

Problem Statement for **Layer and Technology Independent OAM** in a **Multi- Layer Environment**

draft-edprop-opsawg-multi-layer-oam-ps-02

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<https://www.ietf.org/mail-archive/web/time/current/maillist.html>

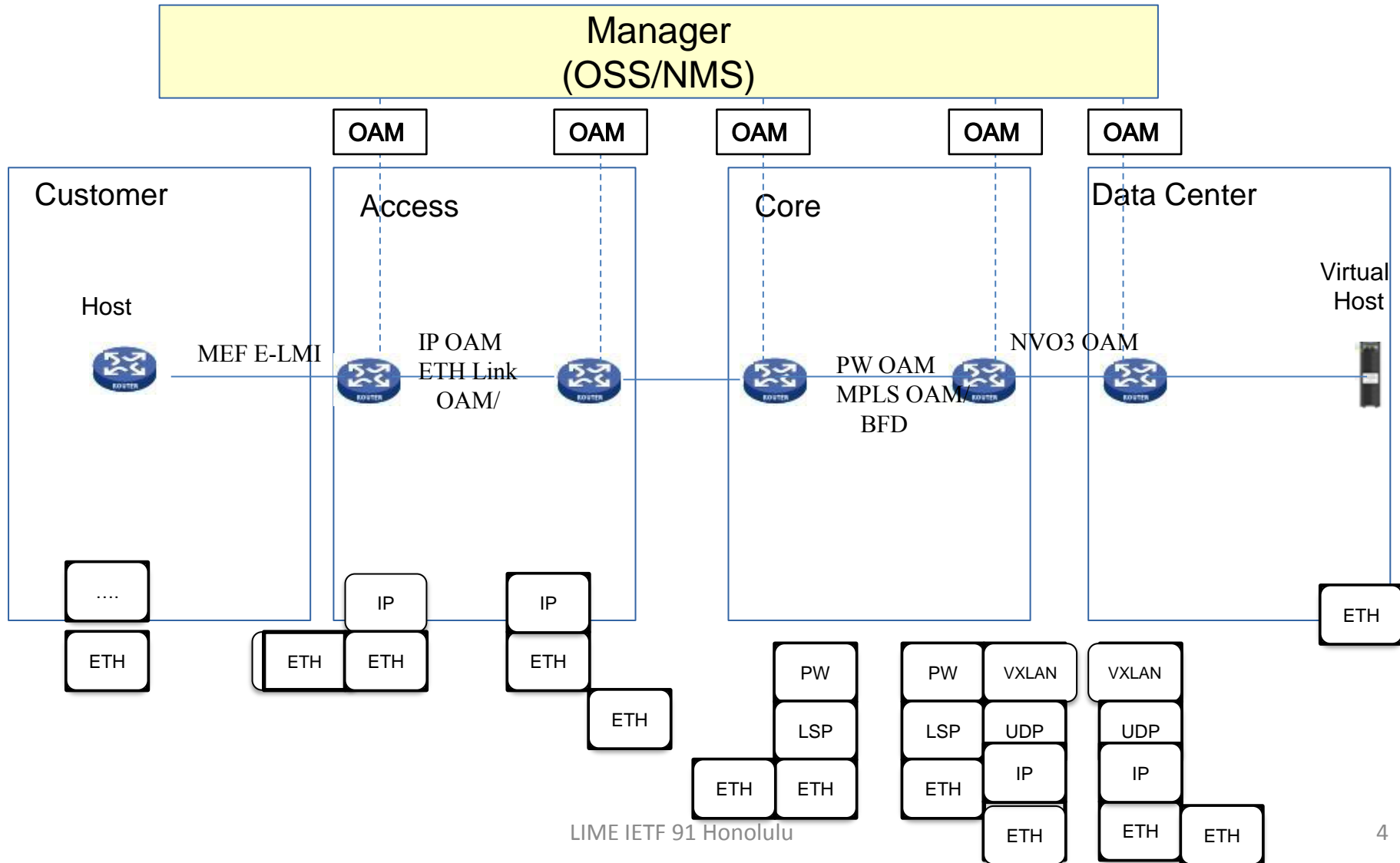
<http://www.ietf.org/mail-archive/web/lime/current/maillist.html>

