

## Annex A to Liaison reference #026.02

### Q.12/15 Comments on Liaison reference #015.03

#### Response to ITU-T Last Call Comments on the MPLS-TP Framework

Please find the IETF responses to the ITU-T Last Call comments on the MPLS-TP Framework received in the liaison “Comments on draft-ietf-mpls-tp-framework-10 [Ref #015.02]” of March 5, 2010.

The liaison includes four major issues and several minor technical or editorial issues.

We have responded to the major issues separately below and the minor/editorial issues en block.

We also note that your comments have been extensively discussed at a number of our weekly phone conferences, with participation from most of the ITU-T experts that we believe originated the comments. At these meetings we achieved a consensus on how to address the ITU-T major comments and most of the ITU-T minor ones.

[Q.12/15 Response: Only the four major issues were discussed on the weekly calls.](#)

### Major Issues

#### *Packet insertion at intermediate nodes*

##### Your comment says:

The current version of the MPLS-TP OAM framework draft includes an open issue 5 in section 1.2:

**“The general framework will describe the mechanism for intermediate nodes to insert packets and each specific framework document (e.g., OAM framework) will describe the usage of this capability on a case-by-case basis. When you provision bw between two end-points you must allow enough bw for any additional traffic, including traffic from MEPs and MIPs.”**

Our response is:

This is described at a high level in Section 3.7. We do not think that any further detail is needed in the MPLS-TP framework.

We do not think that it is necessary to clarify how OAM packets get inserted in an LSP since the injection of an MPLS packet into an LSP by a P router is a standard MPLS operation.

Capacity planning of OAM messages is already addressed in the Ach Section (3.6)

[Q.12/15 response: Thank you](#)

### ***Tandem Connection Monitoring/PST for PWs***

**Your comment says:**

Section 3.14 states:

“Pseudowire segment tunnels are for further study.”

Experience with other technologies e.g. SDH has shown that adding TCM at a later stage in the definition of a technology causes the design to be inefficient. At a minimum a high level outline for

**Our response is:**

We have clarified section 3.14 to say:

“Hierarchical label stacking, in a similar manner to that described above, can be used to implement path segment tunnels on pseudowires.”

[Q.12 response: The text is an improvement but needs further refinement.](#)

### ***Misconnection between LSPs and PWs***

**Your comment says:**

The OAM under development includes a connectivity verification (CV) function, which is intended to detect when two transport paths are misconnected. A label in the stack may represent either a LSP or a PW. Since LSPs and PWs use a different mechanism to identify OAM messages it is not clear how a configuration error or hardware error that causes a misconnection or a merge of a PW and a LSP can be detected. Some text should be added to describe this issue and provide a high level outline of a solution. The solution should be described in detail in the MPLS-TP OAM framework draft.

**Our response is:**

This issue is more appropriately discussed in the OAM framework document, and we do not propose to address this issue in the general framework.

A solution may be to allow the use of GALs on PWs. However any changes to the usage of the GAL on PWs to address this problem would need to be addressed in the PWE3 WG and would need an update to RFC5586. This is therefore out of scope of the MPLS-TP Framework.

[Q.12/15 Response: Your proposal is accepted](#)

## ***QoS mapping in a Path Segment Tunnel***

### **Your comment says:**

During the review of the OAM Framework the following text was added:

"The PST would use the uniform model of EXP code point copying between sub-layers for DiffServ such that the E2E markings and PHB treatment for the transport path was preserved by the PST"

In MPLS-TP the QoS of different layer networks should be independent (therefore the need for pipe and short-pipe models only). However, the PST is a special case and this should be specified as described above. It is suggested that this text be added to section 3.13.

Our response is:

The QoS aspects of a PST are network specific and are therefore a matter for the network operator to configure as they see necessary to meet their operational requirements.

[Q.12/15 Response: This proposal is acceptable, please add this text and areference the OAM framework in the appropriate section.](#)

## ***SS-PW over a multi operator LSP:***

### **Your comment says:**

draft-ietf-mpls-tp-framework-10, section 3.4 "MPLS-TP Native Service" describes the following

MPLS-TP architectures:

1. SS-PW (figure 6)
2. MS-PW (figure 7)
3. architecture for Network layer clients (figure 9)

Please confirm that running a SS-PW over an LSP used as transport service layer rather than as transport path layer is allowed. We intend to describe this scenario in G.8110.1, do we need an additional figure in the draft to explicitly support this configuration.

### **Our response is:**

This case corresponds to the second option in Figure 2 (PW over LSP). Note the transport network has no visibility of the packet payload of any client service label. This payload could contain any protocol that is specified to be carried over an MPLS label.

