Framework for G.709 Optical Transport Network (OTN)

draft-ietf-ccamp-gmpls-g709-framework-05

CCAMP WG, IETF 82nd Taipei

Content of the drafts

Informative overview of the OTN layer network

Connection management in OTN

GMPLS and PCE requirements

  Hierarchy LSP in OTN

  GMPLS Signaling extension requirements

  GMPLS Routing extension requirements

  GMPLS LMP extension requirements

  PCEP requirements

Changes from version 04

➢ Refined some text related to the need to define a new Switching Capability value (101) specific for OTN (introduced in the routing draft)

➢ Added a new signaling requirement for consistency between the Switching Type in the signaling of LSPs (G7099-V3) and the new Switching Capability defined in routing

➢ Added a new routing requirement about TSG advertisement, and consequently, refined some text about TSG information in the signaling.

➢ Refinement regarding link bundling in alignment with routing draft.

Next Step

- ➢ Refine the document by constant monitoring the progress of OTN data plane tech

- ➢ Consistent with [OTN-Info] and protocol drafts (e.g. TSG discussion)

- ➢ Refine the draft based on possible new requirement coming from the meeting or mailing list

Information model for G. 709 Optical Transport Network (OTN)

draft-ietf-ccamp-otn-g709-info-model-02

CCAMP WG, IETF 82nd Taipei

Content

- Information needed in signaling and routing against OTN requirements provided in [OTN-Fwk]

- Analysis of the current protocol capabilities and requirement for extension in support of the indicated information requirements.

Changes from version .00 to .02

- Version 04 of draft-bccg-ccamp-otn-g709-info-model has become a WG from Prague meeting. Version 00 of the WG document

- Version 00 → 01

    - new text for Tributary Slot Granularity and added sub-Chapter for fall-back procedure

    - Update routing and signaling requirement accordingly to [OTN-FWK]

    - Added text and example for multi-stage multiplexing advertisement of intermediate layer