Problem statement

- Little reuse of existing MIB Modules or management information
- Network OAM complicated (opex) by multiple technologies (e.g., BFD, LSP Ping) in same and different administrative layers.
 - since maintenance and troubleshooting are achieved per layer or per technology.
- Lacking common architectural OAM management
 - New work on network virtualization complicates common OAM management and OAM layering model.

Work Assumption (1)

Multiple Layers, Multiple Technologies, One Manager



Work assumption (2)

- Restricted to a single administrative domain at the first stage.
 - multiple operations groups in the same administrative domain?

Work assumption (3)

- No new OAM protocol to be developed
 - No new data plane OAM protocol (e.g., BFD, LSP Ping)
 - No new management plane configuration protocol (e.g., RESTCONF, NETCONF)

Objectives

- **Primary Objective: minimize opex to provide satisfactory service.**

- **Achieved by:**

- Detecting threatened or actual disruptions to service through service layer view of network performance
- Quickly identifying root causes of network failures and reducing response time to mitigate service disruptive events

- **Achieved by:**

- Suppressing large numbers of unnecessary alarms and notifications to be seen in the higher layers

- **Achieved by:**

- Having better OAM visibility by correlating defects, faults and network failures at different layers.

Argument for Consolidated Management

- Need it to coordinate management between layers and between technologies.
- Implication: management function can receive and react to related information from every transport segment at every layer in the network
- Potential issue: for follow-up, management function may have interact with every technology used in the network on a per-technology basis.

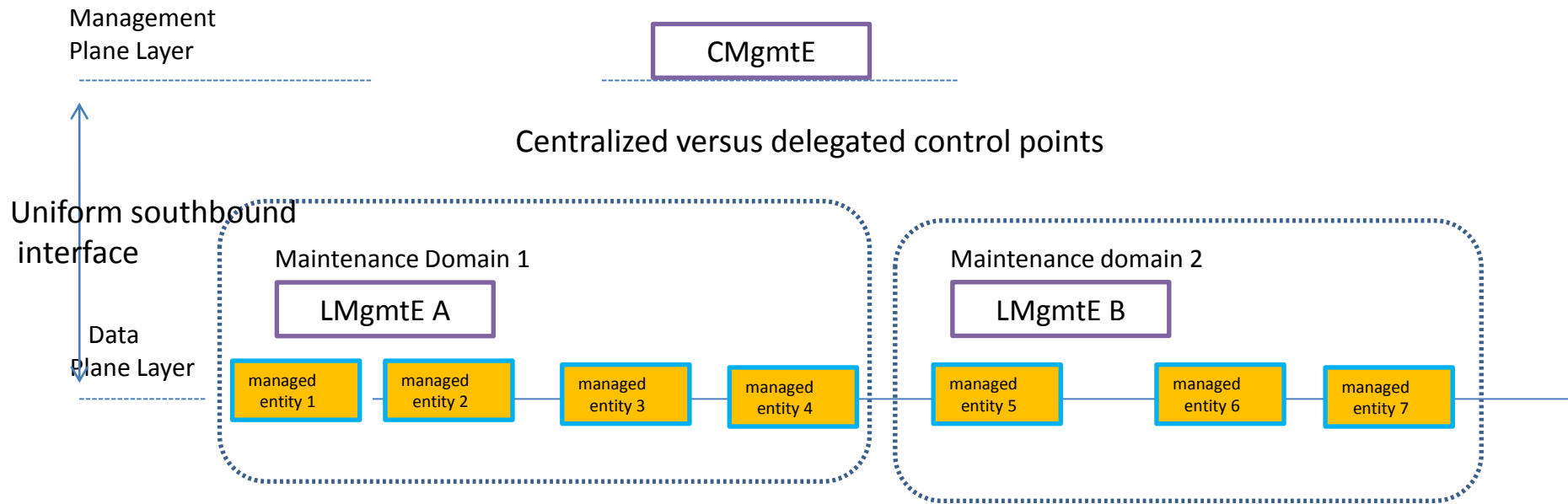
Argument for Layer and Technology Independent Management

