

draft-mwnpkazcap-rtgwg-common-oam-00

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Rationale for Transport-independent Common Operations, Administration
and Maintenance (OAM)
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Abstract

This document discusses set of Operations, Administration and Maintenance (OAM) tools that can be used as common OAM independent of specific encapsulation at server layer. Requirements toward server layer to support common OAM are listed as well.

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[1.](#) Introduction

The introduction and development of new service layers such as Service Function Chaining (SFC) and Bit-Ingress Explicit Replication (BIER), is driving the need for new Operations, Administration and Maintenance (OAM) tools. This document discusses benefits of Common transport independent OAM solution to support components of network management framework known as Fault, Configuration, Accounting,

Performance, and Security (FCAPS):

- o Fault monitoring and defect localization;
- o Performance measurement, both passive and active.

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[1.1.](#) Conventions used in this document

[1.1.1.](#) Terminology

The term "OAM" used in this document interchangeably with longer version "set of OAM protocols, methods and tools for a particular layer".

BIER: Bit-Ingress Explicit Replication

FCAPS: Fault, Configuration, Accounting, Performance, and Security

OAM: Operations, Administration and Maintenance

SFC: Service Function Chaining

[1.1.2.](#) Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

[2.](#) Use Case for Common OAM

Recently several new service layers have been developed in IETF. Each of responsible groups, e.g. SPRING, NV03, SFC, BIER, have formulated a set of OAM requirements, specific to their respective layer [[I-D.ietf-spring-sr-oam-requirement](#)], [[I-D.ashwood-nvo3-oam-requirements](#)], [[I-D.ietf-sfc-oam-framework](#)], and [[I-D.ietf-bier-oam-requirements](#)]. Proposals have already been

put forward to satisfy those requirements, though mostly by enhancing existing OAM tools, such as LSP Ping [[I-D.kumarkini-mpls-spring-lsp-ping](#)]. Enhancing existing tools certainly leads to faster deployment of OAM but may create operational issues later on. For instance, these new service layers may be implemented a wide range of transport layers, e.g. MPLS or IPv6, so OAM tools that are transport-oriented like LSP Ping would not be able to perform end-to-end for inter-domain scenario.

At the same time, the Bidirectional Forwarding Detection (BFD) protocol is being successfully adopted for IPv6 and MPLS networks, and efforts are moving forward to define transport-independent OAM tool based only on the requirements of one of these new services, BIER.

[I-D.ietf-rtgwg-dt-encap] raised question of common OAM for NV03, SFC, and BIER. We want to take this further and:

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- o analyze relevant OAM requirements and document common set of requirements towards OAM as well as requirements toward a service layer to enable its ability to support OAM;
- o analyze OAM solutions (proactive and on-demand CC/CV, PM, FM) being proposed and formulate approach to structure OAM tools that may be re-used across several types on encapsulation.

[3.](#) IANA Considerations

This document does not propose any IANA consideration. This section may be removed.

[4.](#) Security Considerations

This document does not raise any security concerns or issues in addition to ones common to networking.

[5.](#) Acknowledgement

TBD

[6.](#) References

6.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.

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