



## **Programmable WDM**

Deliver agility to metro-haul  
optical transport networks



## Programmable WDM

### Virtualise Transport Network for a Software-defined Future

Network service providers should rapidly advance to manage a blast of computerized traffic driven by multimedia services, versatile applications, web based life, VoIP, and edge computing. Additionally, there is a continuous growth in usage of bandwidth hungry applications.

Earlier, network traffic was all about voice calls carried over circuit based networks in a predictable environment. But now, being everything getting virtualized and going to cloud, there is a significant need to upgrade optical transport networks. To ensure this transition with minimum cost involvement, an open and flexible architecture with programmability and modularity is the immediate need.

## Need for Network Service Providers

Most network service providers wish that their optical network can handle multi-vendor interoperability along with disaggregation of hardware and software platforms. However, optical networks are quite multi-faceted, which involves multiple optical impairments, i.e., optical signal-to-noise ratio, modulation, cross talk and dispersion affect which will be cascaded across the multi-vendor optical equipment. Due to this, every vendor will have their own set of algorithms to configure the optical parameters of their set of system components, for a particular optical channel.

The challenge lies in the fact that managing these optical impairments across the multi-vendor equipment requires a standard algorithm to be followed across the optical components. This is possible only when all optical hardware components expose their standard APIs to a common interface module and support standard protocols to exchange configuration and operational parameters.

To address these problems, open, disaggregation and programmability are now finding its way into the world of optical transport networks. This will ensure automation of configuration and operational tasks on disaggregated photonic components, which are complex and analogue in nature.

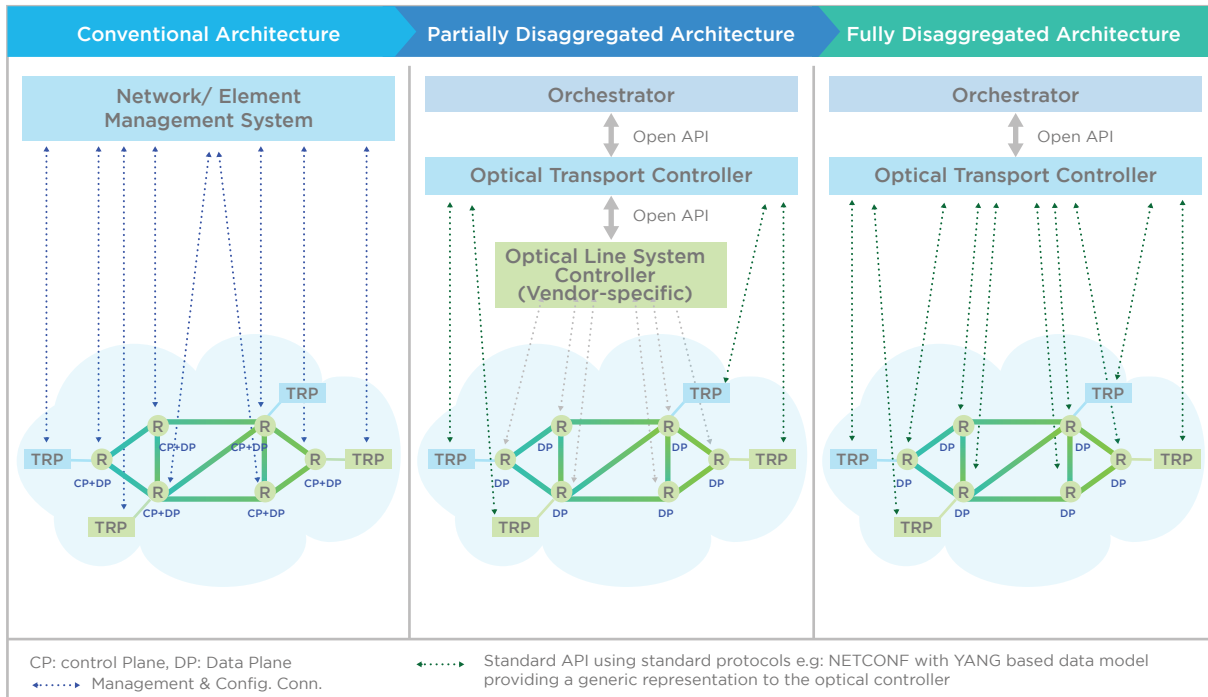
## Programmable WDM (pWDM) – A SDN-NFV based Metro Haul Network Solution

STL is developing pWDM solution to address the optical transport requirements by providing converged platform and integrated approach to provide the multi-service packet services across the optical domain. It significantly improves the control architecture & algorithms, open standard APIs and mix-match transponders/terminals and open line system components.

pWDM is a converged and integrated platform that offers control and feedback mechanism for effective channel utilisation, signal regeneration and overlapping protections across packet and optical layers. It employs a vendor-neutral ecosystem that uses open interfaces and common data models to provide economies of scale.

It significantly improves provider's business model as it offers the ability to launch innovative services with a faster time to market.

With a centralised control, management and automation with coherent integration with 3rd party applications, terminal devices and OLS equipment offers effortless ease in network management. pWDM is open-source compliant for developing a OpenROADM and OpenConfig-compliant ecosystem with TIP, ONF-ODTN and OpenROADM community together with STL.



**Figure 1: Conventional & Next Gen Architectures of Optical Transport Networks**

## Business Benefits of pWDM:

pWDM will disaggregate transponders from OLS and will bring value in following ways:

- It will enable vendors to innovate in terms of speed, reach, QoT, etc. at terminal equipment
- It will simplify operators networking through simple bookending
- Reduces time to market to launch new services in production network
- Realize DevOps model through SDN-enabled optical network
- Build CI/CD pipeline between operator, vendors, and open source software stack

## pWDM: A Converged, Simplified Platform for Network of Tomorrow

For metro-haul optical transport networks, pWDM provides a converged platform to provision multi-service packet services across the optical transport domain with a control and feedback mechanism for effective spectrum utilisation. This ensures greater flexibility and optimal utilisation of resources.

In addition, it allows for faster and simpler launches with an analytics-driven user experience for intelligent business modules. pWDM also ensures faster time-to-market and idea-to-install capabilities to help service providers compete effectively in the industry.



About Sterlite Technologies Ltd - STL

## **STL is a global leader in end-to-end data network solutions.**

We design and deploy high-capacity converged fibre and wireless networks. With expertise ranging from optical fibre and cables, hyper-scale network design, and deployment and network software, we are the industry's leading integrated solutions provider for global data networks. We partner with global telecom companies, cloud companies, citizen networks and large enterprises to design, build and manage such cloud-native software-defined networks.

STL has innovation at its core. With intense focus on end-to-end network solutions development, we conduct fundamental research in next-generation network applications at our Centres of Excellence. STL has strong global presence with next-gen optical preform, fibre and cable manufacturing facilities in India, Italy, China and Brazil and two software-development centres.

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