Service OAM – Fault Management

Leon Bruckman

IP Light Ltd.

Compliance with IEEE Standards Policies and Procedures

Subclause 5.2.1 of the *IEEE-SA Standards Board Bylaws* states, "While participating in IEEE standards development activities, all participants...shall act in accordance with all applicable laws (nation-based and international), the IEEE Code of Ethics, and with IEEE Standards policies and procedures."

The contributor acknowledges and accepts that this contribution is subject to

- The IEEE Standards copyright policy as stated in the *IEEE-SA Standards Board Bylaws*, section 7, http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#7, and the *IEEE-SA Standards Board Operations Manual*, section 6.1, http://standards.ieee.org/develop/policies/opman/sect6.html

- The IEEE Standards patent policy as stated in the *IEEE-SA Standards Board Bylaws*, section 6, http://standards.ieee.org/guides/bylaws/sect6-7.html#6, and the *IEEE-SA Standards Board Operations Manual*, section 6.3, http://standards.ieee.org/develop/policies/opman/sect6.html

IEEE 1914.1
Next Generation Fronthaul Interface
Jinri Huang, huangjinri@chinamobile.com

Service OAM Fault Management for NGFI	
Date: 2017-01-17	

Author(s):

| Name	Affiliation	Phone [optional]	Email [optional]
Leon Bruckman	IP Light Ltd.	+972-3-7217821	Lbruckman@iplight.com

Introduction

- IEEE 802.1Q and ITU-T G.8013/Y.1713 specify mechanisms required to operate and maintain the network and service aspects of the Ethernet layer.

- Service OAM is based on well defined PDUs exchanged between Maintenance Entity Group End Points (MEPs) and Maintenance Entity Group Intermediate Points (MIPs).

- Ethernet OAM requirements are not specified in any current mobile standard (AFAIK).

- Metro Ethernet Forum (MEF) issued an Implementation Agreement (IA) for Mobile Backhaul (January 2016) that includes requirements for Service OAM
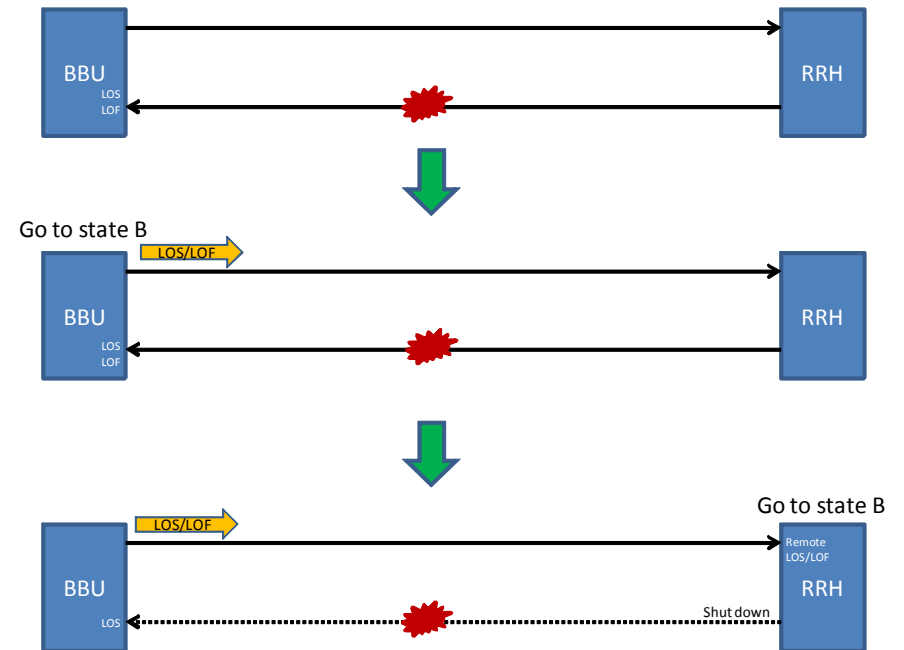
Fault Management

