Data Modelling and Gap Analysis of Optical Pluggables in Packet Over Optical Network

draft-rokui-ccamp-actn-wdm-pluggable-modelling & Google Sheet for Optical pluggable attributes

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Objectives of This Draft
At-A-Glance

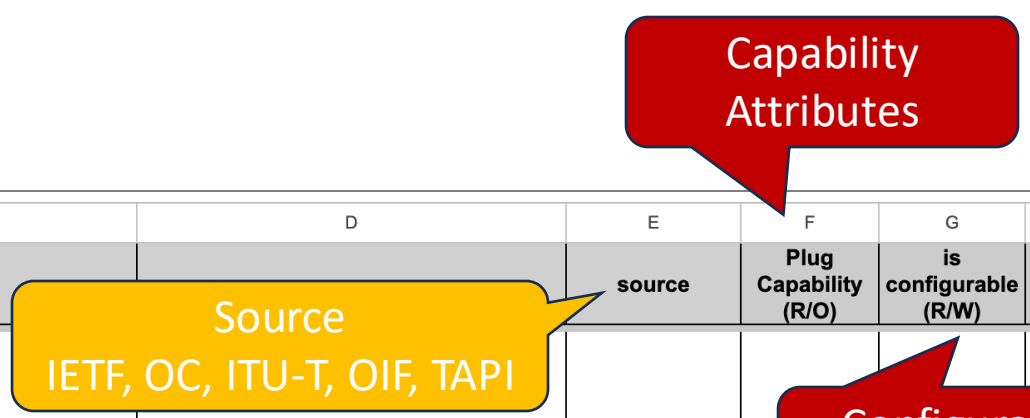
This draft provides a gap analysis with respect to existing IETF work in the following areas (taken from draft Abstract):

- It provides an analysis of optical attributes provided by other organizations and identifying modeling gaps in current IETF drafts.

- It identifies modeling needs addressing the specific aspect of pluggability of transceiver modules. The authors recognize the fact that that not all pluggable modules are coherent, not all coherent pluggable modules are DWDM capable and not all DWDM capable interfaces are implemented as pluggable modules. This analysis identifies gaps to manage the lifecycle of an optical pluggable module, from operator approval and viability assessment, to deployment, monitoring and phase-out.

Google Sheet: Optical Pluggable Attributes

Attributes for Capabilities, Config and PM/States



	A	B	C	D	E	F	G	H	I
1					source	Plug Capability (R/O)	is configurable (R/W)	PM & States (R/O)	description
2									
3	supported-modes*								**Capabilities supported by Coherent Pluggable**
4		**tag-id* list of [tag-type, tag-value]**			IETF	**YES**	NO	NO	list of {tag-type, tag-value} Mainly for future extensibility. Can be used for various reasons such as: - mapping operational-mode to CMIS Media-ID - Other usage of this tag for FUTURE
5		**supported-mode-id**				**YES**	NO	NO	
6		**organization-identifier**				**YES**	NO	NO	

Snippet

What had been done since IETF 122? (1/3)

1. Version 02 of the document had been posted
2. Finished 1st and 2nd revisions of Coherent Pluggable Google Sheet
3. Version 3 is under review with PR#18. Will be posted shortly after review.
4. Added list of documents other industry forums and standards bodies, including ITU-T, OpenConfig, OIF, and ONF TAPI.

- IETF Common YANG Data Types for Layer 0 Networks [I-D.ietf-ccamp-rfc9093-bis]
- IETF YANG data model to manage configurable DWDM optical interfaces [I-D.ietf-ccamp-dwdm-if-param-yang]
- IETF YANG Data Model for Optical Impairment-aware Topology [I-D.ietf-ccamp-optical-impairment-topology-yang]
- IETF YANG Data Model for WDM Tunnels [I-D.ietf-ccamp-wdm-tunnel-yang]
- IETF YANG Data Models for requesting Path Computation in WDM Optical Networks [I-D.ietf-ccamp-optical-path-computation-yang]
- Implementation Agreement 400ZR [OIF-400ZR]
- OpenConfig system component inventory[OC-platform]
- OpenConfig terminal device [OC-device]
- ITU-T Multichannel DWDM applications [G.698.1]
- ITU-T Amplified multichannel dense wavelength division multiplexing [G.698.2]
- ITU-T Optical interfaces for coarse wavelength division multiplexing [G.695]
- ITU-T Optical transport network physical layer interfaces [G.959.1]
- Linux Foundation Transport API project [TAPI-2.5.0]

What had been done since IETF 122?
(2/3)

5. First iteration of the Gap analysis done (work in-progress)

Attribute Number	Missing Capability Attributes	source
4	tag-id	IETF
16	Post FEC BER	oif
17	pre-fec-ber	
18	Target reach	oif/itu-t
19	Ripple	oif/itu-t
20	max-bit-error-ratio	itu-t
22	min-chromatic-dispersion	oif
36	Polarization Rotation Speed	oif/itu-t
39	min-tx-osnr	OpenConfig
46	pulse-shaping-type	OpenConfig
53	fec-coding	OpenConfig
68	Minimum mean input power	itu-t

Attribute Number	Missing PM/States Attributes	Source
216	operational-state	
218	central-frequency-offset	OpenConfg/ oif/t-api
222	chromatic-dispersion	OpenConfg/ oif/tapi
233	supply-voltage	OpenConfg
234	laser-bias-current	OpenConfg
235	max-polarization-dependent-loss	OpenConfg
237	modulation-error-ratio	OpenConfg
238	fec-uncorrectable-blocks	OpenConfg

Attribute Number	Missing Configuration Attributes	source
206	admin-state	
210	line-coding-bit-rate	tapi

Snippet

For the complete list of missing attributes, see V03 of draft

Next Steps

1. Version 3 is under review with PR#18. Will be posted shortly after review.
2. Continue the gap analysis of Coherent pluggable data in 5 areas
   - Missing Capability attributes
   - Missing Configuration attributes
   - Missing PM/State attributes
   - Coherent Pluggable Syntax Gaps
   - Incorporating the identified pluggable attributes to IETF using various approach such as augmentation / Bis / Update / separate pluggable model / etc. (note that we will discuss this at our weekly meetings to come up with appropriate approach)

Asking for WG Adoption (based on Version 03)

Thank You !