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Reference: CISCO Transport Planner DWDM Operations Guide v11.1

# CTP version 11

Cisco Transport Planner software provides a simple tool set for designing optical networks with Cisco ONS 15454 MSTP and NCS products.

You enter all network parameters, or minimal information, such as site distance, and Cisco Transport Planner models the network you need to build and generate a detailed BOM with ordering information.

Designing optical networks requires the verification of multiple constraints such, as optical budget limitations and platform architectural restrictions.

A single Cisco Transport Planner project can contain multiple copies of a network. This duplication allows you to change parameters in one network copy, and then analyze and compare it with another network copy to study the differences.

CTP uses 5us/km for fiber and DCU as a length-based latency.

# New Features

Features	Description
SMR9 support on SSON	<p>From Release 11.0, SMR9 with Contentionless Configuration is supported on all SSON Networks.</p> <p>From Release 11.0, Layer2 SMR flag can be enabled on an SSON Network, but no Layer2 Contentionless Side support is present.</p>
Support of Regeneration on Alien	From Release 11.1 onwards, Regeneration is supported on the NCS 1004 with the Alien NCS4K-4H-OPW-QC2 Line Card and Denali Alien.
Support of RAMAN-COP-CTP on SSON	From Release 11.1, RAMAN-COP-CTP is supported on SSON Networks.
Support of MER Pluggable on 400G-XP-LC card (OTNXC and MR-MXP mode)	From Release 11.1, the 400-XP-LC card with MXP and OTNXC mode supports QSFP-4X10-MER pluggable on 10GE, OC192/STM64, OTU2, OTU2e client interfaces.
8GFC Client Interface blocking on CDR ports of 400G-XP-LC card	From Release 11.0, the 8GFC Blocking is enabled on the CDR ports of the 400G-XP-LC card.



## Installation and Launching

# Installing Cisco Transport Planner (1/2)

- Step 1** To download the installer, go to the Cisco software download site.
- Step 2** Navigate to the location where you want to save the CTP executable file to a local hard drive.
- Step 3** Click Save.
- Step 4** To start the installation of CTP:
- Windows—Navigate to the folder containing the CTP executable file and double-click it.
  - Linux—Assuming the CTP.bin file is accessible from the current shell path, navigate to the directory containing the CTP.bin file and enter: % ./CTP.bin
- The graphical CTP installation wizard is displayed.
- Step 5** Click **Next**. The license agreement is displayed.
- Step 6** To accept the license, select the I accept the terms of the License Agreement radio button.
- Step 7** Click **Next**.
- Step 8** Specify the installation folder. On Windows 7 or Windows 10, the default is C:\Program Files\Cisco\CTP\_11.1.
- To choose a different folder, click the **Choose...** button and browse to the required folder. To restore the default path, click the **Restore Default Folder** button.
- Step 9** Click **Next**.
- Step 10** Specify the shortcut folder by choosing any one of the following options:
- In a new Program Group—Specify a new folder. The default option is CTP\_11.1.

# Installing Cisco Transport Planner (2/2)

- In an existing Program Group—Select a folder from the list of existing folders.
- In the Start Menu
- On the Desktop
- In the Quick Launch Bar
- Other—Use this option to specify a commonly used folder.
- Don't create icons—Choose this option if you do not want to create a shortcut.

**Note** Check the Create Icons for All Users check box if you want to create shortcuts for all the users of a system.

**Step 11** Click **Next**. The pre-installation summary is displayed.

**Step 12** Review the pre-installation summary. If no changes are required, click **Install**; otherwise, click **Previous** to make modifications.

A progress bar displays the installation status. Click **Cancel** at any time to stop the installation.

When the installation process is complete, a screen indicates whether the installation succeeded or failed.

**Step 13** Click **Done** to exit the installation wizard.

# Launching the Cisco Transport Planner (1/2)

Before you start the Cisco Transport Planner (CTP), you need to save the user profiles provided by Cisco Systems to the profiles folder available at the installation location. Access to CTP features depends on the user profile you select when you start CTP. The default profile is Base Network Designer.

**Step 1** Launch Cisco Transport Planner using any of the following options:

- Click the CTP icon in the Start > All Programs > CTPmenu.
- Double-click the CTP icon in the quick launch bar.
- Double-click the CTP icon on the desktop.
- Browse to the installation folder and double-click the ctp.jar file.

CTP validates the installed Java version in the system. If the installed version is Java 1.7 or Java 1.8, the CTP login dialog box is displayed.

**Note** If Java 1.7 or Java 1.8 is unavailable, CTP displays the JVM Version Error dialog box that lists the incompatible Java versions. Install the required Java version from the <http://www.oracle.com/technetwork/java/index.html> website. Repeat Step 1.

**Step 2** From the Current selected profile drop-down list, select the user profile.



# Launching the Cisco Transport Planner (2/2)

**Step 3** Click **Continue** to open the Cisco Transport Planner.

The login profile type appears in the lower-right corner of the CTP window.

The Start Page is displayed. The Start Page provides the following options:

- **New**—Click to create a new project.
- **Open**—Click to open an existing project.
- **Import Network**—Click to import node parameters from a network.
- **Recent Network Files** area—Select an existing project to open it.

Selecting any of the above options opens a new tab.

**Step 4** Check the **Do not show Start Page at startup** check box to disable viewing the start page when Cisco Transport Planner is started.

Check **View Start Page** check box under **Tools > Option > Graphic > Start Page** to enable displaying the Start Page when launching the CTP.



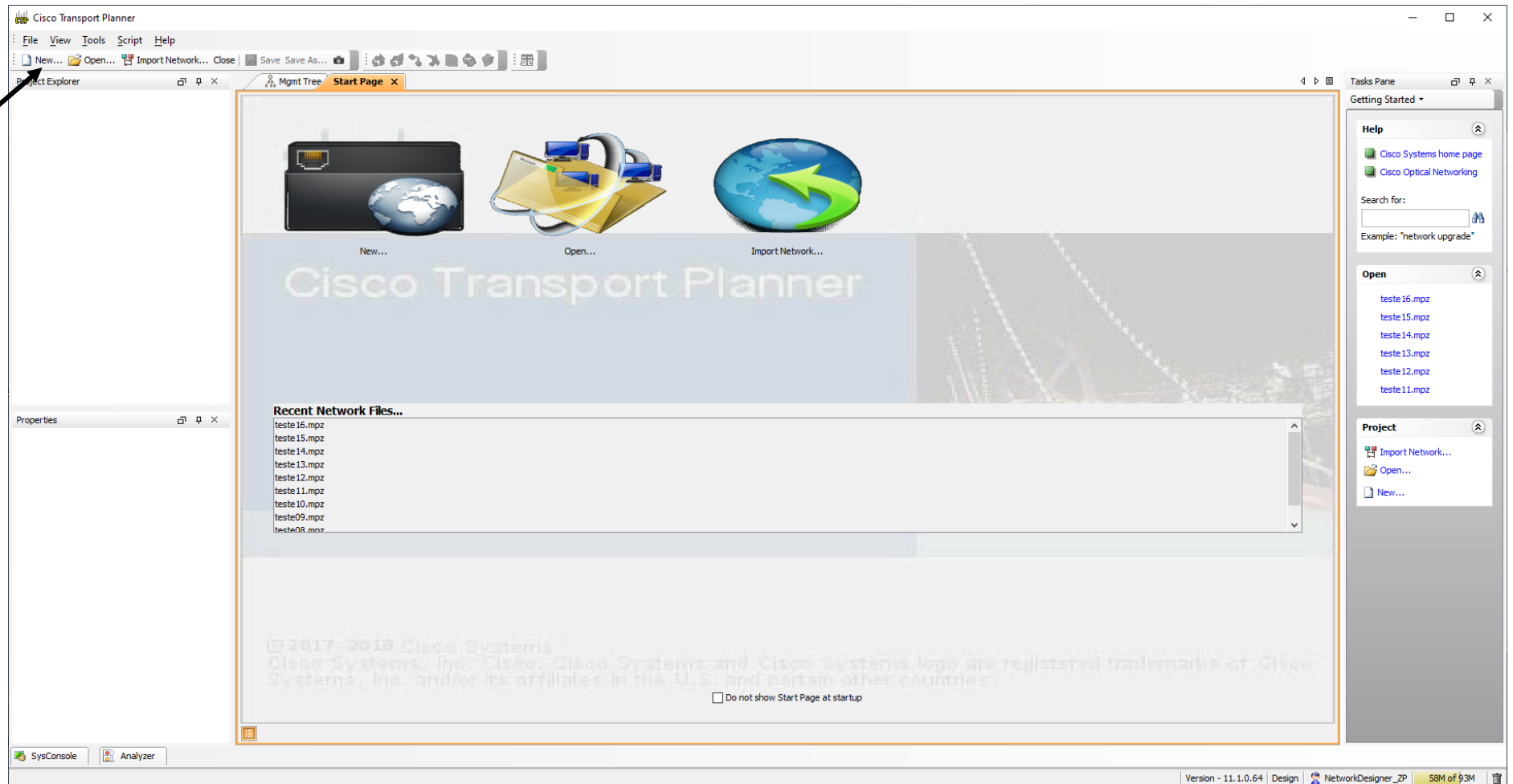
## Creating a Simple Network

# Example 1: point-to-point simple network

The screenshot displays the Cisco Transport Planner interface for a project named "teste1 pontoaponto.mpz". The main workspace shows a network diagram with two nodes, "Mooca" and "Ipiranga", connected by a link labeled "Tronco1 [10,0Km] EOL[3,0]". A dashed line below the link is labeled "1". The interface includes a Project Explorer on the left showing a tree structure with "Notes (0)", "Platforms", and "Nets" containing "Net1 [L]". The Properties panel at the bottom left shows details for "Net1", including its name, position (180; 40), status (Design Analyzed), and measurement (Km). The Tasks Pane on the right lists "Network Tasks" (Copy, Delete, Install, Upgrade, Upgrade To Design, Analyze, Design, Show Templates, Convert as SSON) and "System Tasks" (Release Upgrade, Release Upgrade to 1...). The status bar at the bottom indicates "Version - 11.1.0.64", "Design Analyzed", and "62M of 98M".

# Initial Screen

Open new



# Project Wizard

The screenshot shows the 'Project Creation Wizard' dialog box. On the left, a 'Steps' pane lists five steps: 1. Project, 2. Platform, 3. Release, 4. Subnet, and 5. Finish. The '1. Project' step is currently selected. The main area, titled 'Project Parameters', contains the following fields:

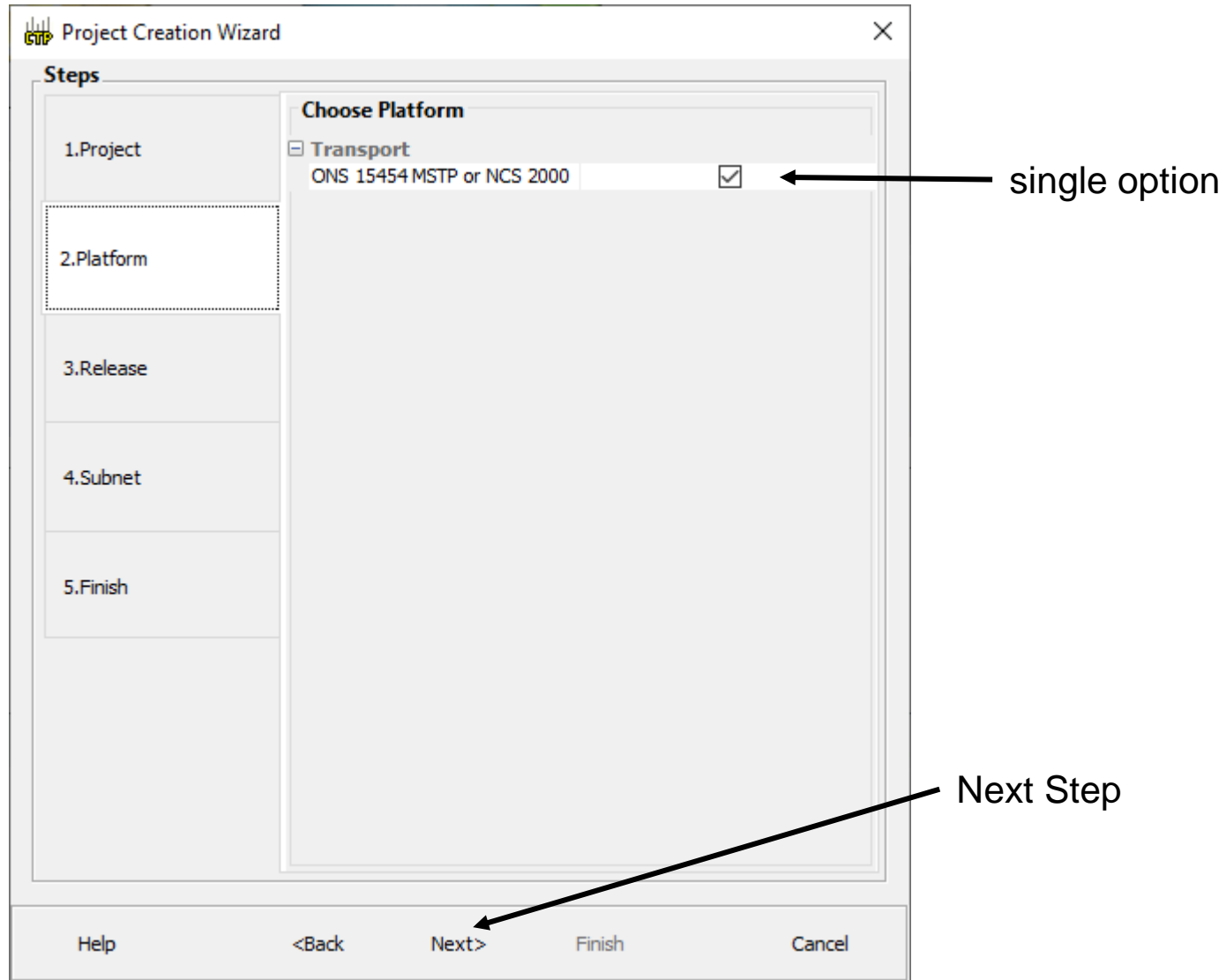
- Created By:
- Customer Name:
- Network Platform Layout:
- Measurement Units:
- Price List:

Annotations with arrows point to these fields:

- 'Fill blanks' points to the 'Created By' and 'Customer Name' text boxes.
- 'ANSI/ETSI' points to the 'Network Platform Layout' dropdown menu.
- 'Km/Miles' points to the 'Measurement Units' dropdown menu.
- 'PriceList' points to the 'Price List' dropdown menu.

At the bottom of the dialog, there are five buttons: 'Help', '<Back', 'Next>', 'Finish', and 'Cancel'. An arrow labeled 'Next Step' points to the 'Next>' button.

# Choose Platform



# System Release

Project Creation Wizard

Steps

- 1. Project
- 2. Platform
- 3. Release
- 4. Subnet
- 5. Finish

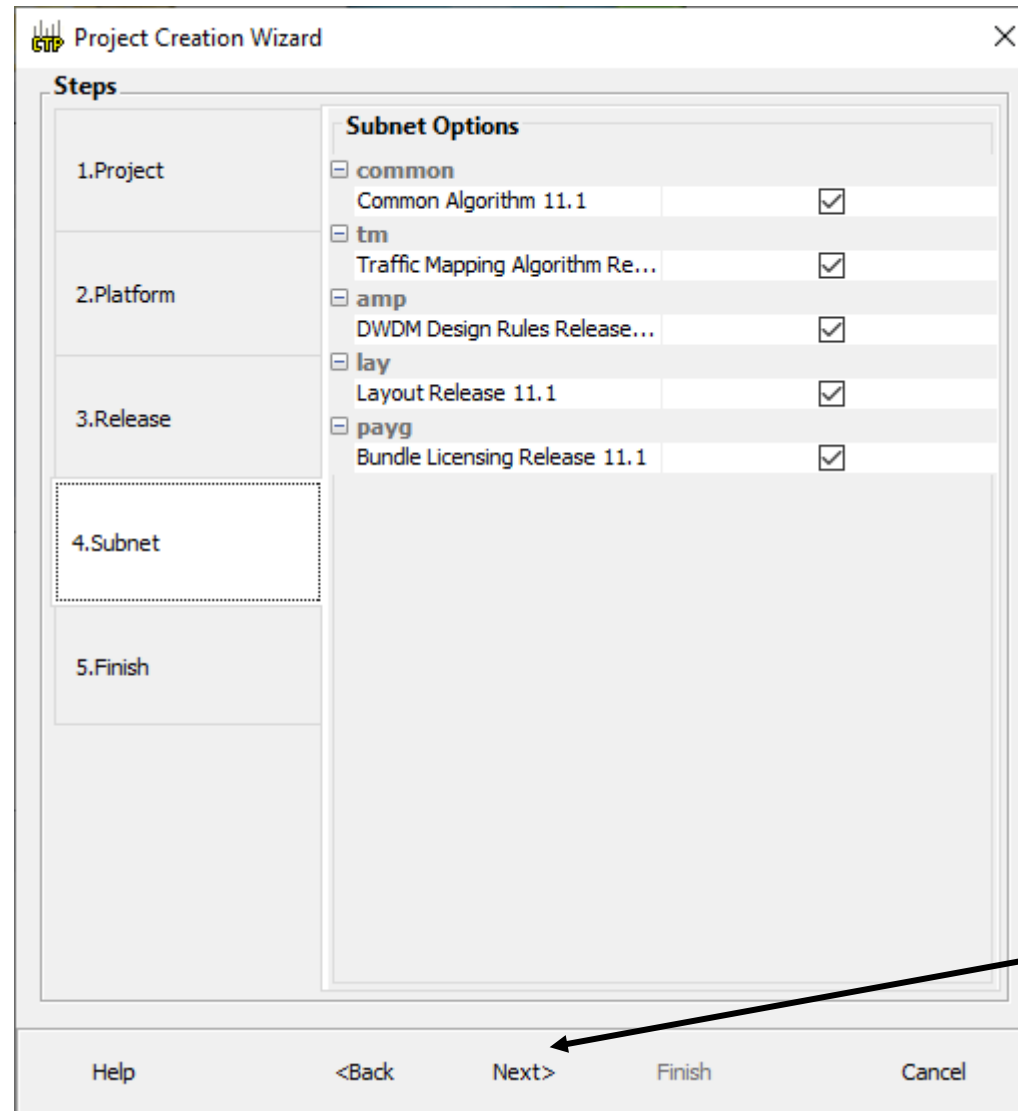
Choose Release

release	
System Release 10.5	<input type="checkbox"/>
System Release 10.5.2	<input type="checkbox"/>
System Release 10.6	<input type="checkbox"/>
System Release 10.6.1	<input type="checkbox"/>
System Release 10.6.2	<input type="checkbox"/>
System Release 10.7	<input type="checkbox"/>
System Release 10.8	<input type="checkbox"/>
System Release 10.9	<input type="checkbox"/>
System Release 11.0	<input type="checkbox"/>
System Release 11.1	<input checked="" type="checkbox"/>

Help <Back Next> Finish Cancel

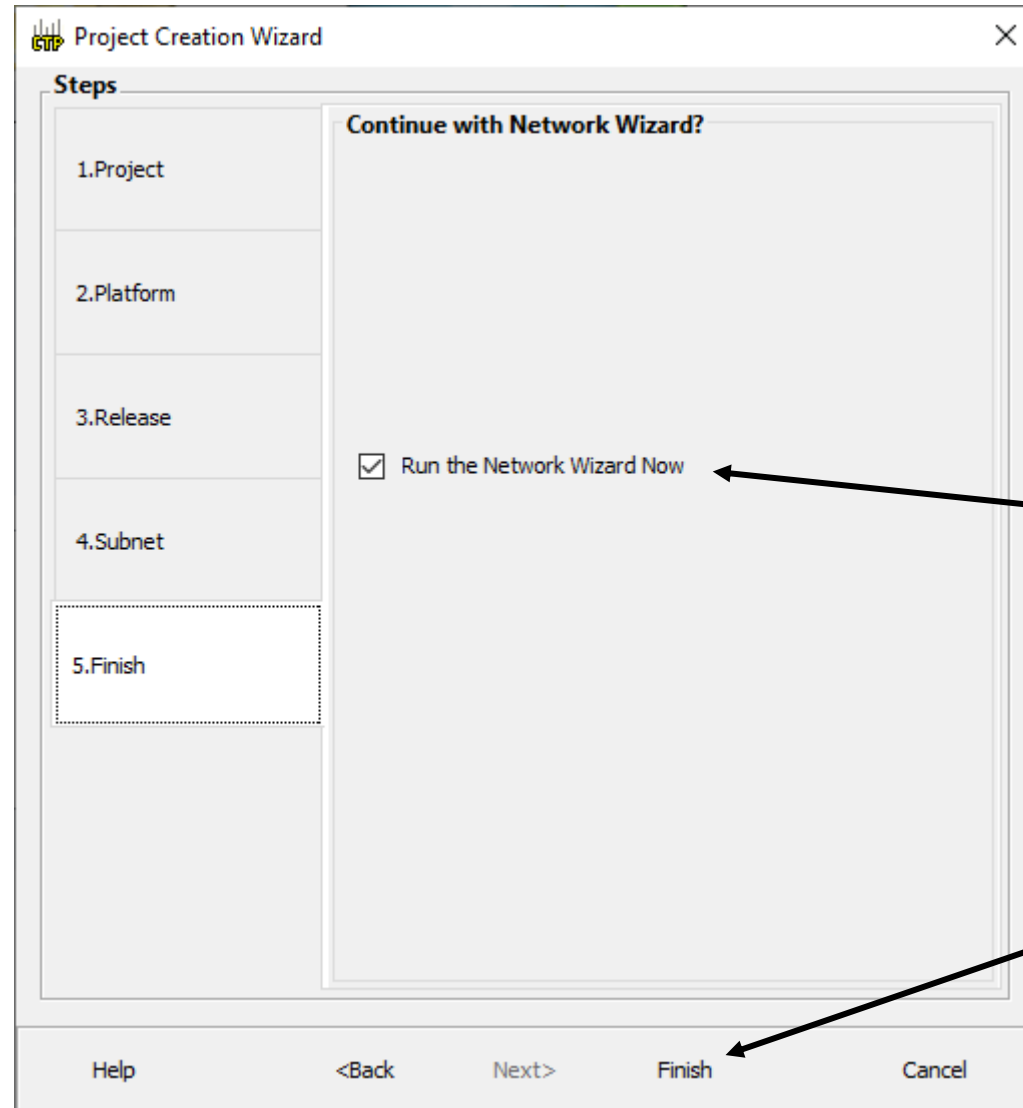
Next Step

# Subnet Options





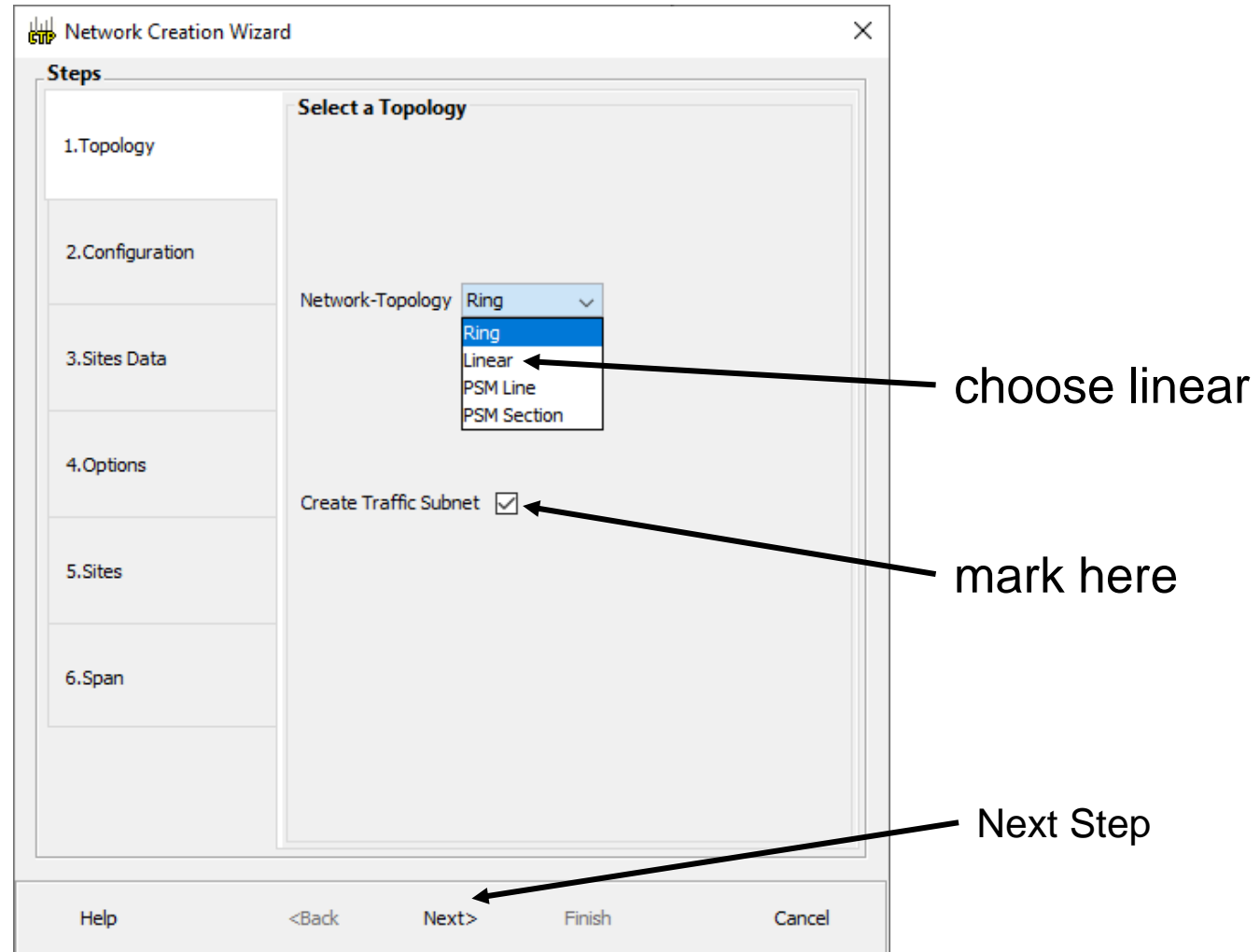
# Finish Creation



Set here

Click here

# Select Topology

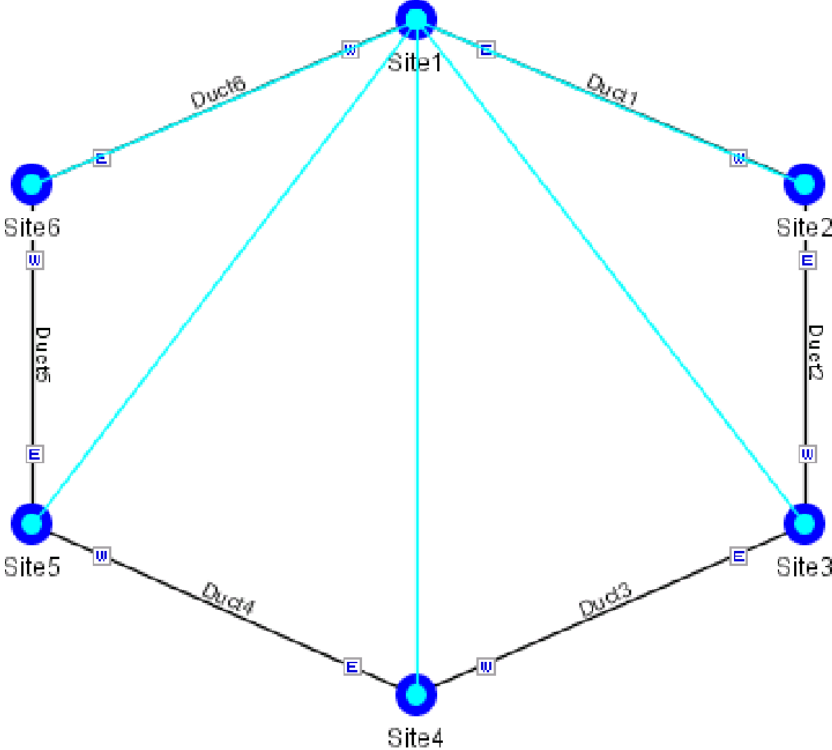


# Modeled Network Examples

*Linear Topology Example*

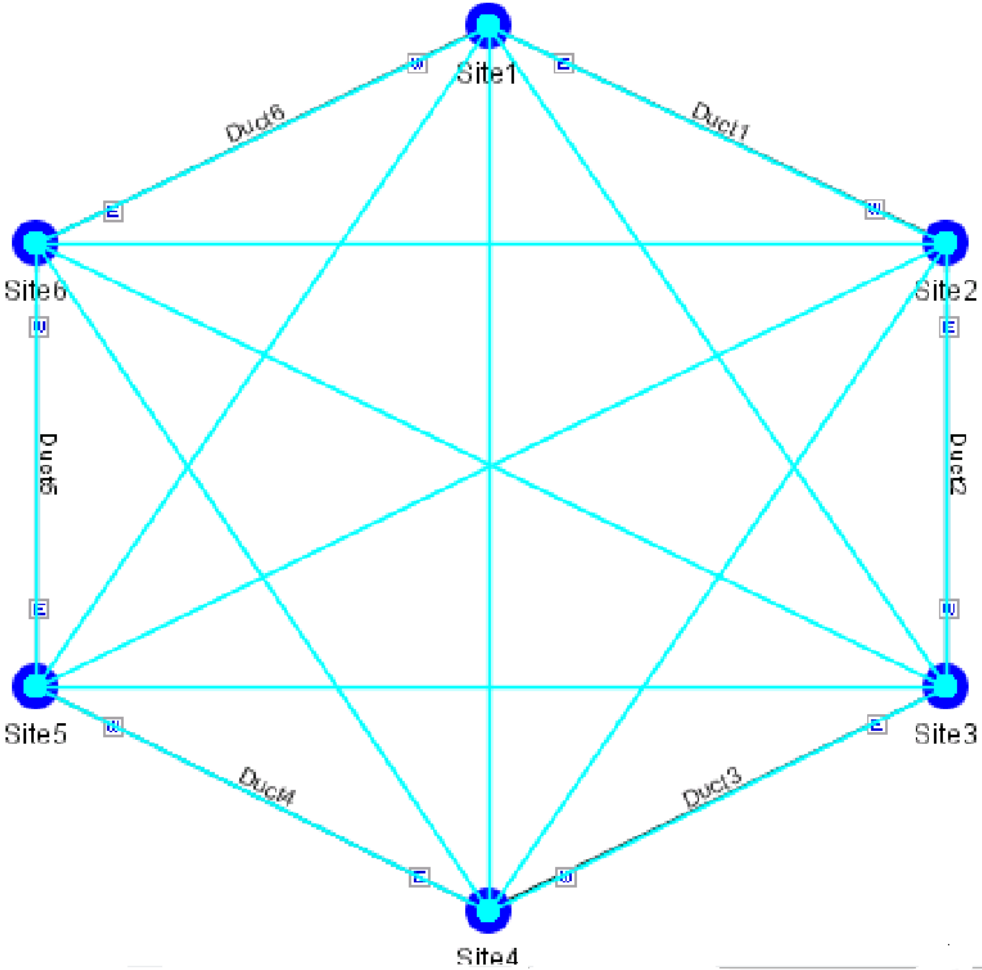


*Hubbed Ring Topology Example*

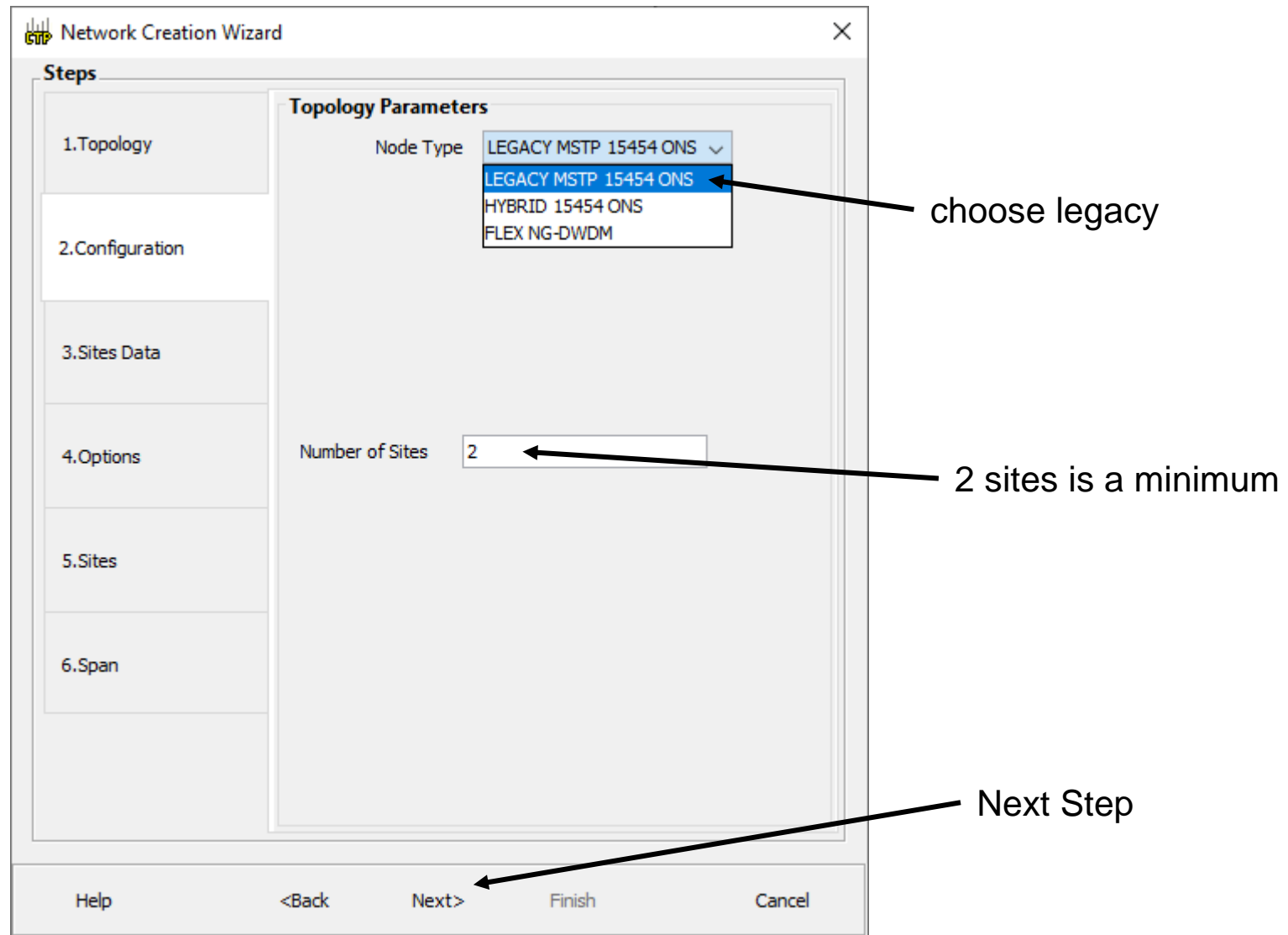


# Modeled Network Examples

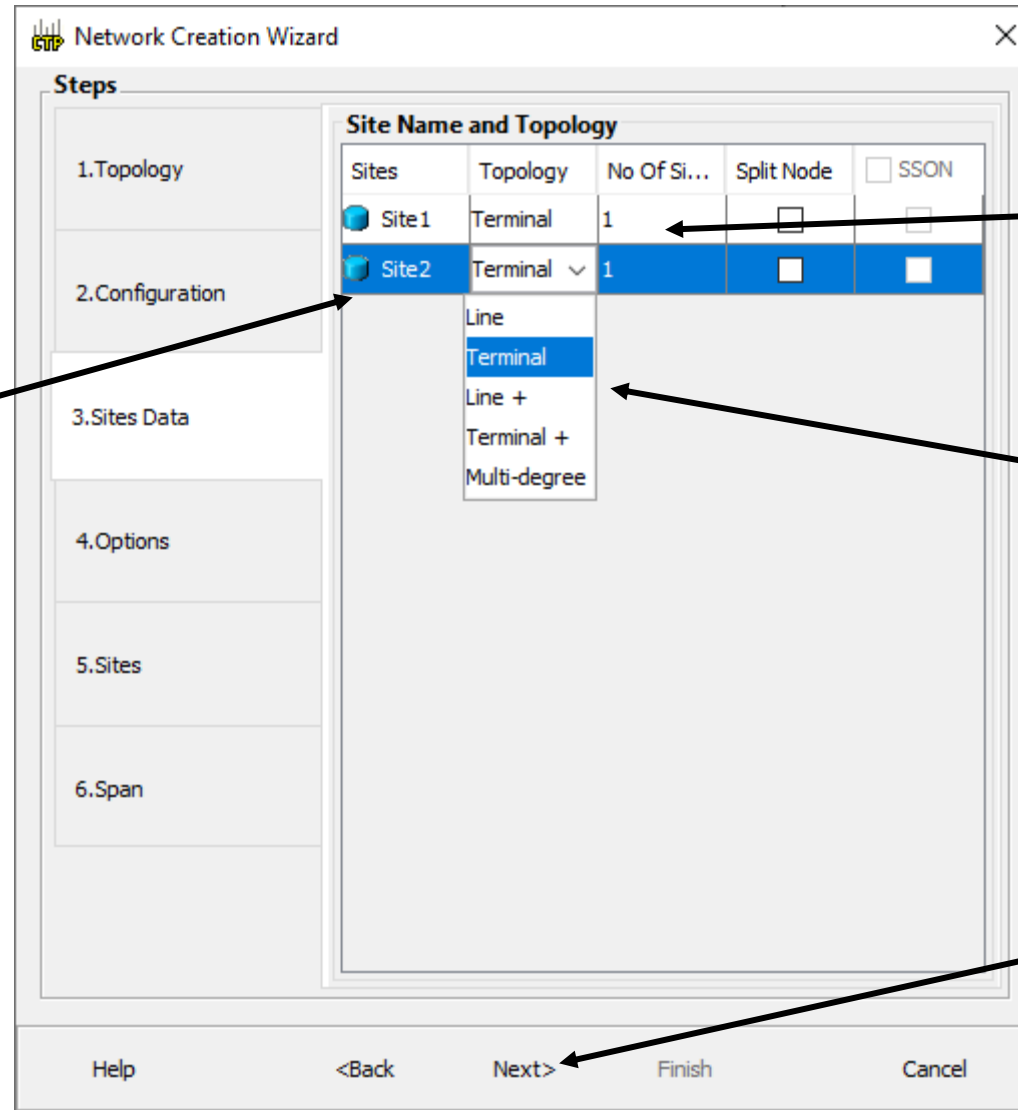
*Meshed Ring Topology Example*



# Topology Parameters



# Site Topology



Names can be changed later

Number of sides

there are restriction on node type

Next Step

# Hybrid Configurations

Typically a node has ONS 15454 MSTP configuration with add/drop units like 40-MUX40-DMX-C1,ROADM units and so on.