- Version 01 → 02 updated section 4.1 on Tributary slot granularity with examples and new text to clarify information requirement.
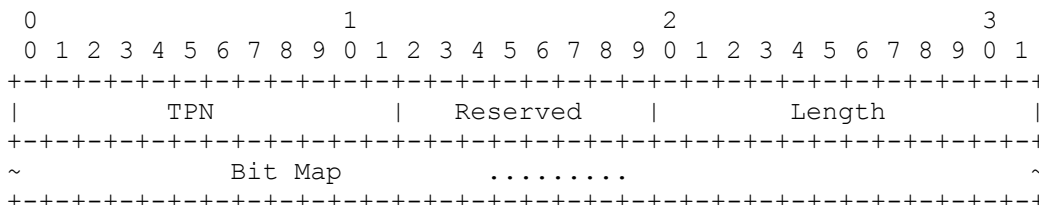
Tributary slot granularity information
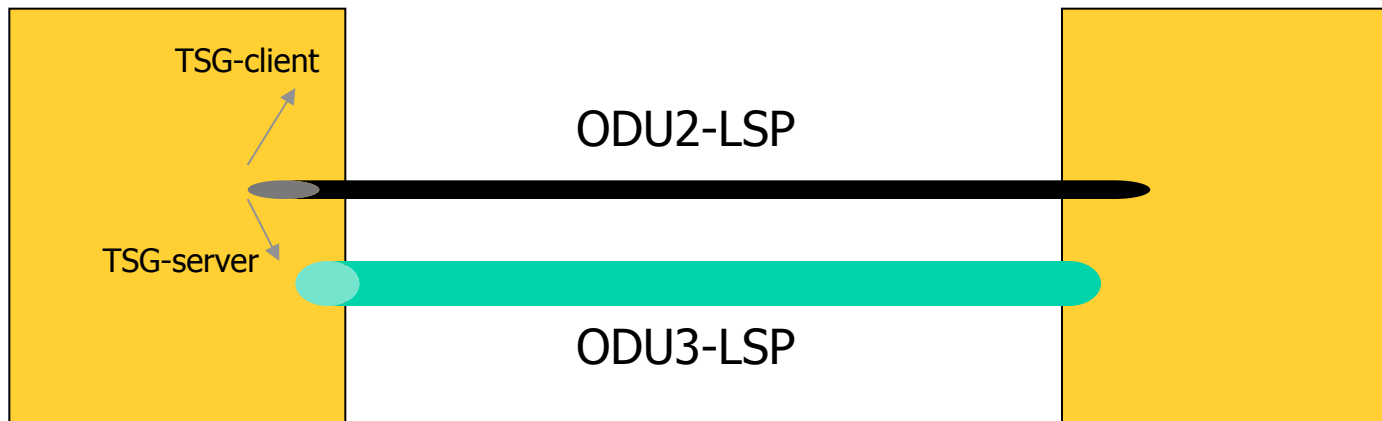
TSG-client → it is the TSG that the endpoints of the link or hierarchical LSP export to their clients . In this case the TSG that ODU2-LSP signals and exports to clients .
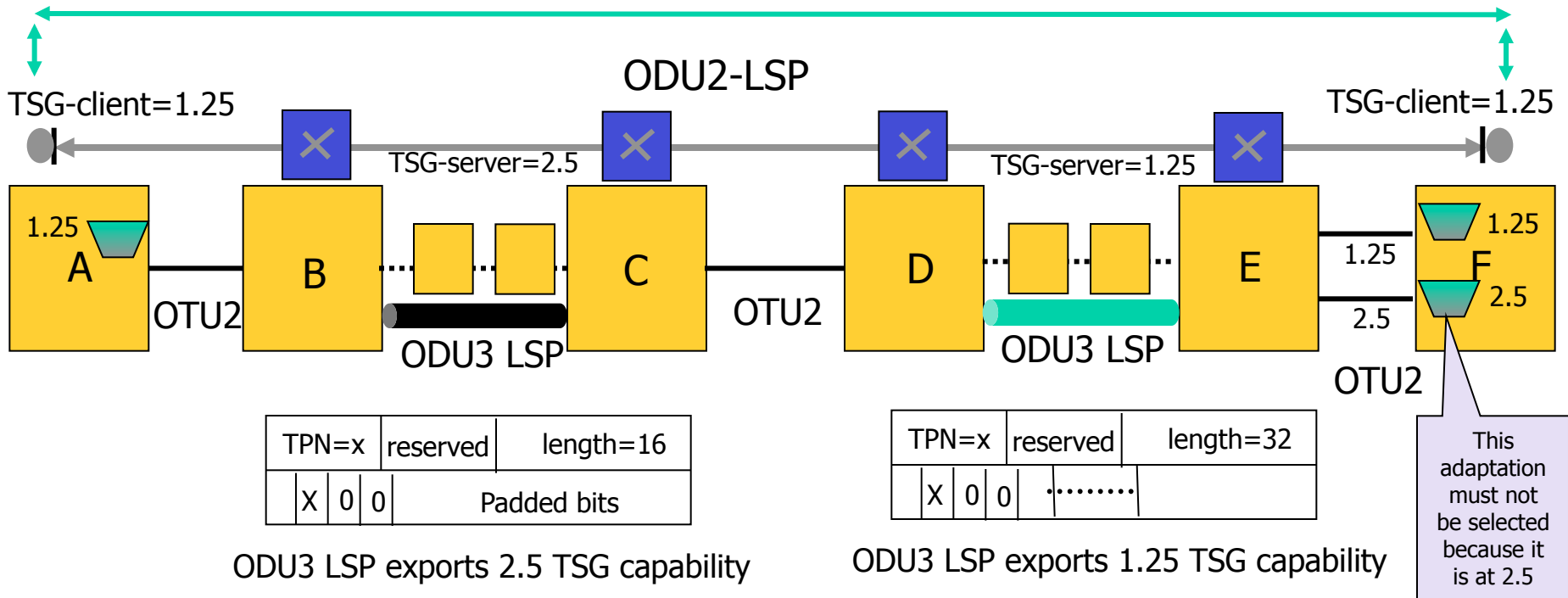
TSG is applicable only to ODU clients being a characteristics of the ODTUk.ts and ODTUjk adaptations

TSG-server → it is the TSG used to map an E2E ODUj onto the ODUk links or hierarchical LSPs on its path. In the figure above is how the ODU2-LSP is mapped in the structured ODU3-LSP. It can be retrieved by the field "length" of the label format together with Traffic parameters (Signal Type) and type of ODU link (IF-ID RSVP_HOP).

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|        TPN           |   Reserved    |        Length         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
~           Bit Map        .........                           ~
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Example : TSG information need

ODU0-LSP

ODU2-LSP

TSG-client=1.25

TSG-server=2.5

TSG-server=1.25

TSG-client=1.25

1.25

A

B

C

D

E

F

1.25

2.5

OTU2

ODU3 LSP

OTU2

ODU3 LSP

1.25

2.5

OTU2

TPN=x	reserved	length=16
X 0 0		Padded bits

ODU3 LSP exports 2.5 TSG capability

TPN=x	reserved	length=32
X 0 0	·········	

ODU3 LSP exports 1.25 TSG capability

This adaptation must not be selected because it is at 2.5

- At ODU2 LSP setup , the TSG-server can vary along the path .

