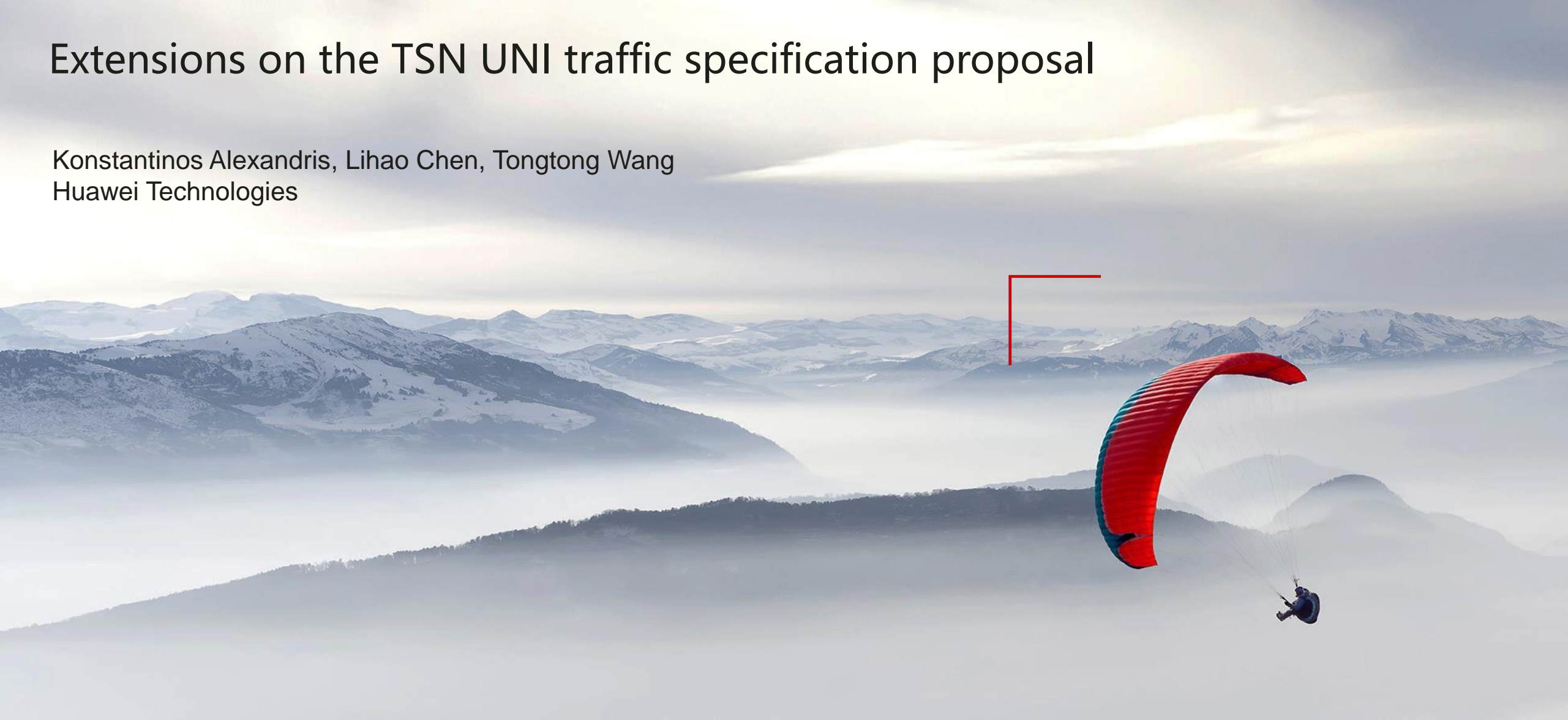# Extensions on the TSN UNI traffic specification proposal

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Objective

- TSN UNI Tspec to handle TokenBucket traffic model [1,2]

  - Need for a standard way to receive stream requirements
  - Only basic and TimeAware Tspec elements are included in 802.1Q-2022

- Enable TSN UNI to support the TokenBucket traffic model in conjunction with centralized configuration [*]

  - End-station/CUC needs to send the TokenBucket Tspec via TSN UNI
  - Current projects and standards do not define specific YANG models
  - Centralized configuration involves CNC assistance support
  - To be complementary to RAP (P802.1Qdd) that uses distributed configuration

[*] Both fully centralized and centralized network/distributed user configuration models

[1] https://standards.ieee.org/ieee/802.1Q/10323/
[2] https://www.ieee802.org/1/files/public/docs2021/new-specht-onats-0921-v01.pdf

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Proposal (1/2)

Tspec definition is not **complete**: Addition of parameters for the TokenBucket model

Sub-clauses to be extended:

- **46.2.3.5:** Extension of the existing Tspec incorporating the relevant parameters (currently missing)

Table 46-10−TspecTokenBucket elements

Name	Data type	Reference
MaximumFrameLength	uint16	46.2.3.5.8
MinimumFrameLength	uint16	46.2.3.5.9
CommittedInformationRate	uint64	46.2.3.5.10
CommittedBurstSize	uint32	46.2.3.5.11

- **46.2.3.5.8 - 11:** Explanatory text related to Table 46-10 parameters to be added (currently missing)

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Proposal (2/2)