However, the node configuration can also have ONS 15454 amplifiers along with ONS 15216 FlexLayer add/drop units like FLB-2s, FLA-8s, and FLD-4s, and is known as Hybrid 15454 ONS configuration.

A network design can have up to 80 channels in a typical MSTP configuration; however, in a Hybrid configuration the number of channels is restricted to 40.

In a Hybrid configuration, the Data Connection Network (DCN) manages the traffic instead of Optical Service Channel (OSC).

Hybrid nodes are add/drop nodes with express traffic and are comparatively less expensive than MSTP nodes.

Many components can be in phase-out. See: Cisco Transport Planner DWDM Operations Guide, Software EOS PIDs [Cisco TransportPlanner] - Cisco



# Pay as you Grow

The Pay As You Grow (PAYG) feature enables you to implement a cost effective solution when the wavelength requirements are comparatively less than the maximum capacity of the network. Instead of purchasing a standard card that is configured to work on maximum supported wavelengths, you can purchase a PAYG license that comprises of license restricted cards and a base license. The license restricted cards support only a number of wavelengths for which the licenses are installed on the card. The base license supports only 10 wavelengths. Therefore, a license restricted card having only the base license will support only ten wavelengths even if its maximum capacity is to support 40 wavelengths. The cost of the PAYG license is less than the cost of the standard card.

When there is a need of more than ten wavelengths, additional licenses can be purchased to support the increased demand. Each new license supports ten additional wavelengths. Therefore, the PAYG functionality significantly reduces the initial setup cost and enables the purchase of additional wavelength capacity on a need basis.



# Topology and Sites

Network topology	Fields to be entered...	Maximum, Minimum, and Default Number of Sites
Ring or Linear	Number of Sites	Maximum: 150 Minimum: 2 Default: 3
PSM Line	<ul style="list-style-type: none"><li>• Intermediate Sites on Working path</li><li>• Intermediate Sites on Protected path</li></ul>	Both for working and protected paths: Maximum: 74 Minimum: 0 Default: 0
PSM Section	<ul style="list-style-type: none"><li>• Intermediate Sites on Working path</li><li>• Intermediate Sites on Protected path</li></ul>	Both for working and protected paths: Maximum: 74 Minimum: 0 Default: 0

# Topologies Description

Structure	Supported Configurations	Description
Line	<ul style="list-style-type: none"><li>• MSTP 15454 ONS</li><li>• HYBRID 15454 ONS</li><li>• NG-DWDM</li></ul>	Site with two sides facing two fiber spans. The default site value for ring topology is Line.
Terminal	<ul style="list-style-type: none"><li>• MSTP 15454 ONS</li><li>• HYBRID 15454 ONS</li><li>• NG-DWDM</li></ul>	Site with one side facing one fiber span.
Line+	MSTP 15454 ONS	Site with two sides facing two fiber spans that can provide multidegree expansion capability through an MMU unit.
Multi-degree	<ul style="list-style-type: none"><li>• MSTP 15454 ONS</li><li>• NG-DWDM</li></ul>	Sites have two or more sides and face two or more fiber spans. The default is two and you can choose up to eight sides for a site.
PSM Terminal - Optical Path Protection	MSTP 15454 ONS	Provides protection for terminal sites at line level through an optical protection switching module (PSM). In this configuration, the PSM is directly connected to the fibers after the amplification stage.
PSM Terminal - Multiplex Section Protection	MSTP 15454 ONS	Provides protection for terminal sites at multiplex level through an optical protection switching module (PSM). In this configuration the PSM is equipped between the mux/demux stage and the amplification stage.

# Topologies Description

If the Network Topology is...	then...
Ring	You cannot choose the following options: <ul style="list-style-type: none"><li>• Terminal</li><li>• Terminal+</li><li>• PSM Terminal - Optical Path Protection</li><li>• PSM Terminal - Multiplex Section Protection</li></ul>
Linear	You cannot choose the following options: <ul style="list-style-type: none"><li>• Terminal for the intermediate sites</li><li>• Terminal+ for the intermediate sites</li><li>• PSM Terminal - Optical Path Protection</li><li>• PSM Terminal - Multiplex Section Protection</li></ul>
PSM Line	You cannot set any topology for the sites. CTP automatically sets the site topology as follows: <ul style="list-style-type: none"><li>• PSM Terminal - Optical Path Protection for the two PSM sites</li><li>• Line for the intermediate sites</li></ul>
PSM Section	You cannot set any topology for the sites. CTP automatically sets the site topology as follows: <ul style="list-style-type: none"><li>• PSM Terminal - Optical Path Protection for the two PSM sites</li><li>• Line for the intermediate sites</li></ul>

If the Network Topology is...	then the network is scalable upto...
Line	2 degrees
Terminal	1 degree
Multi-degree	4, 8, and 12 degrees

16 degrees is also possible

# Fibers per Site

- **Line**—Two pairs of fibers are terminated at the node.
- **Terminal**—A single pair of fibers is terminated at the node.
- **Line+**—Two pairs of fibers are terminated at the node but the number of fibers can be increased. An MMU card (topology upgrade) must be installed.
- **Terminal+**—A single pair of fibers is terminated at the node but the number of fibers can be increased. An MMU card (topology upgrade) must be installed.
- **Multi-degree**—Nodes have two or more sides and face two or more fiber spans.
- **PSM Terminal - Optical Path Protection**—Provides protection for terminal sites at Line level through an optical protection switching module (PSM). In this configuration, the PSM is directly connected to the fibers after the amplification stage.
- **PSM Terminal- Multiplex Section Protection**—Provides protection for terminal sites at multiple levels through an optical protection switching module (PSM). In this configuration the PSM is equipped between the mux/demux stage and the amplification stage.

**Note** In the HYBRID 15454 ONS configuration, the supported interface types are line and terminal. In NG-DWDM configuration, the supported topologies are Terminal, Line and Multi-degree.

# Site Structure Modification

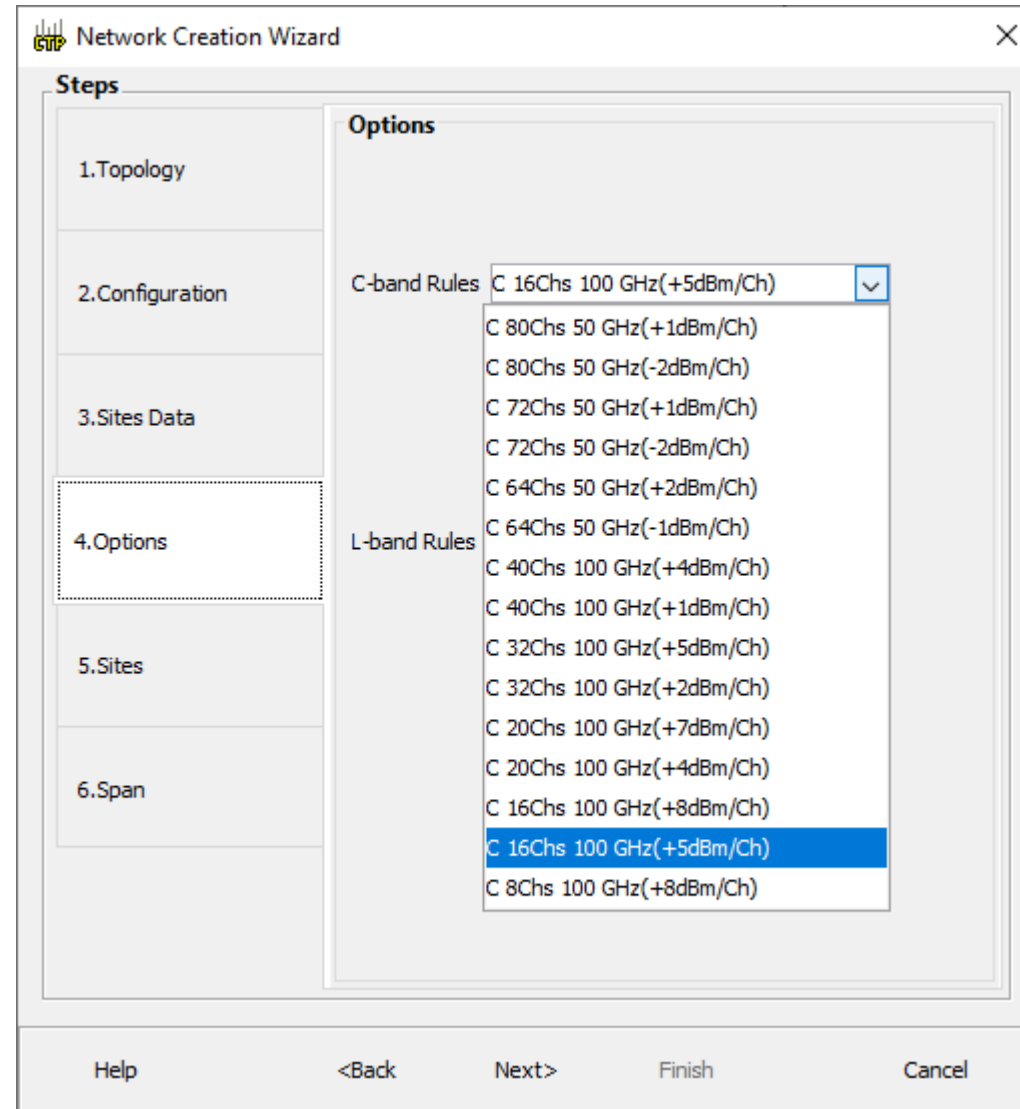
Structure	Supported Configurations	Description	Possible Structure Edits
Line	<ul style="list-style-type: none"> <li>• MSTP 15454 ONS</li> <li>• HYBRID 15454 ONS</li> <li>• NG-DWDM</li> </ul>	Two pairs of fibers are terminated at the node.	Can be changed to Line+ site.  <b>Note</b> Line+site structure edit is applicable only on MSTP 15454 ONS
Terminal	<ul style="list-style-type: none"> <li>• MSTP 15454 ONS</li> <li>• HYBRID 15454 ONS</li> <li>• NG-DWDM</li> </ul>	A single pair of fiber is terminated at the node.	Can be changed to a Terminal+ site.
Line+	<ul style="list-style-type: none"> <li>• MSTP 15454 ONS</li> </ul>	Two pairs of fibers are terminated at the node, but the number of fibers can be increased when an MMU card (topology upgrade) is installed. This node is ready to scale to become a multidegree node after MMUs are installed in this node.	Can be changed to a Line site.
Terminal+	MSTP 15454 ONS	A single pair of fiber is terminated at the node, but the number of fibers can be increased if an MMU card (topology upgrade) is installed. This node is ready to scale to become a multidegree node after MMUs are installed in this node.	Can be changed to a Terminal site.
Multi-degree	<ul style="list-style-type: none"> <li>• MSTP 15454 ONS</li> <li>• NG-DWDM</li> </ul>	Nodes have more than two sides and face more than two fiber spans.	

To change any other structure (such as changing Line to Terminal), you must delete and reinsert the site.

# ROADM Options

Functionality	Type	Colorless ports (50 GHz)	Colorless ports (100 GHz)
ROADM	80-WXC-C (mux/demux)	72	72
ROADM / Hub / Terminal	40-SMR1-C	9	9
	40-SMR2-C	9	9
Hub / Terminal	80-WXC-C (mux/demux)	80	80
OIC	80-WXC-C (mux/demux)	72 if 2 sides are connected to ducts.63 if 3 sides are connected to ducts.54 if 4 sides are connected to ducts.45 if 5 sides are connected to ducts.36 if 6 sides are connected to ducts.  27 if 7 sides are connected to ducts.  18 if 8 sides are connected to ducts.	72 if 2 sides are connected to ducts.63 if 3 sides are connected to ducts.54 if 4 sides are connected to ducts.45 if 5 sides are connected to ducts.36 if 6 sides are connected to ducts.  27 if 7 sides are connected to ducts.  18 if 8 sides are connected to ducts.
OXC	80-WXC-C	9	9
	40-SMR2-C	9	9
	Flexible	9	9

# Subnet Options



# Site Management

The screenshot shows a 'Network Creation Wizard' window with a 'Steps' sidebar on the left and a 'Site Management' configuration area on the right. The 'Steps' sidebar includes: 1. Topology, 2. Configuration, 3. Sites Data, 4. Options, 5. Sites (highlighted with a dotted border), and 6. Span. The 'Site Management' area contains the following settings:

Shelf Management	Auto
Node Protection	Same Shelf
Hybrid Site Config	<input type="checkbox"/>
OSMINE Compliant	<input type="checkbox"/>
DCC Chain	<input type="checkbox"/>
Max Shelves per Rack	Auto
Use Payg	<input checked="" type="checkbox"/>
<b>Enable NCS</b>	<input checked="" type="checkbox"/>

At the bottom of the wizard, there are five buttons: Help, <Back, Next>, Finish, and Cancel.



# Span Parameters

The image shows a 'Network Creation Wizard' dialog box with a 'Span Parameters' section. The wizard has six steps: 1. Topology, 2. Configuration, 3. Sites Data, 4. Options, 5. Sites, and 6. Span. The 'Span Parameters' section contains the following fields and values:

Parameter	Value
Span Label Tag	tronco
Span Fibre Type	G652-SMF - 28E
Span Length [Km]	20
EOL Ageing Factor	1.0
EOL Ageing Loss [dB]	0.5
Connector Loss [dB]	0.25
CD Factor [ps/nm/km]	16.5
PMD Factor [ps/sqrt(km)]	0.06
Length Based Loss	<input checked="" type="checkbox"/>
Loss Factor [dB/km]	0.25
Tot SOL Loss w/o Conn [dB]	1.0
DCN Extension	<input type="checkbox"/>
OSC Frame Type	FE Frame

Annotations with arrows point to the following fields:

- Span Label Tag: tronco (name the span)
- Span Length [Km]: 20 (length)
- EOL Ageing Loss [dB]: 0.5 (ageing loss)
- OSC Frame Type: FE Frame (OSC frame)

At the bottom of the dialog box, there are buttons for Help, <Back, Next>, Finish, and Cancel.

# Network is Created

change names

The screenshot displays the Cisco Transport Planner interface. The main workspace shows a network diagram with two sites, Site1 and Site2, connected by a link labeled 'tranco1 [20.0Km] EOL[0,0]'. The Project Explorer on the left shows a tree structure under 'Nets' with 'Net1 [L]' expanded to show 'Sites' containing 'Site1' and 'Site2'. An arrow points from the text 'change names' to the 'Site2' entry in the Project Explorer. The Properties panel at the bottom left shows details for 'Net1', including Name, Position, and various configuration options. The right-hand side features a Tasks Pane with 'Network Tasks' (Copy, Delete, Install, Upgrade, Upgrade To Design, Analyze, Design, Show Templates, Convert as SSON) and 'System Tasks' (Release Upgrade to various versions). The bottom status bar indicates 'Version - 11.1.0.64 | Design | NetworkDesigner\_ZP | 71M of 108M'.

# Side Labelling

Sites	Labeling in Previous Releases	Default labeling in Cisco Transport Planner Software R8.5 and later
Terminal/Terminal+	Only one side is created and labeled, T.	Label A is used for the existing side.
Line/Line+	Two sides are created and are labeled, West and East.	Labels A and B are used for the existing sides.
Multidegree with PP-MESH-4	—	Labels A, B, C, and D are used for the existing sides.
Multidegree with PP-MESH-8	—	Labels A, B, C, D, E, F, G, and H are used for the existing sides.
PSM Line	—	Labels Aw and Ap are used for the existing sides, where w stands for working and p stands for protection.
PSM Section	—	Labels Aw and Ap are used for the existing sides, where w stands for working and p stands for protection.

## New Naming Convention for Contentionless sides

New naming convention is introduced in CTP Release 10.6.2 and applicable for Release 10.5.2 onwards.

The new naming convention is enabled by default for the new designs. For the existing network, follow the below steps to enable the new naming convention for the sides.

1. Unlock the Net.
2. Right click the Net, and select Side naming convention.

# New Naming Scheme

- If you enable the new naming convention then the Layer-1 sides will be named from T, S, R, Q, P, O, N, M, L, K, J, I, H, G, F, E and index depending upon the used Scalable Upto parameter.
- To use Layer-2 sides new naming convention, you must enable the Layer-2 flag.
- The Layer-2 sides are named from AA to AT, as maximum of 20 sides can be created per site.
- Demand level forcing option is applicable for both contention-less side and extended sides (layer-2 sides).

Layout template support is extended for Layer-2 SMR with new sides are as follows:

Scalable Up to Degree	Line Side Ordering (Default as per Convention)	Contention-less Side Ordering (Default as per Convention)
4	A to D [0 - 3]	T to E [4 - 19]
8	A to H [0 - 7]	T to I [8 - 19]
12	A to L [0 - 11]	T to M [12 - 19]
16	A to P [0 - 15]	T to Q [16 - 19]

# Create New Demand

The screenshot displays the Cisco Transport Planner interface. The main workspace shows a network diagram with two nodes, Mooca and Tatuapé, connected by a link labeled 'tranco1 [20.0Km] EOL[0.0]'. A dialog box titled 'Create new Point-to-Point demand' is overlaid on the diagram. The Project Explorer on the left shows a tree structure with 'Net1' selected. The Properties panel at the bottom left shows the following details for 'Net1':

Misc	
Name	Net1
Position	180; 40

General	
Created By	
Status	Design
Measurement Units	Km
Per Side Installati...	<input type="checkbox"/>
Node Split	<input type="checkbox"/>
Enable Layout Mo...	<input checked="" type="checkbox"/>
Encryption Always...	<input type="checkbox"/>
Network Type	Non-SSON

Bill of Material	
Use Bundles	<input type="checkbox"/>
Use Spare Parts	<input type="checkbox"/>
Use Global Discount	<input type="checkbox"/>
Global Discount	0,0
Use Client Payg	<input checked="" type="checkbox"/>

The right sidebar contains two task lists:

- Network Tasks**
  - Copy
  - Delete
  - Install
  - Upgrade
  - Upgrade To Design
  - Analyze
  - Design
  - Show Templates
  - Convert as SSON
- System Tasks**
  - Release Upgrade
  - Release Upgrade to 10.5
  - Release Upgrade to 10.6
  - Release Upgrade to 10.7
  - Release Upgrade to 10.8
  - Release Upgrade to 10.9
  - Release Upgrade to 11.0
  - Release Upgrade to 11.1

The bottom status bar shows 'Version - 11.1.0.64 | Design | NetworkDesigner\_ZP | 78M of 108M'.

# Demand Creation Wizard

Click on source and destination  
for the demand

The wizard will open

The screenshot shows a dialog box titled "Point-to-Point Demand Creation Wizard". On the left, a "Steps" pane lists three steps: "1. Traffic Subnet" (which is currently selected and highlighted), "2. General Parameters", and "3. Platform Parameters". The main area of the dialog is titled "Traffic Subnet Selection" and contains a label "Traffic Subnet:" followed by a dropdown menu showing "Traffic Subnet ALL". Below this, there is a button labeled "Create new traffic subnet". At the bottom of the dialog, there is a navigation bar with buttons for "Help", "<Back", "Next>", "Finish", and "Cancel".

# Type and Rate of Demand

Point-to-Point Demand Creation Wizard

**Steps**

- 1. Traffic Subnet
- 2. General Parameters
- 3. Platform Parameters

**General Parameters**

Label	<input type="text" value="Mooca - Tatuapé"/>
Source	<input type="text" value="Mooca"/>
Destination	<input type="text" value="Tatuapé"/>
Service Type	<input type="text" value="100GE"/>
Present # ch	<input type="text" value="5"/>
Forecast # ch	<input type="text" value="5"/>

Help   <Back   Next>   Finish   Cancel

# Demand Options

Point-to-Point Demand Creation Wizard

**Steps**

- 1. Traffic Subnet
- 2. General Parameters
- 3. Platform Parameters

**Platform Parameters**

Platform

Protection	Unprotected
Path	Auto
Optical Bypass	-
Colorless	Auto
Omni-directional	Auto
Encryption	No

454DWDM

Interface/Card Type

<input type="checkbox"/> Transponder	<input checked="" type="checkbox"/>
400G-XP-LC - w/SD-FEC_25-NO_DE	<input type="checkbox"/>
400G-XP-LC - w/SD-FEC_15-NO_DE	<input type="checkbox"/>
200G-CK-LC + MR-MXP (200G Mxp Mode...	<input type="checkbox"/>
200G-CK-LC(100G mode only) - w/EFEC	<input type="checkbox"/>
200G-CK-LC(100G mode only) - w/SD-FE...	<input type="checkbox"/>
200G-CK-LC(100G mode only) - w/FEC	<input type="checkbox"/>
200G-CK-LC + MR-MXP (200G Mxp 100G...	<input type="checkbox"/>
100G-CK-LC-C - w/FEC	<input type="checkbox"/>
100G-CK-LC-C - w/EFEC	<input type="checkbox"/>
100G-CK-LC-C - w/HG-FEC	<input type="checkbox"/>
200G-CK-LC + MR-MXP (100G Txp Mode...	<input type="checkbox"/>
200G-CK-LC + MR-MXP (100G Txp Mode...	<input type="checkbox"/>
200G-CK-LC + MR-MXP (100G Txp Mode...	<input type="checkbox"/>

Client Interface

Source	
Destination	

Help <Back Next> **Finish** Cancel

click here when you are done



# Demand Editor

The screenshot shows the Demand Editor interface. On the left is a tree view under 'Demands' containing 'PointToPoint', 'Mooca-Tatuapé' (with a sub-item 'Mooca - Tatuapé (100GE)'), and 'P-Rings'. The main area features a table with the following data:

Name	Add/Drop Sites	Traffic Type	Protection	Forecast
100GE				
Service_1	Mooca, Tatuapé	100GE	Unprotected	<input type="checkbox"/>
Service_2	Mooca, Tatuapé	100GE	Unprotected	<input type="checkbox"/>
Service_3	Mooca, Tatuapé	100GE	Unprotected	<input type="checkbox"/>
Service_4	Mooca, Tatuapé	100GE	Unprotected	<input type="checkbox"/>
Service_5	Mooca, Tatuapé	100GE	Unprotected	<input type="checkbox"/>

On the right, a configuration panel shows details for the selected 'Service\_1':

- General**
  - Add/Drop Sites: Mooca, Tatuapé
  - Name: Service\_1
- Traffic**
  - Traffic Type: 100GE
  - Protection Type: Unprotected
  - Forecast:
  - Encryption: No
  - Wavelength: Auto

At the bottom, there are buttons for 'Ok', 'Apply', 'Cancel', and 'Help'. An arrow points from the text 'click here' to the 'Ok' button.

# Network with demand

The screenshot displays the Cisco Transport Planner interface. On the left, the Project Explorer shows a tree structure with 'Net1 [1]' selected, containing 'Sites' (Mooca, Tatuapé), 'Fibres', and 'Service Demands'. The 'Service Demands' folder is expanded to show a 'PointToPoint' demand between Mooca and Tatuapé, with a '100GE (S/S)' service and five 'Service' entries. The main workspace shows a network diagram with a link between Mooca and Tatuapé labeled 'tranco1 [20.0km] EOL[0.0]' and a value of '5'. The Properties panel at the bottom left shows the 'General' tab with 'Forecast' set to 'No'. The bottom status bar indicates 'Version - 11.1.0.64 Design NetworkDesigner\_ZP 73M of 108M'.

click here

# Bill of Material

(new project) - Cisco Transport Planner

File View Tools Script Help

New... Open... Import Network... Close Save Save As... [Icons]

Project Explorer: sticky [Icons]

Project: Notes (0), Platforms, Nets (Rede simples 1 [L])

Properties: Name Rede simples 1, Position 180; 40, Created By wagner, Status Design Analyzed, Measurement Units Km, Per Side Installati... [checkbox], Node Split [checkbox], Enable Layout Mo... [checkbox], Encryption Always... [checkbox], Network Type Non-SSON, Use Bundles [checkbox], Use Spare Parts [checkbox], Use Global Discount [checkbox], Global Discount 0,0, Use Client Payg [checkbox]

Details: Março 01, 2021 at 16:07:29

Export Help Messages

BoM total discounted: 0,00 Price List: Master Price DB  
Spare total discounted: 0,00 Price List last update: Never  
BoM + Spare total discounted: 0,00 Currency: Usd

Use MSM Bundle  Use Spare Parts  Use Global Discount Global Discount (%) 0,0

Product ID	Description	Quantity	Unit Price	Unit Discount	Total Price	Discounted Total Price	Mooca	Tatuapé
NCS2K-TNCS-2-K9=	NCS 2000 Transport Node Controller, version 2	4	0,00	0,0	0,00	0,00	2	2
15454M-R1110SWK9=	MSTP - ANSI & ETSI, R.11.1 - RTU LIC DVD, NO...	2	0,00	0,0	0,00	0,00	1	1
QSFP-100G-SR4-S=	100GBASE SR4 QSFP Transceiver, MPO, 100m ...	10	0,00	0,0	0,00	0,00	5	5
NCS2K-400G-XP=	400G CFP2 MR Xponder	2	0,00	0,0	0,00	0,00	1	1
NCS2K-400GXP-L-K9=	400G CFP2 MR XP Licensed 100G Client bandwi...	2	0,00	0,0	0,00	0,00	1	1
15454-LC-LC-2=	Fiber patchcord - LC to LC - 2m	18	0,00	0,0	0,00	0,00	9	9
15216-ATT-LC-10=	Bulk Attenuator - LC Connector - 10dB	2	0,00	0,0	0,00	0,00	1	1
L-NCS2K-16QAM=	WDM Port License - Upgrade to 16QAM (200G)	2	0,00	0,0	0,00	0,00	1	1
15454-M-ALMCBL2=	SCSI Alarm cable 24AWG 8 inputs	2	0,00	0,0	0,00	0,00	1	1
15454-M-USBCBL=	USB cable for passive devices	2	0,00	0,0	0,00	0,00	1	1
ONS-CFP2-WDM=	100G QPSK / 200G 16-QAM - WDM CFP2 Plugg...	6	0,00	0,0	0,00	0,00	3	3
ONS-SE-155-1510=	SFP - OC3/STM1 CWDM, 1510 nm, EXT	2	0,00	0,0	0,00	0,00	1	1
NCS2006-SA=	NCS 2006 Shelf Assembly	2	0,00	0,0	0,00	0,00	1	1
NCS2006-ECLJ-S=	NCS 2006 External Connections Unit - w/2x US...	2	0,00	0,0	0,00	0,00	1	1
NCS2006-LCD=	NCS 2006 LCD Display with Backup Memory	2	0,00	0,0	0,00	0,00	1	1
15454-BLANK=	Empty slot Filler Panel	2	0,00	0,0	0,00	0,00	1	1
NCS2006-FTA=	NCS 2006 Fan Tray	2	0,00	0,0	0,00	0,00	1	1
NCS2006-DC40=	NCS 2006 40A DC Power Filter	4	0,00	0,0	0,00	0,00	2	2
15454-SMR1-LIC=	SM ROADM 1-PRE-AMP 100GHZ-CBAND-10ch L...	2	0,00	0,0	0,00	0,00	1	1
15216-EF-ODD-LIC=	Licensed 10ch Exposed Faceplate mux demux ...	2	0,00	0,0	0,00	0,00	1	1

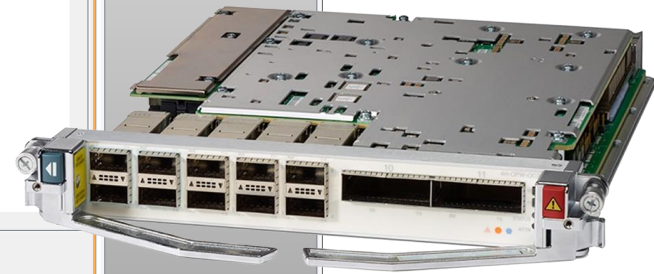
Net view Site view

Summary Bill Of Material

Version - 11.1.0.64 | Design Analyzed | NetworkDesigner\_ZP | 56M of 140M

Controller  
 Sofw license controller  
 100GE transceiver  
 400G card  
 Sotw license card  
 fiber patchcord  
 attenuator  
 WDM port license  
 Alarm cable  
 USB cable  
 interface DWDM 2 port  
 interface DWDM 1 port  
 chassis 2006  
 SMR1 Roadm  
 mux/demux external

# NE Layout



(new project) - Cisco Transport Planner

File View Tools Script Help

New... Open... Import Network... Close Save Save As...

Project Explorer

- Notes (0)
- Platforms
- Nets
  - Rede simples 1 [1]
    - Notes (1)
    - Sites
      - Mooca
      - Tatuapé
    - Fibres
    - Service Demands
    - Options
    - Maintenance Centers
    - Restricted Equipment List (no items)
    - Reports
    - Traffic Subnets
    - Optical Subnets

Properties

Site View

Mooca

- Rack - 1
  - Power Distribution Panel - 1
    - [1] EF-40-ODD - A
  - M6 Chassis - 1
    - [1] TNCS-2
    - [2] 40-SMR1-C - A
    - [3] 400G-XP-LC (30,33) (31,12) - A
    - [5] BLANK
    - [6] 400G-XP-LC (31,90) (\*) - A \*
    - [8] TNCS-2

Mooca Rack-1

1	PDP
2	EF-40-ODD - A
3	SHELF ID: 1
4	TNCS-2
5	400G-XP-LC (31,90) (*) - A * (( M200G ) (*) )
6	BLANK
7	400G-XP-LC (30,33) (31,12) - A A ( M200G ( M200G ) )
8	40-SMR1-C - A
9	TNCS-2
10	
11	

Details for 400G-XP-LC (31,90) (\*)

Client info Ports

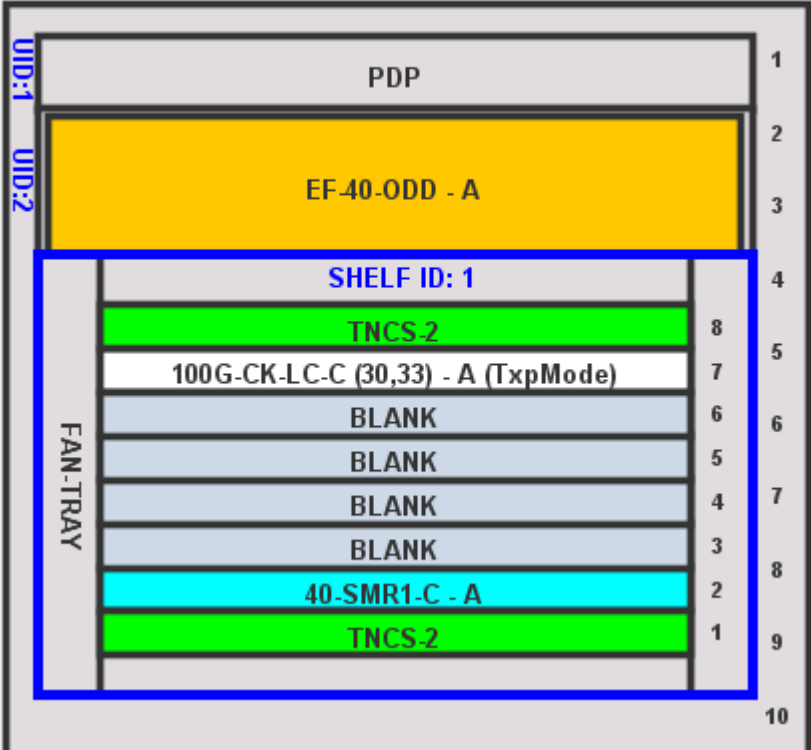
Product Info	
Product ID	NCS2K-400G-XP=
Service Category	N/A
Description	400G CFP2 MR Xponder
Cost Info	
Price	0,00 (Usd)
Bill of Material - Options	

Summary | Bill Of Material | Layout X

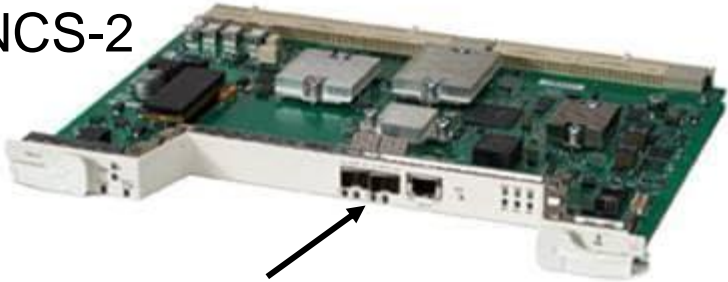
SysConsole Analyzer Net Messages

# Layout

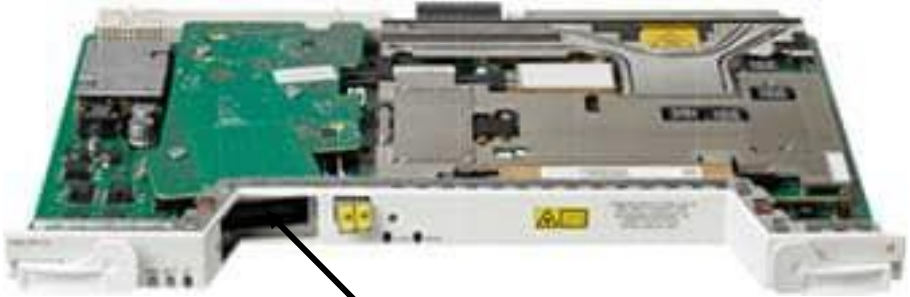
Rack-1



TNCS-2



2 SFP ports to OSC channel. Only Ethernet formats are available



100G Transponder

# Wavelength Routing

The screenshot displays the Cisco Transport Planner interface for a project named "Rede simples 1". The main window shows a table of wavelength configurations with columns for ID, Wavelength (λ), and fiber pairs. The table lists 34 entries, with the first three (O-03 to O-05) showing connections between "Mooca A" and "Tatuapé A" fibers.

#	λ	Mooca A	tronco1 Couple1	Tatu... A
O-03	1.530,33	█	█	█
O-04	1.531,12	█	█	█
O-05	1.531,90	█	█	█
O-06	1.532,68			
O-08	1.534,25			
O-09	1.535,04			
O-10	1.535,82			
O-11	1.536,61			
O-13	1.538,19			
O-14	1.538,98			
O-15	1.539,77			
O-16	1.540,56			
O-18	1.542,14			
O-19	1.542,94			
O-20	1.543,73			
O-21	1.544,53			
O-23	1.546,12			
O-24	1.546,92			
O-25	1.547,72			
O-26	1.548,51			
O-28	1.550,12			
O-29	1.550,92			
O-30	1.551,72			
O-31	1.552,52			
O-33	1.554,13			
O-34	1.554,94			

The interface also includes a Project Explorer on the left, a Properties panel at the bottom left, and a Tasks Pane on the right with sections for Network Tasks, System Tasks, Fibres, and Reports. The status bar at the bottom indicates the design is analyzed and shows system resources like memory usage.

# Optical results

The screenshot displays the Cisco Transport Planner interface. The main window shows a table of optical results for various network elements. The table columns include Dst Tx Type, Span [km], Suggested Regen Location..., BER target, SOL OSNR [dB], EOL OSNR [dB], SOL OSNR margin [dB], EOL OSNR margin [dB], SOL RX [dBm], EOL RX [dBm], SOL Power margin [dB], and EOL Power margin [dB].

Dst Tx Type	Span [km]	Suggested Regen Location...	BER target	SOL OSNR [dB]	EOL OSNR [dB]	SOL OSNR margin [dB]	EOL OSNR margin [dB]	SOL RX [dBm]	EOL RX [dBm]	SOL Power margin [dB]	EOL Power margin [dB]
_2... 400G-XP-4C,w/SD-FEC_2...	20,00		0,035	22,17	21,67	8,05	7,55	-12,39	-12,39	4,97	4,97
_2... 400G-XP-4C,w/SD-FEC_2...	20,00		0,035	22,17	21,67	8,05	7,55	-12,39	-12,39	4,97	4,97
_2... 400G-XP-4C,w/SD-FEC_2...	20,00		0,035	22,17	21,67	8,05	7,55	-12,39	-12,39	4,97	4,97
_1... 400G-XP-4C,w/SD-FEC_1...	20,00		0,035	22,17	21,67	7,35	6,85	-12,39	-12,39	4,97	4,97
_1... 400G-XP-4C,w/SD-FEC_1...	20,00		0,035	22,17	21,67	7,35	6,85	-12,39	-12,39	4,97	4,97

The interface also features a Project Explorer on the left showing a tree view of the project structure, including Notes, Platforms, Nets, Sites, Fibres, Service Demands, Options, Maintenance Centers, Restricted Equipment List, Reports, Traffic Subnets, and Optical Subnets. The Properties panel at the bottom left shows details for the selected project, such as Name (Rede simples 1), Position (180; 40), and various configuration options. The Tasks Pane on the right provides actions for Network Tasks (Copy, Delete, Install, Upgrade, Upgrade To Design, Analyze, Design, Show Templates, Convert as SSON) and System Tasks (Release Upgrade). The Reports section includes links for Bill of Material, Wavelength Routing, Optical Results, and Installation Parameters. The status bar at the bottom indicates the version (11.1.0.64), design status (Design Analyzed), and memory usage (78M of 140M).

# Configuration Parameters - ANS (Automatic Node Setup)

The screenshot displays the Cisco Transport Planner interface. The main window shows a table of configuration parameters for a network project named 'Rede simples 1'. The table includes columns for Name, Side, Position, Unit, Port #, Port ID, Port Label, Parameter, Value, Measurement Unit, and Manual Set. The parameters are organized into sections for 'Mooca' and 'Tatuapé'.

