

A YANG Data Model for WDM management in Front-Haul NBI

draft-zhaosun-ccamp-front-haul-wdm-yang-01

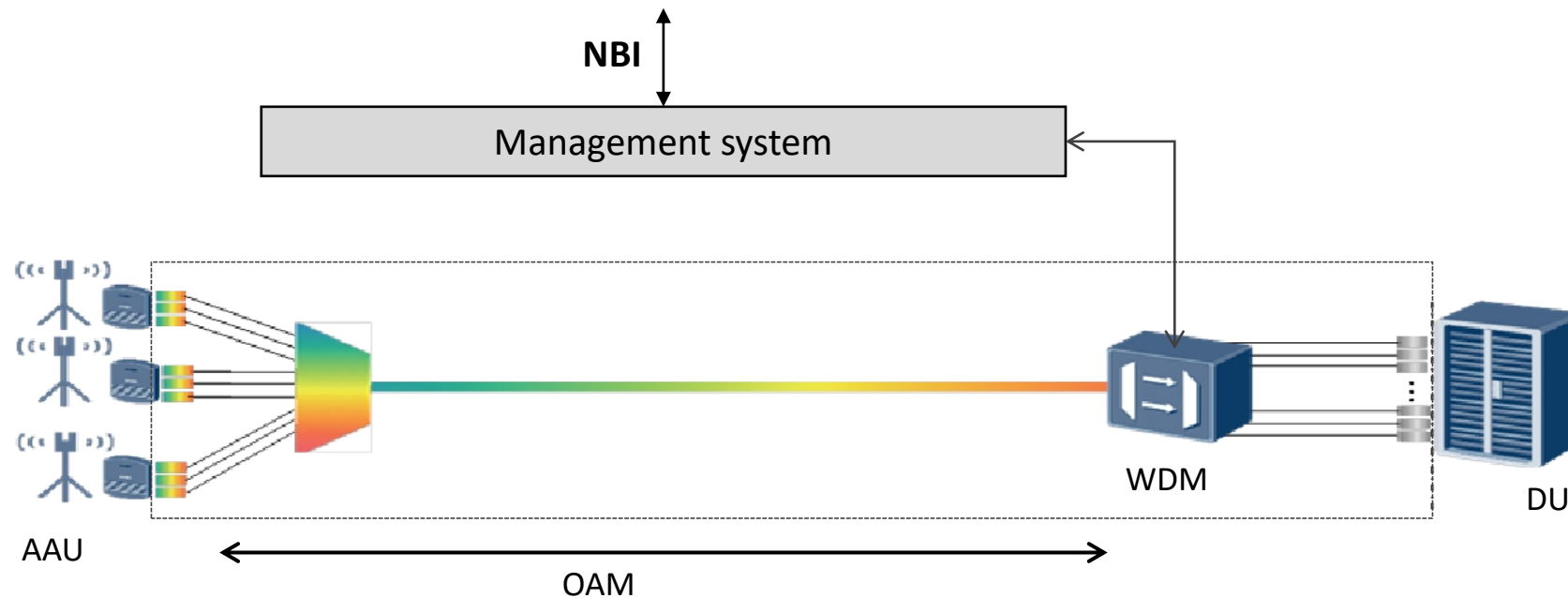
Yang Zhao, Jiang Sun, Dechao Zhang, Dong Wang, Han
Li and Chaode Yu

China Mobile, Huawei Technologies
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Semi-active WDM Architecture for 5G Fronthaul

The semi-active WDM system is composed by:

- O-RU side: colored optical modules and passive BiDi WDM.
- O-DU side: active WDM equipment.
- Passive BiDi WDM like MUX/DEMUX.



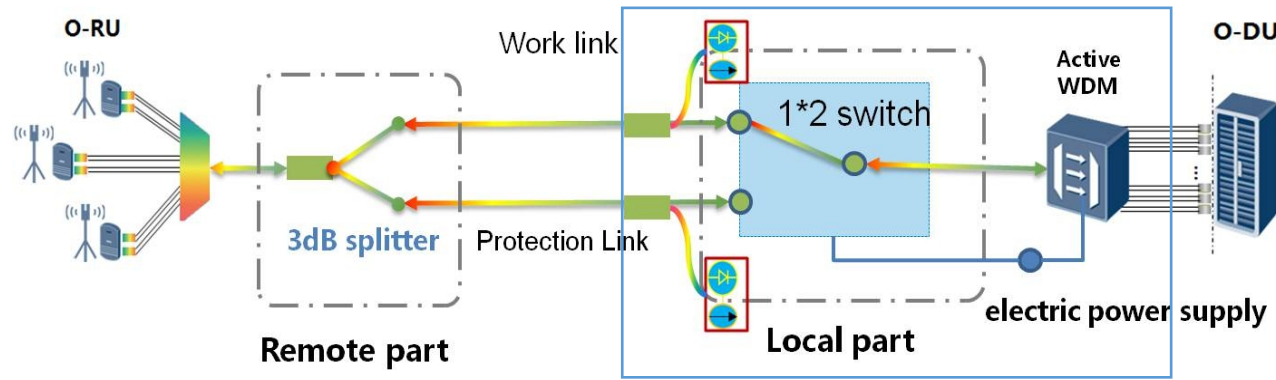
Since the AAU and DU are both wireless devices and could not be managed by transmission controller, the management of optical modules at AAU/DU side is difficult and special. One of workable solutions is semi-active WDM system.

