IEEE1914.3 Phase II PAR Scope

Lujing Cai, Abdellah Tazi

AT&T

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 [WG Project #]
[WG Name]
[WG Chair Name and Email]

IEEE 1914.3 Phase II PAR Scope			
Date: 2018-09-16			
Author(s):			
Name	**Affiliation**	**Phone [optional]**	**Email [optional]**
Lujing Cai	AT&T		lc779g@att.com
Abdellah Tazi	AT&T		at8551@att.com

Current Status

- OUI/CID mechanism introduced to enable external STOs to identify their unique transport payloads in IEEE 1914.3 frame structure
  - New enTLV object defined for OUI/CID specific definition of subtype mapping
  - OUI/CID based traffic carried on agonistic mode

- xRAN/ORAN fronthaul
  - Two layer architecture: transport layer and application layer
  - Both eCRPI and IEEE 1914.3 are adopted as the transport layer
  - Very "thin" transport layer ➔ 8 byte headers
  - eCPRI vs IEEE 1914.3: on par

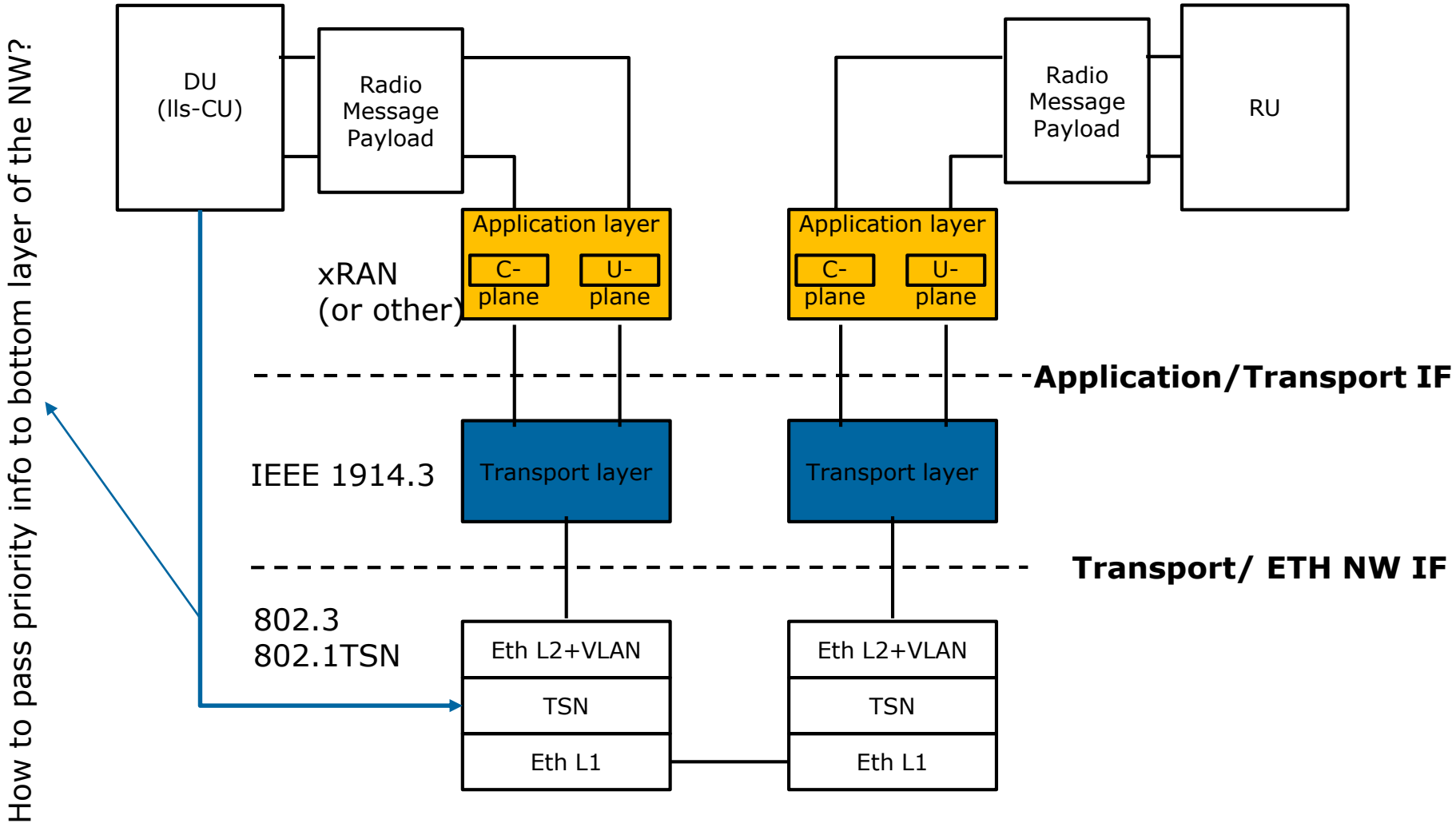
- For further discussion
  - Any further enhancement needed to IEEE 1914.3 more appealing than eCPRI?
  - How to enable "awareness" mode in carrying other STO defined transport traffics?