Name	Side	Position	Unit	Port #	Port ID	Port Label	Parameter	Value	Measurement Unit	Manual Set
NetworkType										
							dwdm::Rx::Amplifier::ChPower	Metro-Core	5.0	dBm
							dwdm::Rx::Amplifier::Tilt	-0.1	dB	No
							dwdm::Rx::Amplifier::WorkingMode	Control Gain	string	No
							dwdm::Rx::MinExpectedSpanLoss	5.0	dB	No
							dwdm::Rx::MaxExpectedSpanLoss	6.5	dB	No
							dwdm::Rx::Threshold::ChannelLOS	-27.5	dBm	No
							dwdm::Rx::Threshold::OSC-LOS	-22.0	dBm	No
							dwdm::Rx::Power::DropOdd	-8.5	dBm	No
							dwdm::Rx::Threshold::ChannelLOS	-11.8	dBm	No
							dwdm::Tx::Power::Add-and-DropOutputP...	-16.0	dBm	No

The interface also shows a Project Explorer on the left with a tree view of the project structure, including 'Notes', 'Platforms', 'Nets', 'Sites', 'Fibres', 'Service Demands', 'Options', 'Maintenance Centers', 'Restricted Equipment List', 'Reports', 'Traffic Subnets', and 'Optical Subnets'. The Properties panel at the bottom left shows details for the selected project, such as Name, Position, Created By, Status, and various checkboxes for installation and billing options. The bottom status bar indicates the current version (11.1.0.64) and design status (Design Analyzed).



# Configuration Parameters - ANP (Automatic Node Provisioning)

The screenshot displays the Cisco Transport Planner interface for a project named "Rede simples 1". The main window shows a table of equipment details for two nodes: Mooca and Tatuapé. The table columns are Name, Unit id, Shelf id, Rack number, Rack position, Slot position, Equipment type, and Description.

Name	Unit id	Shelf id	Rack number	Rack position	Slot position	Equipment type	Description
<b>Mooca</b>							
NE - 1							
Passive she...	1		1	1		MECH UNIT	PDP
Passive she...	2		1	2	1	PASSIVE MD 40 ODD	PASSIVE EF 40 ODD
Shelf - 1							
		1	1	2	1	TNC	
					2	40 SMR1 C	
					3	400G-XP-LC	
					6	400G-XP-LC	
					8	TNC	
<b>Tatuapé</b>							

The Properties panel on the left shows the following configuration for "Rede simples 1":

- Misc:** Name: Rede simples 1, Position: 180; 40
- General:** Created By: wagner, Status: Design Analyzed, Measurement Units: Km, Per Side Installati...: , Node Split: , Enable Layout Mo...: , Encryption Always...: , Network Type: Non-SSON
- Bill of Material:** Use Bundles: , Use Spare Parts: , Use Global Discount: , Global Discount: 0,0, Use Client Payg:

The bottom status bar indicates the current view is "Installation Parameters" and the software version is 11.1.0.64.

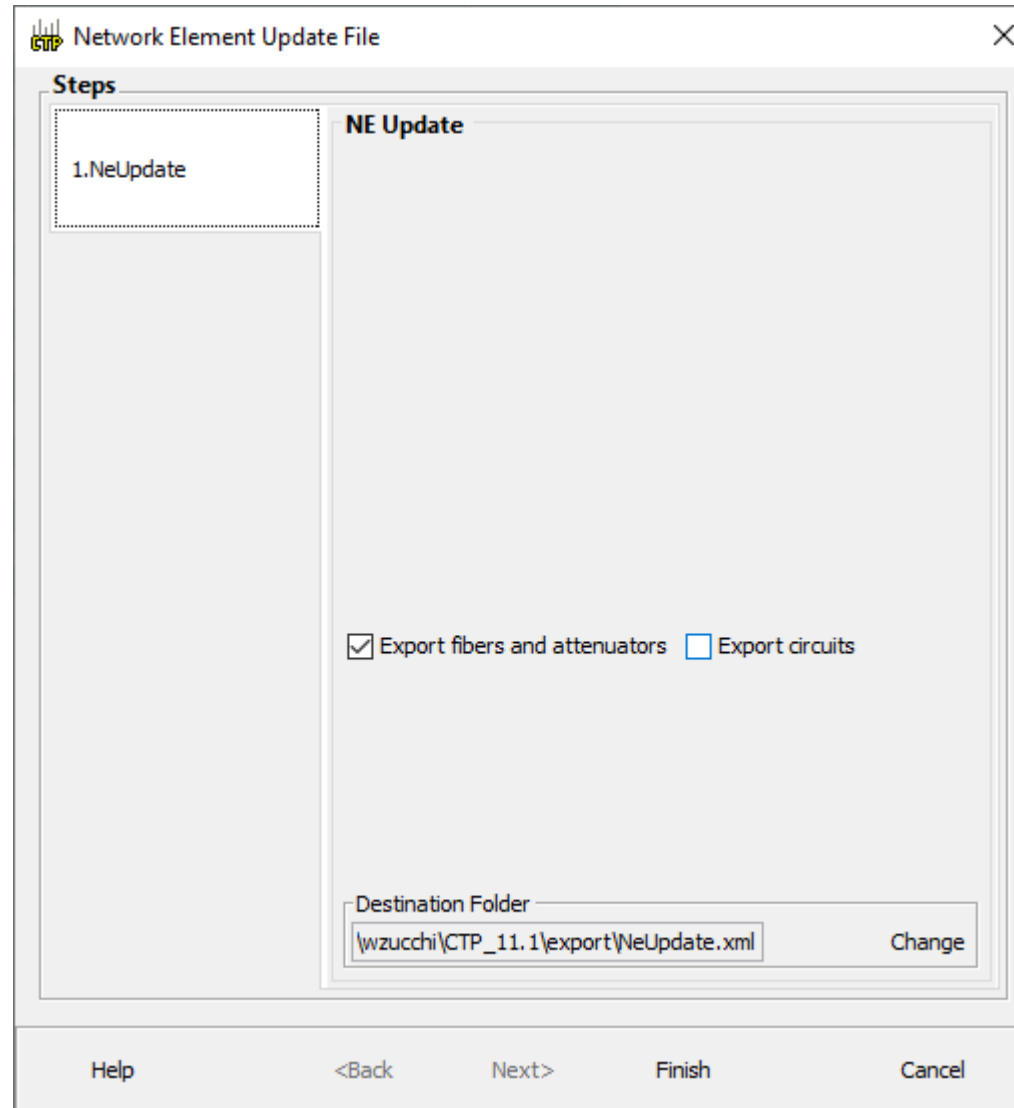
# Installation Parameters (PP - Provisioning Parameters)

The screenshot displays the Cisco Transport Planner interface. The main window shows a table of Installation Parameters (PP) for a network element (NE) named 'Mooca'. The table columns are Name, Unit Id, Shelf id, Slot position, Port position, Ppm position, Parameter, and Value. The table lists various parameters for two NEs: Mooca and Tatuapé.

Name	Unit Id	Shelf id	Slot position	Port position	Ppm position	Parameter	Value
Mooca							
NE - 1		1	3	11		WL	1530.33
		1	3	12		WL	1531.12
		1	3			slice	2
		1	3			slice	1
		1	3			slice	4
		1	3			slice	3
		1	3	11		trunk	M200G
		1	3	12		trunk	M200G
		1	3			cardOptMode	MXP
		1	3	11		FEC	25%SoftDe...
		1	3	12		FEC	25%SoftDe...
		1	6	11		WL	1531.9
		1	6			slice	2
		1	6			slice	1
		1	6	11		trunk	M200G
		1	6			cardOptMode	MXP
		1	6	11		FEC	15%SoftDe...
Tatuapé							
NE - 1							

The interface also includes a Project Explorer on the left, a Properties panel at the bottom left, and a Tasks Pane on the right. The status bar at the bottom indicates the version (11.1.0.64) and the current project state (Design Analyzed).

# NE Update



# Traffic Matrix

(new project) - Cisco Transport Planner

File View Tools Script Help

New... Open... Import Network... Close Save Save As...

Project Explorer sticky

Project Explorer

- Notes (0)
- Platforms
- Nets
  - Rede simples 1 [1]
  - Notes (1)
  - Sites
    - Mooca
    - Tatuapé
  - Fibres
  - Service Demands
  - Options
  - Maintenance Centers
  - Restricted Equipment List (no items)
  - Reports
  - Traffic Subnets
  - Optical Subnets

Properties

Misc

Name Rede simples 1

Position 180; 40

General

Created By wagner

Status Design Analyzed

Measurement Units Km

Per Side Installati...

Node Split

Enable Layout Mo...

Encryption Always...

Network Type Non-SSON

Bill of Material

Use Bundles

Use Spare Parts

Use Global Discount

Global Discount 0,0

Use Client Pay

(Name)

(Description)

Mgmt Tree Start Page Rede simples 1 Reports Rede simples 1

Details

Export New query Help Messages

Query Preview

Query Dialog

Demand	Section	Src Site	Src Position	Src Card	Src Cle...	Src ClientPPM	Src Tru...	Src trunk PPM	Src Card OpMode	Src T/C ...	A/D Src Position	A/D Src Unit	A/D Src Port
Mooca - Tatuapé													
Service_1													
OCH-CC		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	8	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX
		Tatuapé	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC				ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX
Service_2													
OCH-CC		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	7	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	7-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX
		Tatuapé	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	7-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX
Service_3													
OCH-CC		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	10	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC			12	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	10-RX	QSFP-100G-SR4-S	12-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-RX
		Tatuapé	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	10-RX	QSFP-100G-SR4-S	12-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-RX
Service_4													
OCH-CC		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	9	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC			12	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Mooca	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	9-RX	QSFP-100G-SR4-S	12-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-RX
		Tatuapé	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	9-RX	QSFP-100G-SR4-S	12-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-RX
Service_5													
OCH-CC		Mooca	Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC	8	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Mooca	Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Mooca	Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-3-RX
		Tatuapé	Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-3-RX

Tasks Pane

Actions

- Upgrade
- Upgrade To Design
- Analyze
- Design
- Show Templates
- Convert as SSON

System Tasks

- Release Upgrade
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...

Fibres

- Fibres Dialog
- Fibres Options

Reports

- Bill of Material
- Wavelength Routing
- Optical Results
- Installation Parameters
- NE Update
- Traffic Matrix
- Link Availability
- Layout
- Internal Connections

Summary | Bill Of Material | Layout | Wavelength Routing | Optical Results | Installation Parameters | Traffic Matrix

SysConsole Analyzer Net Messages

Version - 11.1.0.64 | Design Analyzed | NetworkDesigner\_ZP | 66M of 140M

# Link Availability

The screenshot displays the Cisco Transport Planner interface. The main window shows a 'Query Dialog' with a table of link availability data. The table has the following columns: Group, Serv. Circuit, P/F, DWDM Card Type, Protection, Cl. Serv. Type, Source, Destination, and Link Availability. The data is as follows:

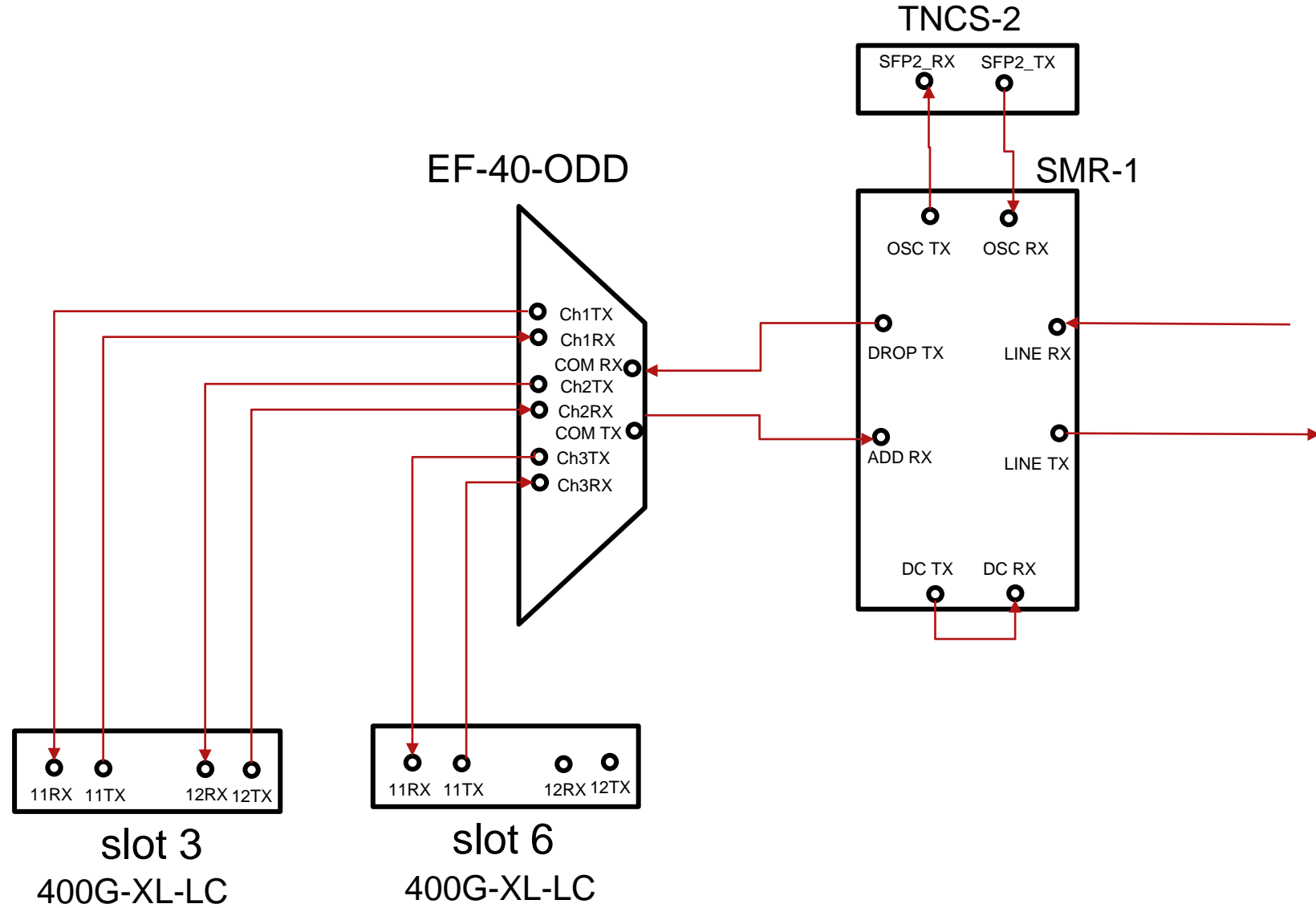
Group	Serv. Circuit	P/F	DWDM Card Type	Protection	Cl. Serv. Type	Source	Destination	Link Availability
Mooca - Tatuapé	Service_1	P	400G-XP-LC	Unprotected	100GE	Mooca	Tatuapé	0.999938
Mooca - Tatuapé	Service_2	P	400G-XP-LC	Unprotected	100GE	Mooca	Tatuapé	0.999938
Mooca - Tatuapé	Service_3	P	400G-XP-LC	Unprotected	100GE	Mooca	Tatuapé	0.999938
Mooca - Tatuapé	Service_4	P	400G-XP-LC	Unprotected	100GE	Mooca	Tatuapé	0.999938
Mooca - Tatuapé	Service_5	P	400G-XP-LC	Unprotected	100GE	Mooca	Tatuapé	0.999938

The interface also shows a Project Explorer on the left with a tree view of the project structure, including Notes, Platforms, Nets, Sites (Mooca, Tatuapé), Fibres, Service Demands, Options, Maintenance Centers, Restricted Equipment List, Reports, Traffic Subnets, and Optical Subnets. The Properties panel at the bottom left shows details for 'Rede simples 1', including Name, Position, Created By, Status, Measurement Units, and various checkboxes for installation and billing options. The right-hand pane contains an Actions menu with options like Upgrade, Upgrade To Design, Analyze, Design, Show Templates, and Convert as SSON. Below that is a System Tasks section with multiple 'Release Upgrade' entries. Further down are sections for Fibres (Fibres Dialog, Fibres Options) and Reports (Bill of Material, Wavelength Routing, Optical Results, Installation Parameters, NE Update, Traffic Matrix, Link Availability, Layout, Internal Connections). The status bar at the bottom indicates 'Version - 11.1.0.64', 'Design Analyzed', 'NetworkDesigner\_ZP', and '75M of 140M'.

# Internal Connections

Name	Position	Unit	Port label	Attenuator	Position	Unit	Port label	P/F
Mooca								
Fiber	NA	Fiber Distribution Pa...	FDPTx		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	LINE RX	P
Fiber	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	LINE TX		NA	Fiber Distribution Pa...	FDPRx	P
ATT-0dB	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DC TX		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DC RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-TX		Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	11-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	11-TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-TX		Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	12-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 3	400G-XP-LC	12-TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-2-RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-3-TX		Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC	11-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 6	400G-XP-LC	11-TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-3-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DROP TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	COM RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	COM TX		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	ADD RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	OSC TX		Rack 1.M6 Chassis 1.Slot 1	TNCS-2	SFP2_RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 1	TNCS-2	SFP2_TX	15216-ATT...	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	OSC RX	P
Tatuapé								

# Site Layout





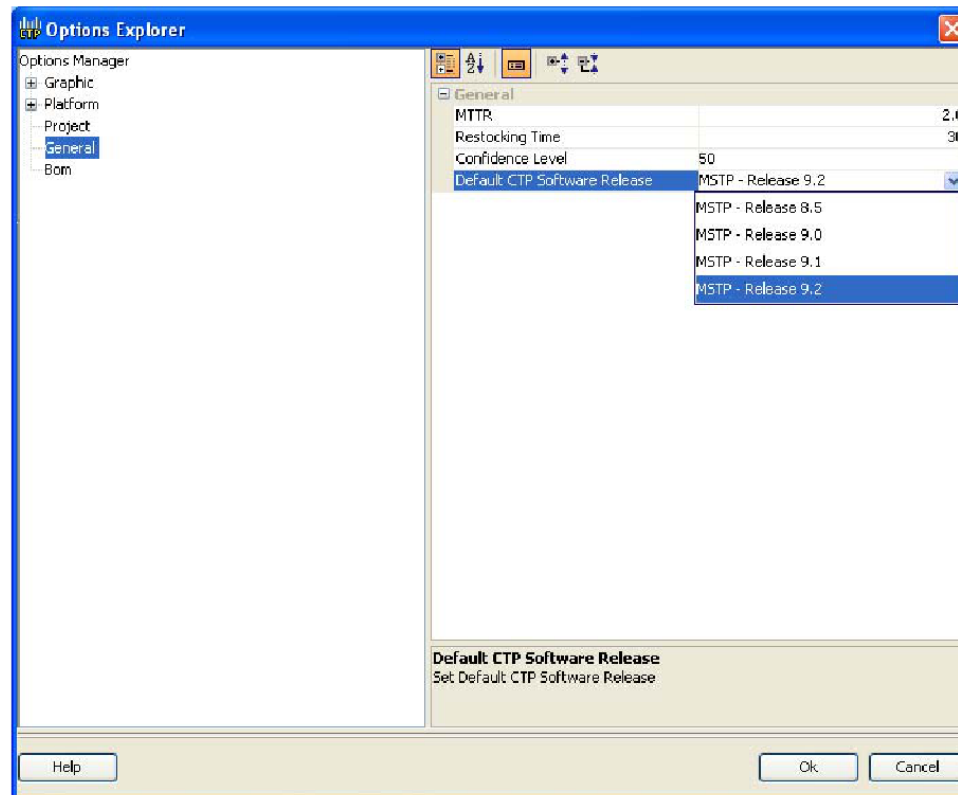
## Program Options



# Setting the Default Platform Values

Step 1 - From the Tools menu, choose Options.

Step 2- In the Options Explorer dialog box, right-click Platform and choose Expand from the shortcut menu.



# Setting the Default Platform Values

Step 3 - Click the desired System Release folder and complete the following tasks as needed:

Step 4 - Click the Restricted Equipment folder. To restrict a card, check the check box in the Restricted column for that card.

Step 5 - Enter the Fiber Options details.

## Note:

Use one of the following formulas to calculate the fiber loss at SOL:

$$\text{SOL} = \text{km} * \text{dB/km} + (2 * \text{connector loss})$$

$$\text{SOL} = \text{user entered loss} + (2 * \text{connector loss})$$

Use one of the following formulas to calculate the fiber loss at EOL:

$$\text{EOL} = \text{km} * \text{dB/km} * \text{EOL Aging Factor} + (2 * \text{connector loss}) + \text{EOL Aging Loss, or} \\ \text{EOL Aging Factor} + (2 * \text{connector loss}) + \text{EOL Aging Loss}$$

$$\text{EOL} = \text{user entered loss} *$$

# Setting the Default Platform Values

Step 6 - Click the Traffic Mapping folder and complete the following tasks as needed.

Step 7 - Select the C-band and L-band rules.

Step 8 - Click the DWDM Design Rules folder and complete the following tasks as needed

Step 9 - To define the shelf configuration parameters, select a site complete the following tasks under property tree.

Step 10 - Click OK.

# Creating a project

<b>Fiber Type</b>	<b>Parameter</b>	<b>Min. Error Value</b>	<b>Min. Warning Value</b>	<b>Default Value</b>	<b>Max. Warning Value</b>	<b>Max. Error Value</b>	<b>Unit</b>
ITU-T G.655-E-LEAF	Loss factor	0	0.2	—	0.4	10	dB/km
	Chromatic dispersion factor at 1545.3 nm	0	3.4	3.80	4.2	10	ps/nm/km
	PMD factor	0	0	0.1	0.5	10	ps/(√km)
ITU-T G.655-True Wave	Loss factor	0	0.2	—	0.4	10	dB/km
	Chromatic dispersion factor at 1545.3 nm	0	3.8	4.19	4.6	10	ps/nm/km
	PMD factor	0	0	0.1	0.5	10	ps/(√km)
ITU-T G.652-DS (Dispersion shifted)	Loss factor	0	0.2	—	0.4	10	dB/km
	Chromatic dispersion factor at 1590.4 nm (L-band)	0	2.43	2.83	3.23	30	ps/nm/km
	PMD factor	0	0	0.1	0.5	10	ps/(√km)

# Project Steps

To generate a network design, the SE enters the following parameters:

- The topology of the network—ring, linear, or meshed
- The type of equipment used at each site
- The distance separating the sites
- The type of fiber connecting the sites
- Service demands, including the service type, the protection type, and the number of channels between nodes
- The number of network sites

When the network parameters are entered, Cisco Transport Planner finds the best routing, defines the required add/drop filters, places optical amplifiers with dispersion compensation units (DCUs) or tunable dispersion compensation units (TDCU) to fit the user traffic demands at a minimum cost.

The TDCU operates only over the C-band.

Optimization is performed to meet the boundary conditions. The optimization includes attenuation and amplification.

# Reports

Cisco Transport Planner generates a BOM, which includes the product codes, the quantities, and pricing information.

In addition, it creates other reports, such as a shelf-level view of the configuration, which can be printed.

This information helps the SE understand how the shelf is built and helps to avoid confusion and errors during the actual deployment.

Within the BOM is the total network cost, which allows a quick comparison of various design options.

The total network cost is the cost of the equipment for all of the sites in the designed network.

# Topologies & Network Size

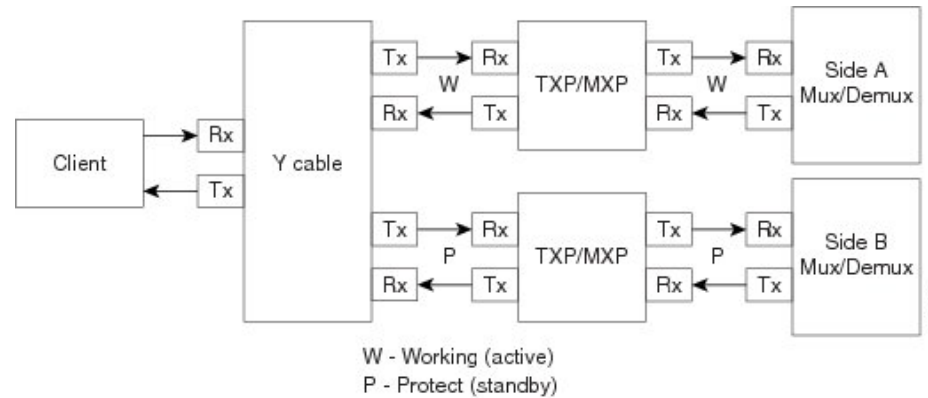
The Cisco Transport Planner supports the following network topologies:

- Linear (single-span or multispan)
- Ring (open or closed)
- Meshed

The Cisco Transport Planner enables you to design flexible networks with up to 150 site locations. A flexible network uses ROADM nodes to allow traffic modification or reconfiguration, or both as traffic requirements change.

In Cisco Transport Planner Software R11.1, the maximum number of locations where the optical service channel (OSC) is terminated is 40. The maximum number of add/drop locations supported is 40.

# Y-Cable Protection

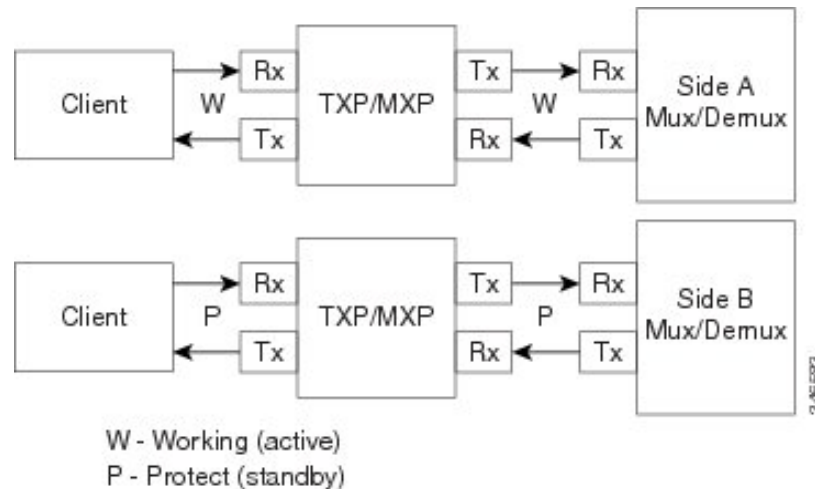


one transponder card is designated as active and the other as standby.  
The standby transponder card has the client-side laser turned off to avoid corrupting the signal transmitted back to the client.  
The active transponder monitors the signal from the trunk side and in the event of loss or signal failure, the system switches to the standby path.



# Client 1 + 1 Protection

Two client signals are transmitted to separated line cards or transponder cards instead of using a Y-cable to split one client signal into two line cards or transponder cards.  
In client 1+1 protection, the failure and switchover is controlled by the client system

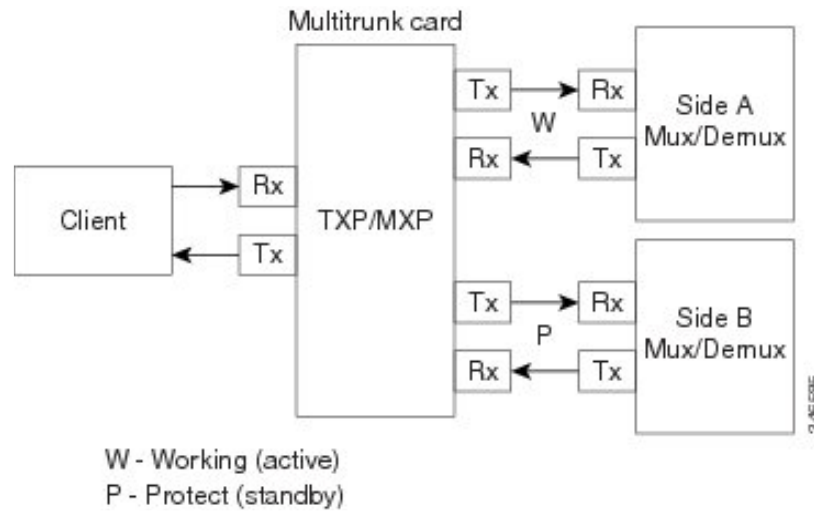


# Fiber-switched protection

The single client signal is injected into the client receive (Rx) port. It is then split into two separate signals on the two trunk transmit (Tx) ports.

The two signals are transmitted over diverse paths.

The far-end card chooses one of the two trunk Rx port signals and injects it into the Tx client port.



# PSM-OCH Protection

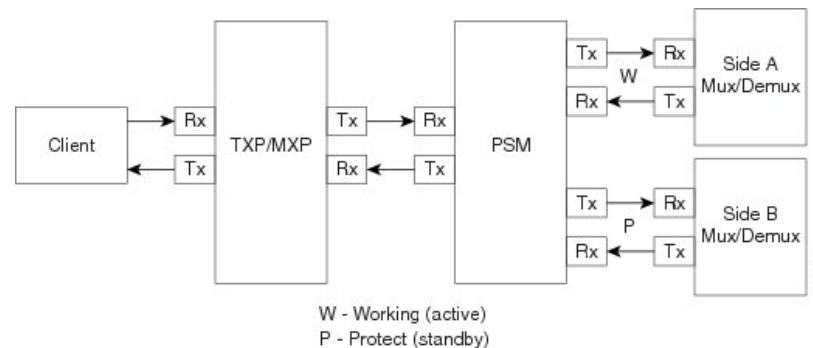
PSM-OCH—Channel protection configuration provides protection at trunk level (like Fiber-Switched protection) for TXP/MXP that do not have dedicated Fiber-Switched cards.

PSM splits the traffic originated by transponder trunk on working and protected TX ports.

Working Tx (W-Tx) and protected TX (P-Tx) are connected to the add ports of Add-Drop stages adding the channel in two different directions.

On the receiving direction PSM W-RX and P-RX are connected to the drop ports of Add-Drop stages receiving the channel from the two different directions.

PSM switch selects a path among W-Rx and P-Rx ports so that only one direction at a time is connected to COM-RX ports and therefore to the TXP/MXP.

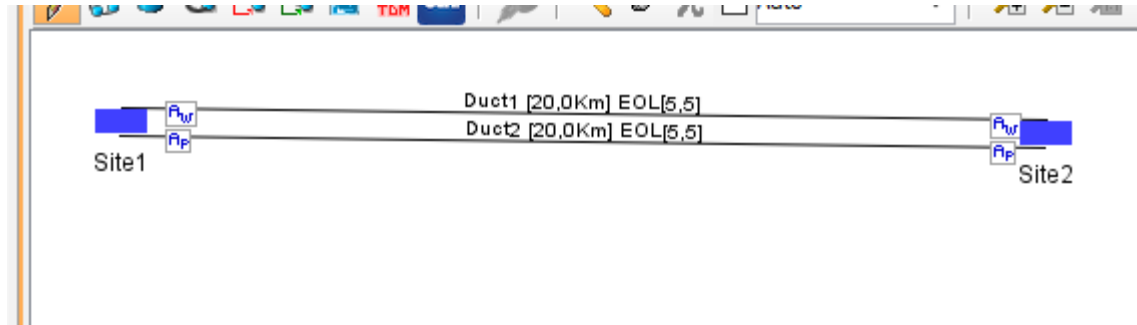


# Transmission Definitions in DWDM

Traffic in Cisco Transport Planner is defined as an optical path for each pair of nodes requiring a service demand. An optical path is the combined channels between the two nodes. The following list gives definitions for some basic traffic items:

- **Circuit**—A single channel between a pair of source and destination nodes. In addition to the source and destination nodes and all the attributes that are common to the service containing the circuit, a circuit has the following attributes:
  - Present/forecast indication
  - Routing direction for unprotected service
  - ITU channel
  - Optical bypass indication
- **Demand**—A set of circuits with common characteristics
- **Traffic demand**—All traffic between the same set of nodes. Both L-band and C-band are supported. The following traffic demands are supported: P-ring, Fixed (point-to-point), and Any-to-any (ROADM).

# Point-to-Point Protected Line



# Y-Cable Protection

The screenshot displays the Cisco Transport Planner interface for a project named "new project - Cisco Transport Planner". The main workspace shows a network diagram with two sites, Site1 and Site2, connected by two parallel fiber links. The links are labeled "Duct1 [10,0Km] EOL[B.0]" and "Duct2 [10,0Km] EOL[B.0]". The interface includes a Project Explorer on the left, a Properties panel at the bottom left, and a Tasks Pane on the right. The Tasks Pane is divided into three sections: Network Tasks, System Tasks, and Reports. The Network Tasks section includes actions like Copy, Delete, Install, Upgrade, Upgrade To Design, Analyze, Design, Show Templates, and Convert as SSON. The System Tasks section includes multiple "Release Upgrade" actions. The Reports section includes "Bill of Material", "Wavelength Routing", "Optical Results", and "Installation Parameters". The status bar at the bottom indicates "Version - 11.1.0.64", "Design Analyzed", "NetworkDesigner\_ZP", and "155M of 416M".

**Project Explorer**

- Project
- Notes (0)
- Platforms
- Nets
  - Net1 [L]

**Properties**

Misc

Name	Net1
Position	180; 40

General

Created By	
Status	Design Analyzed
Measurement Units	Km
Per Side Installat...	<input type="checkbox"/>
Node Split	<input type="checkbox"/>
Enable Layout Mo...	<input checked="" type="checkbox"/>
Encryption Always...	<input type="checkbox"/>
Network Type	Non-SSON
TXP Remotization	<input type="checkbox"/>

Bill of Material

Use Bundles	<input type="checkbox"/>
Use Spare Parts	<input type="checkbox"/>
Use Global Discount	<input type="checkbox"/>
Global Discount	0,0

(Name)  
(Description)

**Tasks Pane**

Actions

**Network Tasks**

- Copy
- Delete
- Install
- Upgrade
- Upgrade To Design
- Analyze
- Design
- Show Templates
- Convert as SSON

**System Tasks**

- Release Upgrade
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...

