1914.3 vs eCPRI

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IEEE 1914.3 TF

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IEEE 1914
Next Generation Fronthaul Interface
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Comparison 1

Item	1914.3	eCPRI	Comment
Output time at receiver, CBR traffic	Seq num	Seq num	eCPRI lacks a Timing Control packet, which relates seq num to an actual ToD
Output time at receiver, non-CBR traffic	Presentation time	N/A	eCPRI only use seq num
Delay handling	Seq num, Presentation time .acceptTimeWindow	Seq num, Delay Measurement	Seq num, Presentation time with .acceptTimeWindow detect excessive delays. .acceptTimeWindow specifies max network delay. eCPRI's delay measurement used to estimate max network delay at the current time.
I/Q mapping	Structure-Aware and Native mappings	vendor specific mapping	"White-box" implementations need fully-defined standards Proprietary data could be added to 1914.3 messages using TLVs.
OAM	TLV-based, user-defined TLV contents	Out of scope	Not rigidly defined for either

Comparison 2

Item	1914.3	eCPRI	Comment
Control Data	TLV-based, Ctrl_AxC and VSD defined	Vendor specific Real-Time Control Data messages. No mapping defined.	
Support for legacy CPRI	Structure-Agnostic and Structure-Aware mappings defined	None defined Generic Data Transfer messages could be used with vendor defined mapping	enables support of legacy services over the new NGFI(xhaul) network
Encapsulation	Ethernet	Ethernet, IPvX, other	

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Comparison 3

Item	1914.3	eCPRI	Comment
Network Classification and Prioritzation options	VLAN or Ethertype and subType	VLAN or Ethertype and eCPRI Message Type nothing specific available for identifying eCPRI over UDP/IPvX	1914.3 and eCPRI messages can be identified and prioritized with or without VLAN. For eCPRI over IPvX, prioritization must be done without any relationship to eCPRI fields (e.g. via Ethernet VLAN or IP diffServ)
Misc functions	N/A	Remote Memory Access Event Indication	Remote Memory Access is an odd function to include and wouldn't be appropriate for 1914.3. Event indication could be useful. 1914.3 OAM messages could be used for this.
Availability of standard	Feb, 2018?	Aug, 2017	eCPRI has a brief head start over 1914.3

Comparison Summary

- Equipment Interoperability
  - 1914.3 standard is open and allows all compliant equipment to interoperate
  - eCPRI requires bookended-equipment
  - BIG Advantage 1914.3

- Proprietary Performance Enhancement Support
  - TLVs could be attached to any 1914.3 message to carry special proprietary information
  - 1914.3 experimental message subtypes could be used. This method would be less desirable because less of the defined 1914.3 mechanisms are used.
  - eCPRI message contents are proprietary to each vendor
  - Small Advantage eCPRI

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Comparison Summary

- Transport Options
  - 1914.3 can only be carried by Ethernet
  - eCPRI can be carried by any packet protocol, Ethernet and IPvX/UDP are currently specified
  - Advantage eCPRI

- Legacy Support
  - 1914.3 can carry legacy CPRI data
  - eCPRI cannot carry legacy CPRI data
  - Advantage 1914.3

- OAM
  - 1914.3 uses control messages and TLVs
  - eCPRI uses control messages
  - No Advantage for either

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Comparison Summary

- Output timing to radio
  - 1914.3 has two options
    - Aligns outputs to seq_num, provides mechanism to align seq_num to common ToD
    - Aligns outputs to presentation time. This allows a wireless carrier to use their own timing domain.
  - eCPRI aligns outputs to seq_num, but lacks a mechanism to do this alignment
  - Advantage 1914.3