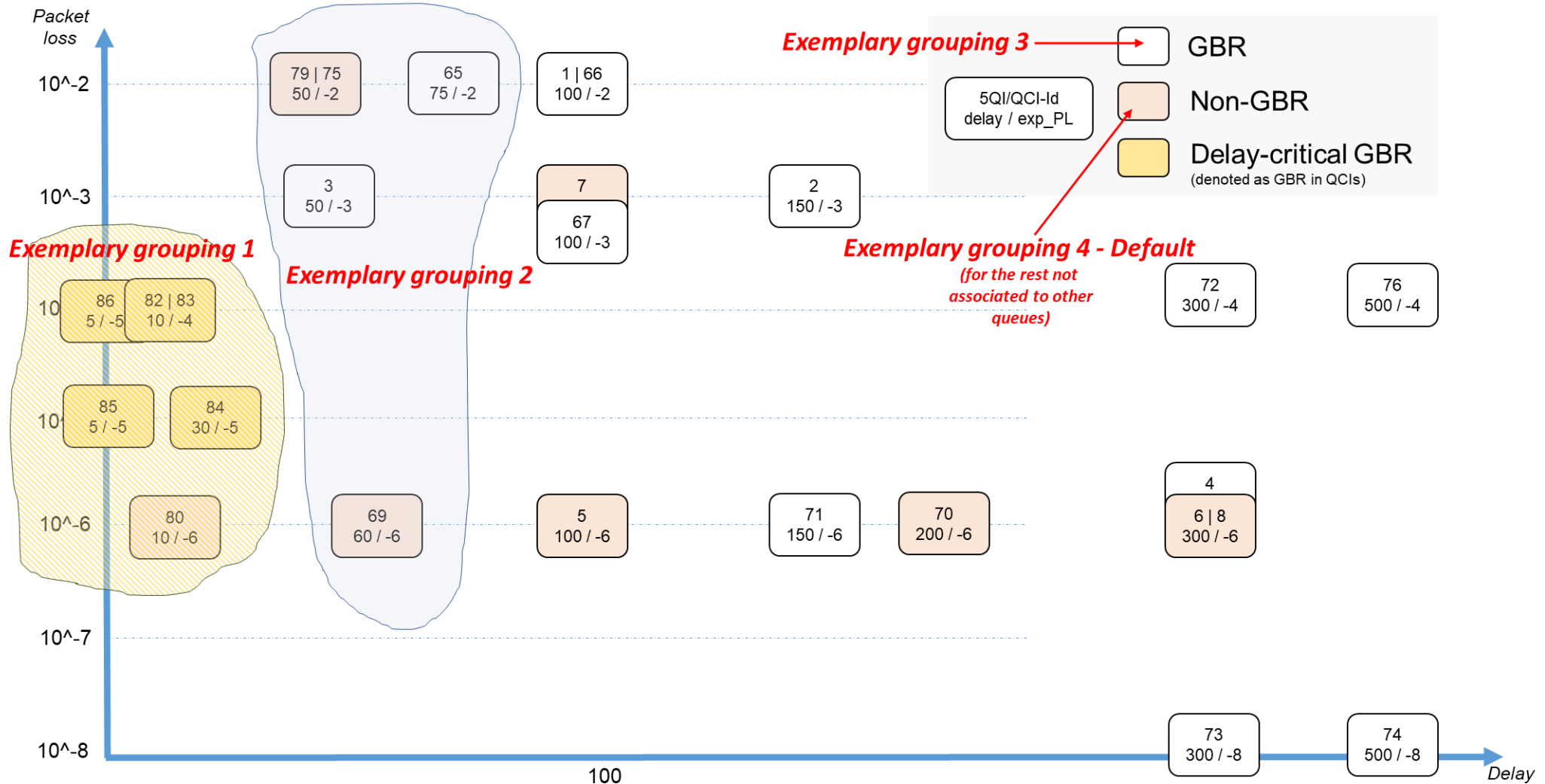
2. Grouping of 5QI values according to some characteristics

