INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2009-2012

COM 15 – LS 160 – E

English only

Original: English

Question(s): 10/15

LIAISON STATEMENT

Source: ITU-T Study Group 15

Title: MPLS-TP OAM Framework draft reviewed (ref # 019.02)

LIAISON STATEMENT

For action to: **IETF MPLS WG**

Approval: Agreed to by Question 10/15 (by correspondence)

Deadline: 11 April 2010

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Thank you for your liaison statement (ref # 018.01) soliciting Last Call review comments by ITU-T of the MPLS-TP OAM Framework draft.
The experts of Q10/15 have reviewed draft-ietf-mpls-tp-oam-framework-05.txt by correspondence.

The following comments were received:

(1) General:
Missing in this draft is a requirement that each draft that defines an OAM tool shall make it very clear in which scenario that particular tool is used. (on-demand, pro-active, uni/bi-directional).

(2) Section 2.2, Signal Fail
We would like to have confirmation of use here.

The description here, different from G.806, seems to be limited/applied only to the case in MEP and it just introduces one of defect conditions that are not signal fail directly.

For better understanding and not confusing that in G.806, the definition should be reconsidered.

(3) Section 3.1, 1st paragraph states:

> MPLS-TP OAM operates in the context of Maintenance Entities (MEs) that are a relationship between two points of a point to point transport path or a root and a leaf of a point to multipoint transport path to which maintenance and monitoring operations apply.

The first part of the sentence correctly describes that a ME is a relationship between 'two points of a p2p transport path'. It however does not explicitly state that these 2 points can be sny two points of

such transport path; e.g. the two endpoints, one endpoint and one intermediate point, or two intermediate points. It is proposed to explicitly describe that it can be between any two points.

The second part of the sentence is too restrictive in the set of points that can be a ME. The reference to 'root' and 'leaf' suggests that for the case of a p2mp transport path MEs can only be between the endpoints of a p2mp transport path. It must be clarified that a ME can be between two endpoints, one endpoint and an intermediate point and between two intermediate points of the p2mp transport entity.

(4) Section 3.1, paragraph below figure 1 states:

In this model, nodes A, B, C and D can be LER/LSR for an LSP or the {S|T}-PEs for a MS-PW.

It seems inappropriate to refer to LSP and MS-PW entities when describing the abstract ME model. The ME is defined with respect to points on a 'transport path'. The abstract model should specify the endpoint of the 'transport path' as being in nodes A and D. Intermediate points of the 'transport path' are in nodes B and C and may be in nodes A and D. Nodes B and C have two intermediate points and nodes A and D may have one intermediate point; this depends on the location of the endpoint in those nodes. If on left side of A and right side of D then A and D both have an intermediate point. If on the right side of A and the left side of D then A and D don't have an intermediate point. Otherwise either A, or D have an intermediate point.

MEs can be defined between any two points (end and/or intermediate points) along the p2p 'transport path'.

The ME between the two endpoints of the 'transport path' is supported in the transport service layer by either a MS-PW, or a service-LSP, in the transport path layer by a edge-to-edge-LSP, and in the section layer by a section-LSP.

The ME between one endpoint and one intermediate point, or between two intermediate points is supported in all three layers by a PST-LSP.

For the case an ME starts/ends on a 'transport path' end point, such end point will contain a MEP for that ME; when two or more MEs start/end on an end point, two or more MEPs will be present on that end point.

For the case an ME starts/ends on a 'transport path' intermediate point, such intermediate point may contain a MEP for that ME and a MIP or MEP for a higher level ME.

Example: a 'transport path' which has its end points on the left of A and the right of D will have a MEP on the left of A and a MEP on the right of D and may have a MIP on the right of A, left and right of B, left and right of C, left of D. It may furthermore have e.g. a second MEP on the right of A and a MEP on the left of C. Etc.

Please correct the text to reflect the above.

(5) Section 3.1, paragraphs below Figure 2:

Similar to the p2p case above, the abstract model should specify the endpoint of the 'transport path' as being in nodes A, D, E and F. Intermediate points of the 'transport path' are in nodes B and C and may be in nodes A, D, E and F. Nodes B and C have two intermediate points and nodes A, D, E and

F may have one intermediate point; this depends on the location of the endpoint in those nodes. If on left side of A and right side of D, E and F then A, D, E and F all have an intermediate point. If on the right side of A and the left side of D, E and F then A, D, E and F don't have an intermediate point.

MEs can be defined between any two points (end and/or intermediate points) along the p2mp 'transport path'.

The ME between the two endpoints of the 'transport path' is supported in the transport service layer by either a p2mp MS-PW, or a p2mp service-LSP, in the transport path layer by a p2mp edge-to-edge-LSP, and in the section layer by a p2mp section-LSP.