- The OAM channel is used to transmit management and control information between the optical modules and WDM device.
- WDM device can be managed by the centralized transmission controller.

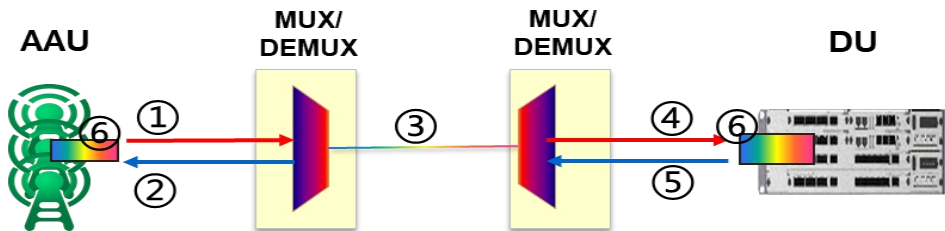
The value of management system for semi-active WDM

In some aspect, the management system for semi-active WDM system could have advantages:

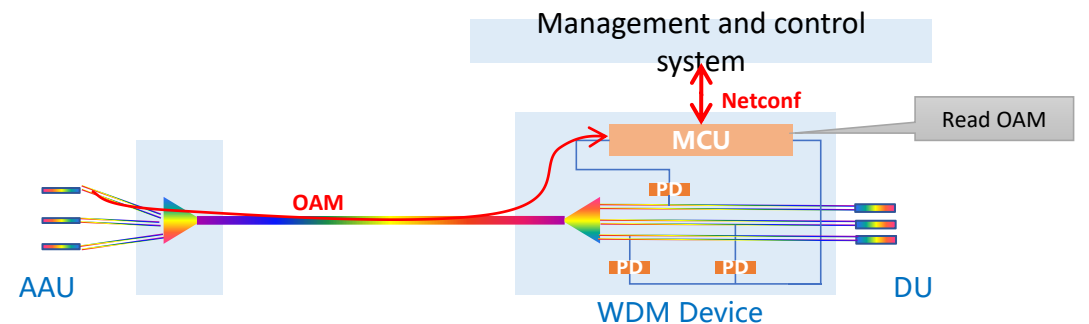
- ✓ Optical layer protection and configure switching automatically and manually.



- ✓ Failure management.



- ✓ Module status monitoring

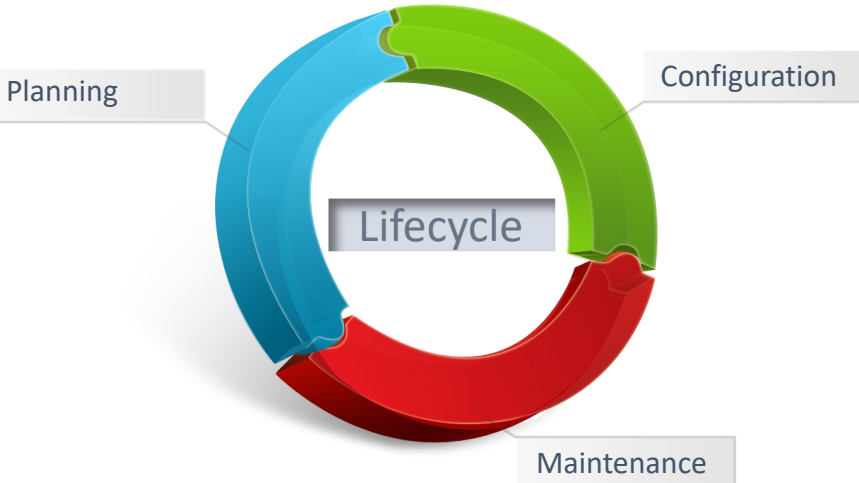


Management Interface requirements

Management object	
local side	Network equipment
	Card
	Port
remote side	Optical module
system	Topology
	Connection

Interface functions		
configuration management	system	Topology
		Connection
	WDM equipment	Information query
		Equipment configuration
		Protection management
	Transceiver	Information query
		Configuration
	Fault	WDM equipment
		Optical module
Performance	WDM equipment	
	Optical module	

The Existing Models Possibly Related



Lifecycle	Feature	RFC/Draft	Model
Planning	Inventory	draft-yg3bp-ccamp-optical-inventory-yang	ietf-network-inventory
Configuration	Topology	RFC8345 RFC8795 RFC9093 RFC9094 draft-ietf-ccamp-flexgrid-yang	ietf-network ietf-network-topology ietf-te-topology ietf-layer0-types ietf-wson-topology ietf-flexi-grid-topology
	tunnel	draft-ietf-teas-yang-te draft-ietf-ccamp-wson-tunnel-model	ietf-te ietf-wson-tunnel
Maintenance	Alarm	RFC8632	ietf-alarms
	Performance	draft-ietf-teas-actn-pm-telemetry-autonomics draft-zheng-ccamp-client-pm-yang	ietf-te-telemetry ietf-vn-telemetry ietf-service-pm ietf-eth-service-oam

It is preferred that the semi-active WDM system should be managed by the transmission controller. And there are some models, listed as above in the table, are defined for WDM system. We think they can also be used for semi-active WDM system management. Extension for semi-active WDM is still undergoing research.

Next Steps

- Further evaluation of the existing models and recognize required extensions for semi-active WDM management;
- Specify the detected model extension for semi-active WDM management;
- Welcome to contribute;

Thank You!