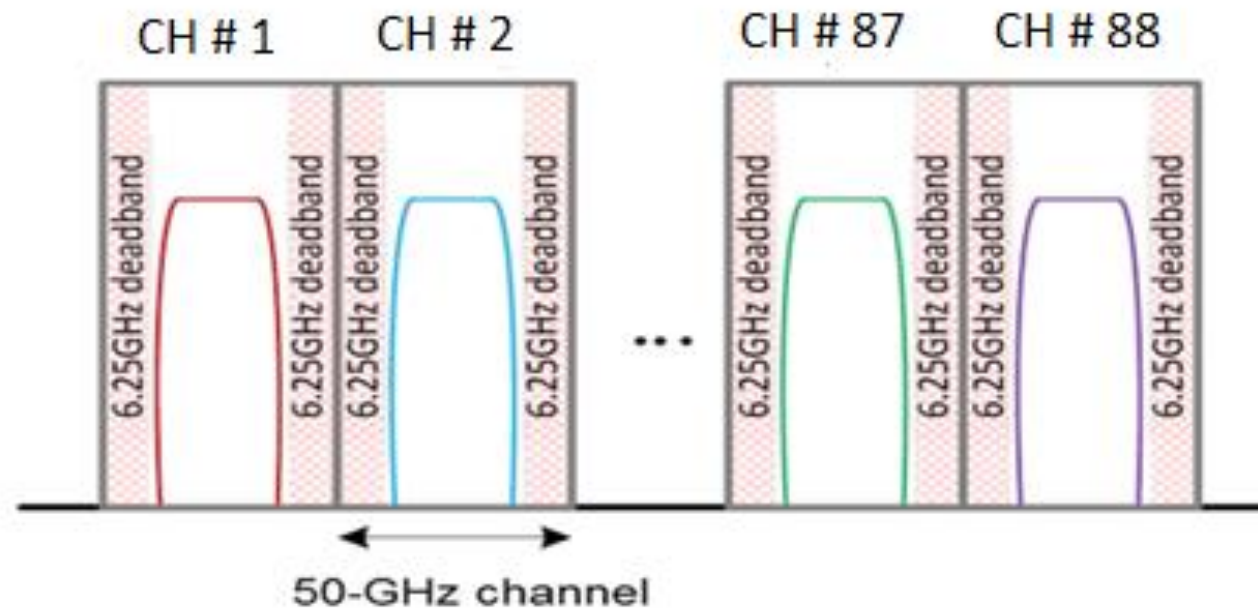


Flex Grid Concept of Active DWDM

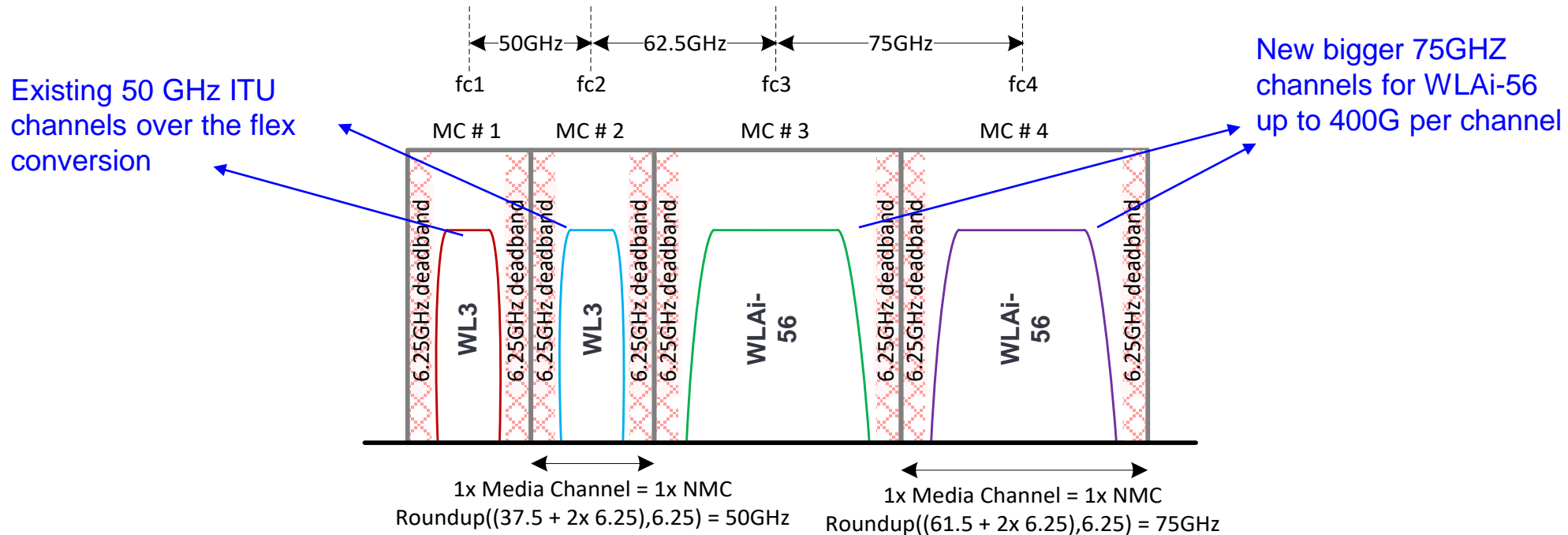
Telecommunication | Australia

- ▶ Telecom operator's current Ciena 6500 based DWDM ROADM network operates on standard ITU 50GHz fixed spectrum grid.
- ▶ In the 50GHz fixed spectrum with the current set of CMD44 filters deployed in the network, it is capable of supporting 88 optical channel per OMS section.
- ▶ All current optical channels traversing through the ROADM network provide 100G (or in rare cases 10G or 50G) capacity per channel.

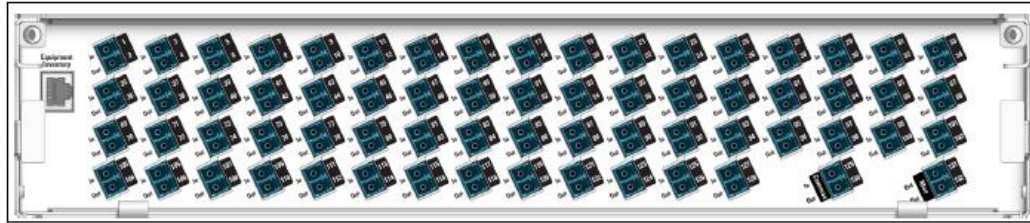


What is Flex Grid ?

- The project will introduce required hardware and software on the Telecom operator's 6500 based DWDM ROADM network to enable flex grid operation.
- Under flex-grid operation, optical channels will be able to occupy wider segments of the spectrum to support higher bitrate transmitted by WLAI cards (up to 400G)
- Aims - lower costs & reduce power per bit, increased spectral efficiency & defer overbuilds
- The existing 50GHz channels carrying will continue to coexist with new wider >75GHz channels.