- Layer independent Management requires
 - The topology of the maintenance network and supporting layers
 - Abstracted view of service-affecting or potentially service-affecting events, identified by layer and reporting managed device
- Two ways to build Technology independent view
 - Aggregation
 - Abstraction

Terminologies used in the Architecture

- **Managed entity**
- **Transport segment**
- **Local Management Entity (LMgmtE)**
- **Consolidated Management Entity (CMgmtE)**

Architectural Considerations



- **Representation component (Key component in LIME)**

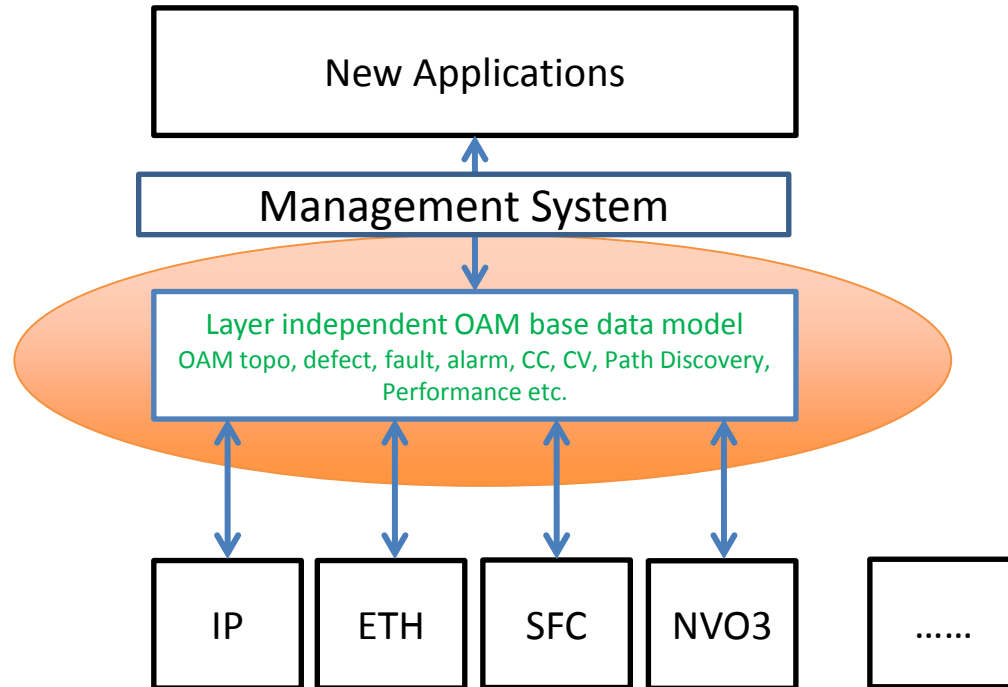
- Where is the view prepared? CMgmtE or LMgmtE or Managed entity
- What model to present the OAM info at each layer to the CMgmtE? IEEE CFM model?

- **Discovery component** (Beyond scope of LIME, maybe ANIMA?)

- how the CMgmtE and all of the LMgmtEs and/or managed entities discover each other
- Correlating events at different layers (related to representation component)

- **Evolution path from legacy**

Representation component



Questions

- Is the draft a sound basis for further work in LIME?
 - What is in the draft that should not be there?
 - What is missing from the draft?
 - Bottom line: is draft-edprop—opsawg-multi-layer-oam-ps-02 ready to be adopted as a LIME WG document?