The ME between one endpoint and one intermediate point, or between two intermediate points is supported in all three layers by a p2mp PST-LSP.

For the case an ME starts/ends on a 'transport path' end point, such end point will contain a MEP for that ME; when two or more MEs start/end on an end point, two or more MEPs will be present on that end point.

For the case an ME starts/ends on a 'transport path' intermediate point, such intermediate point may contain a MEP for that ME and a MIP or MEP for a higher level ME.

Example: a 'transport path' which has its end points on the left of A and the right of D, E and F will have a MEP on the left of A and a MEP on the right of D, E and F and may have a MIP on the right of A, left and right of B, left and right of C, left of D, E and F. It may furthermore have e.g. A second MEP on the left of A and a MEP on the right of B. Etc.

Please correct the text to reflect the above.

(6) Section 3.2, first paragraph states:

In order to verify and maintain performance and quality guarantees, there is a need to not only apply OAM functionality on a transport path granularity (e.g. LSP or MS-PW)

The reference to LSP is too generic. The correct references are 'service LSP', 'edge-to-edge LSP' and 'section LSP'.

(7) Section 3.2, paragraph below item 3) states:

A PST is instantiated to create an MEG that monitors a segment of a transport path (LSP or PW).

The reference to LSP is too generic. The correct references are 'service LSP', 'edge-to-edge LSP' and 'section LSP'.

(8) Section 3.2, first bullet item states:

They can be nested but not overlapped, e.g. an MEG may cover a segment or a concatenated segment of another MEG, and may also include the forwarding engine(s) of the node(s) at the edge(s) of the segment or concatenated segment, but all its MEPs and MIPs are no longer part of the encompassing MEG.

The last part of the sentence "but all its ... MEG." is ambiguous. Please enhance this part of the

sentence. Specifically, the terms "MEP" and "MIP" are used to refer to functions while the terms 'end point' and 'intermediate point' are used to refer to the points where such functions may reside. An 'end point' may support one or more "MEP" functions, an 'intermediate point' may support one "MIP" function and zero or more "MEP" functions.

The "MEP" functions of the nested MEG are dedicated "MEP" functions for the nested MEG and did not exist prior to setting up of the nested MEG. The "MIP" functions may exist prior to the creation of the nested MEG, and for such case the "MIP" functions located between the dedicated "MEP" functions for the nested MEG will become "MIP" functions of the nested MEG and will not longer be "MIP" functions for the encompassing MEG. For the case the nested MEG's end point is located on an 'intermediate point', the "MIP" function on that same 'intermediate point' will still belong to the encompassing MEG.

If a new (TCM) MEG is created within an existing MEG then any existing MIPs become members of the new MEG. This raises (at least) two issues:

1) The addressing of all of the MIPs in the old MEG (using TTL) will also change.
2) I have seen some discussion that a MIP should only respond to commands (e.g. loopback) from the MEP associated with its MEG, but how does the MIP know that the MEG has changed?

(9) Section 5.4 LKR

a) Following these terminologies seem to indicate same function (i.e. the Srv/MT_A adaptation funtion)
   - "MPLS-TP layer network adaption function" in 2nd paragraph
   - "the client layer adaptation function" in 3rd paragraph

   We believe they are same so that alignment should be considered.

b) It is better to describe the case where client MPLS-TP exists.
   I.e. Since the MEP that receives LKR must have consequent action in its client MPLS-TP layer (if it exits), this behaviour should be written in this section

(10) Section 6.6 Lock instruct (LKI)

In general some observation in the behavior is required since this is new in -05 and this concept is not familiar with ITU-T (LCK is defined in some recommendations such as G.709 and Y.1731 but the corresponding to LKI does not exist).

For example, the following should be clarified:

- The condition or behavior of the MEP that transmits LKI
  - during the LCK condition?
  - Need to transmit LKR to the MEPs of its client MPLS-TP layer if it exits (condition x)

- And more clarification is required for the MEP that receives and accepts LKI as well
  - Is this the same as the LKR defect condition?
  - And does this MEP have to generate LKR? especially if this condition and condition x above co-exists. This causes another issue since two server MEPs generate LCK to the client MEPs)

In addition to the comments above comments were received concerning the time available for a

complete and thorough review.

The Q10 experts are advised to send their comments to the mpls-tp@ietf.org mailing list.

We would also like to remind you of the agreed merging of draft-koike-ietf-mpls-tp-oam-maintenance-points-01 into this draft as agreed in section 3.4 of the table in the following liaison document: (https://datatracker.ietf.org/documents/LIAISON/file967.pdf)

The Q10 experts would like to have the opportunity for a final review of the draft-ietf-oam-framework.