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**Question(s):** 10/15

[Ref. TD 558 (WP3/15)]

**Source:** ITU-T Study Group 15

**Title:** LS/r on update on the Temporal Hitless Enhanced Path Segment Monitoring draft

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### LIAISON STATEMENT

**For action to:** IETF mpls WG

**For comment to:**

**For information to:**

**Approval:** ITU-T Q10/15 (14 July 2016, by correspondence)

**Deadline:** 16 September 2016

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**Contact:** Jessy Rouyer  
Rapporteur Q10/15

Tel: +1 972 477 7379  
Email: [jessy.rouyer@nokia.com](mailto:jessy.rouyer@nokia.com)

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Thank you for your liaison entitled “Update on the Temporal Hitless Enhanced Path Segment Monitoring draft”. ITU-T Q10/15 reviewed the latest draft in draft-ietf-mpls-tp-temporal-hitless-psm-10.txt and has assembled the following comments for your consideration.

In particular, we noted that requirements such as those described in section 4 assume that an intermediate maintenance point supporting the HPSM function has to be able to generate and inject OAM packets. We also noted that HPSM maintenance points, including intermediate maintenance points, may “coincide” with MIPs. When they do coincide and in the absence of an architectural definition of intermediate maintenance points (or HPSM maintenance points at large), we interpret intermediate maintenance points and MIPs as being one and the same. As an example, requirement (M9) states “diagnostic packets should be inserted/terminated at any of intermediate maintenance points of the original ME”, which can only refer to MIPs when discussing intermediate maintenance points in the context of the “original ME”.

We would like to stress that one of the basic tenets of Ethernet and MPLS-TP OAM, as jointly agreed during their respective IEEE 802.1/ITU-T and IETF/ITU-T standardization, is that OAM messages at MIPs are initiated only in response to OAM messages initiated by MEPs. As such, we have concern that the draft assumes a modification of the existing MPLS-TP architecture to, in effect, allow cases where MIPs can do otherwise.

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<b>Location</b>	<b>Current text</b>	<b>Comment</b>	<b>Proposed resolution</b>
Abstract	However, the current segment monitoring approach defined for MPLS RFC 6371 [RFC6371] has drawbacks.	This does not parse and RFC 6371 covers MPLS-TP.	Replace with “However, the current segment monitoring approach defined for MPLS-TP in RFC 6371 [RFC6371] has drawbacks.”
2. Conventions used in this document	The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].	Conventions could be augmented to state that “Although this document is not a protocol specification, the use of this language clarifies the instructions to protocol designers producing solutions that satisfy the requirements set out in this document.”	Per comment.

<p>3. Problem Statement</p>	<p>MPLS-TP segment monitoring must satisfy two network objectives according to section 3.8 of RFC 6371 [RFC6371]</p>	<p>RFC 6371 reads “Segment monitoring, like any in-service monitoring, in a transport network should meet the following network objectives”.</p>	<p>The draft shall use “should” rather than “must”.</p>
	<p>Problem (P2) arises from the fact that MPLS exposed label value and MPLS frames length changes.</p>	<p>Typo.</p>	<p>Replace “changes” with change”.</p>
	<p>This means that it is no longer monitoring the original path but it is monitoring a different path.</p>	<p>The physical path monitored is still the same. This sentence is misleading the reader into thinking that the transport path from A to E now has a working sub-path B-D protected by a protection sub-path B-C-D.</p>	<p>Remove the sentence and “\ /” -- -- below “--B-----X-- -D--” in Figure 1.</p>
	<p>typically</p>	<p>Typo.</p>	<p>Replace with “typically”.</p>
	<p>TCM allows the insertion and removal of performance monitoring overhead within the frame at intermediate points in the network.</p>	<p>This applies to OTN not Ethernet transport networks.</p>	<p>Prefix the current text with “For example in OTN, “.</p>

4. Requirements for hitless segment monitoring	4. Requirements for hitless segment monitoring	Not consistent with HPSM acronym	Replace with “4. Requirements for hitless path segment monitoring”
	the hitless segment monitoring function	Not consistent with “Hitless Path Segment Monitoring” used in the previous section.	Replace with “Hitless Path Segment Monitoring”
4.1. Backward compatibility	HPSM is an additional OAM tool that does not replace SPME.	HPSM as a tool does not exist. This draft only specifies requirements for a HPSM tool.	Replace with “HPSM would be an additional OAM tool that would not replace SPME”.
	HSPM	Typos.	Replace all occurrences with “HPSM”.
	(M2) HSPM SHOULD be applicable at the SPME layer too	M2 is for an optional requirement.	Replace “M2” with “O1” and update subsequent optional requirements’ numbers.
4.2. Non-intrusive segment monitoring	(M5) HPSM MUST support on-demand provisioning and without traffic disruption.	Superfluous “and ”	Remove “and ”.
4.3. Multiple segments monitoring	Figure 2: Multi-level on-demand segment monitoring example	“Multi-level” does not seem to match the figure’s content. “on-demand” is redundant as already covered in section 4.2.	Replace with “Multiple HPSM instances example”.
	MEP *----- -----* MEP <= ME of a transport path	This is represented as “MEP MEP <= ME of a transport path” in other figures.	Use the representation in the comment.