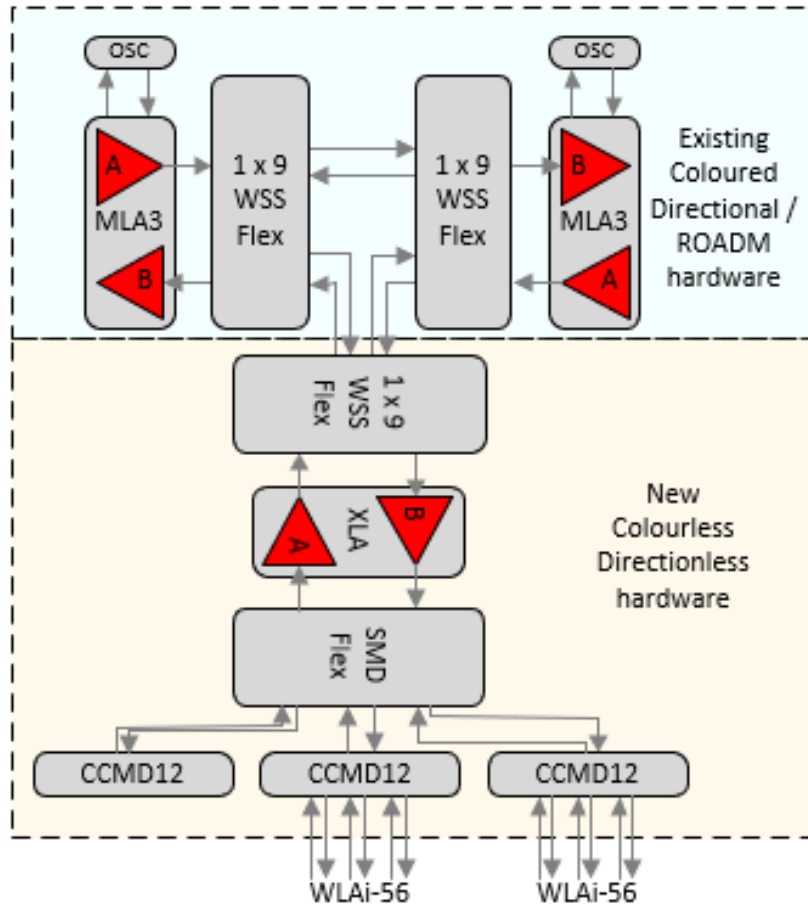


Flex Grid Hardware - CMD64

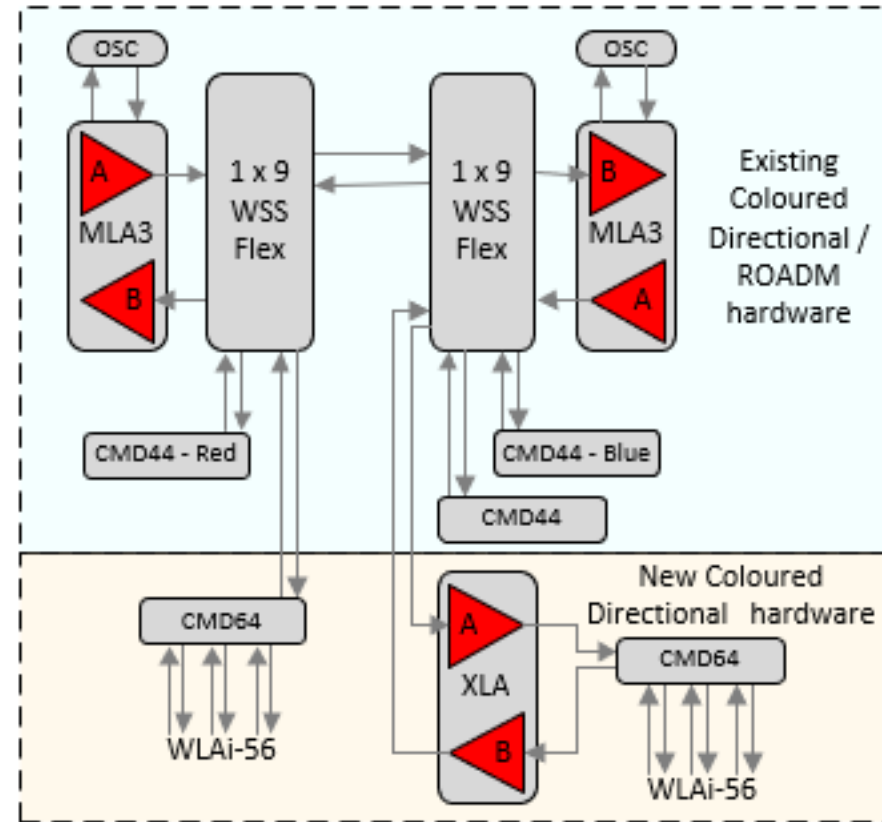


- CMD 64 is a coloured 64 channel mux/demux module on a fixed 75 GHz grid designed to support wider bandwidth signals like WLAi 56 Gbaud.