Existing YANG models do not support centralized configuration including the TokenBucket Tspec
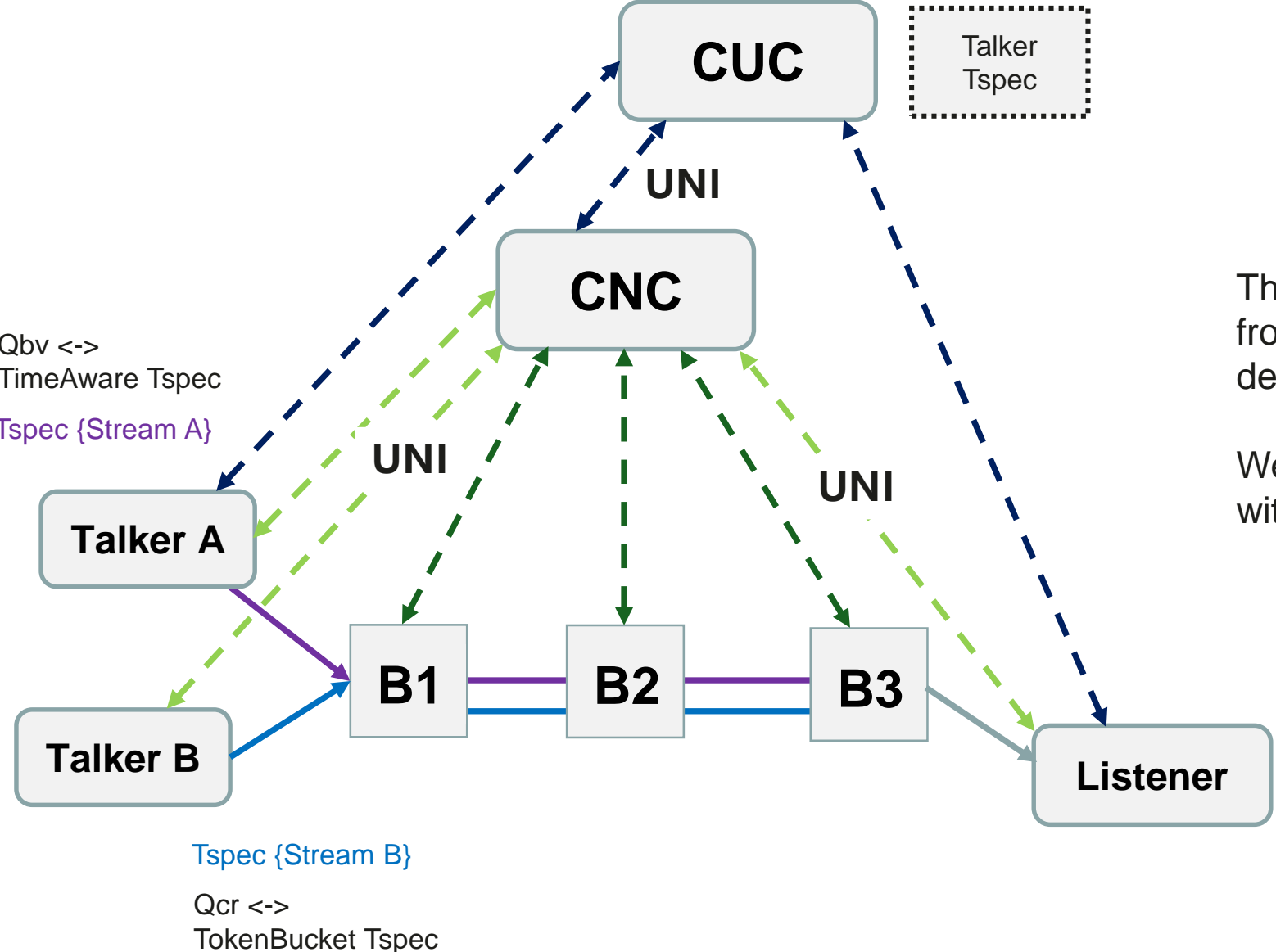
Sub-clauses to be extended:

- **48.5.23:** Extension of the respective YANG schema tree related to the `ieee802-dot1q-tsn-config-uni` YANG module (currently missing)

  - `traffic-specification` [3]: To include TockenBucket TLV parameters [TokenBucket Tspec]

- **48.6.3:** Extension of the `ieee802-dot1q-tsn-types` YANG module (currently missing)

  - `container token-bucket`: To be added under `container traffic-specification` including the relevant parameters as `leaf` statement:

  `max-frame-length, min-frame-length, committed-information-rate, committed-burst-size`

[3] https://1.ieee802.org/tsn/802-1qdj/

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Configuration Model & Tspec

CUC

Talker Tspec

CNC

UNI

Qbv <->
TimeAware Tspec

Tspec {Stream A}

UNI

UNI

Talker A

Talker B

B1 — B2 — B3

Listener

Tspec {Stream B}

Qcr <->
TokenBucket Tspec

The way TimeAware Tspec is conveyed from user to CNC has already been defined.

We should follow the same methodology with TokenBucket Tspec.

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Conclusion

Need to develop the TSN UNI extension

1. Motion for new PAR in 2023 July Plenary meeting.

2. Any questions ?

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Thank you.