New PAR Scope to cover

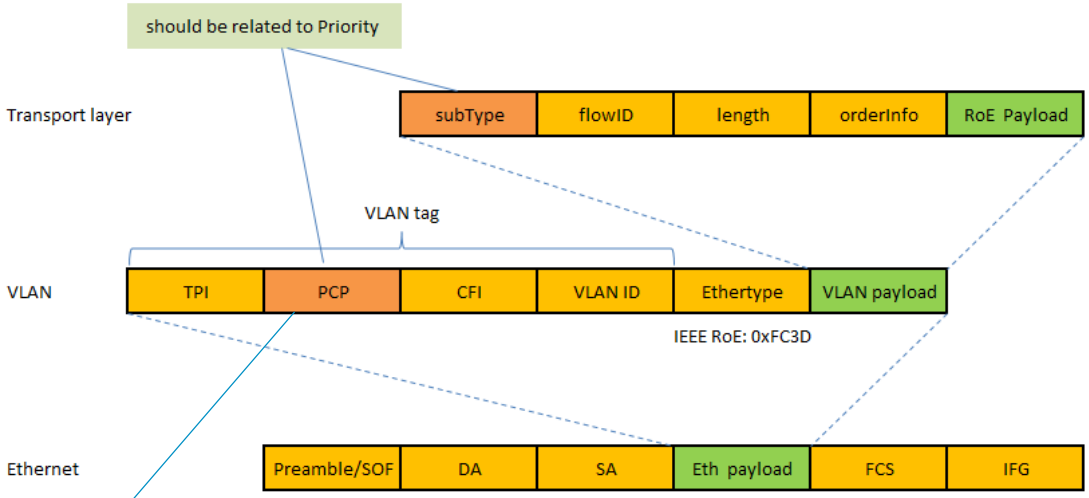
Out of the three specification efforts considered (Do minimum, more, or a lot):

- Agree to execute " Do More" strategy
  - Focusing on transport layer, leave radio message (application) layer specification to other STOs
  - Define a general framework of
    - Control mechanism
    - Frame alignment mechanism
    - Parameterization mechanism
    - U-plane containers for various data types for various important function splits
- Focusing on the interoperability between transport vendors and RAN vendors
- Defining interface between Transport layer and Application layer
- Defining interface between Transport layer and lower NW layers

Transport protocol stack



Interface to lower layer NW example (TSN)



subType	Data types in the packet	1 byte
flowID	Flow ID in multplexed traffics	1 byte
Length	Length of the packet	2 bytes
orderIn	Sequence # or time stamp	2 bytes

TPI	Tag protocal ID	2 bytes
PCP	Priority Code Point	3bits
CFI	Canonical Format Indicator	1 bit
VLAN ID	Vland ID	12 bits

Preamble/SOF	Preamble + start of frame	8 bytes
DA	destination Addr	6 bytes
SA	source addr	6 bytes
FCS	Frame Check Sequence	4 bytes
IFG	Inter Frame Gap	12 bytes

TSN Preemption

PCPI settings	Priority	preemption status
0	Lowest	P
1		P
2		P
3		P
4		P
5		E
6		E
7	Highest	E

RoE subtype values

Function	Description
RoE Control sub type	Control packet between two RoE nodes
Reserved	Reserved
RoE Structure agnostic data sub type	Data payload packet with RoE common frame header and structure agnostic payload.
RoE Structure aware CPRI data sub type	Data payload packet with RoE common frame header and structure aware CPRI payload.
Native RoE data flow sub type	Data payload packet with RoE common frame header.
RoE Slow C&M CPRI sub type	C&M payload packet with common RoE frame header and structure aware CPRI Slow C&M payload.

How to enable priority differentiation even among the same Subtypes??

Message Types at Application/Transport Interface

To be carried by the IEEE 1914.3 transport:
(non-exhaust list)

	Opt8	Opt7-1	Opt7-2	xRAN Cat A	xRAN Cat B	Opt7-3	Opt 6
Data Message	Time domain I/Q samples	Frequency domain I/Q samples	Layer mapped I/Q data symbols	Beam mapped I/Q data symbols	Layer mapped I/Q data symbols	Coded bit stream	Transport Blocks
Control Message			BF weights RE mapping msgs	BF weights	BF weights Precoding weightes	Modulation control, layer mapping, RE mapping msgs	Scheduling msg HARQ control