**Fibres**

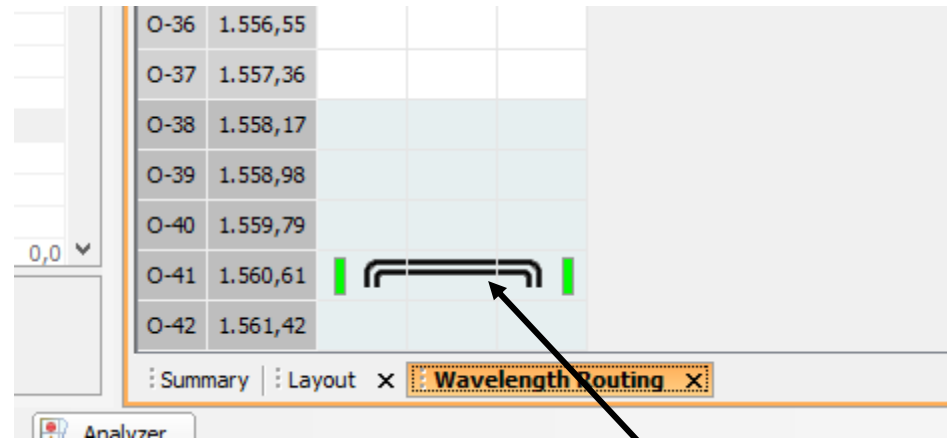
- Fibres Dialog
- Fibres Options

**Reports**

- Bill of Material
- Wavelength Routing
- Optical Results
- Installation Parameters

Version - 11.1.0.64 | Design Analyzed | NetworkDesigner\_ZP | 155M of 416M

# Wavelength Plan with Y-Cable

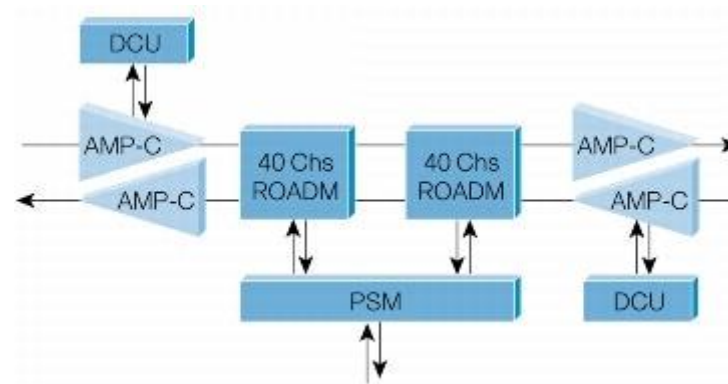


Same frequency over  
two different fibers

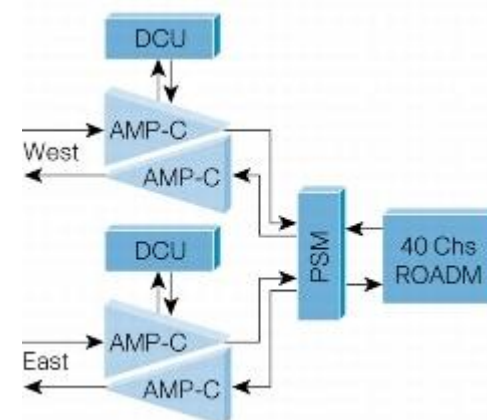
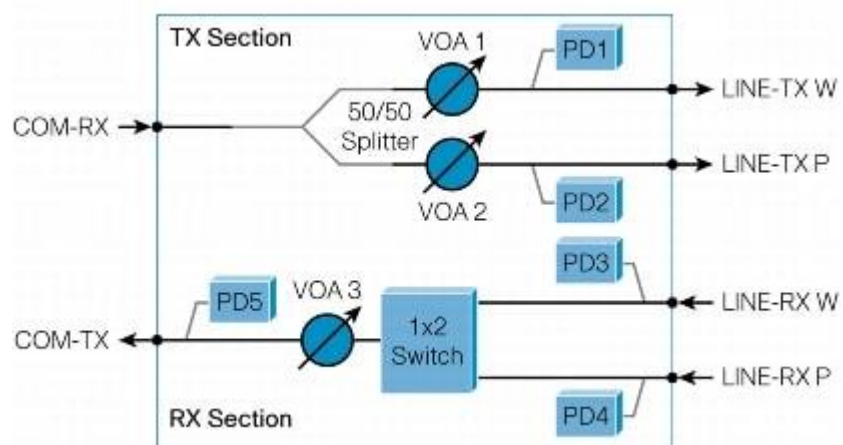
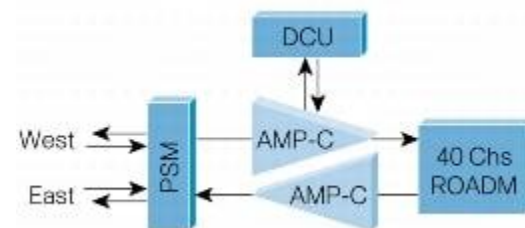
# PSM Fiber Protection



Channel protection



Multiplex section protection





## Example 2

Build a point-to-point network with two nodes of type “line”

Create a 10 GE demand with:

- a) Y-Cable
- b) Client 1 + 1 protection
- c) Fiber Switched protection
- d) PSM-OCH protection
- e) PSM path protection

# Understanding Sides Labeling

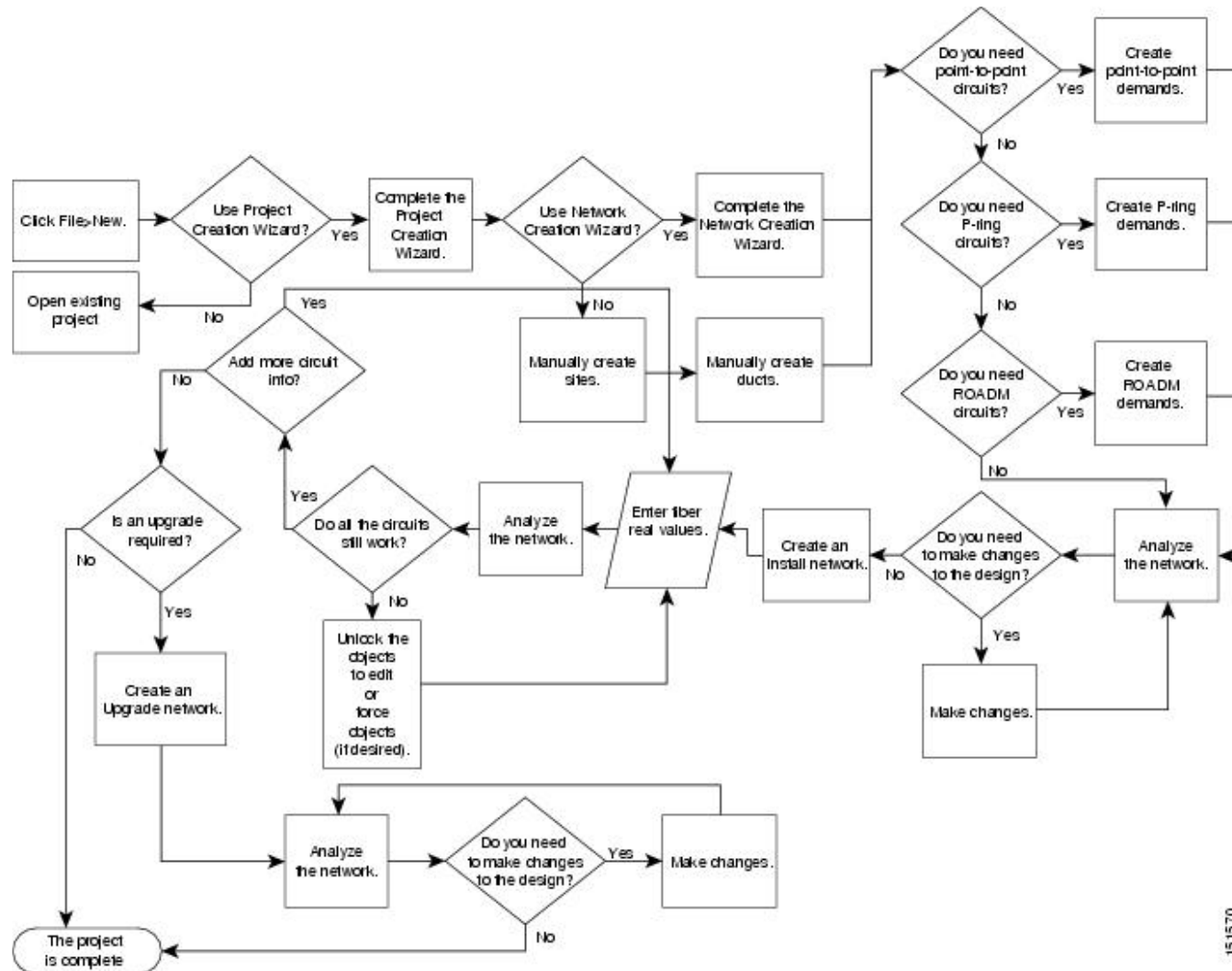
## *Sides Labeling in Cisco Transport Planner*

<b>Sites</b>	<b>Labeling in Previous Releases</b>	<b>Labeling in Cisco Transport Planner Software R8.5 and later</b>
Terminal/Terminal+	Only one side is created and labeled, T.	Only A can be used for the existing side.
Line/Line+	Two sides are created and are labeled, West and East.	Only A and B can be used for the existing sides.
Multidegree with PP-MESH-4	—	Only A, B, C, and D can be used for the existing sides.
Multidegree with PP-MESH-8	—	Only label A, B, C, D, E, F, G, and H can be used for the existing sides.
PSM Line	—	Only Aw and Ap can be used for the existing sides, where w stands for working and p stands for protection.
PSM Section	—	Only Aw and Ap can be used for the existing sides, where w stands for working and p stands for protection.

# CTP Process Flow

1. Create a project using the Project Creation wizard.
2. Create a network using the Create Network wizard. The Create Network wizards adds sites and places the fiber spans between the sites. A span represents a pair of fibers.
3. Create a point-to-point, Aggregated Ethernet, OTN Aggregated, TDM Aggregated, protected ring (P-ring), and/or ROADM service demand.
4. Analyze the network design.
5. If you would like to force automatic tool choices, adjust the design and repeat the analysis until you have reached the desired configuration.
6. Create an Install copy of the network and update the parameters with real data from the field.
7. Analyze the Install network.
8. Create an upgrade copy of the network, as needed, to add forecasted channels.

# Workflow Diagram in CTP



# Planning Traffic

Traffic in Cisco Transport Planner is defined as an optical path for each pair of nodes requiring a service demand. An optical path is the combined channels between the two nodes. The following list gives definitions for some basic traffic items:

- Circuit—A single channel between a pair of source and destination nodes. In addition to the source and destination nodes and all the attributes that are common to the service containing the circuit, a circuit has the following attributes:
  - Present/forecast indication
  - Routing direction for unprotected service
  - ITU channel
  - Optical bypass indication

# Planning Traffic

- Demand—A set of circuits with common characteristics, such as:
  - Service demand label
  - Number of existing circuits
  - Number of forecasted circuits
  - Client service type
  - Protection type
  - Optical bypass (number of channels and/or sites)
  - Present/forecast indication WDM interface type (TXT or ITU-LC)
  - WDM card type
  - Source client interface (SR, IR, or LR) (short, intermediate, long reach)
  - Destination client interface (SR, IR, or LR)

# Planning Traffic

- Traffic demand—All traffic between the same set of nodes. Both L-band and C-band are supported. The following traffic demands are supported: P-ring, Fixed (point-to-point), and Any-to-any (ROADM).
  - In **P-ring traffic demands**, all the demands are used to support traffic topologies similar to bidirectional line switched rings (BLSRs) or multiplex section-shared protection rings (MS-SPRings). Each P-ring demand is between a pair of added/dropped nodes where BLSR-like (or MS-SPRing-like) traffic must exist. The number of circuits is the same for each demand, and is user-specified (from 1 to 40).
  - In **fixed (point-to-point) traffic demands**, the set of nodes is restricted to two sites. The number of circuits is user-specified (from 1 to 40).
  - In **any-to-any (ROADM) traffic demands**, a minimum of two nodes and a maximum of 40 ROADM nodes are supported. The any-to-any traffic demand allows each node to establish one or more circuits with the other nodes, either as a hub or meshed configuration. In a meshed configuration, each node defined in the set is connected to each of the nodes. This is the most common traffic type. In a hub configuration, the user-defined hub node is connected to each of the other nodes. ROADM circuits have the same protection types and services. The number of circuits is not user-specified and can vary from 0 to 40.

# Service Support

Cisco Transport Planner can support any subset of the following services:

- Alien (third-party DWDM interface)
- Cisco ONS 15530 2.5 Gbps Aggregated
- ONS 15530 10 Gbps Aggregated
- ONS 15530 Multirate (MR) Transport
- ONS 15530 Data Multiplexer (MXP)
- 2R Any Rate
- Gigabit Ethernet
- 10GE—10 Gigabit Ethernet (LAN and WAN)



# Service Support

- D1 Video
- DVB-ASI—Digital Video Broadcast-Asynchronous Serial Interface
- DV-6000
- DPSK—Different Phase Shift Keying
- ESCON—Enterprise System Connection
- Fast Ethernet
- Fiber Channel 1G
- Fiber Channel 2G
- Fiber Channel 4G
- Fiber Channel 8G
- Fiber Channel 10G
- FICON—Fiber Connection 1G
- FICON Express 2G

# Service Support

- FICON 4G
- FICON 8G
- FICON 10G
- E3 over FE
- T3 over FE
- DS3 over FE
- High Definition Television (HDTV)
- ISC-3 Peer (1G)
- ISC-3 Peer (2G)
- ISC-3 Peer (2R)
- ISC-Compat (ISC-3 Compatibility mode)
- OC-3
- OC-12
- OC-48
- OC-192
- OC-768
- OTU2
- SDI—Serial Data Input
- STM-1
- STM-4
- STM-16
- STM-64
- STM-256
- 10GE WAN-Phy
- 10GE LANtoWAN
- OTU2
- OTU2e
- OTU3
- Sysplex CLO—control link oscillator
- Sysplex ETR—external throughput rate

## Example 3

Create a point-to-point network with 3 nodes:

node a: terminal

node b: line

node c: terminal

Use the mode NOS 15454 legacy first

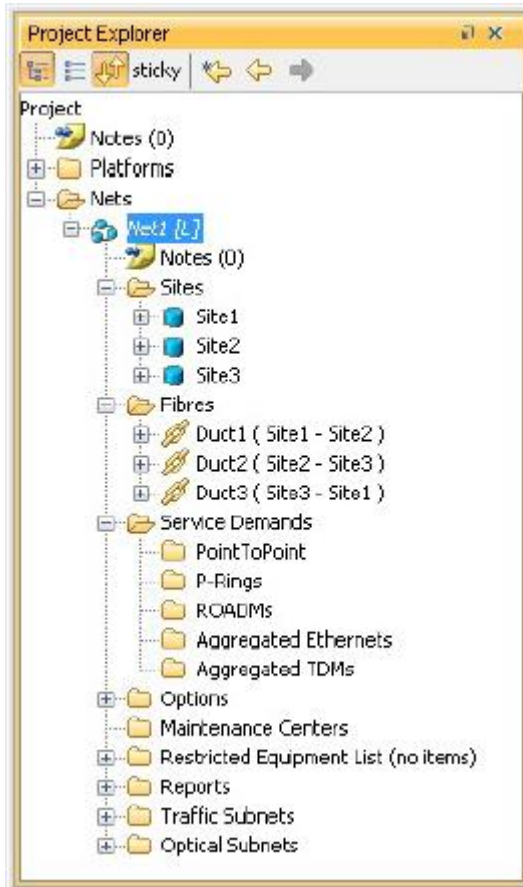
Repeat the same problem using the mode FLEX-NG

Compare both solutions



## Editing and Configuring Demands

# Project Pane



The Project Explorer pane shows all of the open project information, including networks, network dependencies, sites, fibers, services, and so on.

The user-defined traffic services are displayed as folders and icons in the Project Explorer pane.

After you analyze a network design, the colors of the icons change according to the error/warning condition of the network design.

# Traffic on Explorer Pane

Cisco Transport Planner represents all of the user-defined traffic services as folders and icons within the Project Explorer pane.

## **Point-to-Point Traffic Demands**

Point-to-point traffic demands appear in the **Service Demands > PointToPoint** folder in the Project Explorer pane. Each point-to-point traffic demand is categorized by its source and destination site names. All of the point-to-point services between the two sites appear under the designated demand name.

A point-to-point traffic demand includes the following information:

- Client service type
- Site# – Site# (source and destination site labels for this demand)

# Traffic on Explorer Pane

## **P-Ring Traffic Demands**

Each protected ring (P-ring) traffic demand appears in the Project Explorer pane under the **Service Demands** > **P-Rings** folder.

All the P-ring channels between each site pair are listed under each P-ring traffic demand. Each demand is labeled with the following information:

- P-ring number
- Client service type
- Site# – Site# (source and destination site labels for this demand)

# Traffic on Explorer Pane

## **ROADM Traffic Demands**

Each ROADM traffic demand appears in the Project Explorer pane under the **Service Demands > ROADMs** folder. The ROADM folder contains each defined ROADM demand. You can define more demands for the same ROADM for the same set of nodes.

In the **Project Explorer** pane, each ROADM includes the ROADM demand name and a list of DWDM card types that support the client service types. Protection types appear in parentheses.

## **Aggregated Ethernet Demand**

Each aggregated ethernet traffic demand appears in the **Project Explorer** pane under the **Service Demands > Aggregated Ethernet** folder. The Aggregated Ethernet folder contains each defined aggregated ethernet demand. Aggregated Ethernet demands are supported on ring and linear traffic subnets.



# Traffic on Explorer Pane

## **TDM Aggregated Demand**

Each TDM aggregated demand appears in the **Project Explorer** pane under the **Service Demands > Aggregated TDMs** folder.

**Note:** TDM aggregated demands are supported only on a ring traffic subnet.

## **OTN Aggregated Demand**

OTN Aggregated Demand appear in the **Service Demands > Aggregated OTN** folder in the Project Explorer pane. OTN Aggregated demands are supported on ring and linear traffic subnets.

# Parameters States

Parameters in CTP can be in one of three states:

- **Auto**— This parameter allows the highest degree of flexibility to CTP in designing a network. When you select Auto, CTP chooses the parameter value during network analysis.
- **Forced**—When you set a specific parameter value, other than Auto, CTP designs the network using these constraints. When a setting is forced, the item appears in blue italics in the Project Explorer pane.
- **Locked**—The state of a parameter after network analysis. The next time the analyzer is run, Cisco Transport Planner cannot change the value when it is in the Locked state. You can unlock an item using the Unlock command.

# Opening a Project

- 
- Step 1** Click the project name under Open in the Tasks Pane. The project opens. If you do not see the project name listed, continue with Step 2.
- Step 2** Click **Open** in the Start Page, click **Open** under Project in the Tasks Pane, or in the File menu.
- Step 3** In the Open Project dialog box, navigate to the desired folder and choose the project. Click **Open**. The Cisco Transport Planner project appears.

**Note** You cannot open an existing CTP project in multiple CTP instances. The saved project (.MPZ file) is locked for the use of that CTP. If you try to open the project in another instance of CTP, an error message is displayed. The .MPZ project file is unlocked and released only after you close the Network.

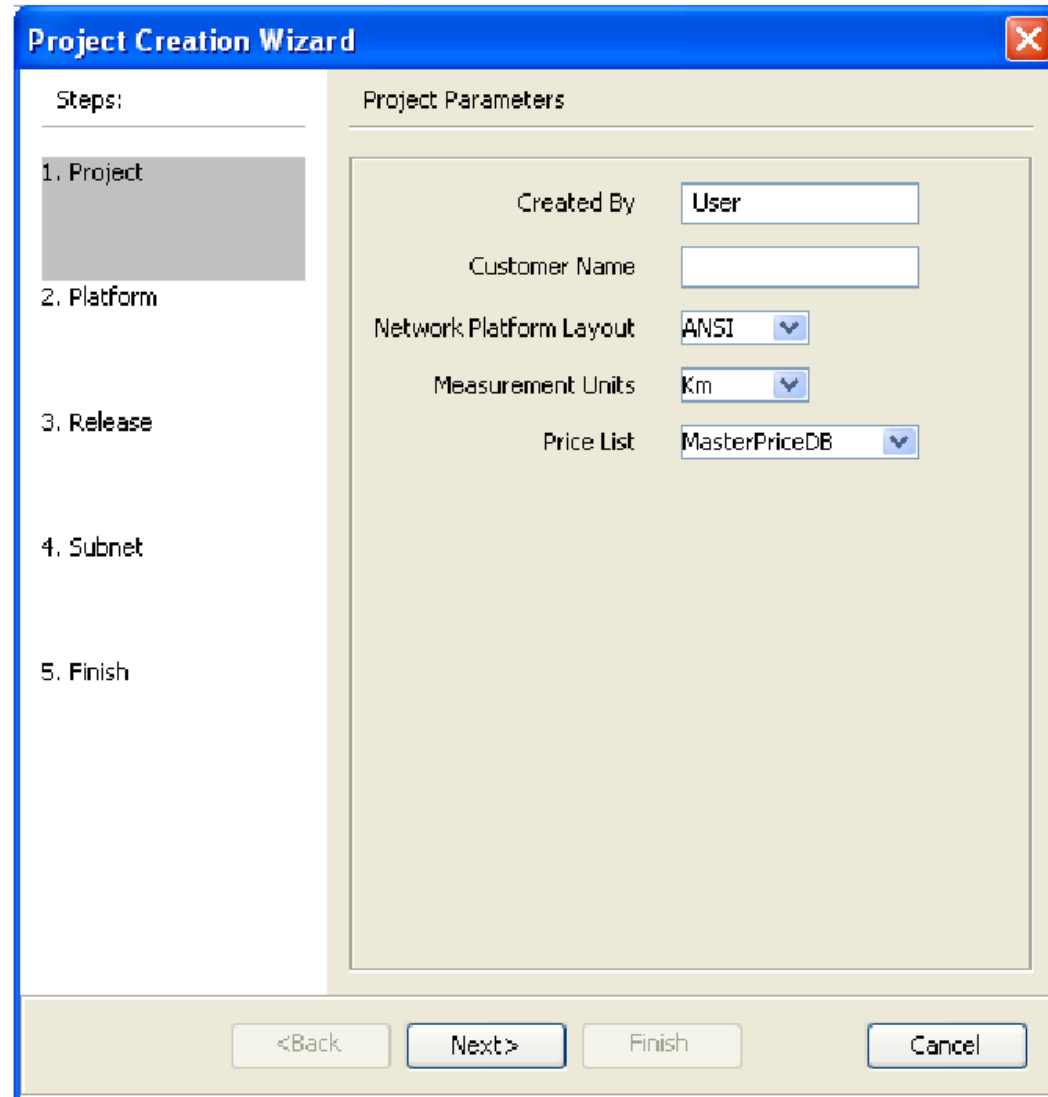
# Creating a Project

Step 1 – From the File menu, choose New. The Project Creation Wizard appears

Step 2 - In the Project Parameters area complete the following:

- Created by
- Customer
- Network
- Measurement
- Price List

Step 3 – Click Next



The screenshot shows the 'Project Creation Wizard' dialog box. On the left, a 'Steps' list contains five items: '1. Project', '2. Platform', '3. Release', '4. Subnet', and '5. Finish'. The '1. Project' step is highlighted with a grey background. The main area is titled 'Project Parameters' and contains the following fields:

Created By	<input type="text" value="User"/>
Customer Name	<input type="text"/>
Network Platform Layout	<input type="text" value="ANSI"/>
Measurement Units	<input type="text" value="Km"/>
Price List	<input type="text" value="MasterPriceDB"/>

At the bottom of the dialog, there are four buttons: '<Back', 'Next>', 'Finish', and 'Cancel'. The 'Next>' button is highlighted.

# Creating a project

Step 4 - In the Choose Platform area, check the desired platform and click Next. The Choose Release area appears.

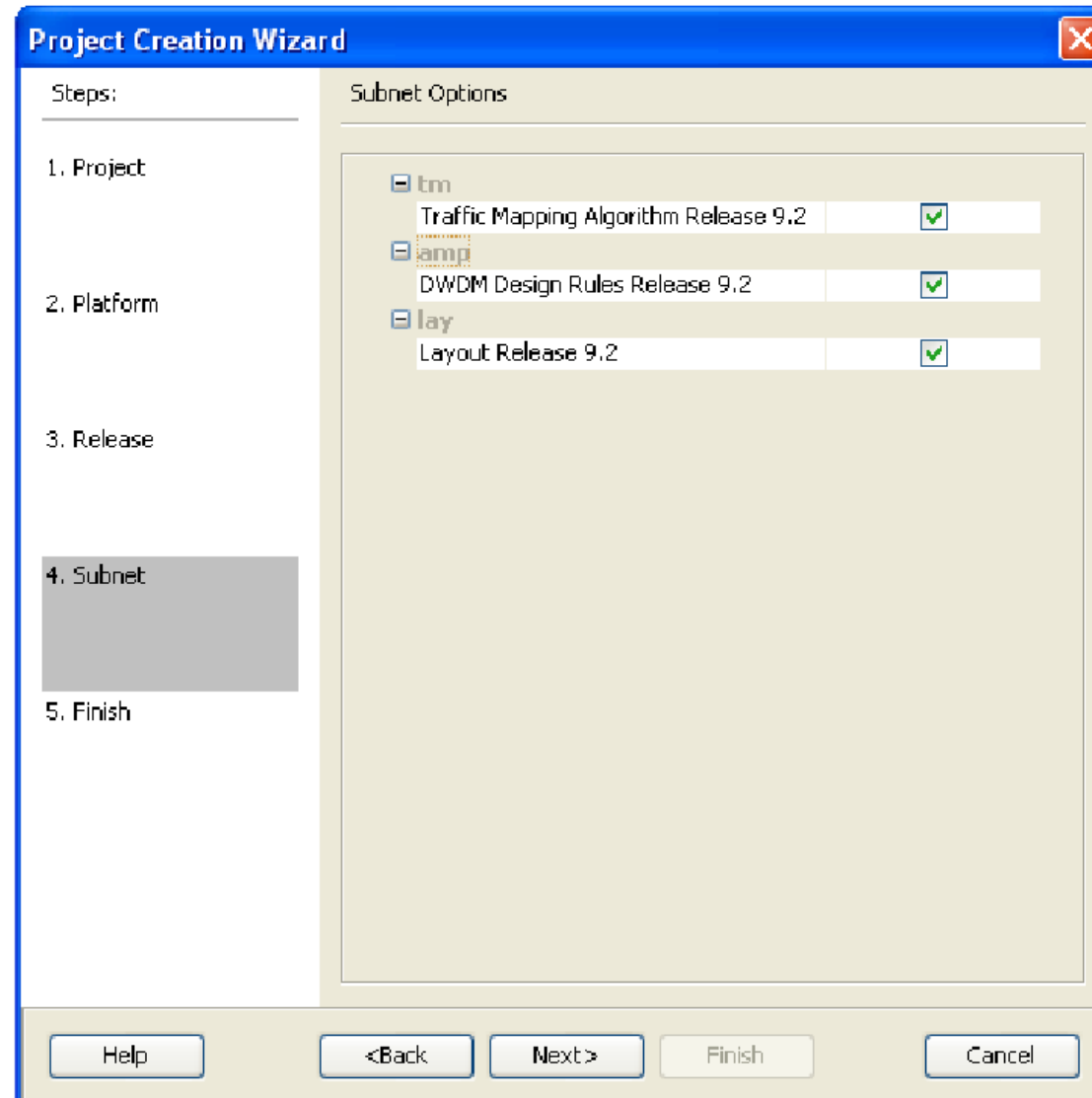
Step 5 - In the Choose Release area, check the desired software release for the network design and click Next. The Subnet Options area appears.

Step 6 - In the Subnet Options area, complete the following.

- Traffic Mapping Algorithm Release 9.2
- Design Rules Release 9.2
- Layout Release 9.2

# Creating a project

Step 7 – click next



# Creating a project

Step 8 -To run the Network Creation wizard, check the Run the Network Wizard Now check box and click Finish. Continue with Step 9.

To create an empty project to add sites and fibers manually, un-check the Run the Network Wizard .Now check box and click Finish. Project Creation wizard creates the project and an empty network and subnetwork where you can manually add sites and fibers. Skip the remaining steps in this procedure

# Creating a project

Step 9- In the Topology area of the Network Creation wizard, choose one of the following options from the Network-Topology drop-down list:

- Ring—Supports both MSTP 15454 ONS and HYBRID 15454 ONS configurations.
- Linear—Supports both MSTP 15454 ONS and HYBRID 15454 ONS configurations.
- PSM Line—Supports only MSTP 15454 ONS configuration.
- PSM Section—Supports only MSTP 15454 ONS configuration.



# Creating a project

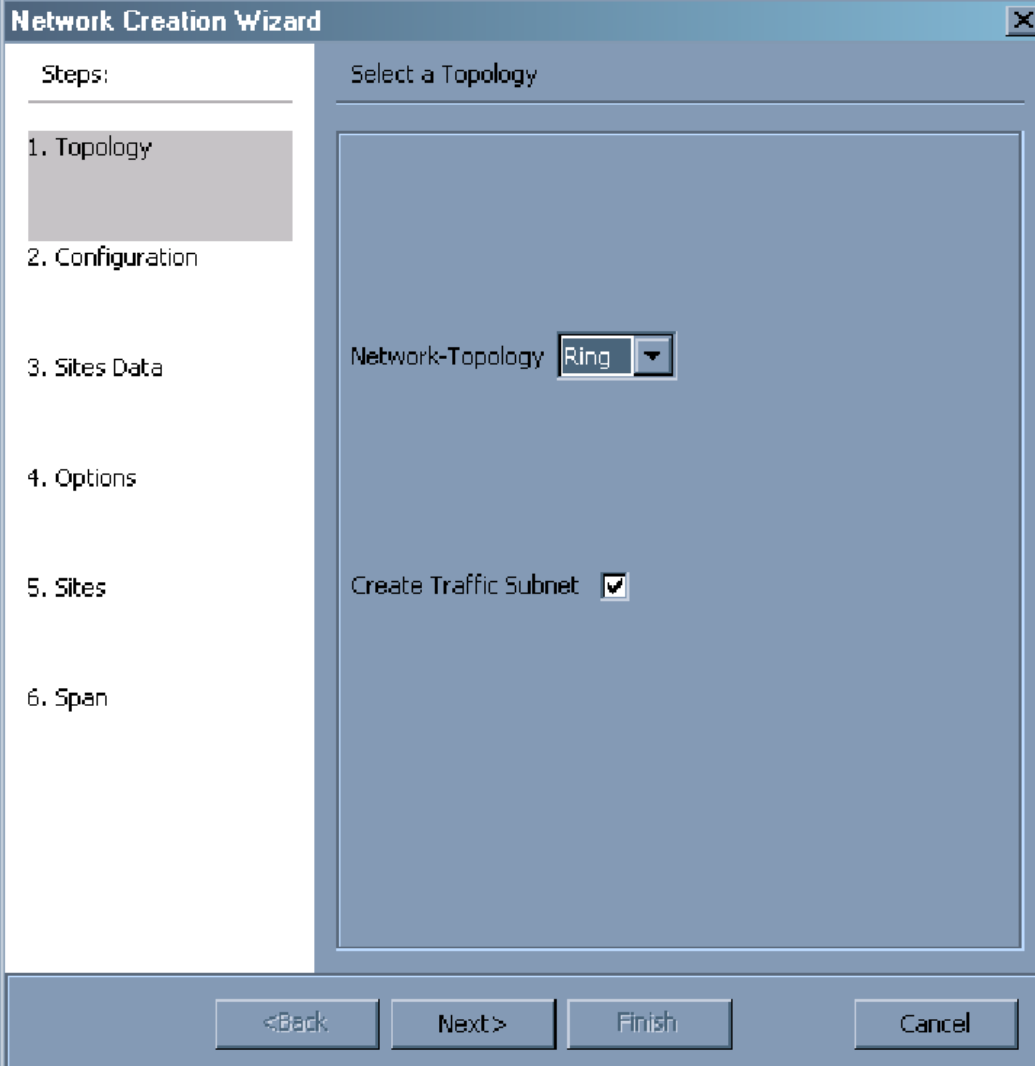
Step 10 - To instruct Cisco Transport Planner to automatically create a traffic subnet associated with the created network, check the Create Traffic Subnet check box

Step 11 -Click Next.

The Configuration page appears.

Step 12 - Choose one of the following options from the node type drop-down list:

- MSTP 15454 ONS—To create an MSTP 15454 configuration.
- HYBRID 15454 ONS—To create a 15216 Flex Layer Hybrid configuration.



The screenshot shows the 'Network Creation Wizard' dialog box. The title bar reads 'Network Creation Wizard'. On the left, a 'Steps:' list shows six steps: 1. Topology (highlighted), 2. Configuration, 3. Sites Data, 4. Options, 5. Sites, and 6. Span. The main area is titled 'Select a Topology' and contains a 'Network-Topology' dropdown menu with 'Ring' selected. Below this is a 'Create Traffic Subnet' checkbox, which is checked. At the bottom, there are four buttons: '<Back', 'Next>', 'Finish', and 'Cancel'.

# Creating a project

Step 13 - Enter the number of sites in the fields displayed depending on the network topology selected in Step 9.

The following options are available:

<b>Network topology</b>	<b>Fields to be entered...</b>	<b>Maximum, Minimum, and Default Number of Sites</b>
Ring or Linear	Number of Sites	Maximum: 100 Minimum: 2 Default: 3
PSM Line	<ul style="list-style-type: none"><li>• Intermediate Sites on Working path</li><li>• Intermediate Sites on Protected path</li></ul>	Both for working and protected paths: Maximum: 60 Minimum: 0 Default: 0
PSM Section	<ul style="list-style-type: none"><li>• Intermediate Sites on Working path</li><li>• Intermediate Sites on Protected path</li></ul>	Both for working and protected paths: Maximum: 60 Minimum: 0 Default: 0

# Creating a project

Step 14 - On the Site Name and Topology area, choose the topology for each site from the drop-down list.

For multi-degree sites, choose the number of sides from the drop-down list.

Available Site Topology options are:

<b>Structure</b>	<b>Supported Configurations</b>	<b>Description</b>
Line	<ul style="list-style-type: none"><li>• MSTP 15454 ONS</li><li>• HYBRID 15454 ONS</li></ul>	Site with two sides facing two fiber spans. The default site value for ring topology is Line.
Terminal	<ul style="list-style-type: none"><li>• MSTP 15454 ONS</li><li>• HYBRID 15454 ONS</li></ul>	Site with one side facing one fiber span.
Line+	MSTP 15454 ONS	Site with two sides facing two fiber spans that can provide multidegree expansion capability through an MMU unit.

# Creating a project

<b>Structure</b>	<b>Supported Configurations</b>	<b>Description</b>
Terminal+	MSTP 15454 ONS	Site with one side facing one fiber span that can provide multidegree expansion capability through an MMU unit. Terminal+ is not allowed for ring network or linear network topology intermediate sites.
Multi-degree	MSTP 15454 ONS	Sites have two or more sides and face two or more fiber spans. The default is two and you can choose up to eight sides for a site.
PSM Terminal - Optical Path Protection	MSTP 15454 ONS	Provides protection for terminal sites at line level through an optical protection switching module (PSM). In this configuration, the PSM is directly connected to the fibers after the amplification stage.
PSM Terminal - Multiplex Section Protection	MSTP 15454 ONS	Provides protection for terminal sites at multiplex level through an optical protection switching module (PSM). In this configuration the PSM is equipped between the mux/demux stage and the amplification stage.

# Creating a project

Step 15 – Click Next

The Options area appears.

Step 16 - The Options area allows you to define C band and L band rules for the network design. Options area complete the following:

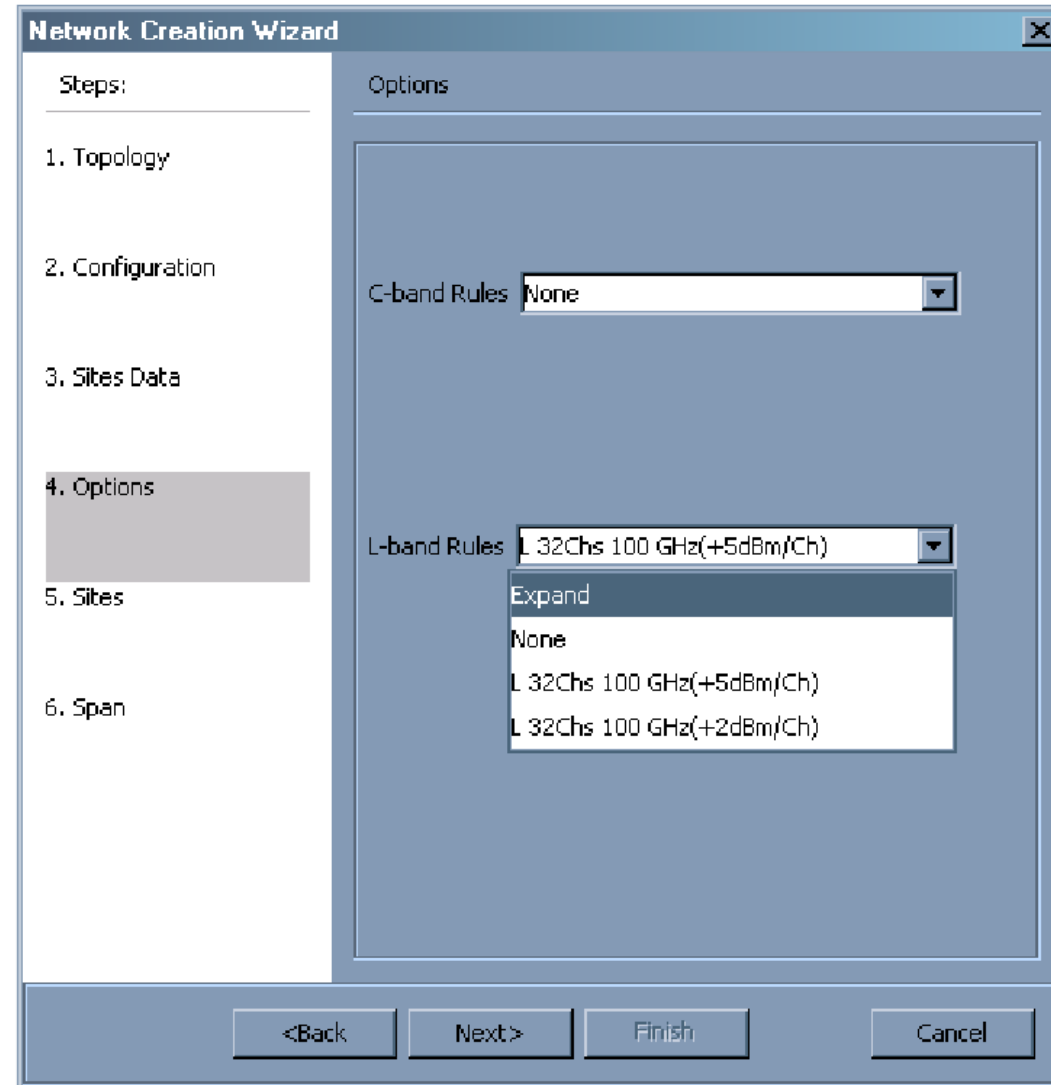
C-band rules—The C-band options appear in the following format: 80Ch. 50 GHz +1dBm. The channels available are 80, 72, 64, 40, 32, 20, 16, or 8; the reference per channel power options available are -1 dBm, +1 dBm, 2 dBm, -2 dBm, +4 dBm, 5 dBm, 7 dBm and 8 dBm; and the spacing options available are 100 GHz or 50 GHz. You can use even wavelengths for the following channel designs:

80 (40 even wavelengths + 40 odd wavelengths) –

72 (40 even wavelengths + 32 odd wavelengths) –

64 (32 even wavelengths + 32 odd wavelengths) –

# Creating a project



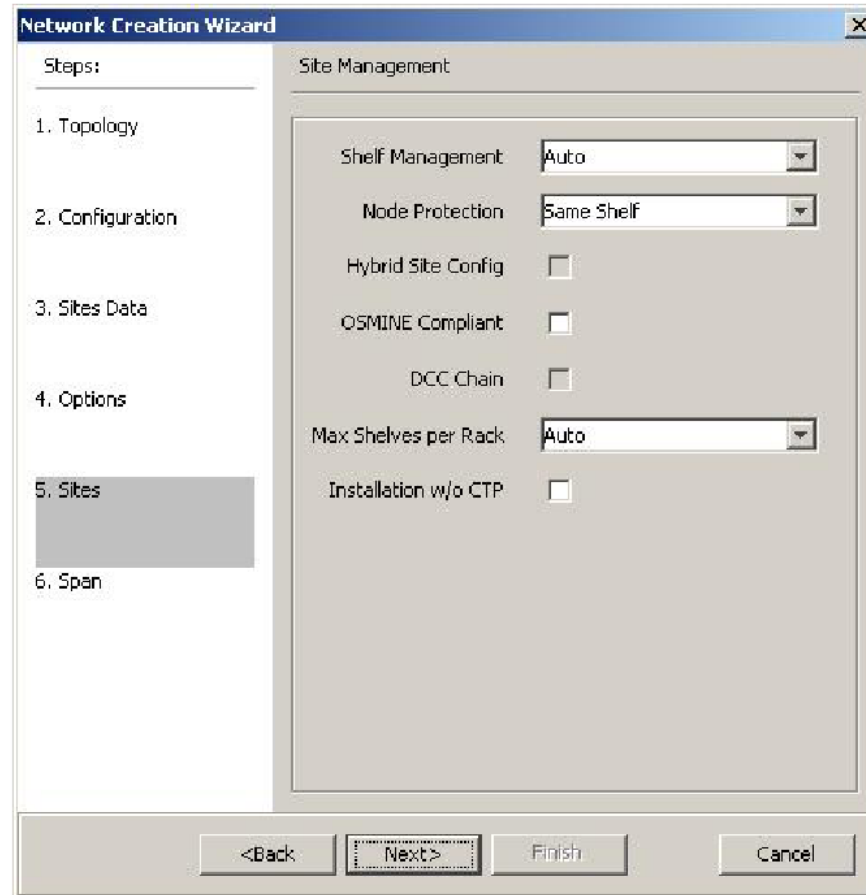
# Creating a project

Step 17 – Click Next

The Site Management area appears.

Step 18 - In the Site Management area, complete the following:

- Shelf Management—Choose the shelf management configuration
- Node Protection
- Node Protection
- Hybrid Site Config
- OSMINE Compliant
- DCC Chain
- Max Shelves per Rack
- Installation w/o CTP



# Creating a project

Step 19 - Click Next -The Span Parameters area appears.