- See next slide



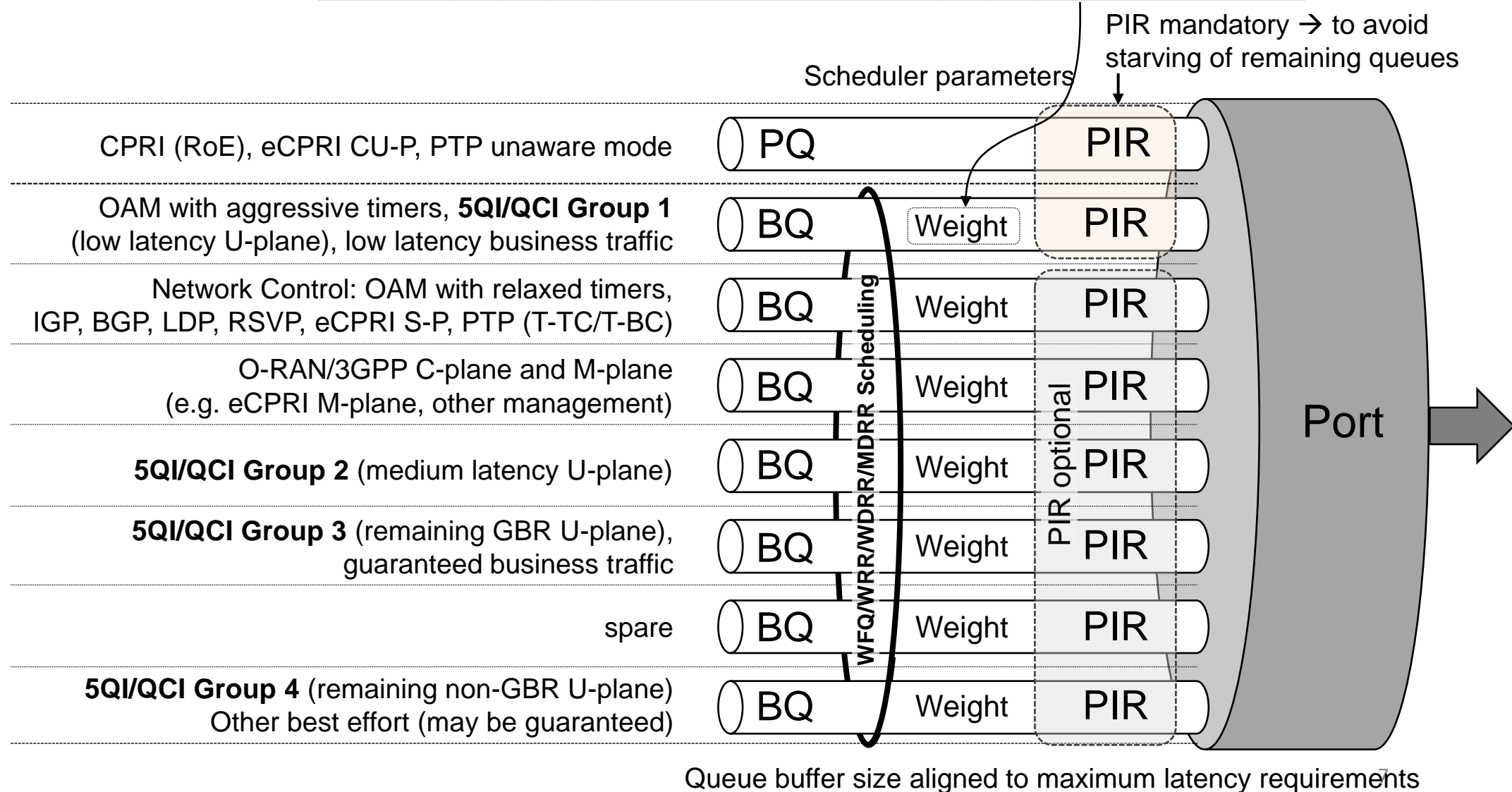
5QI	QCI	Resource type	Recommended DSCP value	Priority level	Service example
1	1	GBR	EF (DSCP46)	20	Conversational Voice
2	2	GBR	AF42 (DSCP36)	20	Conversational Video
3	3	GBR	AF41 (DSCP34)	30	Real Time Gaming, V2X
4	4	GBR	AF43 (DSCP38)	50	Non-Conversational Video
65	65	GBR	EF (DSCP46)	7	Mission Critical PTT (MCPTT)
66	66	GBR	EF (DSCP46)	20	Mission Critical PTT Voice
67	67	GBR	EF (DSCP46)	15	Mission Critical Video UP
75	N/A	GBR	EF (DSCP46)	2.5	V2X messages over MBMS bearer

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



Next steps

- [ongoing] Assess the convenience of the approach for mapping 5QI (QCI) to DSCP
- [done] Provide informational examples about the proposed methodology
- [done] Based on that, consider the implication of realization models for slicing in IETF
- [ongoing] Better understand the implication of 5QI-aware and -unaware connectivity models as in [I-D.ietf-teas-5g-ns-ip-mpls]
- [TBD] Present the draft on TSVWG, and follow up on the discussion initiated during IETF 120