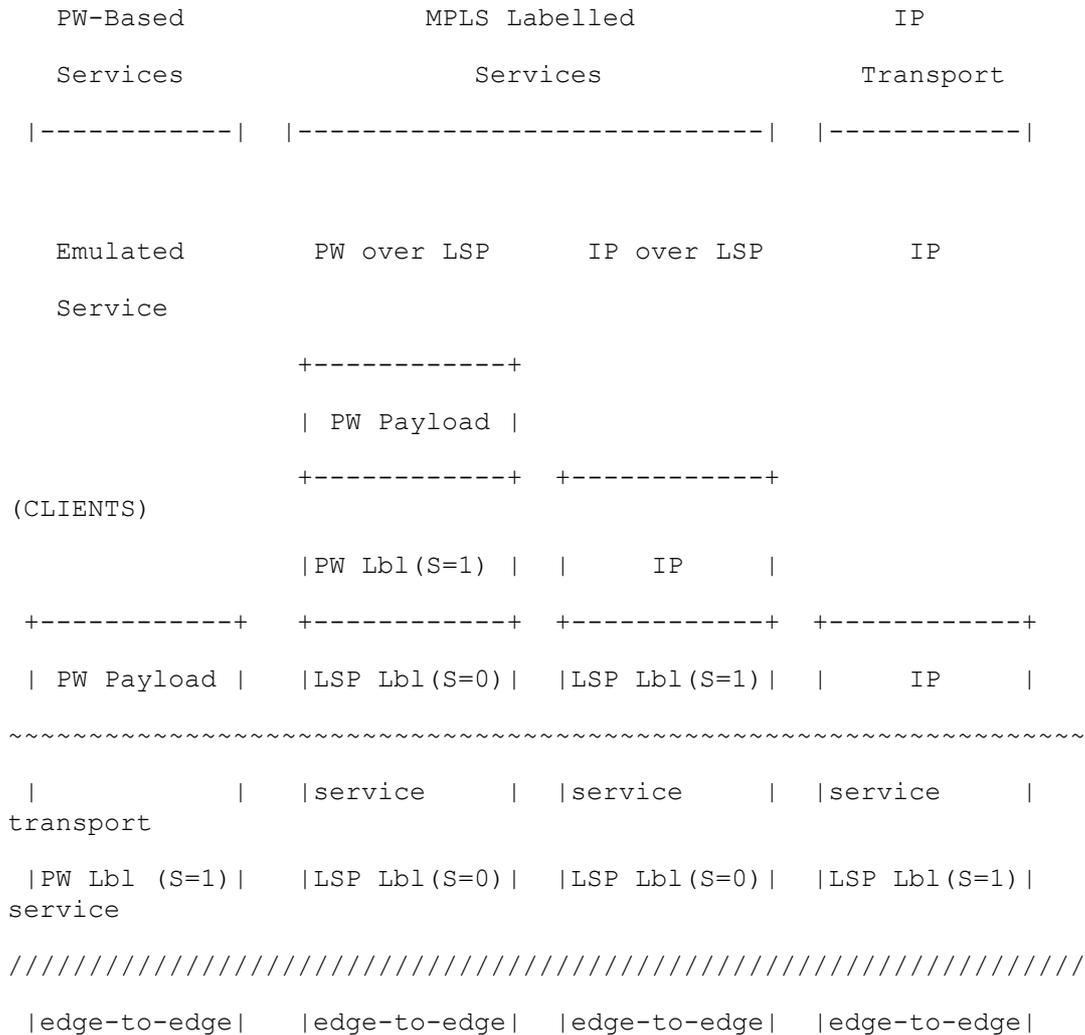
[Q.12/15 Response: Thank you for this confirmation of our understanding.](#)

**Terminology:**

The 4th and 5th paragraphs of section 3.7 it is suggested that LSP, PW and section are for transport paths. In G.8110.1 we intend to map these against the three types of transport paths:

- transport service layer transport path
- transport path layer transport path
- section layer transport path.

This would result in the expansion of Figure 5 as shown below:







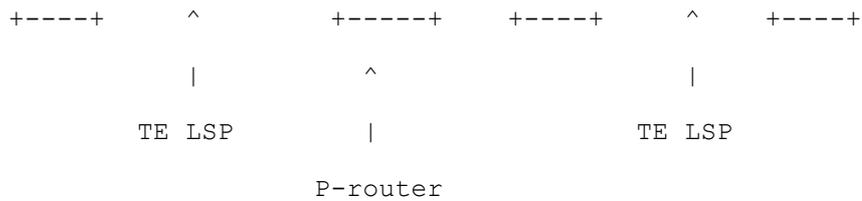


Figure K: MPLS-TP edge-to-edge LSP transporting PW, Service-LSP and Ethernet VLAN transport service layer transport path signals

Please confirm an expansion of the figures from the draft into the figures shown above that will be included in G.8110.1 is acceptable.

**Our response is:**

We are concerned that this over specifies the MPLS label stack semantics. Experience in the development of MPLS demonstrates that such constraints on the MPLS protocol are not in the best interests of the network operator. This was discussed on a call with ITU-T SG15 experts and it was agreed that the figure should be not included. It should be noted that the architectural elements of the above figure are already covered in RFC3031 RFC3985 etc and further clarification is not needed.

Q.12/15 Response: We accept that this need not be added to the draft. Could you please confirm that the figure is correct and that you would have no objections if it were included in G.8110.1

**Minor technical or editorial issues**

We respond to the minor technical and editorial uses en block.

Q.12/15 Response: Not all of the comments embedded in the draft were minor issues.

**Our response is:**

Response: The IETF understood that the comments embedded in the word document were minor technical issues or were editorial in nature. The editors accepted and addressed the majority of these comments and have discussed most of these with ITU-T experts on a number of MPLS-TP project calls.

Q.12/15 Response: Only the Major issues were discussed on the weekly calls.