Step 20 -In the Span Parameters area, complete the following.

- Span Label Tag—Enter the desired span label.
- Span Fiber Type—Choose the fiber type for each span in the network.
- Span Length—Enter the span length. The displayed unit of measure is retrieved from the Span Measurements Units field.
- EOL Ageing Factor—Type the number to use when factoring fiber aging. This factor is multiplied by the SOL total span loss without connectors.
- EOL Ageing loss [dB]—Type the EOL aging loss value. The EOL loss-per-span value is added at the end of life to each discrete fiber in the network (for example, to add an EOL margin for splicing).



# Creating a project

- CD factor [ps/mn/km]
- PMD factor [ps/sqrt(km)]
- Length Based Loss
- Loss factor [dB/km]
- Tot SOL loss w/o conn [dB]
- DCN extension
- OSC Frame Type

Step 21 – Click Finish

The screenshot shows the 'Network Creation Wizard' dialog box, specifically the 'Span Parameters' step. The 'Steps' list on the left includes: 1. Topology, 2. Configuration, 3. Sites Data, 4. Options, 5. Sites, and 6. Span (which is currently selected and highlighted). The 'Span Parameters' section contains the following fields and values:

Parameter	Value
Span Label Tag	Duct
Span Fibre Type	G652-SMF - 28E
Span Length [Km]	1.0
EOL Ageing Factor	1.0
EOL Ageing Loss [dB]	0.0
Connector Loss [dB]	0.0
CD Factor [ps/nm/km]	16.5
PMD Factor [ps/sqrt(km)]	0.06
Length Based Loss	<input checked="" type="checkbox"/>
Loss Factor [dB/km]	0.25
Tot SOL Loss w/o Conn [dB]	1.0
DCN Extension	<input type="checkbox"/>
OSC Frame Type	Auto

At the bottom of the dialog, there are five buttons: Help, <Back, Next>, Finish (which is highlighted with a dotted border), and Cancel.

# Editing Project Properties

The screenshot displays the Cisco Transport Planner interface. On the left, the Project Explorer shows a tree structure for a project named 'Net1'. The Properties panel at the bottom left is open to the 'General' tab, showing the following data:

General	
Customer	claro16
Created By	wagner
Price List	MasterPriceDB
Standards	
ANSI/ETSI	ANSI

The main workspace shows a network diagram with three sites: Site1, Site2, and Site3. Site1 and Site2 are connected by a link labeled 'Duct1 [10,0Km] EOL[3,0]'. Site2 and Site3 are connected by a link labeled 'Duct2 [10,0km] EOL[3,0]'. An arrow points from the text 'Change values' to the 'Created By' field in the Properties panel.

# Editing Network Properties

The screenshot displays the Cisco Transport Planner interface. On the left, the Project Explorer shows a tree structure with 'Nets' expanded to 'Rede 1 [L]'. Below it, the Properties window is open, showing details for 'Rede 1'. The main workspace shows a network diagram with three sites (Site1, Site2, Site3) and two ducts (Duct1 and Duct2) connecting them.

**network** (points to Rede 1 in Project Explorer)

**properties** (points to the Properties window)

**status** (points to the Status field in the Properties window)

Category	Property	Value
Misc	Name	Rede 1
Misc	Position	180; 40
General	Created By	
General	Status	Design
General	Measurement Units	Km
General	Per Side Installati...	<input type="checkbox"/>
General	Node Split	<input type="checkbox"/>
General	Enable Layout Mo...	<input checked="" type="checkbox"/>
General	Encryption Always...	<input type="checkbox"/>
General	Network Type	Non-SSON
Bill of Material	Use Bundles	<input type="checkbox"/>

# Loading and Unloading Networks

Each network in a project requires memory.

To save memory, when Cisco Transport Planner opens a project, all networks are in the Unloaded state.

An unloaded network appears in the Project Explorer pane with a “U” next to the network identifier.

To load an unloaded network, double-click on the network folder in the Project Explorer pane, or right-click the network and choose **Load** from the shortcut menu.



# Saving a Project

- 
- Step 1** Choose one of the following:
- To save an existing project with the same filename, choose **File > Save**. You have completed this procedure.
  - To save a new project, choose **File > Save** and go to Step2.
  - To save an existing project with a different filename, choose **File > Save As** and go to Step2.
- Step 2** In the Save Project dialog box, navigate to the desired folder and enter the filename. Click **Save**. Cisco Transport Planner saves projects as zipped files with the MPZ extension.

# Closing a Project

- 
- Step 1** Choose one of the following:
- To save an existing project with the same filename, choose **File > Save**. You have completed this procedure.
  - To save a new project, choose **File > Save** and go to Step2.
  - To save an existing project with a different filename, choose **File > Save As** and go to Step2.
- Step 2** In the Save Project dialog box, navigate to the desired folder and enter the filename. Click **Save**. Cisco Transport Planner saves projects as zipped files with the MPZ extension.

# Deleting the CTP Cache

---

- Step 1** From the Tools menu, choose **Delete Cache**.
- Step 2** Click **Yes** to delete the CTP cache or **No** to postpone cache deletion.
- Step 3** When you click **Yes**, an information message is displayed prompting you to restart CTP now or later. If you do not want to restart CTP immediately, cache deletion is postponed to the next restart.
- Step 4** Before you restart, save your project and choose **File > Close** to close the project.
- Step 5** If you click on **Restart Now**, CTP cache is deleted and CTP restarts automatically.
- Step 6** To restart CTP later, choose **File > Restart**.  
  
A message is displayed prompting you to continue with restart. Click **Yes** to restart CTP. A message is displayed prompting you to continue with cache deletion now or later.
- Step 7** Click **Yes** to delete the CTP cache or **No** to postpone cache deletion.

# Optical Subnets

An optical subnet is a collection of spans with certain associated, defined, common properties. You can define distinct optical subnets on the same network and can also set a list of associated properties on each of them.

The following properties are supported in an optical subnet:

- C-band Rules—Allows you to define rules for the C-band channels, the maximum per channel power, and the channel spacing for the design.
- L-band Rules—Allows you to define, for the L-band channels, the maximum per channel power, and the channel spacing for the design.
- Spectral Density—When SSON is enabled, you can choose the spectral density from the drop-down list box.

When you create a new project, Cisco Transport Planner automatically creates an optical subnet associated to the network. At least one optical subnet (even if empty) must exist for each network in a project.



# Creating an Optical Subnet

- 
- Step 1** Select the Optical Subnet folder in the Project Explorer pane. The Optical Subnet Pane appears in the Task Pane on the right side of the screen.
  - Step 2** Click **Create**. The Create Optical Subnet dialog box appears. Alternatively, right-click the **Optical Subnets** folder and select **Create**. The default name, which is a combination of the user-created C-band and L-band rules, and the wizard-created default C-band and L-band rules are displayed.
  - Step 3** Select C-band and L-band design rules from the C Design Rule and L Design Rule drop-down lists for the new optical subnet that you want to create.
  - Step 4** Click **OK**. A new optical subnet with the design properties you selected is created and placed in project explorer under the Optical Subnets folder.

# Add and Remove Spans from Subnets

Cisco Transport Planner allows you to do the add or remove spans, edit designs rules, define an optical subnet as current, and to delete an optical network.

To do these, select the optical subnet you want to change under Optical Subnets in the Project Explorer pane.

In the Tasks Pane, choose the following:

- Add/Remove Spans—Adds or removes the spans that are included in a given optical subnet.
- Edit Design Rule—Modifies the property value of the design rule of a new or existing optical subnet.
- Set as Current—CTP automatically defines the optical subnet with the greatest number of spans.
- Delete—Deletes the optical subnets in the Tasks Pane.

When you delete an optical subnet, all the spans contained in the deleted optical subnet are placed within the current optical subnet.

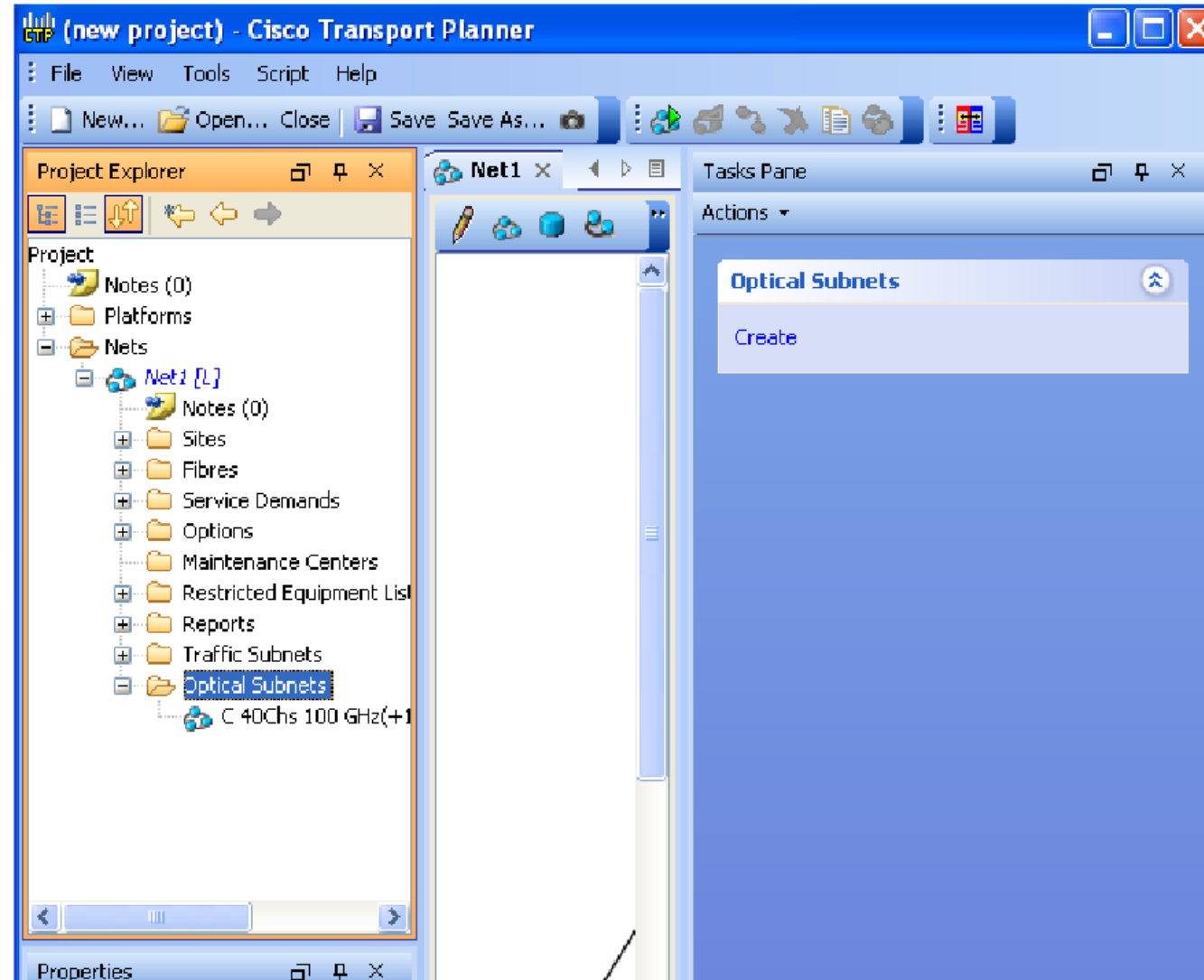
In case the current optical subnet is deleted, all their spans will be automatically placed within the optical subnet with the greatest number of spans.

When the current optical subnet is removed, the tool automatically defines as current the optical subnet with the greatest number of contained spans.

# Create Traffic Subnet

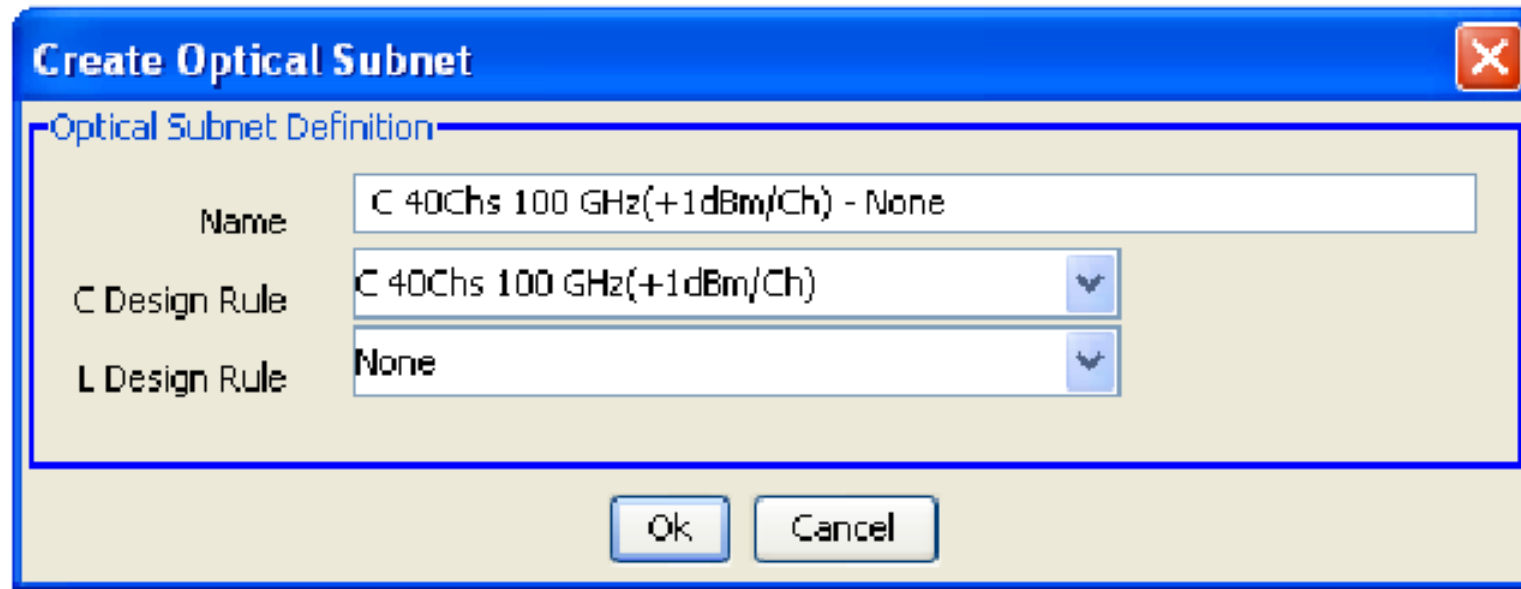
- Step 1** In the Project Explorer pane, scroll down to Traffic Subnets.
- Step 2** Right-click Traffic Subnets, and select **Create**.  
The Traffic Subnet Creation wizard appears.
- Step 3** Select the Topology for the subnet from the drop-down list (**Ring**, **Linear**, and **Mesh**), then click **Next**.  
**Note** For creating OTN Aggregated Demand, only **Ring** and **Linear** options appear.  
**Note** If **Ring** or **Linear** topology is selected for the subnet, the spans in the subnet must be adjacent and also ordered.
- Step 4** Click **Press** to build new subnet. The Traffic Subnet Builder Wizard appears.
- Step 5** Select the ducts that should be a part of the subnet from the list displayed on the left handside, and click **OK**. This takes you back to the Traffic Subnet Creation Wizard.
- Step 6** Click **Finish** to complete the creation of the traffic subnet. The created subnet appears under Traffic Subnets in the Project Explorer pane.

# Creating an Optical Subnet



# Creating an Optical Subnet

Step 2 - Click Create. The Create Optical Subnet dialog box appears. Alternatively, right-click the Optical Subnets folder and select Create



**Create Optical Subnet**

Optical Subnet Definition

Name: C 40Chs 100 GHz(+1dBm/Ch) - None

C Design Rule: C 40Chs 100 GHz(+1dBm/Ch)

L Design Rule: None

Ok Cancel

# Adding Notes to a Project

Step 1- Right-click the desired item in the Project Explorer and choose Edit Note from the shortcut menu.

Step 2 -In the Edit Note creation box, enter the desired text.

Step 3 - To close the Edit Note creation box and to save the note, click the X in the upper right corner of the window.

Step 4 -To view notes, double-click the Notes folder. The Notes window appears. Lists the columns in the Notes window.

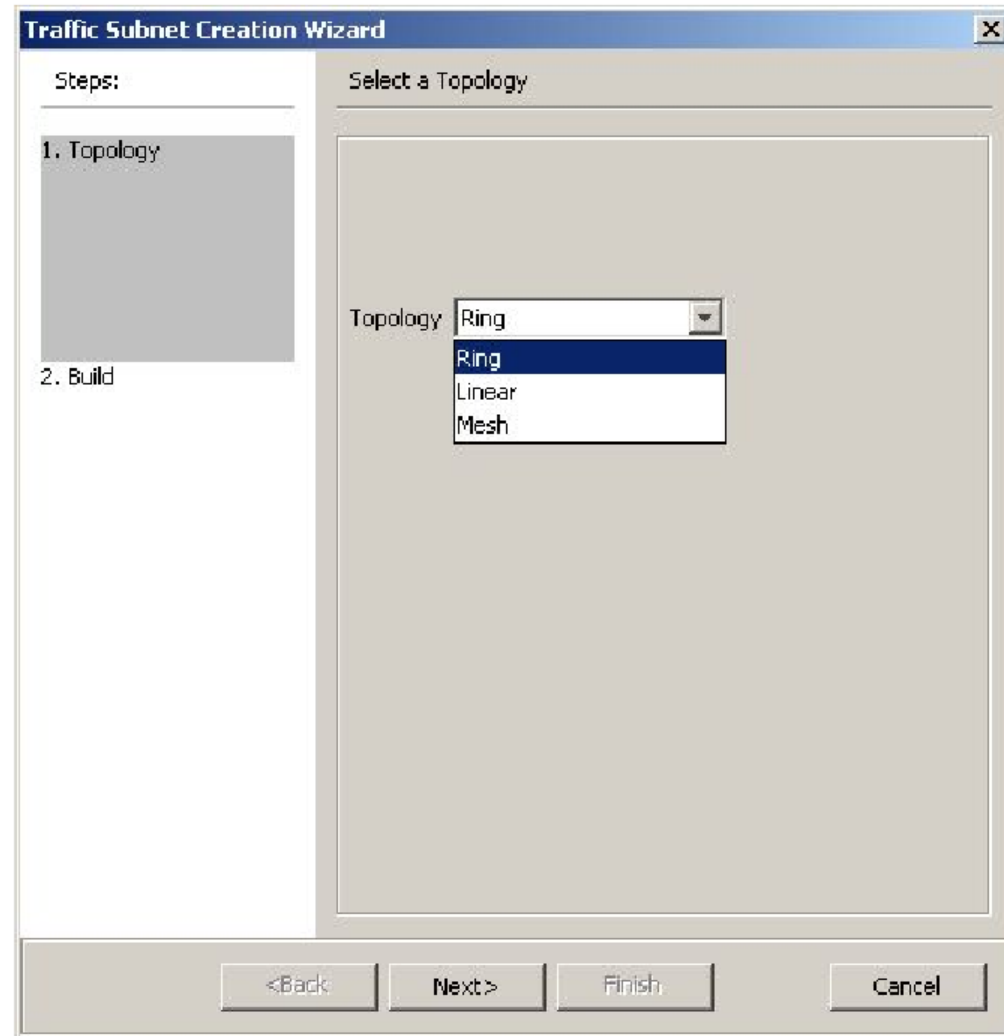
Step 5 - To close the Notes window, click the X in the upper right corner of the window.

Column	Description
Header	Displays the note text. To view the entire note, click the plus (+) sign next to the header to expand the text.
Action	Click <b>Go</b> to open the item in the Project Explorer where the note was created.
Source	Displays the location of the note, for example, ProjectManager.Nets.Net2.Sites.Site2.W.

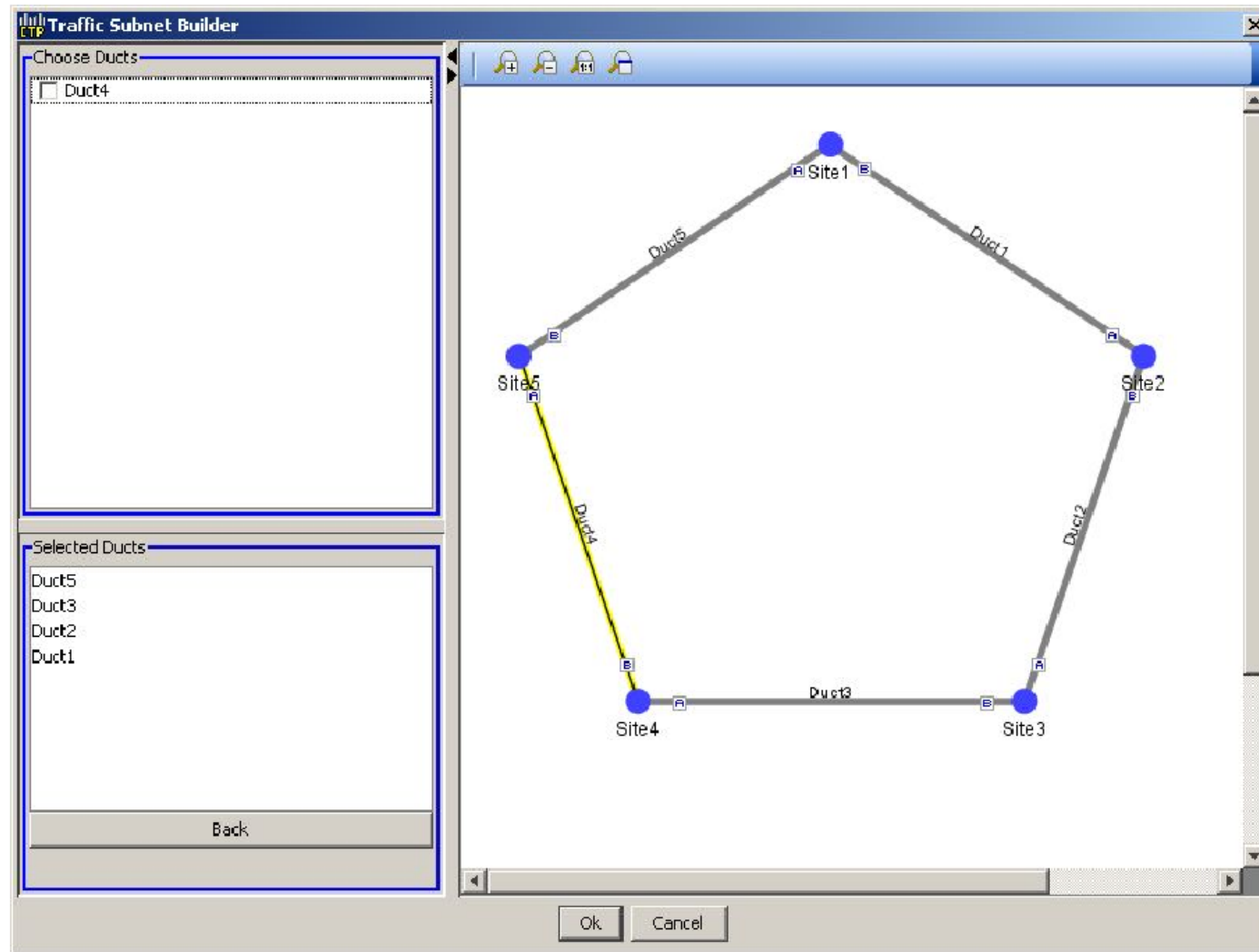
# Creating Traffic Subnet

Step 1 - In the Project Explorer tab, scroll down to Traffic Subnets. Right-click Traffic Subnets, and select Create.

A traffic subnet is a routing tool. Choose the subnet according with your network.



# Creating Traffic Subnet





## Example 4

Create a ring network with 5 nodes, all of them of type line

Create two traffic network between neighbors node. One by the shorter side and one by the longer side.

Create two linear demands. One over each traffic network

Analyze the network and examine wavelengths routing



**Creating Demands**

# Creating a Demand

Cisco Transport Planner provides five types of service demands:

- Point-to-point
- Protected ring (P-ring)
- ROADM
- Ethernet aggregated
- TDM aggregated

You can also create regeneration sites while creating a service demand.

# Manual Regeneration

In optical networks, as the fiber length increases, a loss in the signal ratio and power could occur due to attenuation and dispersion. A regenerator is required to recreate the weak and distorted optical signals through reamplification, regeneration, and retiming processes. The regenerators remove noise and distortion, convert the optical signal to an electrical signal, and then convert the signals back to optical signals (O-E-O conversion).

Cisco Transport Planner supports the creation of regeneration sites in the network. Regeneration is supported for the following demands:

- Point-to-point
- P-ring
- Ethernet aggregated
- TDM aggregated

# Manual Regeneration

The demand is displayed in the following manner:

Demand > Service > Trail > Section

- “Service” is the circuit through which traffic flows between nodes.
- “Trail” is the network section joining two traffic nodes. By default, a trail has only one section. The trail can be split in different regeneration sections.
- “Section” is a contiguous subset of the span.

# Creating a Point-to-Point Demand

Step 1- In the NtView Name tab, click the Create new Point-to-Point demand icon in the toolbar.

Step 2 -Click the source site of the demand.

Step 3 - Click the destination site of the demand. The Point to Point Demand Creation Wizard appears

Step 4 -From the drop-down list, select Traffic Subnet ALL or any of the previously created traffic subnets to which this service demand should be part of, and proceed to Step 5. If you wish to create a new traffic subnet

Step 5 -Click Next.

# Creating a Point-to-Point Demand

The image shows a software dialog box titled "Point-to-Point Demand Creation Wizard". On the left side, there is a "Steps:" section with three numbered items: "1. Traffic Subnet" (highlighted with a grey background), "2. General Parameters", and "3. Platform Parameters". The main area of the dialog is titled "Traffic Subnet Selection" and contains a "Traffic Subnet:" label followed by a dropdown menu currently showing "Traffic Subnet ALL". Below this is a button labeled "Create new traffic subnet". At the bottom of the dialog, there are four buttons: "<Back", "Next >", "Finish", and "Cancel".

# Creating a Point-to-Point Demand

Step 6 - On the General Parameters page, complete the following:

- Label—Type the name of the demand. •
- Source—(Display only) Displays the source site name. •
- Destination—(Display only) Displays the destination site name. •
- Service Type—Choose the service type from the drop-down list.
- Present # ch—Enter the number of channels to be created. The Forecast # ch field automatically updates with the number entered in this field.
- Forecast # ch—Enter the number of channels to be installed at a later date. This value includes the Present # ch value. For example, if you entered 4 in the Present # ch value and want to add two channels in the future, enter 6.

Step 7- Click Next. The Platform Parameters page appears.



# Creating a Point-to-Point Demand

**Point-to-Point Demand Creation Wizard**

Steps:

1. Traffic Subnet
2. General Parameters
3. Platform Parameters

Platform Parameters

Platform	
Protection	Unprotected
Path	Auto
Optical Bypass	-
Colorless	Auto
Omni-directional	Auto
454DWDM	
Interface/Card Type	
<input checked="" type="checkbox"/> Transponder	<input checked="" type="checkbox"/>
<input type="checkbox"/> LineCard	<input type="checkbox"/>
<input type="checkbox"/> AlienCard	<input type="checkbox"/>
<input type="checkbox"/> PluggableCard	<input type="checkbox"/>
Client Interface	
Source	
Destination	

Help <Back Next> Finish Cancel

# Creating a Point-to-Point Demand

Step 8 - On the Platform Parameters page, complete the following in the Platform area

- Protection
- Path
- Optical Bypass
- Colorless

# Creating a Point-to-Point Demand

Step 9 - In the Platform Parameters page, complete the following fields in the Interface/Card Type area. The options available are based on the service type selected in Step 6.

- Transponder
- Line Card
- Alien Card
- Pluggable Card

# Creating a Point-to-Point Demand

Step 10 - destination (EW, SW, or LW) from the Source and Destination drop-down list. This option is available for transponder and muxponder interfaces that have pluggable client interfaces that depend on the selected service type and card type.

Note: In the LAN-WAN conversion mode, CTP automatically selects the Source and Destination client Note interface type if you have not selected the Source and Destination client interface type.

Step 11 - Click Finish ***Point-to-Point Demand Between Two Sites***



# Creating a Point-to-Point Demand

Step 12 - To add a new service, click the Add new service icon in the toolbar

Step 13 - To delete an existing channel, select the row and click the Delete service icon in the toolbar.

Step 14 - To set path constraints, click the Path Constraints Editor icon in the toolbar and complete the following as required:

- Output Node Interface—Choose from the drop-down list, the side through which the demand must be routed.
- Exclude Sites—Choose the sites that must be excluded from the demand route.
- Exclude Ducts—Choose the ducts that must be excluded from the demand route.

Click OK to save the changes and Cancel to close the dialog box without saving the changes.

# Creating a Point-to-Point Demand

Step 15 - This icon is available only at the trail level of the service demand.

Step 16 -To add a regeneration site, click the Regeneration... icon in the toolbar. The Regeneration editor appears. The regeneration site can be created only at the trail level

Step 17 - Click OK to save the changes to the channels and close the Demand editor dialog box, or Cancel to close the dialog box without saving the changes.

## Example 5

Create a point-to-point network with 3 nodes:

node a: line

node b: line

node c: terminal

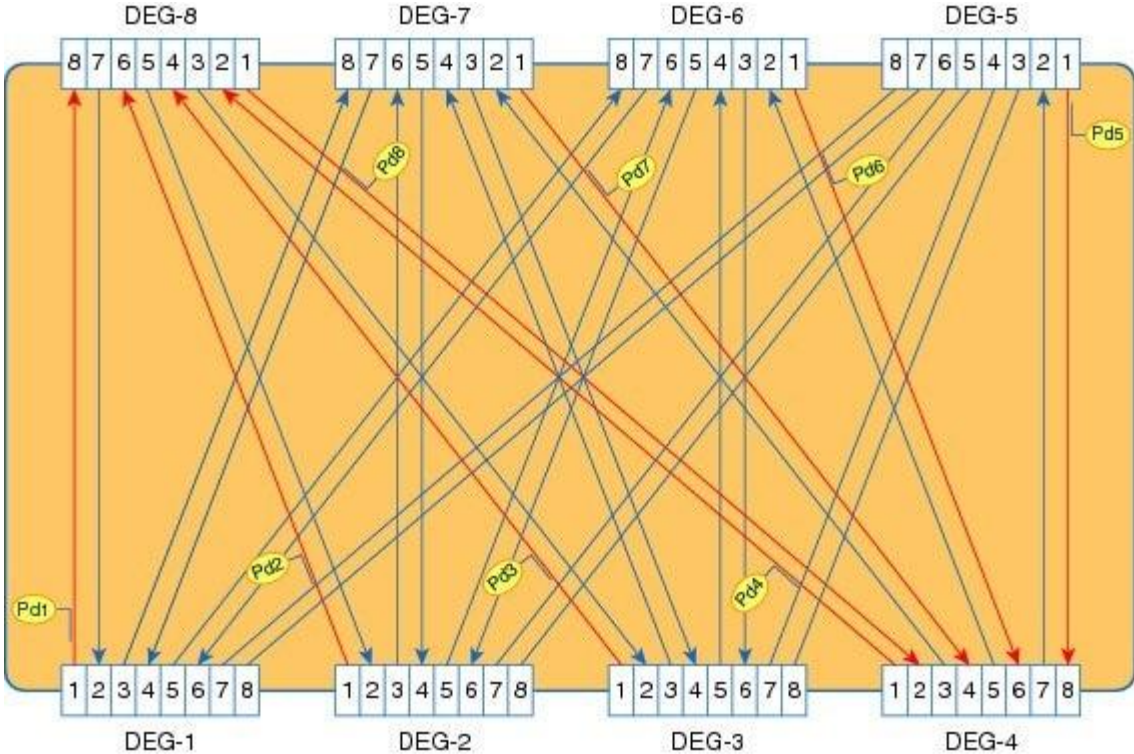
Use the mode FLEX NG with 96 channel

Configure a demand between node a e node b with 4 x 100GE omnidirecional

Configure a simple demand between node b e node c with 5 x 10GE

Examine how node C is configured

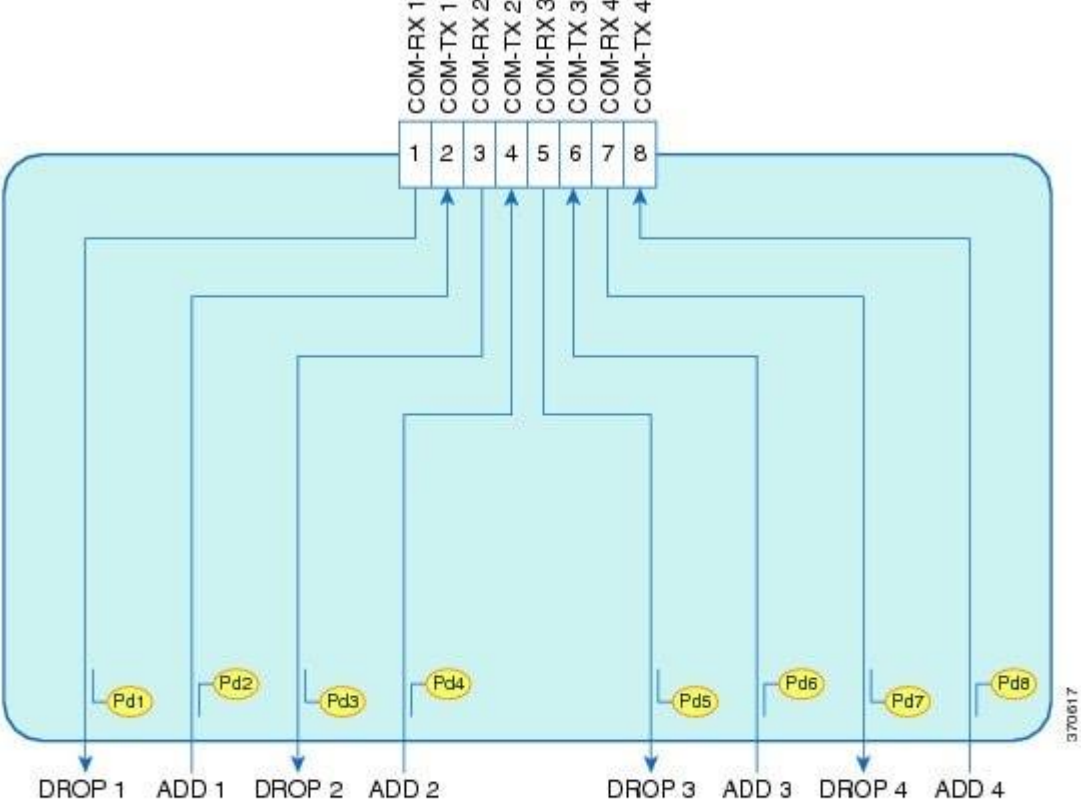
# MF-UPG-4



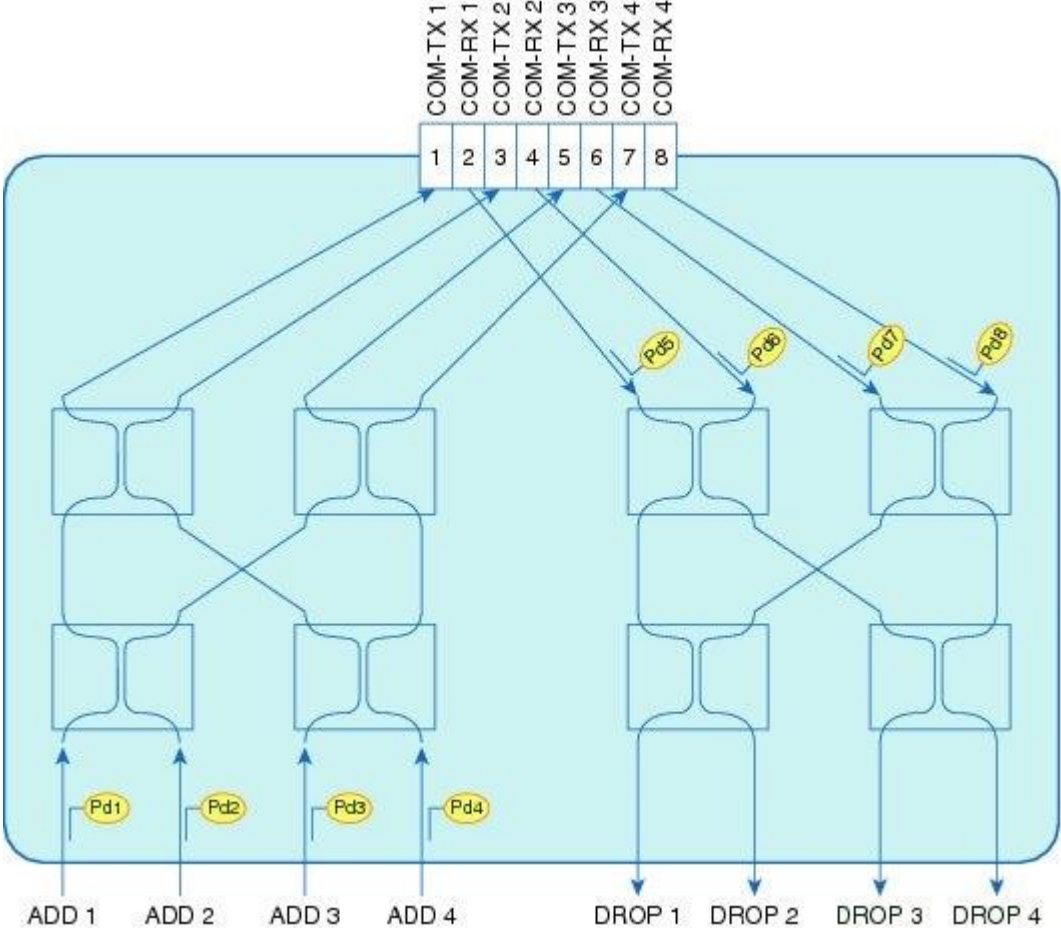
37.06.19



# MF-MPO-8LC



# MF 4x4 COFS-T

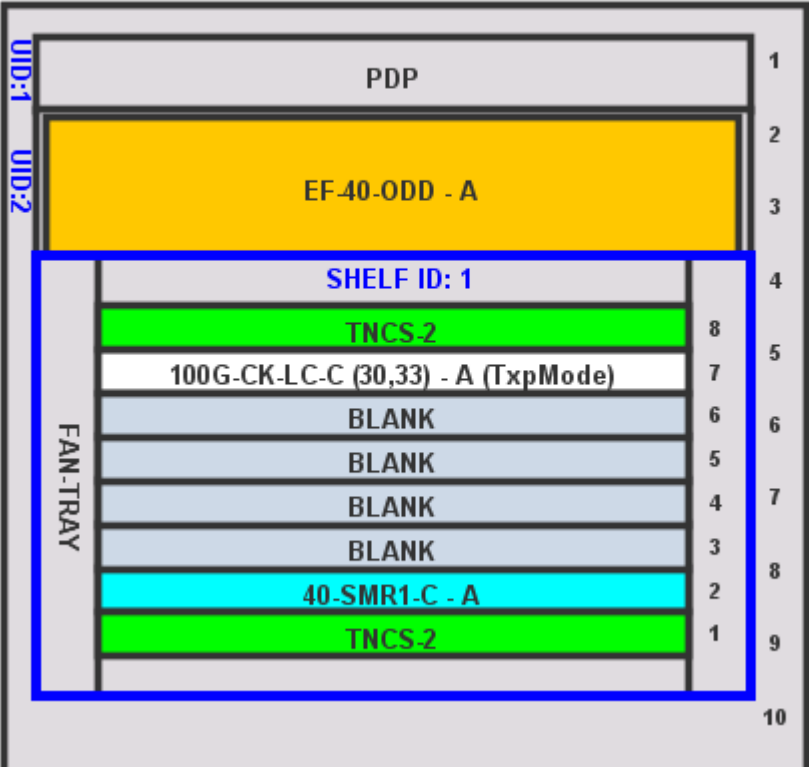


# Exemplo 6: point-to-point 10 channels

The screenshot displays the Cisco Transport Planner interface for a project named 'teste01.mpz'. The main workspace shows a network diagram with two nodes, 'Mooca' and 'Ipiranga', connected by a link labeled 'Tronco1 [20,0Km] EOL[5,6]'. Below this link, a dashed blue line indicates 10 channels between the nodes. The interface includes a Project Explorer on the left showing a tree structure with 'Notes (0)', 'Platforms', 'Nets', and 'Net1 [1]'. The Properties panel at the bottom left shows details for 'Net1', including its name, position (180; 40), and status (Design Analyzed). The Tasks Pane on the right lists 'Network Tasks' such as Copy, Delete, Install, Upgrade, Upgrade To Design, Analyze, Design, Show Templates, and Convert as SSON, along with 'System Tasks' like Release Upgrade. The status bar at the bottom indicates 'Version - 11.1.0.64', 'Design Analyzed', and '53M of 98M'.