Flex Grid Hardware - architectures



Deployed on M-S EON2 –
not FAR



Not deployed – under study for
Sydney Data Ring No2

Flex Grid Concepts - Intro

Spectrum Slice

The extended C band (191.3250THz to 196.1250THz) consists of 768 slices of 6.25GHz. **These will be displayed in TPD drop 1.1 for all WSS-WSS Ciena 6500 systems (even if system not upgraded to Flexgrid)**

Media Channel

A Media Channel (MC) is a portion of the transmission C band (spectrum) that is allocated for transporting one or more optical channels between two ROADMs.

The MC edge frequencies are aligned to the ITU-defined 6.25GHz grid positions.

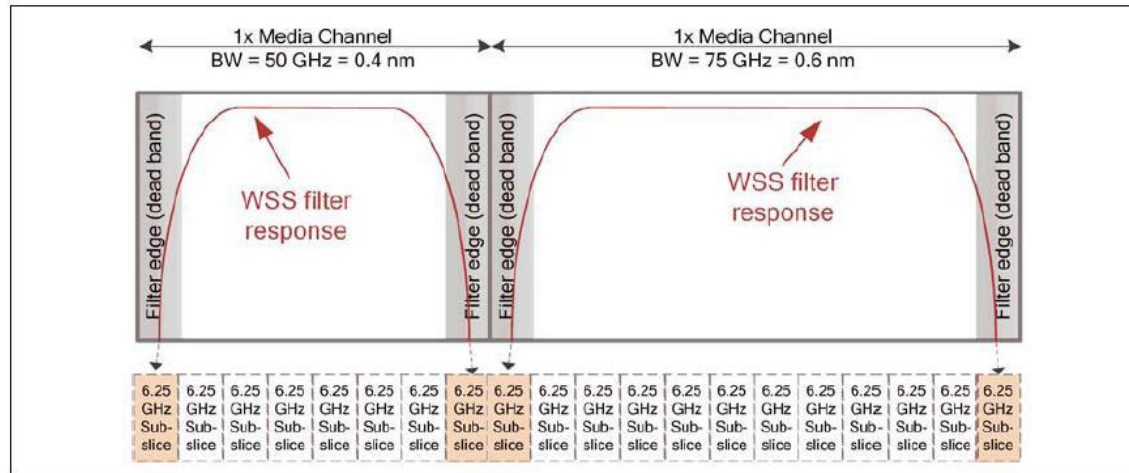
Network Media Channel

A Network Media Channel (NMC) defines the spectral bandwidth allocated inside an MC, within which the optical signal from a transponder/muxponder is expected to be confined.

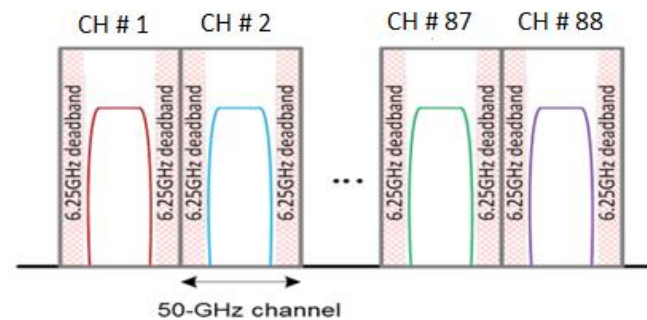
One or more NMCs can be grouped in an Media Channel (MC). They are then transported together between same source node and destination node.

Flex Grid Concepts - Spectrum Slices (sub channels)

Spectrum Slices are aligned to ITU-defined 6.25 GHz grid positions. As a result, the MC bandwidth is always provisioned in chunks of 6.25 GHz.