4.4. Single and multiple level monitoring	The new hitless segment monitoring function will be applied mainly for on-demand diagnostic purposes.	Forward looking statement should be avoided (no one can predict the future).	HPSM would apply mainly for on-demand diagnostic purposes.
	With the current defined approach, the most serious problem is that there is no way to locate the degraded segment of a path without changing the conditions of the original path.	Typo in “current”. The sentence is needlessly complex.	Replace with “With the currently defined approach, the most serious problem is that there is no way to locate the degraded segment of a path without changing the conditions of that path.”.
	a new on-demand segment monitoring function without traffic disruption	Needless complexity.	Replace with “HPSM”.
	However, in the field, a single level, multiple segments approach will be less complex for management and operations.	Forward looking statement should be avoided (no one can predict the future).	Replace with “However, in the field, a single level, multiple segments approach would be less complex for management and operations.”
	Figure 3 shows an example of multi-level on-demand segment monitoring.	“on-demand” is redundant as already covered in section 4.2.	Replace with “Figure 3 shows an example of multi-level HPSM.”
	Figure 3: Multi-level on-demand segment monitoring example		Replace with “Figure 3: Multi-level HPSM example”

4.5. HPSM and end-to-end proactive monitoring independence	(M8) HPSM MUST support the capability to be concurrently and independently operated of the OAM function operated on the end-to-end path	Clarity.	Replace “to be concurrently and independently operated of” with “of being operated concurrently to, and independently of”
	Figure 4: Independence between proactive end-to-end monitoring and on-demand segment monitoring	Typo/Length.	Replace with “Figure 4: Independence between proactive end-to-end monitoring and on-demand HPSM”
	cost effective	Implies equipment other than “small boxes supporting only a subset of OAM functions” is not cost effective, which is all relative.	Remove “cost effective”
4.6 Arbitrary segment monitoring	(M9) It SHALL be possible to provision HPSM on an arbitrary segment of a transport path	Such provisioning is not possible if the HPSM is realized via a MIP since MIPs are not explicitly configured.	Clarify that this requirement does not apply when the HPSM maintenance point coincides with, or is realized via a MIP.
4.7. Fault while HPSM is operational	the HPSM function	The two uses of these terms are not consistent with other uses of the HPSM term.	Replace with “HPSM”.
	(M10) The HPSM functions	This is not consistent with other uses of the HPSM term.	(M10) HPSM
	- EPSM: A-E	“EPSM” should read HPSM in figures 7 and 8.	Replace with “- HPSM: A-E” in both figures.
4.8 HPSM Manageability	maintenance points for the HPSM do not necessarily have to coincide with MIPs and MEPs functional components	It is unclear how maintenance points for HPSM are architected when they do not coincide with MIPs and MEPs.	Explain how these maintenance points fit within the context of the MPLS-TP architecture.

4.9. Supported OAM functions	An intermediate maintenance point supporting the HPSM function has to be able to generate and inject OAM packets.	A MIP shall never generate and inject OAM packets. For that reason, an intermediate maintenance point for HPSM that coincides with a MIP shall not support M13.	Clarify that this requirement does not apply when the HPSM maintenance point coincides with, or is realized via a MIP.
6. Security Considerations	The document provides the requirements for a new construct for performance monitoring that will make use of existing OAM tools that follow the security considerations provided in OAM Requirements for MPLS-TP in RFC5860 [RFC5860].	Forward looking statement should be avoided (no one can predict the future).	Replace with “The document provides the requirements for a new construct for performance monitoring that would make use of existing OAM tools that follow the security considerations provided in OAM Requirements for MPLS-TP in RFC5860 [RFC5860].”

We encourage the IETF MPLS Working Group to take the above comments into account when further progressing draft-ietf-mpls-tp-temporal-hitless-psm, and would appreciate any further updates on your progress.

ITU-T Q10/15 will next meet as part of the ITU-T SG15 plenary meeting to be held 19-30 September 2016 in Geneva.

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