# Layout with components

Rack-1



TNCs-2

2 SFP ports to OSC channel. Only Ethernet formats are available



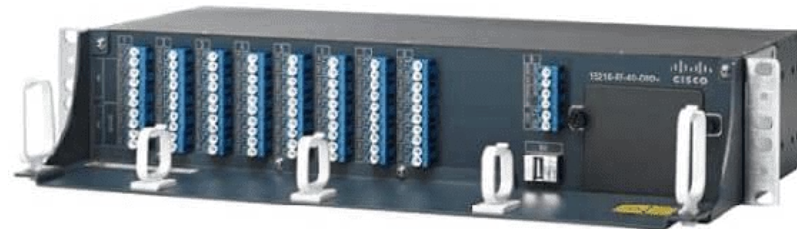
100G Transponder

# Other Components



40-SMR1-C-A

OSC add/drop filter, a pre-amplifier, and a 2x1 wavelength selective switch (WSS)-based ROADMs core into a single-slot unit.



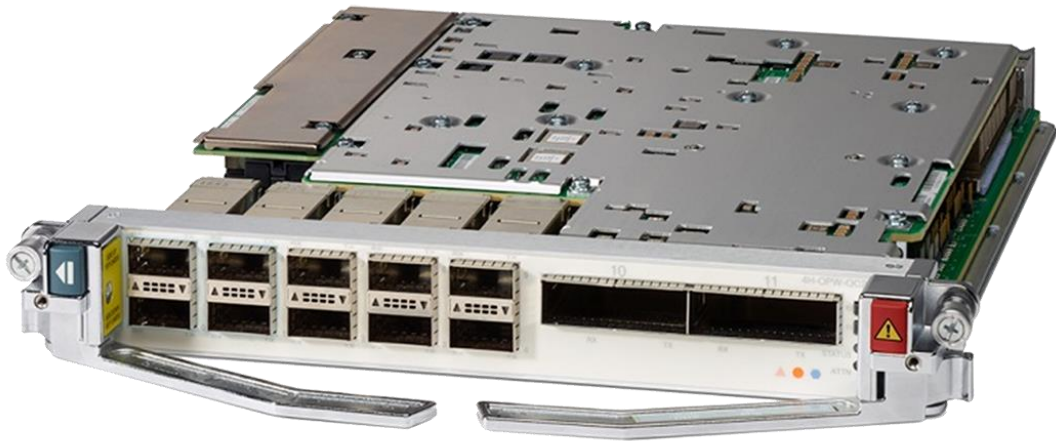
EF-40-ODD-A

# Cisco 15454 PP-80-LC



# 400G-XP-LC

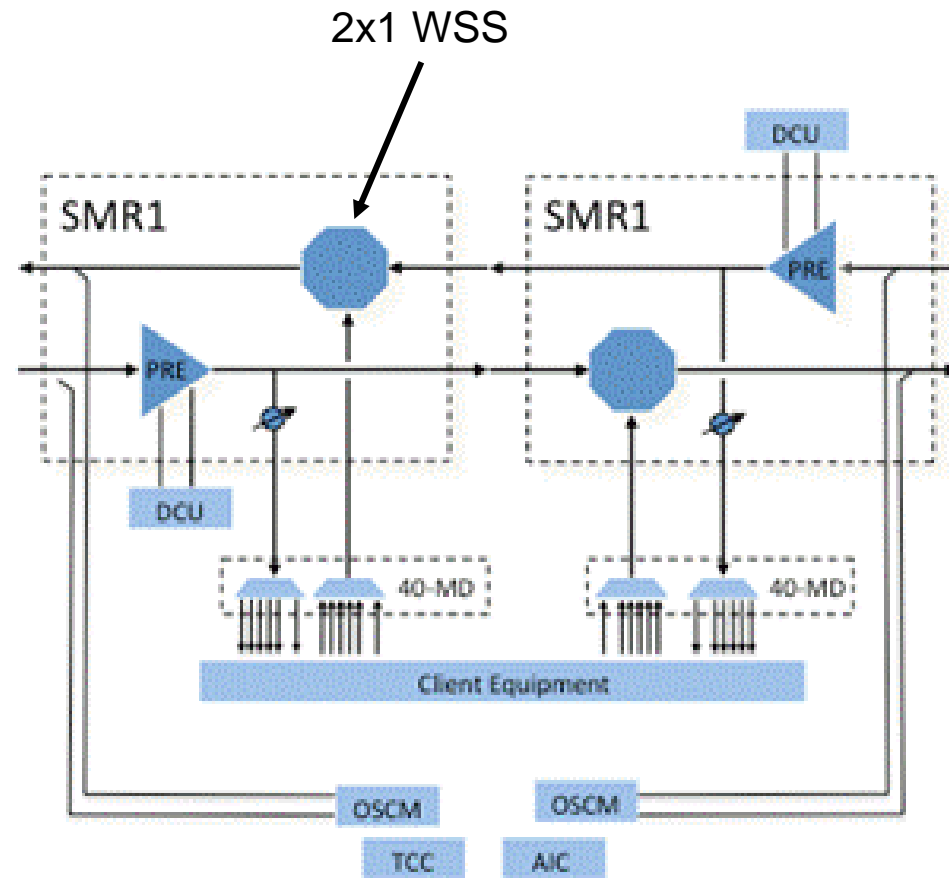
The 400G-XP-LC card is a tunable DWDM trunk card that simplifies the integration and transport of 10 Gigabit and 100 Gigabit Ethernet interfaces and services into enterprises and service provider optical networks. The card is a double-slot unit that provides 400 Gbps of client and 400 Gbps of trunk capacity. The card supports six QSFP+ based client ports that can be equipped with 4x 10 Gbps optics and four QSFP28 or QSFP+ based client ports that can be equipped with 100 Gbps QSFP28 and 4x 10 Gbps QSFP+ optics. The card is capable of aggregating client traffic to either of the two 200 Gbps coherent CFP2 trunk ports.



6 QSFP+ (4 x 10Gbps)  
4 QSFP28 ou QSFP+ (100G or 4 x10G)  
2 Trunk Ports 200 Gbps CFP2

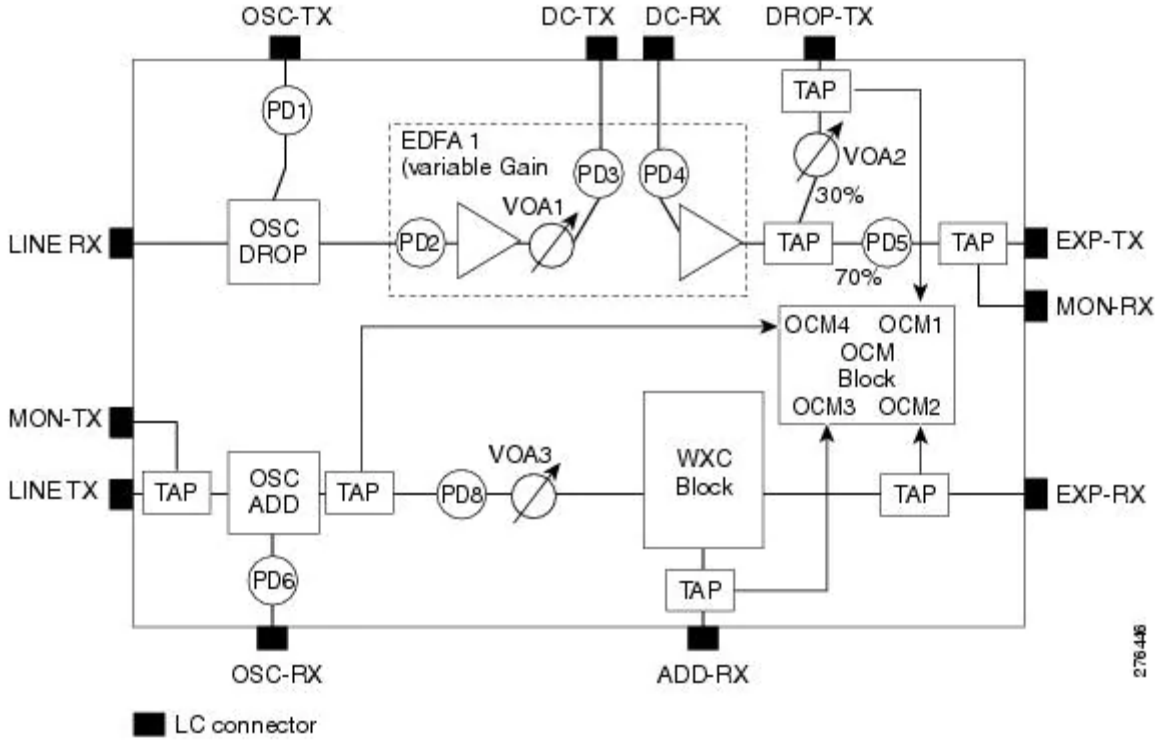


# WSS Components






# SMR-1 Block Diagram



# Patchcords Map

Name	Position	Unit	Port label	Attenuator	Position	Unit	Port label	P/F
 Mooca								
Fiber	NA	Fiber Distribution Pa...	FDPTx		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	LINE RX	P
Fiber	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	LINE TX		NA	Fiber Distribution Pa...	FDPRx	P
ATT-0dB	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DC TX		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DC RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-TX		Rack 1.M6 Chassis 1.Slot 7	100G-CK-LC-C	2-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 7	100G-CK-LC-C	2-TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	CHAN-1-RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	DROP TX		Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	COM RX	P
LC-LC-2	Rack 1.MD-40 SHELF 1.Slot 1	EF-40-ODD	COM TX		Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	ADD RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	OSC TX		Rack 1.M6 Chassis 1.Slot 1	TNCS-2	SFP2_RX	P
LC-LC-2	Rack 1.M6 Chassis 1.Slot 1	TNCS-2	SFP2_TX	15216-ATT...	Rack 1.M6 Chassis 1.Slot 2	40-SMR1-C	OSC RX	P

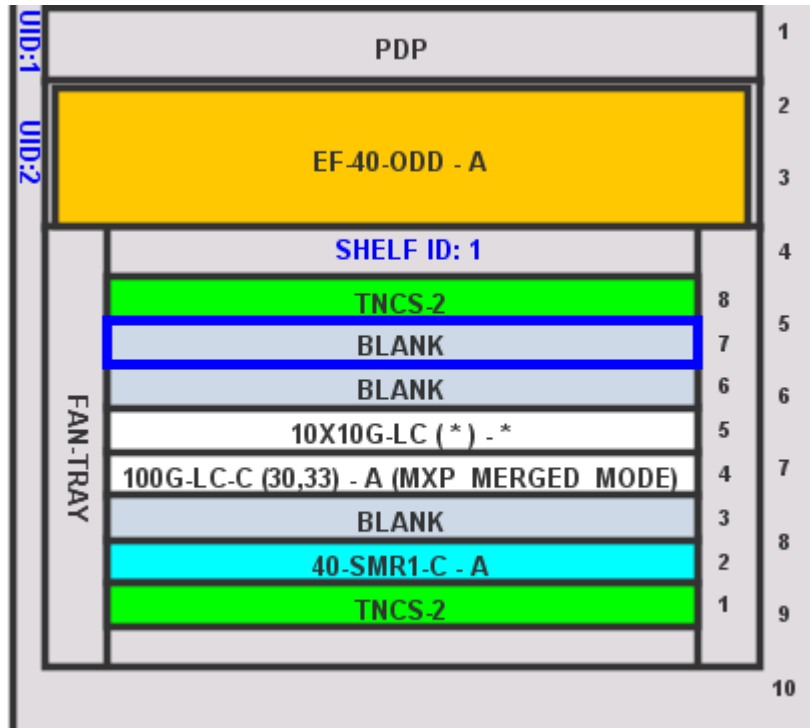
# Wavelength Routing

Details

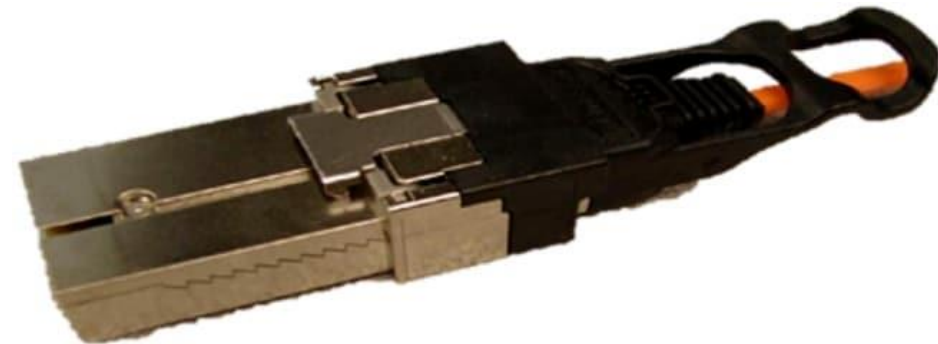
Export Help Messages Any TrafficSubnet\_1 [Linear]

#	$\lambda$	Mooca	Tronco1	Ipira...
O-03	1.530,33	A	Couple1	A
O-04	1.531,12			
O-05	1.531,90			
O-06	1.532,68			
O-07	1.533,47			
O-08	1.534,25			
O-09	1.535,04			

# 10 x 10G Muxponder



10x10G-LC

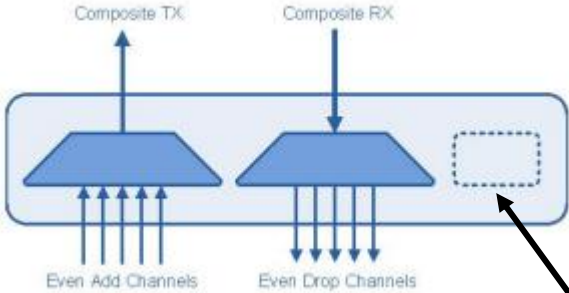
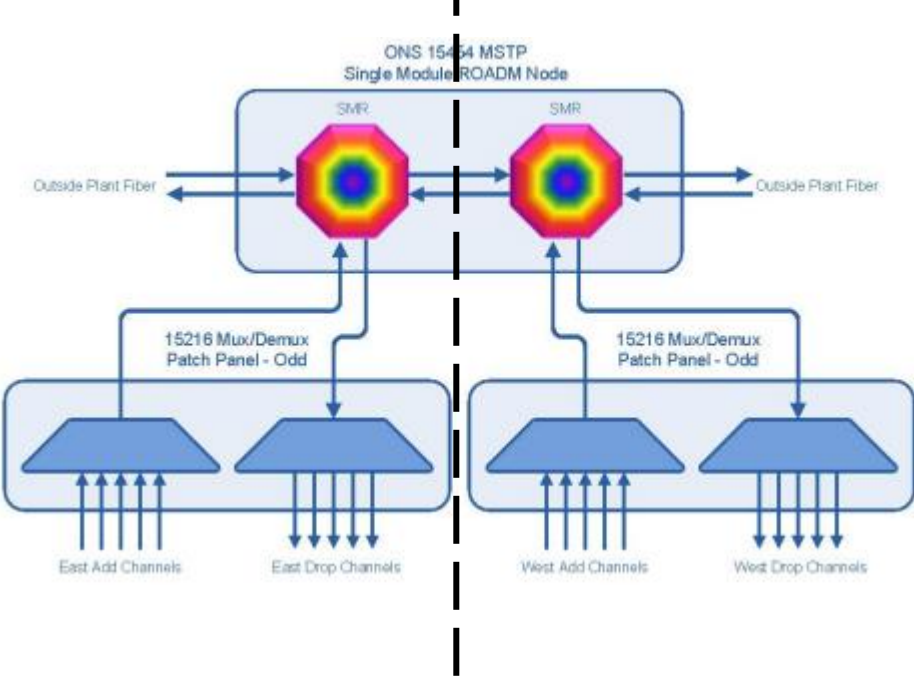
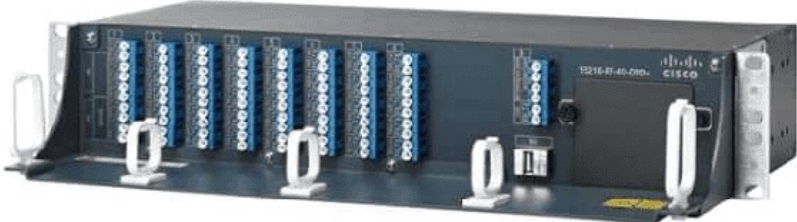


100G-LC-C

The Cisco CXP 100GBASE-SR10 module supports link lengths of 100m and 150m on laser-optimized OM3 and OM4 multifiber cables, respectively. The module delivers high-bandwidth 100-gigabit links over 24-fiber ribbon cables terminated with MPO/MTP-24 optical connectors. It can also be used in 10 x 10-Gb mode along with ribbon-to-duplex-fiber breakout cables for connectivity to ten 10GBASE-SR optical interfaces.

# Multiplex 40 channels

EF-40-ODD-A



Expansion module

Channel Wavelength					
15216-MD-40-ODD			15216-MD-40-EVEN		
Channel ID	Frequency (THz)	Wavelength (nm)	Channel ID	Frequency (THz)	Wavelength (nm)
1	195.9	1530.33	1	195.85	1530.72
2	195.8	1531.12	2	195.75	1531.51
3	195.7	1531.90	3	195.65	1532.29
4	195.6	1532.68	4	195.55	1533.07
5	195.5	1533.47	5	195.45	1533.86
6	195.4	1534.25	6	195.35	1534.64
7	195.3	1535.04	7	195.25	1535.43

# Bill of Materials

Details
Fevereiro 22, 2021 at 17:15:08

Export Help Messages

BoM total discounted: 0,00  
 Spare total discounted: 0,00  
 BoM + Spare total discounted: 0,00

Price List: Master Price DB  
 Price List last update: Never  
 Currency: Usd

Use MSM Bundle     
  Use Spare Parts     
  Use Global Discount     
 Global Discount (%)

**BoM**

Spare

Product ID	Description	Quantity	Unit Price	Unit Discount	Total Price	Discounted Total Price	Mooca	Ipiranga
ONS-SC+-10G-SR=	SFP+ SR - Commercial Temp	20	0,00	0.0	0,00	0,00	10	10
15454-SMR-1-LIC=	SM ROADM 1-PRE-AMP 100GHZ-CBAND-10ch L...	2	0,00	0.0	0,00	0,00	1	1
NCS2006-SA=	NCS 2006 Shelf Assembly	2	0,00	0.0	0,00	0,00	1	1
NCS2006-ECU-S=	NCS 2006 External Connections Unit - w/2x US...	2	0,00	0.0	0,00	0,00	1	1
NCS2006-LCD=	NCS 2006 LCD Display with Backup Memory	2	0,00	0.0	0,00	0,00	1	1
15454-BLANK=	Empty slot Filler Panel	6	0,00	0.0	0,00	0,00	3	3
NCS2006-FTA=	NCS 2006 Fan Tray	2	0,00	0.0	0,00	0,00	1	1
NCS2006-DC40=	NCS 2006 40A DC Power Filter	4	0,00	0.0	0,00	0,00	2	2
15216-ATT-LC-10=	Bulk Attenuator - LC Connector - 10dB	2	0,00	0.0	0,00	0,00	1	1
15454-LC-LC-2=	Fiber patchcord - LC to LC - 2m	10	0,00	0.0	0,00	0,00	5	5
15454-M-USBCBL=	USB cable for passive devices	2	0,00	0.0	0,00	0,00	1	1
NCS2K-TNCS-2-K9=	NCS 2000 Transport Node Controller, version 2	4	0,00	0.0	0,00	0,00	2	2
15216-EF-ODD-LIC=	Licensed 10ch Exposed Faceplate mux demux ...	2	0,00	0.0	0,00	0,00	1	1
15454-M-ALMCBL2=	SCSI Alarm cable 24AWG 8 inputs	2	0,00	0.0	0,00	0,00	1	1
ONS-SE-155-1510=	SFP - OC3/STM1 CWDM, 1510 nm, EXT	2	0,00	0.0	0,00	0,00	1	1
15454M-R1110SWK9=	MSTP - ANSI & ETSI, R.11.1 - RTU LIC DVD, NO...	2	0,00	0.0	0,00	0,00	1	1
15454-M-10X10G-LC=	10x10G Multi rate Client Line Card	2	0,00	0.0	0,00	0,00	1	1
15454-M-100G-LC-C=	100G OTU-4 ITU-T CP-DQPSK Full C Band Tune...	2	0,00	0.0	0,00	0,00	1	1

Net view Site view

Summary | Layout × | Internal Connections × | Wavelength Routing × | Bill Of Material ×

# Installation Parameters

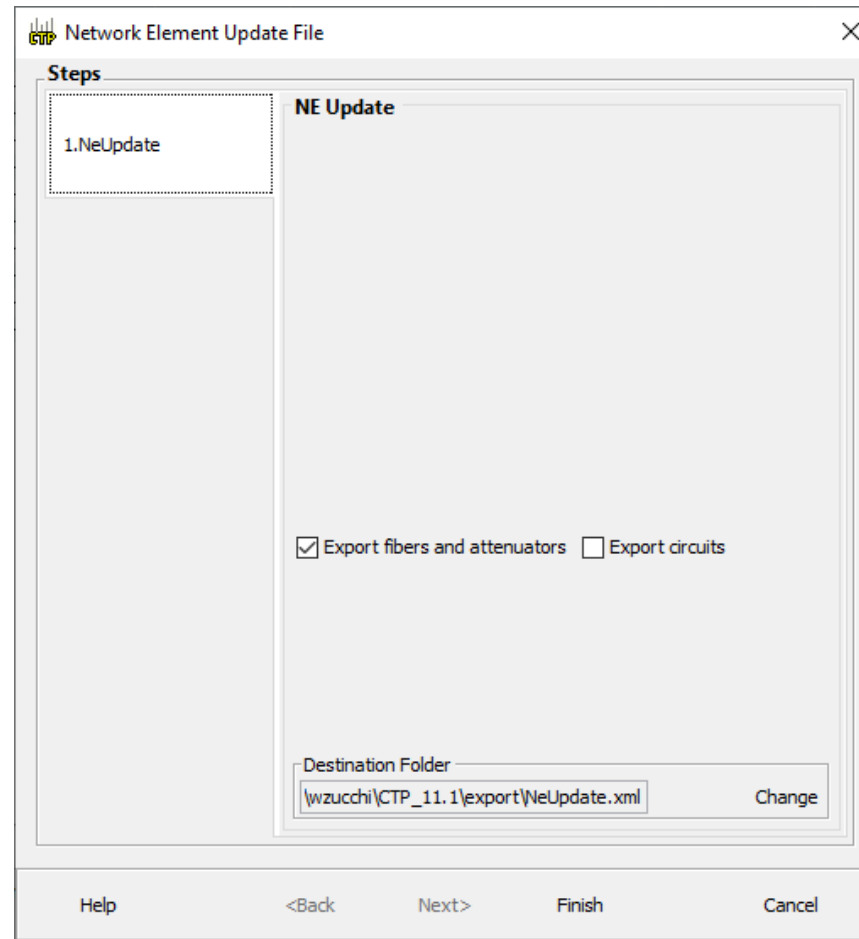
The screenshot displays the Cisco Transport Planner interface. The main window shows a table of installation parameters for a network named 'Net1'. The table includes columns for Name, Side, Position, Unit, Port #, Port ID, Port Label, Parameter, Value, Measurement Unit, and Manual Set. The parameters listed include NetworkType (Metro-Core), amplifier power and tilt settings, span loss, channel loss, and drop output power.

Name	Side	Position	Unit	Port #	Port ID	Port Label	Parameter	Value	Measurement Unit	Manual Set
NetworkType Metro-Core string No										
Ipiranga	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	2	Shelf-1-LINE-2-1-TX	EXP TX	dwdm::Rx::Amplifier::ChPower	1.0	dBm	No
Moooca	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	2	Shelf-1-LINE-2-1-TX	EXP TX	dwdm::Rx::Amplifier::Tilt	-0.0	dB	No
Control Gain string No										
NE - 1	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	9	Shelf-1-LINE-2-5-RX	LINE RX	dwdm::Rx::MinExpectedSpanLoss	5.0	dB	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	9	Shelf-1-LINE-2-5-RX	LINE RX	dwdm::Rx::MaxExpectedSpanLoss	6.1	dB	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	9	Shelf-1-LINE-2-5-RX	LINE RX	dwdm::Rx::Threshold::ChannelLOS	-26.6	dBm	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	9	Shelf-1-LINE-2-5-RX	LINE RX	dwdm::Rx::Threshold::OSC-LOS	-21.6	dBm	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	8	Shelf-1-LINE-2-4-TX	DROP TX	dwdm::Rx::Power::DropOdd	-6.5	dBm	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	7	Shelf-1-LINE-2-4-RX	ADD RX	dwdm::Rx::Threshold::ChannelLOS	-11.3	dBm	No
	A	Rack 1.Shelf 1.Slot 2	40 SMR 1 C	10	Shelf-1-LINE-2-5-TX	LINE TX	dwdm::Tx::Power::Add-and-DropOutputP...	-15.5	dBm	No

The right-hand side of the interface features a 'Tasks Pane' with an 'Actions' section containing multiple 'Release Upgrade to 1...' buttons. Below this are sections for 'Fibres' (Fibres Dialog, Fibres Options) and 'Reports'. The 'Reports' section includes a list of report types: Bill of Material, Wavelength Routing, Optical Results, **Installation Parameters** (highlighted with an arrow), NE Update, Traffic Matrix, Link Availability, Layout, Internal Connections, Summary, TDM Aggregated Demand, OTN Aggregated Demand, Ethernet Aggregated Dem..., and A2A Finalized Circuits.

An arrow points from the text 'Save parameters' to the 'Installation Parameters' report entry in the Reports list.

# NE Update File

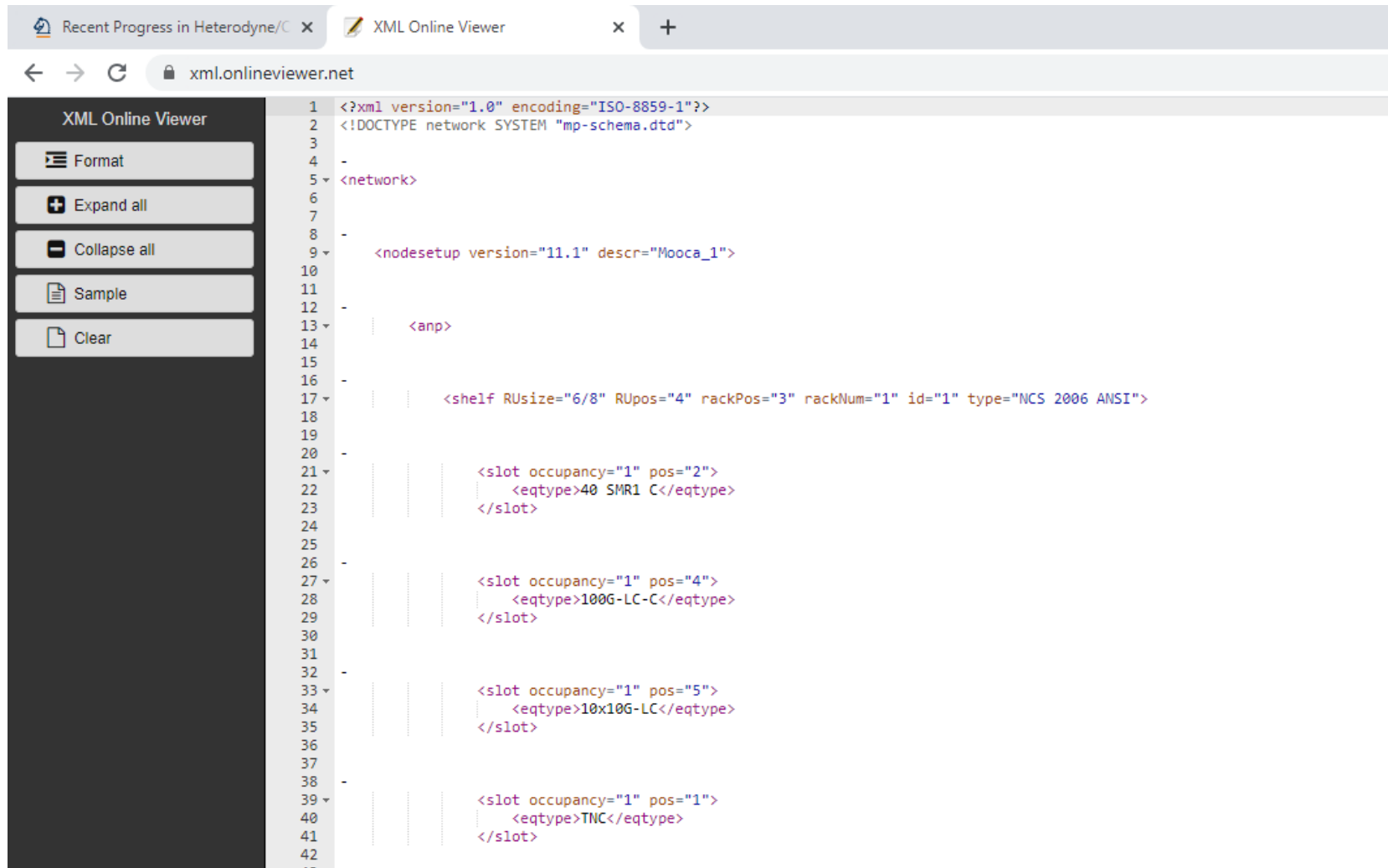




# XML Encoding

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!DOCTYPE network SYSTEM "mp-schema.dtd">
- <network>
  - <nodesetup version="11.1" descr="Mooca_1">
    - <anp>
      - <shelf RUsize="6/8" RUpos="4" rackPos="3" rackNum="1" id="1" type="NCS 2006 ANSI">
        - <slot occupancy="1" pos="2">
          <eqtype>40 SMR1 C</eqtype>
        </slot>
        - <slot occupancy="1" pos="4">
          <eqtype>100G-LC-C</eqtype>
        </slot>
        - <slot occupancy="1" pos="5">
          <eqtype>10x10G-LC</eqtype>
        </slot>
        - <slot occupancy="1" pos="1">
          <eqtype>TNC</eqtype>
        </slot>
        - <slot occupancy="1" pos="8">
          <eqtype>TNC</eqtype>
        </slot>
      </shelf>
      - <shelf RUsize="1" RUpos="1" rackPos="1" rackNum="1" type="PASSIVE CHASSIS">
        - <slot occupancy="1" pos="1">
          <eqtype>MECH UNIT</eqtype>
          <description>PDP</description>
          <unit_id>1</unit_id>
        </slot>
      </shelf>
      - <shelf RUsize="2/2" RUpos="2" rackPos="2" rackNum="1" type="PASSIVE CHASSIS">
        - <slot occupancy="2" pos="1">
          <eqtype>PASSIVE MD 40 ODD</eqtype>
          <description>PASSIVE EF 40 ODD</description>
        </slot>
      </shelf>
    </anp>
  </nodesetup>
</network>
```

# XML Viewer (online tool)




The screenshot displays the XML Online Viewer interface. The browser tab is titled "XML Online Viewer" and the address bar shows "xml.onlineviewer.net". The left sidebar contains the following controls:






- Format
- Expand all
- Collapse all
- Sample
- Clear




The main content area shows the XML code with line numbers on the left:

```
1 <?xml version="1.0" encoding="ISO-8859-1"?>
2 <!DOCTYPE network SYSTEM "mp-schema.dtd">
3
4 -
5 <network>
6
7
8 -
9   <nodesetup version="11.1" descr="Mooca_1">
10
11
12 -
13   |   <anp>
14
15
16 -
17   |   |   <shelf RUsize="6/8" RUpos="4" rackPos="3" rackNum="1" id="1" type="NCS 2006 ANSI">
18
19
20 -
21   |   |   |   <slot occupancy="1" pos="2">
22   |   |   |   |   <eqtype>40 SMR1 C</eqtype>
23   |   |   |   </slot>
24
25
26 -
27   |   |   |   <slot occupancy="1" pos="4">
28   |   |   |   |   <eqtype>100G-LC-C</eqtype>
29   |   |   |   </slot>
30
31
32 -
33   |   |   |   <slot occupancy="1" pos="5">
34   |   |   |   |   <eqtype>10x10G-LC</eqtype>
35   |   |   |   </slot>
36
37
38 -
39   |   |   |   <slot occupancy="1" pos="1">
40   |   |   |   |   <eqtype>TNC</eqtype>
41   |   |   |   </slot>
42
43
```

# Provisioning Parameters

Help  Messages

Name	Unit Id	Shelf id	Slot position	Port position	Ppm position	Parameter	Value
  Ipiranga							
  Mooca							
 NE - 1							
		1	4	2		WL	1530.33
		1	4			Cfg	MXP-10x10G
		1	4	2		FEC	standard
		1	5			Cfg1-2-3-4-5-6-7-8-9-10	MXP-10x10G
		1	5			PeerCard	1-4

 ANS |  ANP |  PP

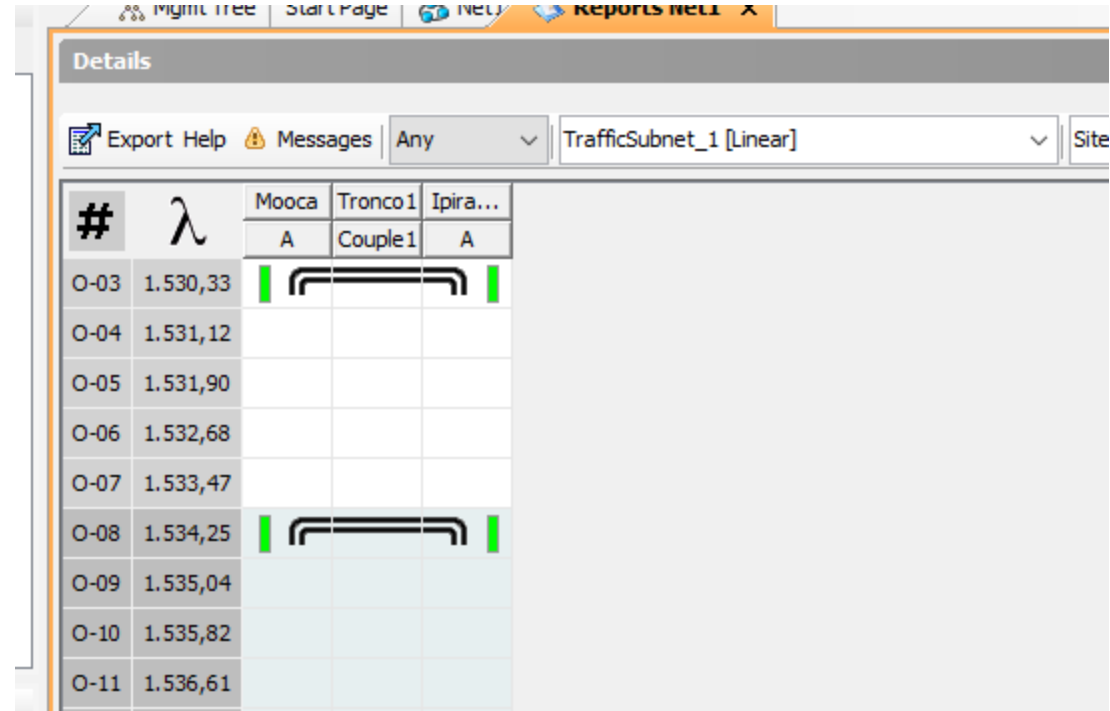
# Adding a new demand

The screenshot displays the Cisco Transport Planner interface. The main window shows a rack configuration for a Mooca site. The rack contains a Power Distribution Panel (PDP) at the top, followed by a shelf labeled 'SHELF ID: 1'. The shelf contains several line cards, with the '100G-CK-LC-C (34,25) - A (TxpMode)' card highlighted in blue. The rack is labeled 'Rack - 1' and 'M6 Chassis - 1'. The shelf is labeled 'FAN TRAY' on the left side. The rack is connected to a 'Mooca' site, which is part of a 'Net1' network. The interface also shows a 'Project Explorer' on the left, a 'Properties' pane at the bottom left, and a 'Details' pane at the bottom right. The 'Details' pane shows the following information for the selected line card:

Details for 100G-CK-LC-C (34,25)	
Client info	
Ports	
Product Info	
Product ID	NCS2K-100G-CK-C=
Service Category	N/A
Description	100G CPAK Multi-Rate Line Card - CP-DQPSK - C-Band
Cost Info	







The status bar at the bottom indicates the version is 11.1.0.64, the design is analyzed, and the current project is NetworkDesigner\_ZP, with 69M of 129M memory used.

# Wavelength Routing




Details

Export Help Messages Any TrafficSubnet\_1 [Linear] Site

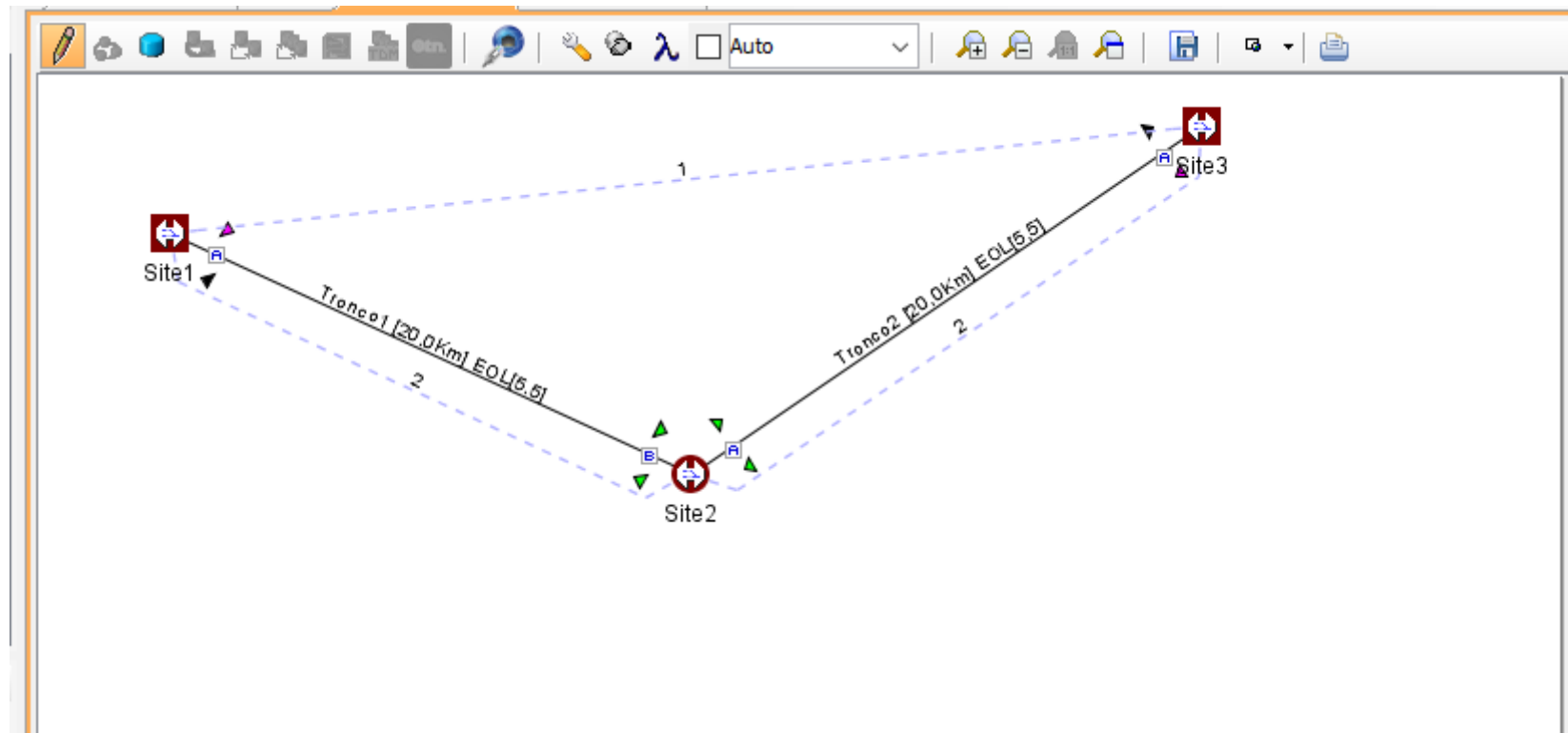
#	$\lambda$	Mooca	Tronco1	Ipira...
		A	Couple1	A
O-03	1.530,33			
O-04	1.531,12			
O-05	1.531,90			
O-06	1.532,68			
O-07	1.533,47			
O-08	1.534,25			
O-09	1.535,04			
O-10	1.535,82			
O-11	1.536,61			



# Installation Parameters (PP)

Details								
Help  Messages								
Name	Unit Id	Shelf id	Slot position	Port position	Ppm position	Parameter	Value	
<input checked="" type="checkbox"/> Ipiranga								
<input checked="" type="checkbox"/> Mooca								
<input checked="" type="checkbox"/> NE - 1								
		1	4	2		WL	1530.33	
		1	4			Cfg	MPX-10x10G	
		1	4	2		FEC	standard	
		1	5			Cfg1-2-3-4...	MPX-10x10G	
		1	5			PeerCard	1-4	
		1	7	2		WL	1534.25	
		1	7			Cfg1-2	TXP-100G	
		1	7	2		FEC	7%HighGain...	

# Line Configuration (50 GHz)



All demands are 100GE

Optical Network: 64 ch 50GHz



# Wavelength Routing

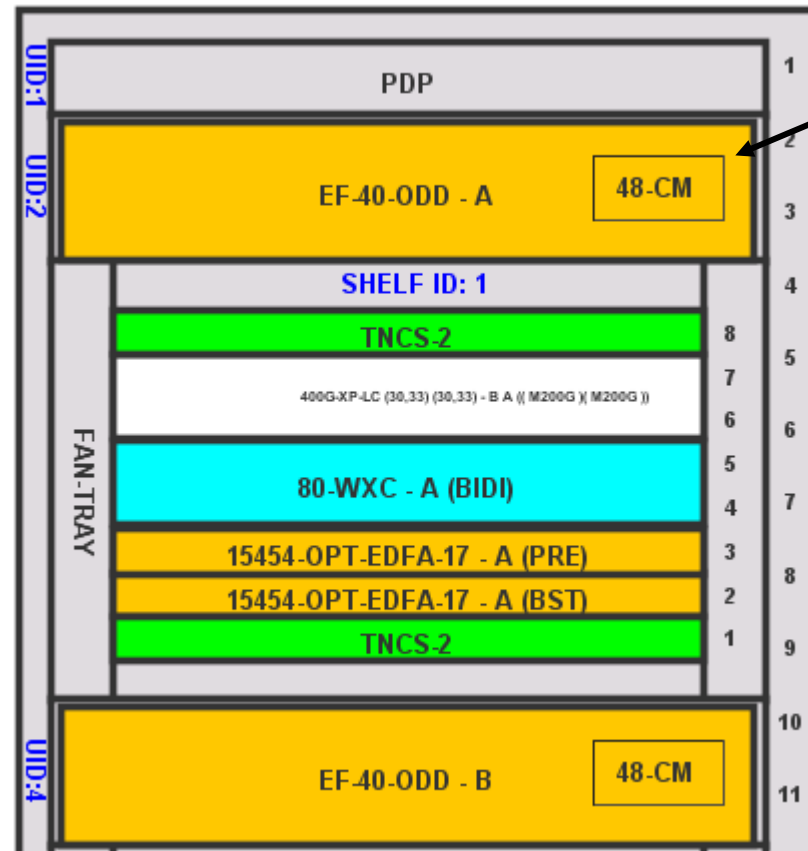
Details

Export Help Messages Any TrafficSubnet\_1 [Linear]

#	$\lambda$	Site1	Tronco1	Site2		Tronco2	Site3
		A	Couple1	B	A	Couple1	A
O-03	1.530,33						
E-03	1.530,72						
O-04	1.531,12						
E-04	1.531,51						
O-05	1.531,90						
E-05	1.532,29						

is)

# Line Site Rack 1 Module 1

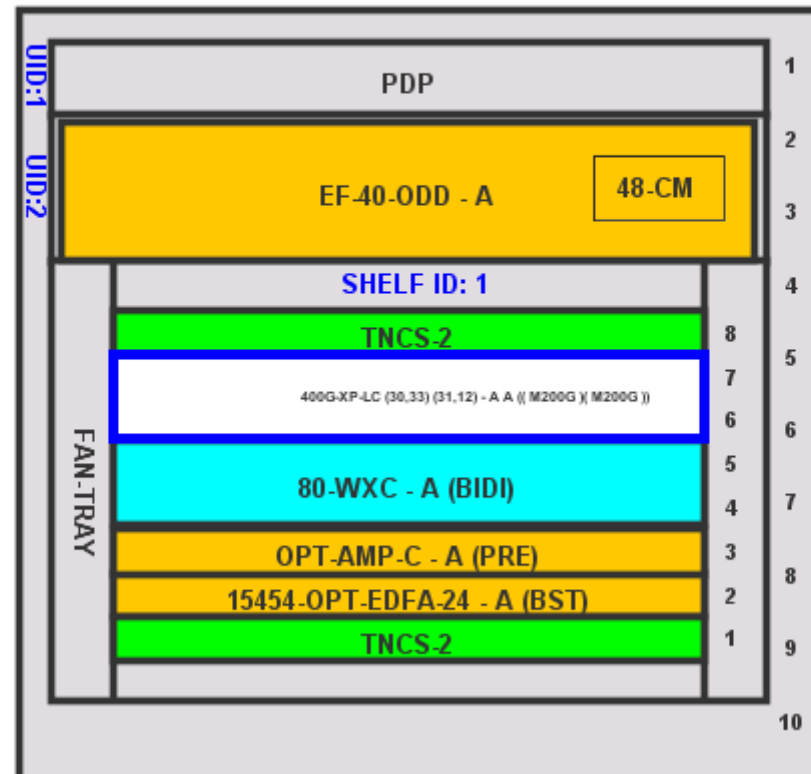


# Line Site Rack 1 Module 2



# Terminal Site

## Site1 Rack-1



# Point-Point Demand - Putting all together

- Step 1** In the *NtView Name* tab, click the **Create new Point-to-Point demand** icon in the toolbar. For more information about the Cisco Transport Planner icons, see the [GUI Information and Shortcuts, on page 367](#).
- Step 2** Click the source site of the demand.
- Step 3** Click the destination site of the demand. The *Point to Point Demand Creation* wizard appears.
- Step 4** From the drop-down list, select *Traffic Subnet ALL* or any of the previously created traffic subnets to which this service demand should be part of, and proceed to Step 5. If you wish to create a new traffic subnet see the [Creating Traffic Subnet, on page 64](#).
- Step 5** Click *Next*.
- Step 6** When *SSON* is enabled, there will be two options in the *General Parameters* page, such as *Media Channel* and *Media Channel Group*. You can add both *Media Channel Group* and *Media Channel* or either of them, when *SSON* is enabled. On the *General Parameters* page, complete the following:

# SSON Configuration

**Media Channel**—Check the check box to enable Media Channel when SSON is enabled.

- **Label**—Enter the name of the demand.
- **Source**—(Display only) Displays the source site name.
- **Destination**—(Display only) Displays the destination site name.
- **Service Type**—Choose the service type from the drop-down list. For a list of services, see the [Service Support](#), on page 6.
- **Present # ch**—Enter the number of channels to be created. The Forecast # ch field automatically updates with the number entered in this field.
- **Forecast # ch**—Enter the number of channels to be installed at a later date. This value includes the Present # ch value. For example, if you entered 4 in the Present # ch value and want to add two channels in the future, enter 6.

**Media Channel Group**—Check the check box to enable Media Channel Group, when SSON is enabled. You can associate Media Channel to Media Channel group.

- **Media Channel Group Name** — Enter the name of the Media Channel Group.
- **Source** — (Display only) Displays the source site name.
- **Destination** — (Display only) Displays the destination site name.

# Platform Configuration

**Step 7** Click **Next**. The Platform Parameters page appears.

**Step 8** On the Platform Parameters page, complete the following in the Platform area:

- **Protection**—Choose the protection type from the drop-down list: **Client 1+1**, **Y-Cable**, **Fiber Switched**, **Unprotected**, or **PSM-OCH**. For more information on protection types, see the [Protection Scheme Support](#), on page 4.

**Note** Y-cable protection is not available for encrypted traffic types.

- **Path**—(Unprotected only) Choose the routing type from the drop-down list:
- **Auto**—Allows the highest degree of flexibility in routing the channels. Cisco Transport Planner routes the channels with the lowest possible cost, given the other constraints.
- **A**—Select this for a Terminal or a Terminal+ site.
- **A or B**—Select either of these for a Line or a Line+ site.
- **A, B, C, or D**—Select either of these for a Multidegree site if four ducts are connected.
- **A, B, C, D, E, F, G, or H**—Select either of these for a Multidegree site if eight ducts are connected.
- **Aw or Ap**—Select either of these for a PSM Terminal - Optical Path Protection or PSM Terminal - Multiplex Section Protection site.
- **Optical Bypass**—(Unprotected only) Choose the site where the channels for the current demand will be optically bypassed. A channel in optical bypass is dropped on one side of the node and added on the other side of the same node to allow the future use of that node as an add/drop location.

**Note** Optical Bypass cannot be performed for an NG-DWDM node.

# Platform Configuration (cont.)

- **Media Channel Group** — Choose the media channel that has to be associated with the Media Channel Group.
- **Colorless**— Choose an option from the colorless drop-down list. For more information on colorless property see the [Understanding Colorless Functionality, on page 66](#).
  - **Auto**—(Default) Disables colorless functionality on the demand.
  - **Yes**—Enables colorless functionality on the demand.
  - **No**—Disables colorless functionality on the demand.
- **Omni-directional**— Choose an option from the Omni-directional drop-down list. For more information on omnidirectional property see the [Understanding Omnidirectional Functionality, on page 65](#).
  - **Auto**—(Default) Dynamically enables omnidirectional functionality on a colorless demand, when the colorless demand needs to be dropped on an omnidirectional side with colorless ports, due to lack of any other colorless port on the side.
  - **Yes**—Enables omnidirectional functionality on the demand.
  - **No**—Disables omnidirectional functionality on the demand.
- **Contentionless**—Choose an option from the contentionless drop-down list. For more information on contentionless property see the [Understanding Contentionless Functionality, on page 67](#).
  - **Auto**—(Default) Disables contentionless functionality on the demand.
  - **Yes**—Enables contentionless functionality on the demand.
  - **No**—Disables contentionless functionality on the demand.
- **Encryption**—Choose an option from the Encryption drop-down list.
  - **Yes**—Enables encryption functionality on the demand.
  - **No**—Disables encryption functionality on the demand.

**Note** The Encryption option is available only if you have selected 100GE, 10GE LAN PHY, OTU2e, OTU2, OC192, or STM64 as Service Type in Step 6.



# Transponder

- Step 9** In the Platform Parameters page, complete the following fields in the Interface/Card Type area. The options available are based on the service type selected in Step 6.
- **Transponder**—Click to expand, then check the Card Type check box to select the card at the end sites of the service channels.
  - **Line Card**—Click to expand the Line Card folder and then check the Card Type check box to select the card at the end sites of the service channels. For a list of line cards supported for specific service types, see the [Service Support, on page 6](#).
  - **Alien Card**—Appears only if you created a third-party interface as described in the [Defining Third-Party DWDM Interfaces, on page 35](#). Click to expand the Alien Card folder and then check the card type check box to select the card at the end sites of the service channels.
  - **Pluggable Card**—Click to expand the Pluggable Card folder and then check the card type check box to select the card at the end sites of the service channels.
- Step 10** In the Client Interface area, define the client interface type for the source (SR, ZR, ER, or LR) and destination (EW, SW, or LW) from the Source and Destination drop-down list. This option is available for transponder and muxponder interfaces that have pluggable client interfaces that depend on the selected service type and card type.
- In the LAN-WAN conversion mode, CTP automatically selects the Source and Destination client interface type if you have not selected the Source and Destination client interface type.

# Demand Editor

**Step 11** Click **Finish**. The Demand Editor dialog box appears listing the present and forecast channels.

The demand appears in the NtView name tab and in the Project Explorer pane in the Service Demands > Point To Point folders. A demand is a solid line when selected and a dotted line when not selected. The line has a number above it that indicates the number of channels that are present. The following figure shows a selected point-to-point demand with five channels between sites 1 and 2.

Encryption for 400G-XP-LC card can be enabled/disabled in demand editor under **Service**.

*Figure 11: Point-to-Point Demand Between Two Sites*



**Step 12** To add a new service, click the **Add new service** icon in the toolbar. A new row appears. Complete the parameters for the new channel.

**Step 13** To delete an existing channel, select the row and click the **Delete service** icon in the toolbar.

# Point-To-Point Final Steps

**Step 14** To set path constraints, click the **Path Constraints Editor** icon in the toolbar and complete the following as required:

- **Output Node Interface**—Choose from the drop-down list, the side through which the demand must be routed.
- **Exclude Sites**—Choose the sites that must be excluded from the demand route.
- **Exclude Ducts**—Choose the ducts that must be excluded from the demand route.

Click **OK** to save the changes and **Cancel** to close the dialog box without saving the changes.

**Step 15** This icon is available only at the trail level of the service demand.

**Step 16** To add a regeneration site, click the **Regeneration...** icon in the toolbar. The Regeneration editor appears. The regeneration site can be created only at the trail level. For more information, see the [Creating a Regeneration Site, on page 94](#).

**Step 17** Click **OK** to save the changes to the channels and close the Demand editor dialog box, or **Cancel** to close the dialog box without saving the changes.

**Note** To make changes to the demand parameters, see the [Editing a Point-to-Point Demand, on page 239](#), or click **Cancel** to close the Demand Editor dialog box.

**Note** For each network, Cisco Transport Planner automatically creates a default subnet that exactly matches the overall network topology. This cannot be deleted.

## Example 6

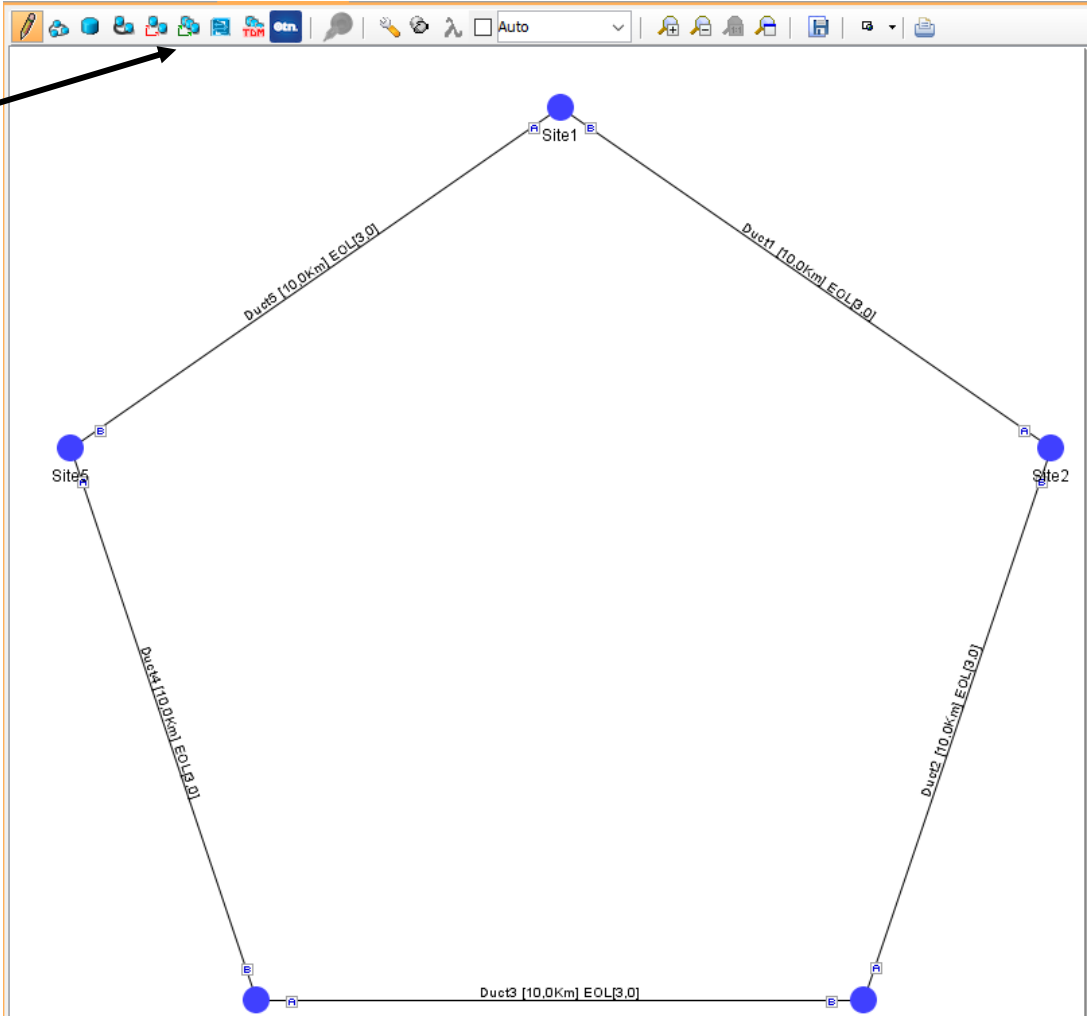
Create a point-to-point demand and test all options previously described

Create the same network with omnidirectional, colorless and contentionless interfaces

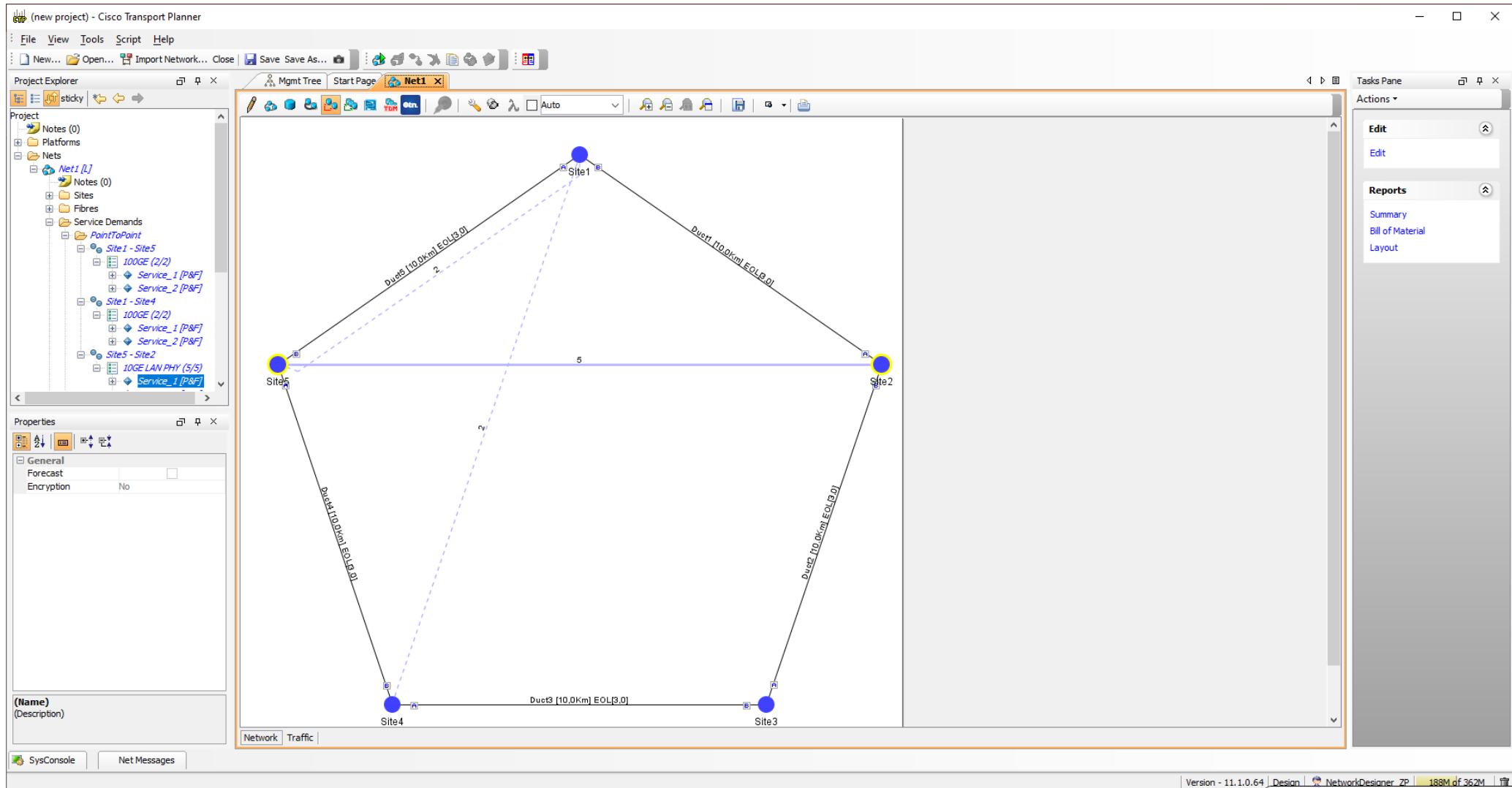
Compare the results