- ODU2 LSP exports towards his client (e.g. ODU0 in the figure) TSG capability = 1.25

- If ERO does not provide interface identifier, penultimate hop node has to check TSG information to select the correct interface to guarantee that adaptation capability "on output" matching the adaptation capability of the ingress

Example : Client information need
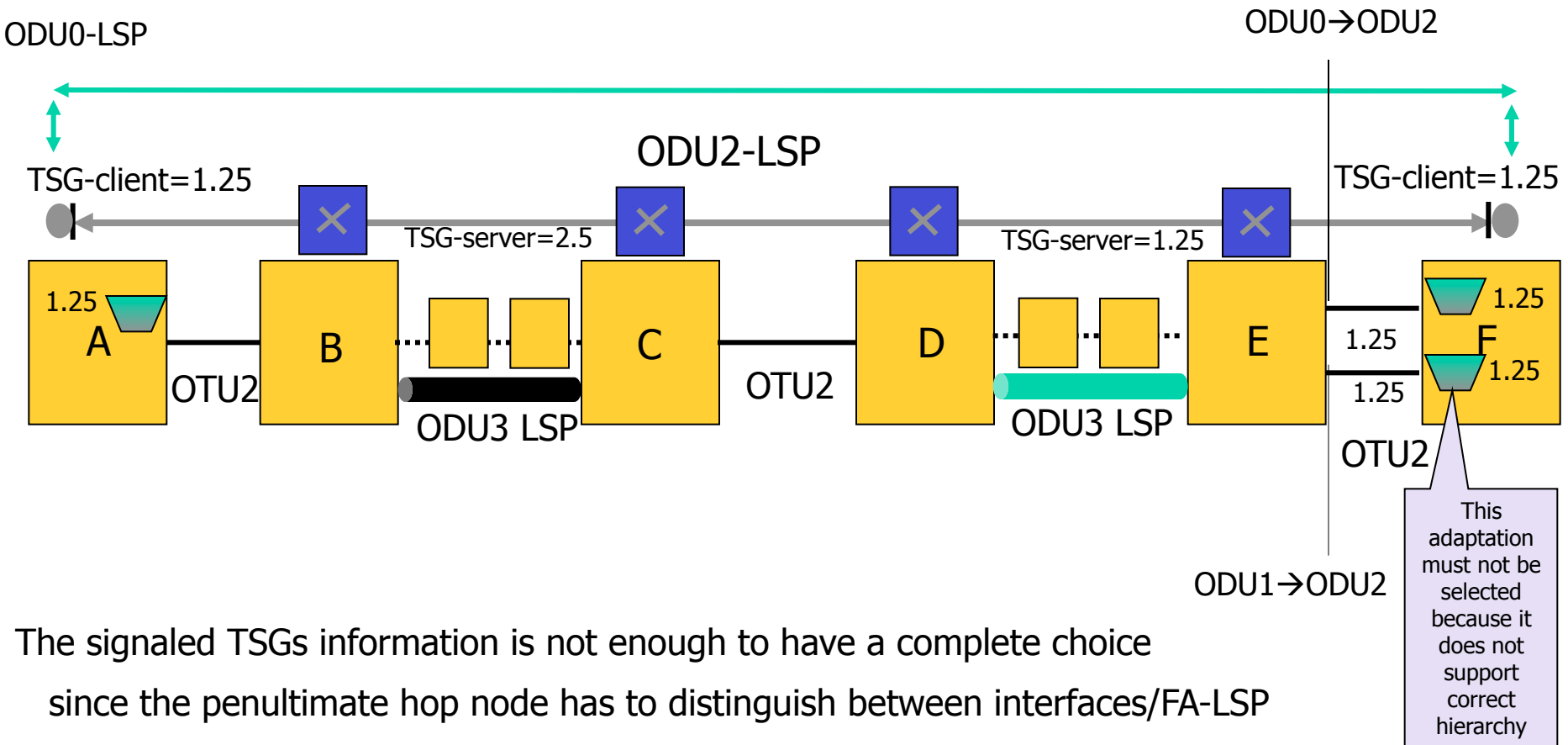
The signaled TSGs information is not enough to have a complete choice since the penultimate hop node has to distinguish between interfaces/FA-LSP with the same TSG (e.g. 1.25Gbps) whether the interface is able to support the right hierarchy.

Requirements

To select correct forwarding interface

- If auto-payload type is on, an information related to the client supported (client hierachy) could be enough for the right choice

- If auto-payload type is off, a further information related to TS granularity supported by the interface is needed.

Next steps

- The draft will be updated after the meeting splitting TSG section in two:

    - one for data plane aspect (payload type and TSG relationship, fall-back procedure)

    - the other the control plane part , practically the present part (apart possible refinement needed)

- Refining the draft based on feedback of the meeting and possible further requirement coming from G.709 and related work