Telecom operator's current FixGrid Ciena 6500 based DWDM ROADM network operates on standard ITU 50GHz fixed spectrum grid. Current set of CMD44 filters deployed in the network are capable of supporting 88 optical channel per OMS section.

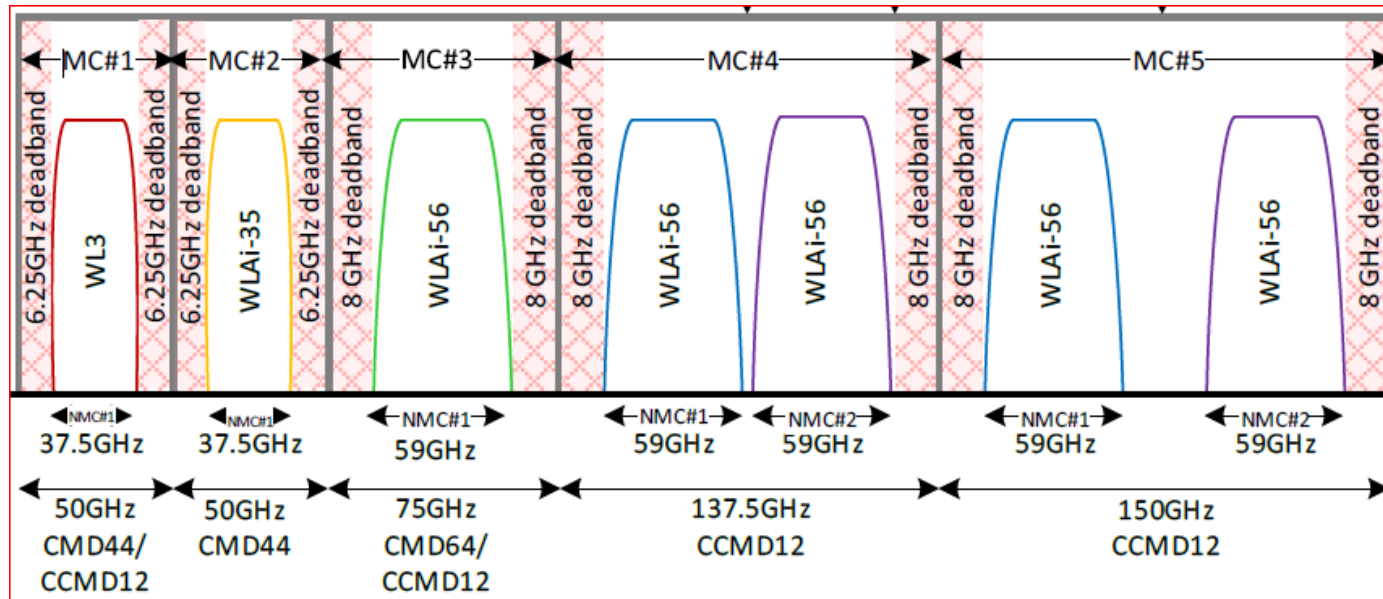


Flex Grid Concepts - Media Channels

A Media Channel defines the WSS filter bandwidth used for the media channel between ROADMs Nodes A and Z.

The MC bandwidth includes a default 6.25 GHz filter edge spacing (or dead band) on each side of the MC to avoid WSS filter roll-off and to improve isolation between MCs. The filter edge spacing is part of the MC bandwidth, but cannot be used for any NMC provisioning.

The filter edge spacing (dead band) is provisionable and will be configured as per the system requirement in the network.



Note: Multiple NMC per MC are supported for optical channels between colourless directionless ROADMs on CCMD12. One control will not support Multiple NMC per MC provisioning, but the same will be supported under BP MCP 18.10 onwards.

Thank You

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Expertise in emerging telecom technologies, transmission optical networks, radio wireless networks, digital transformation and agile methodology helped in building the regional network to support Australian customers such as the Department of Health, Education and emergency services.