CPRI interface behavior under faults:
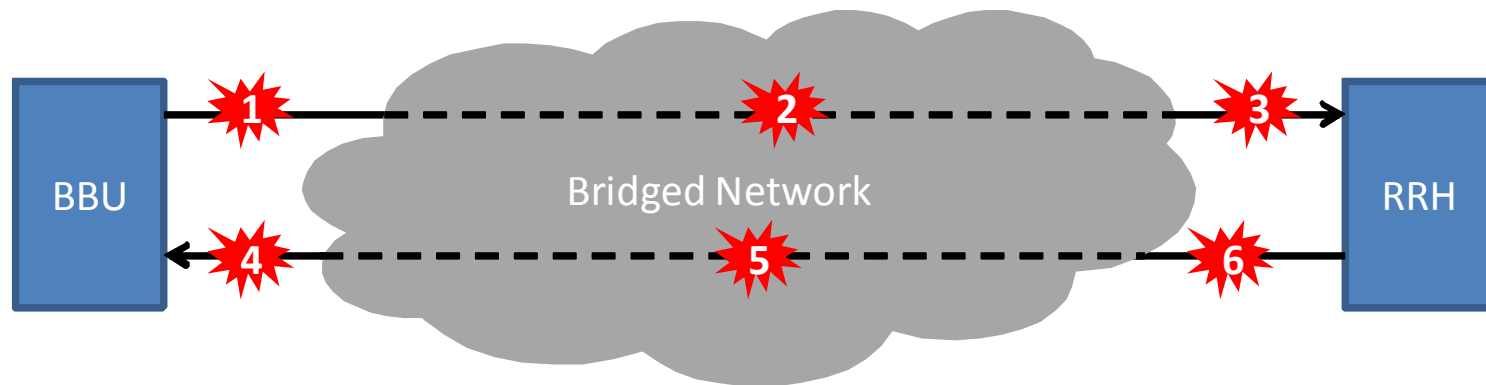
BBU to RRH fault
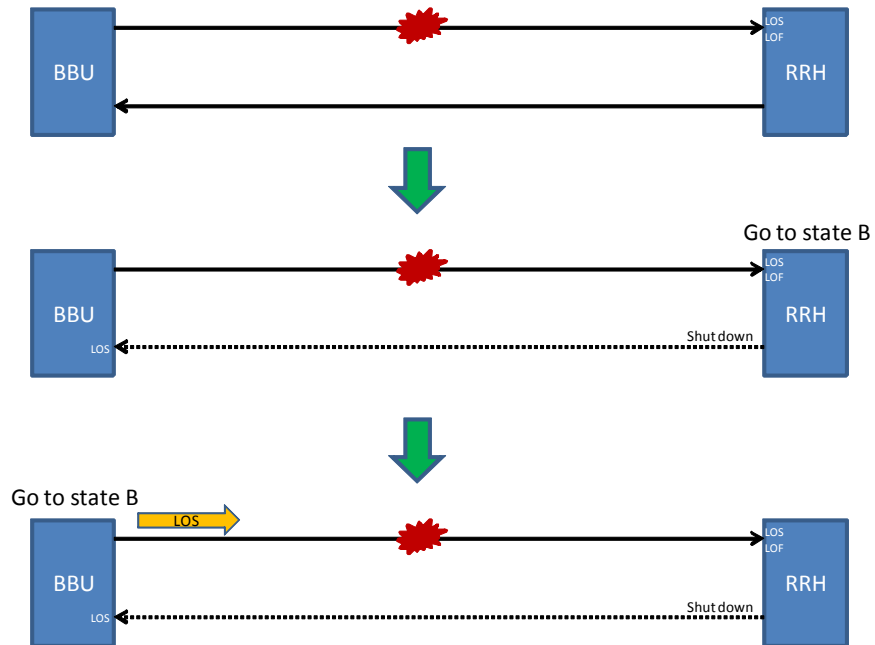
RRH to BBU fault

Fault Management for MFH

A fault may occur in any of the marked locations (1-6):

Expected requirements:
- How is the fault detected (e.g. ETH-CCM for 2 and 3, ETH-CSF for all the other cases)
- Detection/Clear time
- Consequent actions (e.g. ETH-RDI, ETH-AIS, Shut down, Error propagation)

Maintenance tools

- Loopback Message (LBM) and Loopback Response (LBR).
  - ITU-T G.8013/Y.1731 defines individual address and Multicast LBM, while IEEE 802.1Q defines individual address LBM only

- Link Trace Message (LTM) and Link Trace Response (LTR)

- Each message payload may include a number of TLVs

- Expected requirements:
  - Required and optional Maintenance tools
  - Shall we limit the rate of these PDUs ? IEEE 802.1Q and ITU-T G.8013/Y.1731 left the rate open with very loose limitations
  - TLV values (if specific required)

Fault Management for NGFI

- As agreed in the last meeting we will define several Classes of Service for the different NGFI signals

- Each of these CoS will be transported by a special connection

- For each one of these connections the standard will have to specify the above mentioned requirements

- IEEE 802.1Q/ITU-T G.8013 and Link layer OAM ?

Motion #___

- Agree to add a Fault Management section to the IEEE 1914.1 standard using as a baseline tf1_bruckman_oam_fm_1.

- Mover: Leon Bruckman

- Seconder:

- Yes: ___ No: ___ Abstain: ___ (technical motion needs >= 2/3)