# RING TOPOLOGY

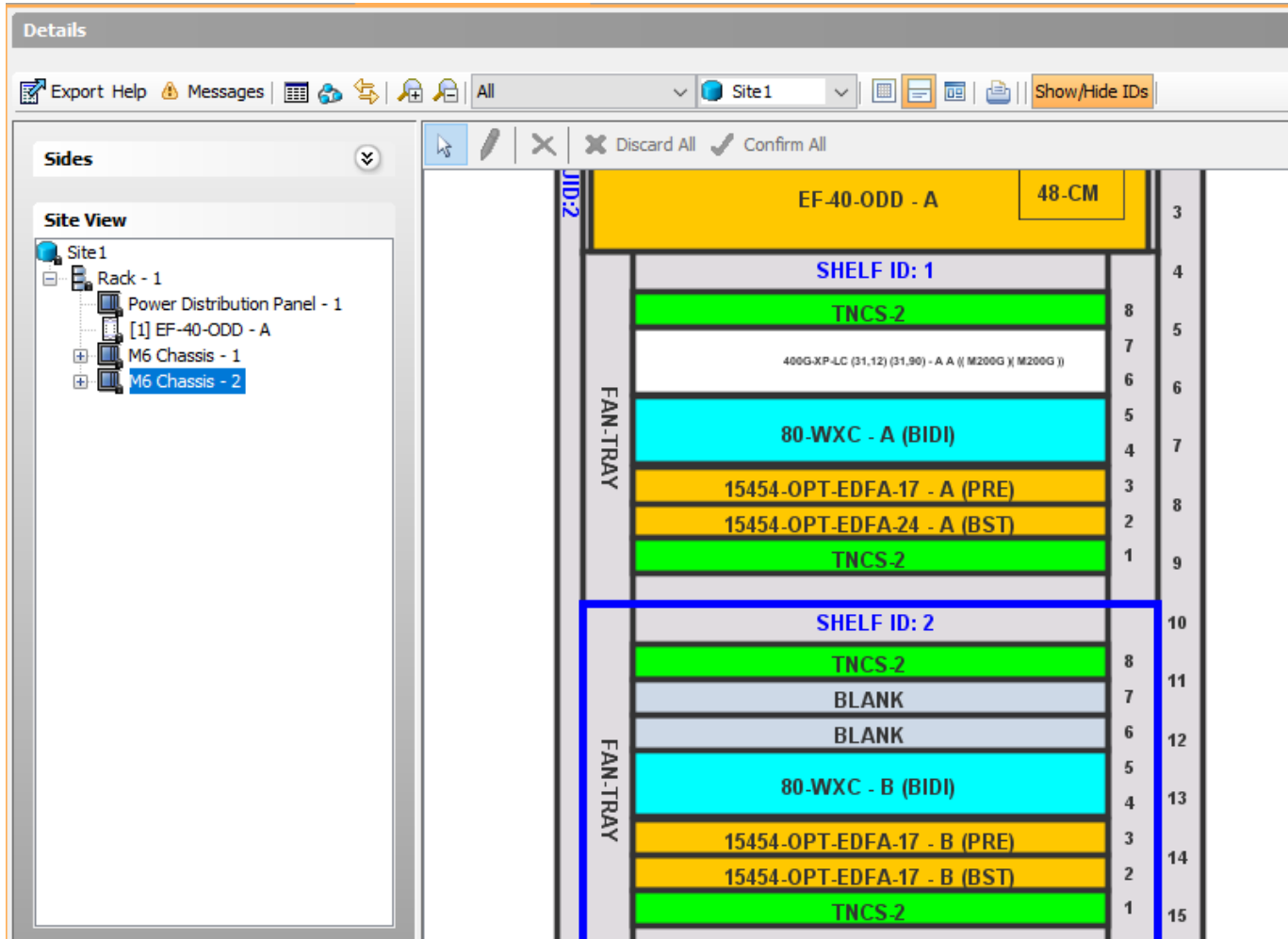
create demand



# Ring Topology



# Node 1 - Ring Topology



# Creating a Protected Ring Demand

The screenshot shows a dialog box titled "P-Ring Creation Wizard" with a close button (X) in the top right corner. On the left side, there is a "Steps" pane with four steps listed: "1. Traffic Subnet", "2. General Parameters", "3. Sites Selection", and "4. WDM Client Selection". The first step, "1. Traffic Subnet", is highlighted with a dotted border. The main area of the dialog is titled "Traffic Subnet Selection" and contains a label "Traffic Subnet:" followed by a dropdown menu showing "TrafficSubnet\_1 [Ring]". Below this, there is a button labeled "Create new traffic subnet". At the bottom of the dialog, there is a navigation bar with buttons for "Help", "<Back", "Next>", "Finish", and "Cancel".

all nodes are on  
this subnet



# Creating a Protected Ring Demand

The screenshot shows a window titled "P-Ring Creation Wizard" with a close button (X) in the top right corner. On the left side, there is a "Steps:" section with a vertical list of four steps: "1. Traffic Subnet", "2. General Parameters", "3. Sites Selection", and "4. WDM Client Selection". The first step, "1. Traffic Subnet", is highlighted with a grey background. The main area of the wizard is titled "Traffic Subnet Selection" and contains a label "Traffic Subnet:" followed by a dropdown menu. The dropdown menu currently displays "TrafficSubnet\_1 [Ring]". Below the dropdown menu is a button labeled "Create new traffic subnet". At the bottom of the wizard, there are four buttons: "<Back", "Next>", "Finish", and "Cancel".

# Creating a Protected Ring Demand

Step 1 - Create a ring network

Step 2 - In the Native Net# tab, click the Create new P-Ring demand icon in the toolbar

Step 3 - For each network, the tool automatically creates, a default subnet that exactly matches the overall network topology. This cannot be deleted

Step 4 - On the General Parameters page, complete the following:

- Label—Enter the name of the demand.
- Service Type
- Present # ch—Enter the number of channels to be created
- Forecast # ch—Enter the number of channels to be installed at a later date

Step 5 - Click Next.

# Creating a Protected Ring Demand

Step 6 - On the Sites Selection page, in the Protection Sites area, press Ctrl and click the sites that you want to add to the P-ring. A P-ring requires at least two sites.

Step 7 - Click Next. The WDM Client Selection page appears.

# Defining Demand

The image shows a software dialog box titled "P-Ring Creation Wizard". On the left side, there is a vertical list of four steps: "1. Traffic Subnet", "2. General Parameters", "3. Sites Selection", and "4. WDM Client Selection". The second step, "2. General Parameters", is highlighted with a dotted border, indicating it is the current step. The main area of the dialog is titled "General Parameters" and contains four input fields: "Label" with the text "P-Ring", "Service Type" with a dropdown menu showing "100GE", "Present # ch" with the value "4", and "Forecast # ch" with the value "4". At the bottom of the dialog, there are five buttons: "Help", "<Back", "Next>", "Finish", and "Cancel".

**P-Ring Creation Wizard**

**Steps**

- 1. Traffic Subnet
- 2. General Parameters
- 3. Sites Selection
- 4. WDM Client Selection

**General Parameters**

Label	<input type="text" value="P-Ring"/>
Service Type	<input type="text" value="100GE"/>
Present # ch	<input type="text" value="4"/>
Forecast # ch	<input type="text" value="4"/>

Help    <Back    Next>    Finish    Cancel

# Creating a Protected Ring Demand

**P-Ring Creation Wizard**

Steps:

1. Traffic Subnet
2. General Parameters
3. Sites Selection
4. WDM Client Selection

WDM Client Selection

**Platform**

Colorless	Auto
Omni-directional	Auto

**4.54DWDM**

**Interface/Card Type**

Transponder	<input checked="" type="checkbox"/>
LineCard	<input type="checkbox"/>
AlienCard	<input type="checkbox"/>
PluggableCard	<input type="checkbox"/>

**Client Interface**

Source	
Destination	

Help <Back Next> Finish Cancel

# Sites Selection

P-Ring Creation Wizard

**Steps**

- 1. Traffic Subnet
- 2. General Parameters
- 3. Sites Selection
- 4. WDM Client Selection

**Sites Selection**

Protection Sites

Site2 Site4 Site5	➤ ➤	Site1 Site3
-------------------------	--------	----------------

Optical Bypass

Site4 Site5	➤ ➤	Site2
----------------	--------	-------

Help <Back Next> Finish Cancel

# Creating a Protected Ring Demand

Step 8 - On the WDM Client Selection page, enter the following Platform Parameters:

- Colorless
- Omni-directional

Step 9 - Complete the following in the Interface/Card Type area. The options available are based on the service type selected in Step 4.

- Transponder
- Line Card
- Alien Card
- Pluggable Card

# Creating a Protected Ring Demand

Step 10 - Click Finish. The Demand Editor dialog box appears.

Step 11 - To add a new service, click the Add new service icon in the toolbar. A new row appears. Complete the parameters for the new channel.

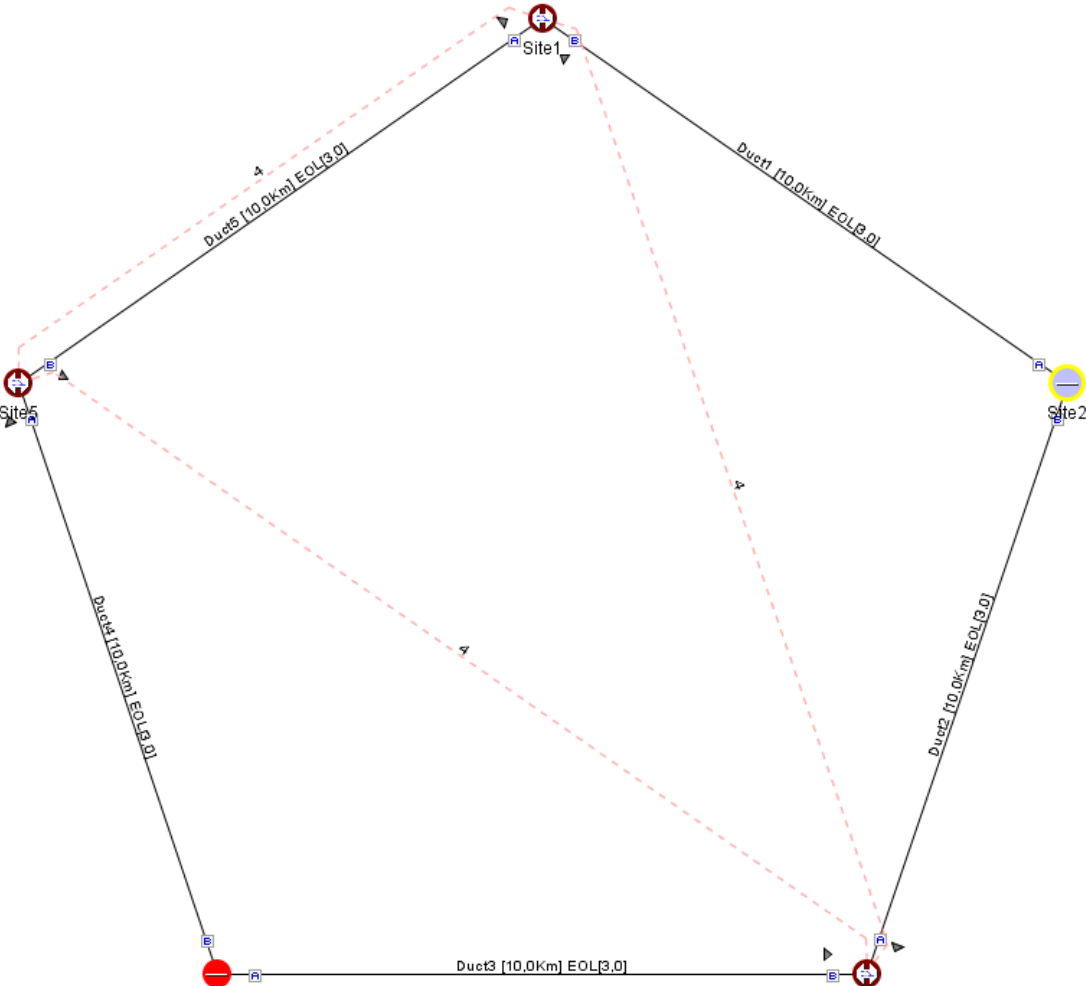
Step 12 - To delete an existing channel, select the row and click the Delete service icon in the toolbar.

Step 13 - To add a regeneration site, click the regeneration... icon in the toolbar

Step 14 - Click OK to save the changes



# P-Ring Demand





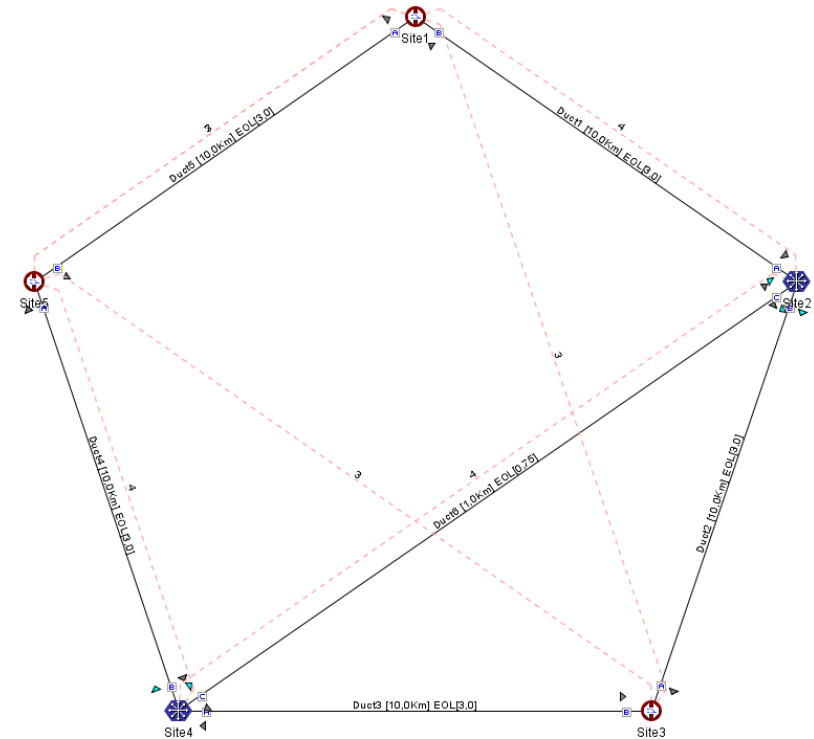
# Example 7

Create a ring network with 5 nodes and two alternative path

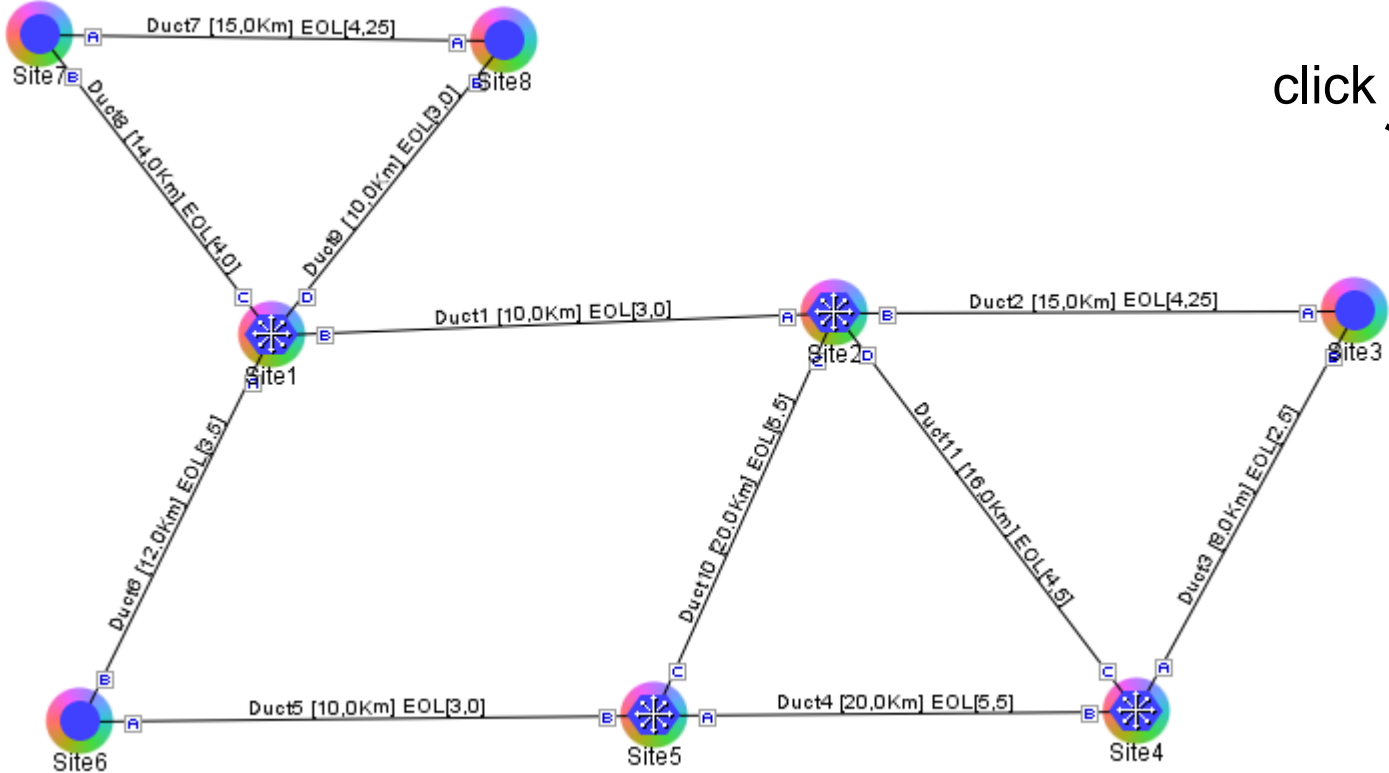
Create two traffic subnets

Create demands for each traffic subnet

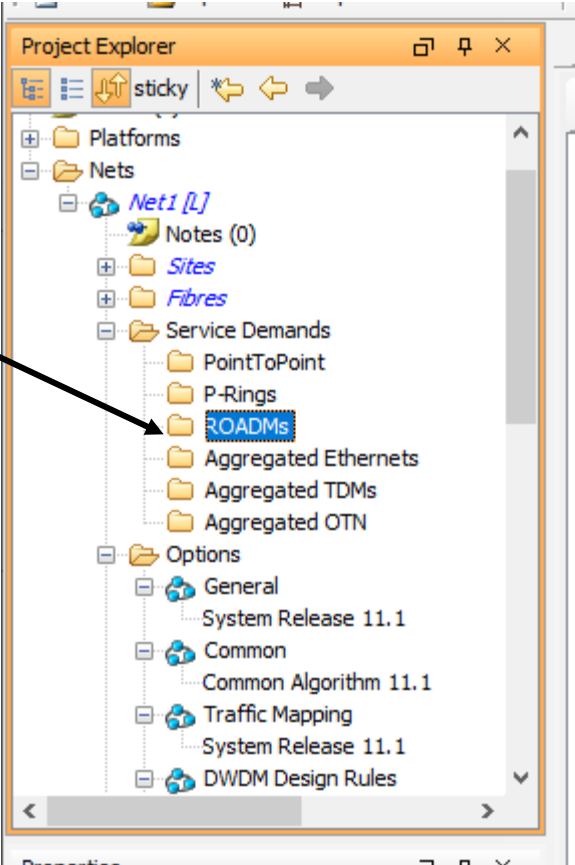
Examine the configuration generated by CTP



# Mesh Networks and ROADMs Demands



click here



# Creating a ROADM Demand

Step 1 - In the Project Explorer, under Nets, right-click the ROADM folder and choose New ROADM Group. The ROADM Group Creation Wizard appears.

Step 2 - Select the desired traffic subnet from the Traffic Subnet field.

Step 3 -Type the ROADM traffic group name in the Group Name field.

Step 4 -Check the desired sites.

Step 5- Click Finish. The new ROADM traffic group appears under the ROADM folder in the Project Explorer.

Step 6 - Right-click the new ROADM traffic group and choose Create new ROADM demand from the shortcut menu. The Create ROADM Demand dialog box appears

# Creating a ROADM Demand

Step 7 - (Optional) If you copied properties of an existing ROADM demand, click Use Template to use the properties of the copied ROADM demand.

Step 8 - Enter a name for the demand in the Demand Name field.

Step 9 - Select a traffic pattern type (Hub, Meshed, or Ring)

Step 10 - Select a routing strategy from the Routing Strategy drop-down list: Protected, Unprotected Minimum Hop, Unprotected Optimum Path, or Unprotected Subnet. If you chose Unprotected Subnet, continue with the next step; otherwise proceed to Step 12.

Step 11 - If you chose Unprotected Subnet, choose the starting site and the direction the ring must be traversed from the drop-down lists.

Step 12 - In the Service Types list, check the boxes for one or more client service types for the ROADM demand. The client interfaces that support each service type appear in the table to the right of the Service Types list.

Step 13 - To further define the client interfaces, complete the following options for each client interface listed in the table

# Creating a ROADM Demand

Step 14 - Click OK to create the demand.

Step 15 - Copy ROADM demand properties

Step 16 - To finalise the ROADM demand, complete the following steps:

- Analyse the network.
- Upgrade the analysed network.
- On the General Parameters page, complete the following:
  - Label
  - Service Type
  - Present # ch
  - Forecast # ch

# Routing Strategies for ROADM demands

- **Unprotected optimum optical path**—Each node pair is connected using one connection. The unprotected optimum optical path minimizes the number of required optical amplifiers, but also restricts the number of channels that can be deployed among the nodes of the traffic demand (maximum of 40 channels between each node pair) in the installed network.
- **Unprotected minimum hop count**—Each node pair in the traffic demand is connected by one connection. The unprotected minimum hop count maximizes the number of channels (for unprotected traffic types only) that can be deployed among the nodes of the traffic demand, but requires a higher number of optical amplifiers on the unprotected optimum optical path (maximum of 40 channels between each node pair) in the installed network.
- **Unprotected subnet**—Each node pair in the traffic demand is connected using one connection. You can manually force connections on only one branch of the ring. For unprotected subnets, you must manually select one starting node of the branch and the direction the ring must be traversed to define the subnet, starting from the initial site. The branch direction is specified by defining the outgoing side first, referred to as the starting node. This routing strategy option allows you to exclude some critical paths and (with ROADM traffic demands containing two sites) to force each ROADM connection clockwise or counterclockwise.

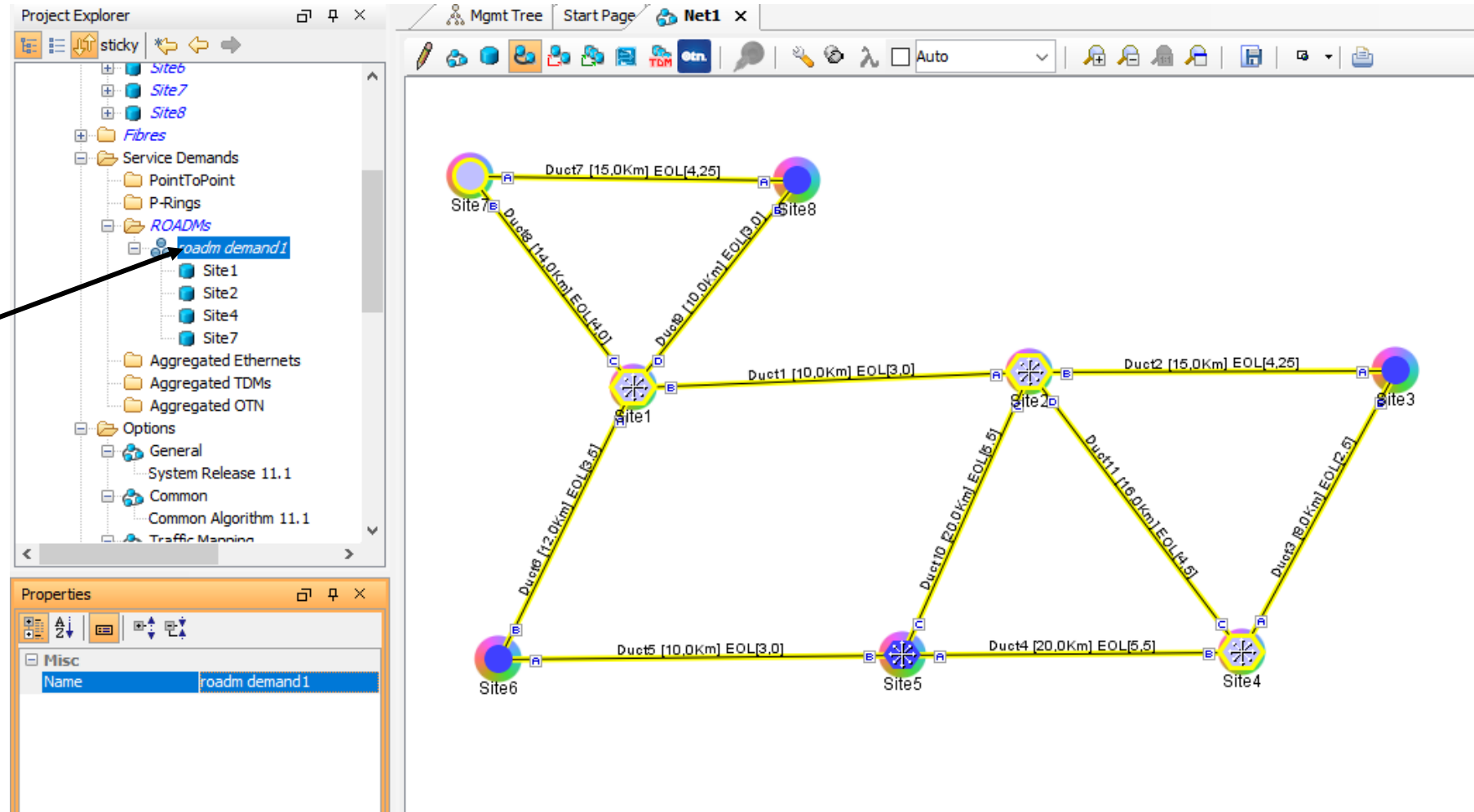


# Traffic subnet

The image shows a software dialog box titled "ROADM Group Creation Wizard". It features a "Steps" sidebar on the left with two items: "1. Traffic Subnet" (which is highlighted) and "2. General Parameters". The main area is titled "Traffic Subnet Selection" and contains a label "Traffic Subnet:" followed by a dropdown menu currently showing "Traffic Subnet ALL". Below this is a button labeled "Create new traffic subnet". At the bottom of the dialog, there is a navigation bar with buttons for "Help", "<Back", "Next>", "Finish", and "Cancel".

# New ROADM demand

right click  
here



# Create ROADM Demand

**Create ROADM Demand**

ROADM Demand

Demand Name: ROADM Demand

Traffic Type: Meshed

Routing Strategy: Unprotected Minimum Hop

First Site: Site 1

Subnet: Site 1

OmniDirection:

Colorless:

Contentionless:

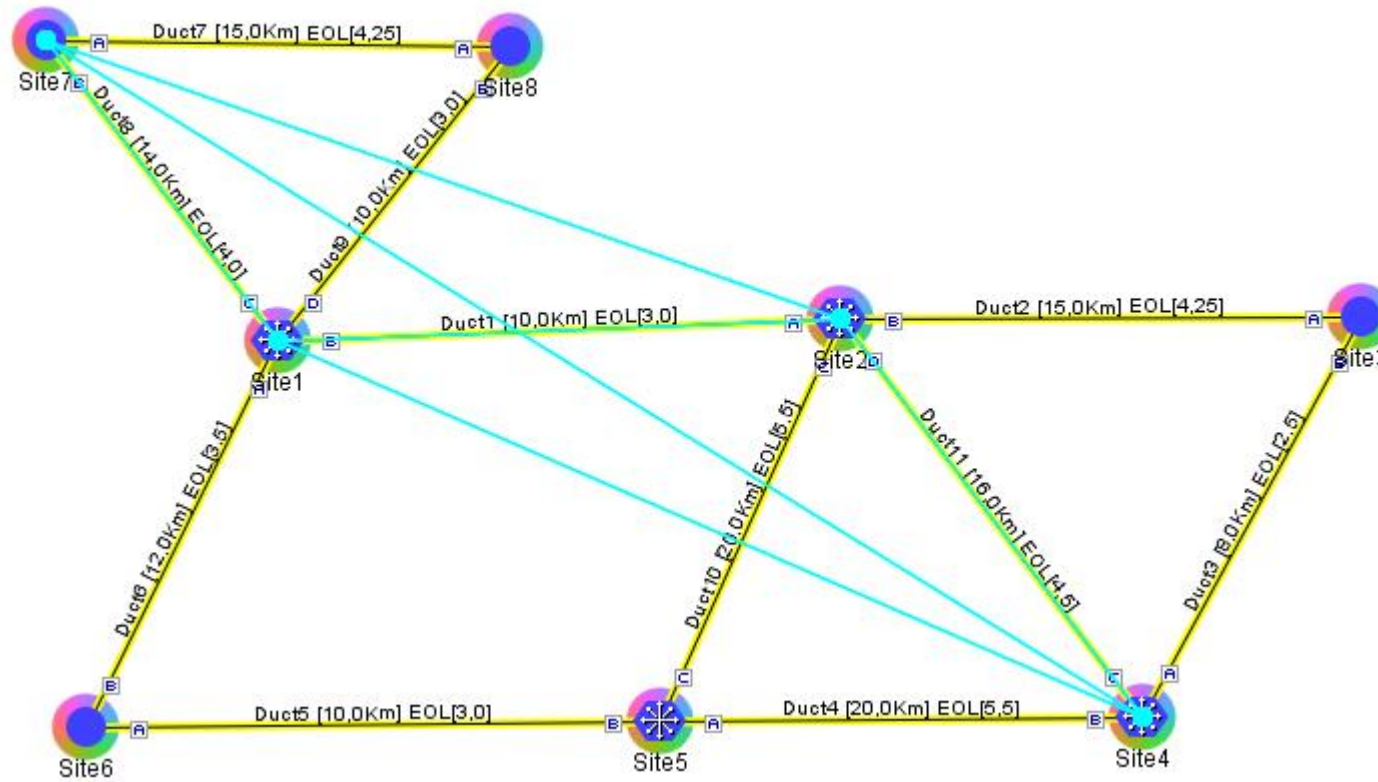
Service Types:

- 100GE
- 10G-FICON
- 10GE LAN PHY
- 10GE WAN PHY
- 1G-FICON
- 2G-FICON
- 40GE LAN PHY
- 4G-FICON
- 5G InfiniBand
- 8G-FICON
- ESCON
- Fibre Channel
- Fibre Channel 10G
- Fibre Channel 16G
- Fibre Channel 2G
- Fibre Channel 4G
- Fibre Channel 8G

Yes/No	Client Interface	Y-Cable	1+1	Fiber Switched	Supported Service
<input type="checkbox"/>	400G-XP-LC - w/SD-FEC_25-NO_DE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	400G-XP-LC - w/SD-FEC_15-NO_DE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP (100G Mxp 2x...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP (100G Mxp 2x...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP (100G Mxp 2x...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP + MR-MXP (20...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + 10X10G-LC - w/SD-FEC...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + 10X10G-LC - w/FEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + 10X10G-LC - w/EFEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP (200G Mxp Mo...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC(100G mode only) - w/EFEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC(100G mode only) - w/SD-...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC(100G mode only) - w/FEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	200G-CK-LC + MR-MXP + MR-MXP...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Ok Cancel Help

# Mesh Demand



# Summary Report

(new project) - Cisco Transport Planner

File View Tools Script Help

New... Open... Import Network... Close Save Save As...

Project Explorer

Project

- Notes (0)
- Platforms
- Nets
  - Net1 [L]
    - Notes (0)
    - Sites
    - Fibres
    - Service Demands
      - PointToPoint
      - P-Rings
      - 100GE (1/1)
        - Service\_1
          - Site1
          - Site2
          - Site3
          - Site4
          - Site5
          - Site6
        - ROADMs
        - Aggregated Ethernets

Properties

General

Forecast

Encryption No

Mgmt Tree Start Page Net1 Reports Net1 X

Help

Design Info

Version	11.1.0.64_0
Customer name	claro27
Created by	wzucchi
Release	System Release 11.1

Optical Results

	Demands				
PointToPoint	2	2	0	0	0
P-Rings	1	1	0	0	0
ROADMs	3	3	0	0	0
<b>Totals</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>

Detailed optical results data are available through [Optical Results Report](#)

Design Cost Info

Price list	Master Price DB
Currency	Usd
BoM total discounted	0,00
Spare total discounted	0,00
BoM + Spare total discounted	0,00

For a detailed report, see [Network Bill Of Material](#)

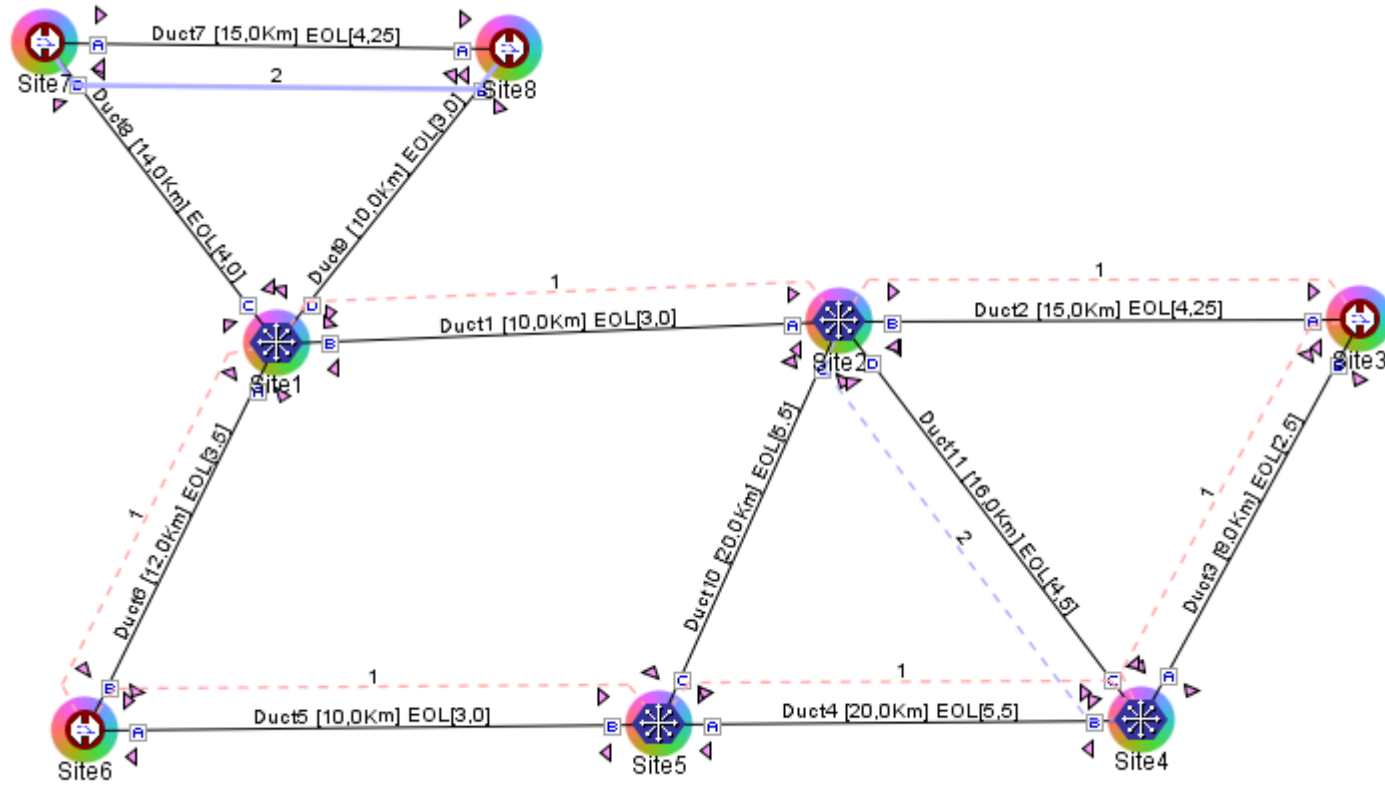
Messages

Legend

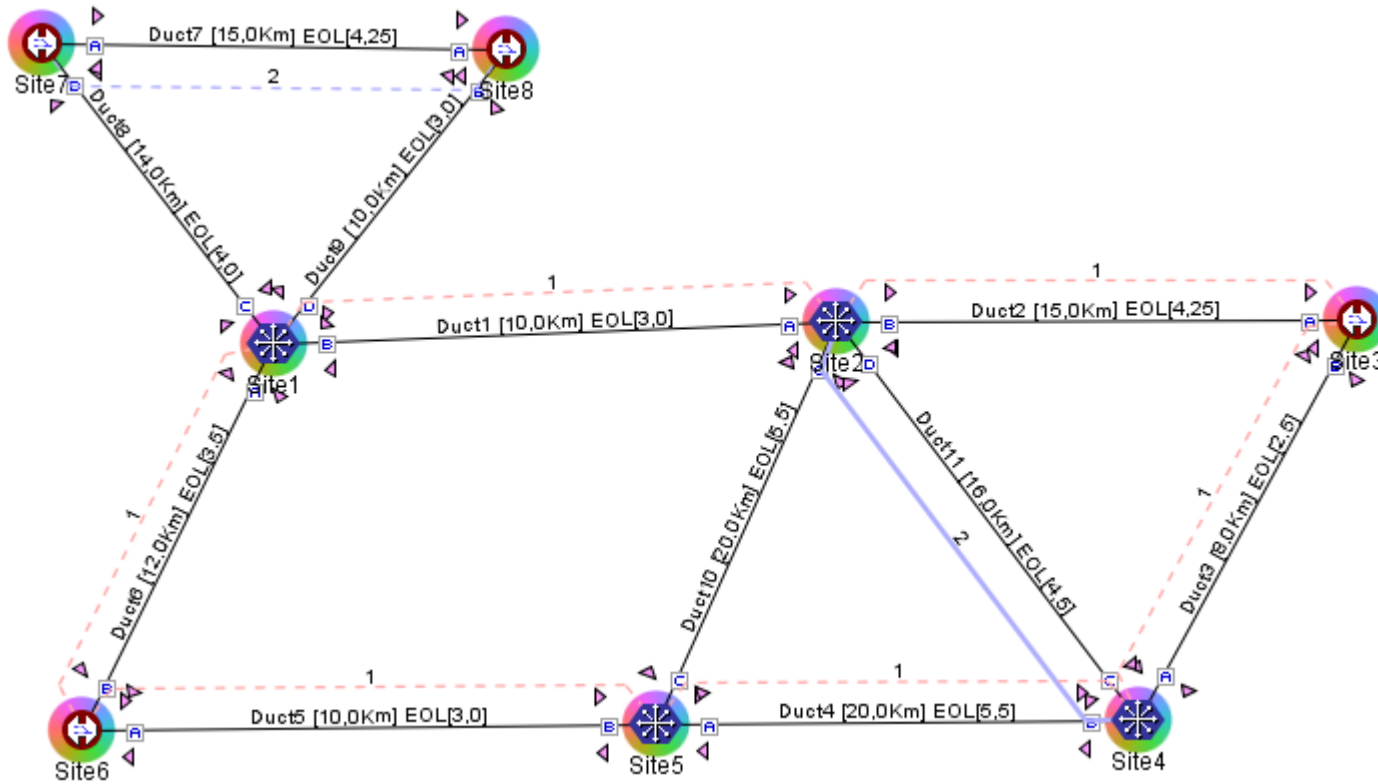
Info messages Warning messages Error messages Fatal errors

	Header	Action	
	No Express connections have been simulated for Node Site6 due to the required Traffic Matrix.	Go	Pr
	WDM-ANS parameters have been generated accordingly and will not allow the creation of an Express Optical Circuit through the Node.		
	No Express connections have been simulated for Node Site7 due to the required Traffic Matrix.	Go	Pr

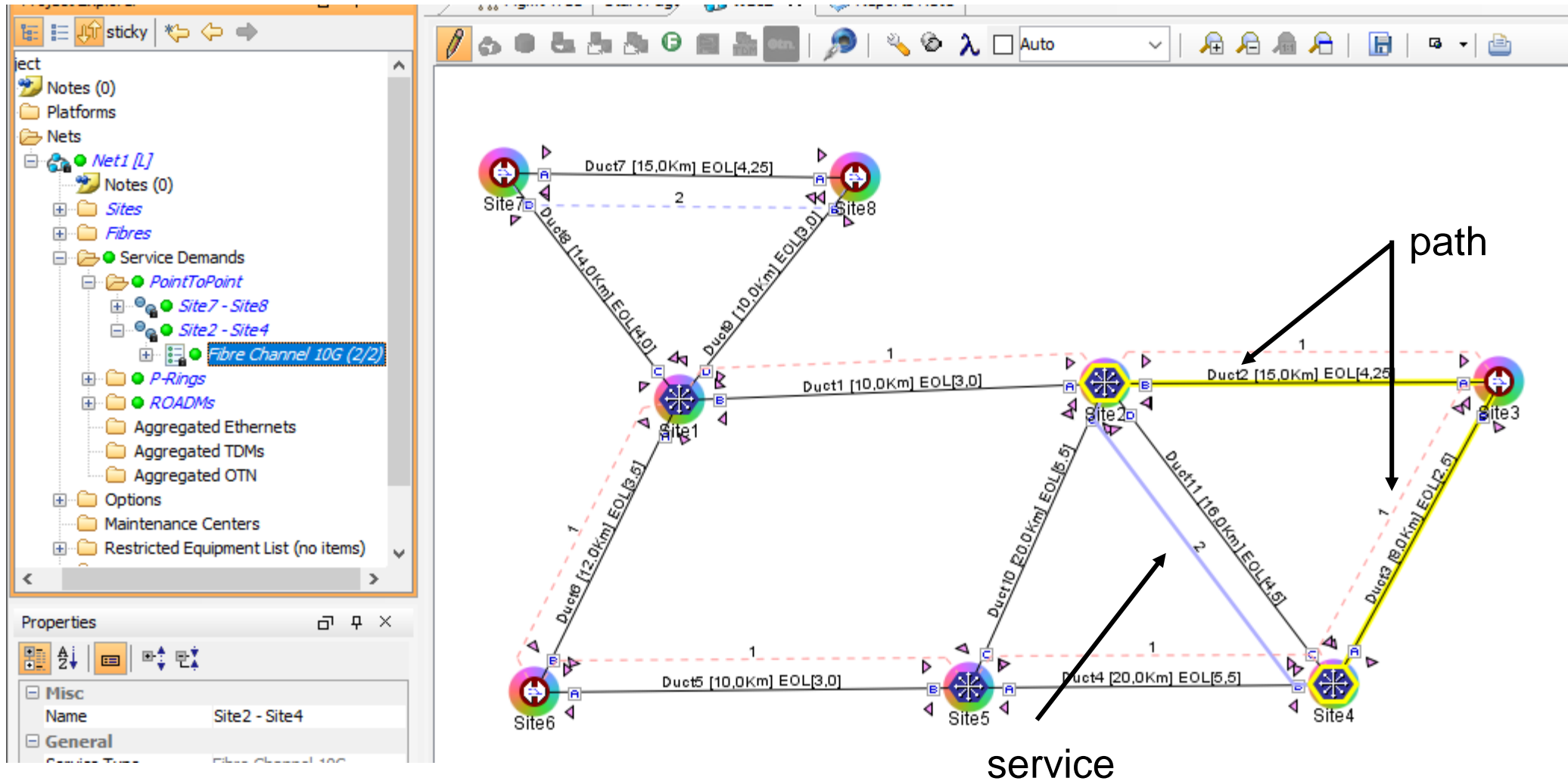
# Service Point-to-Point: Site 7 - Site 8



# Service Point-to-Point: Site 4 - Site 2

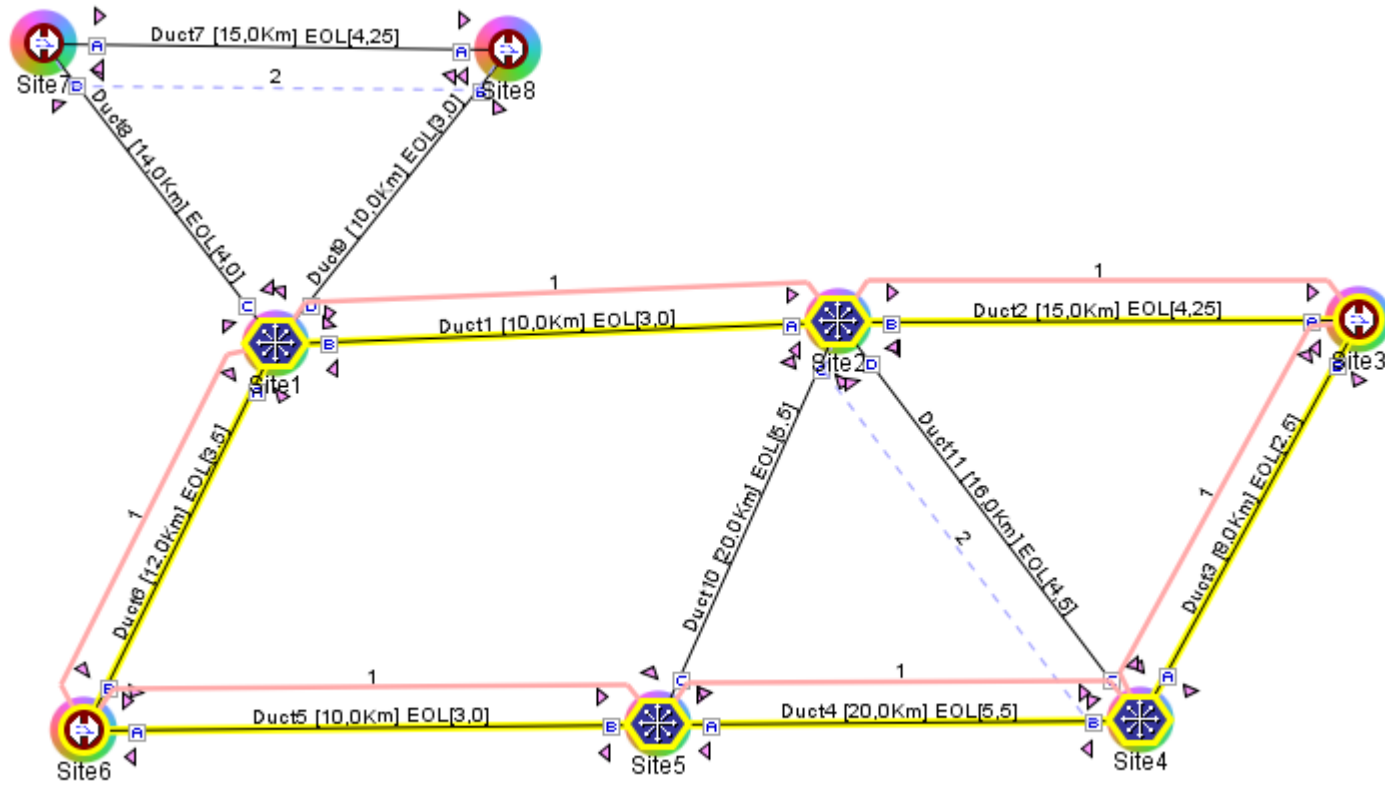


# Service Point-to-Point: Site 4 - Site

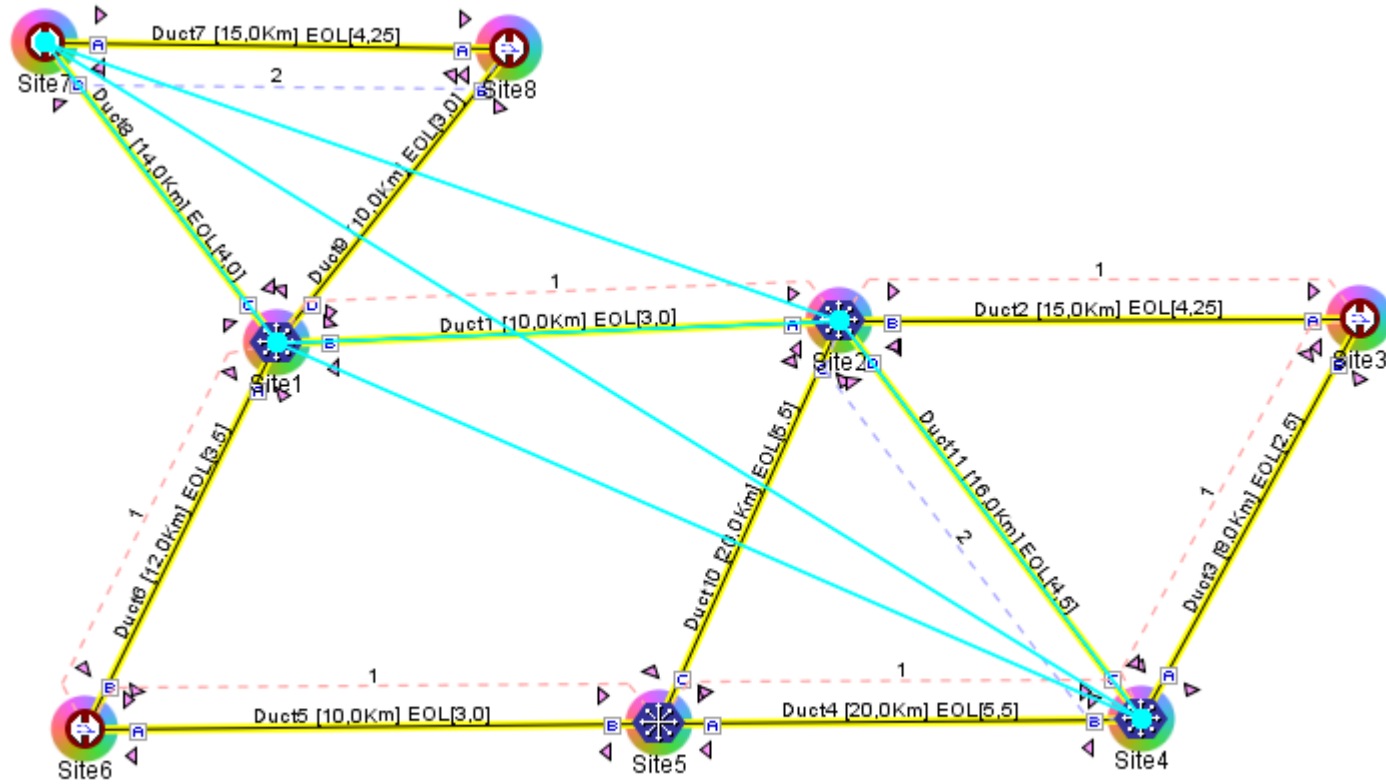




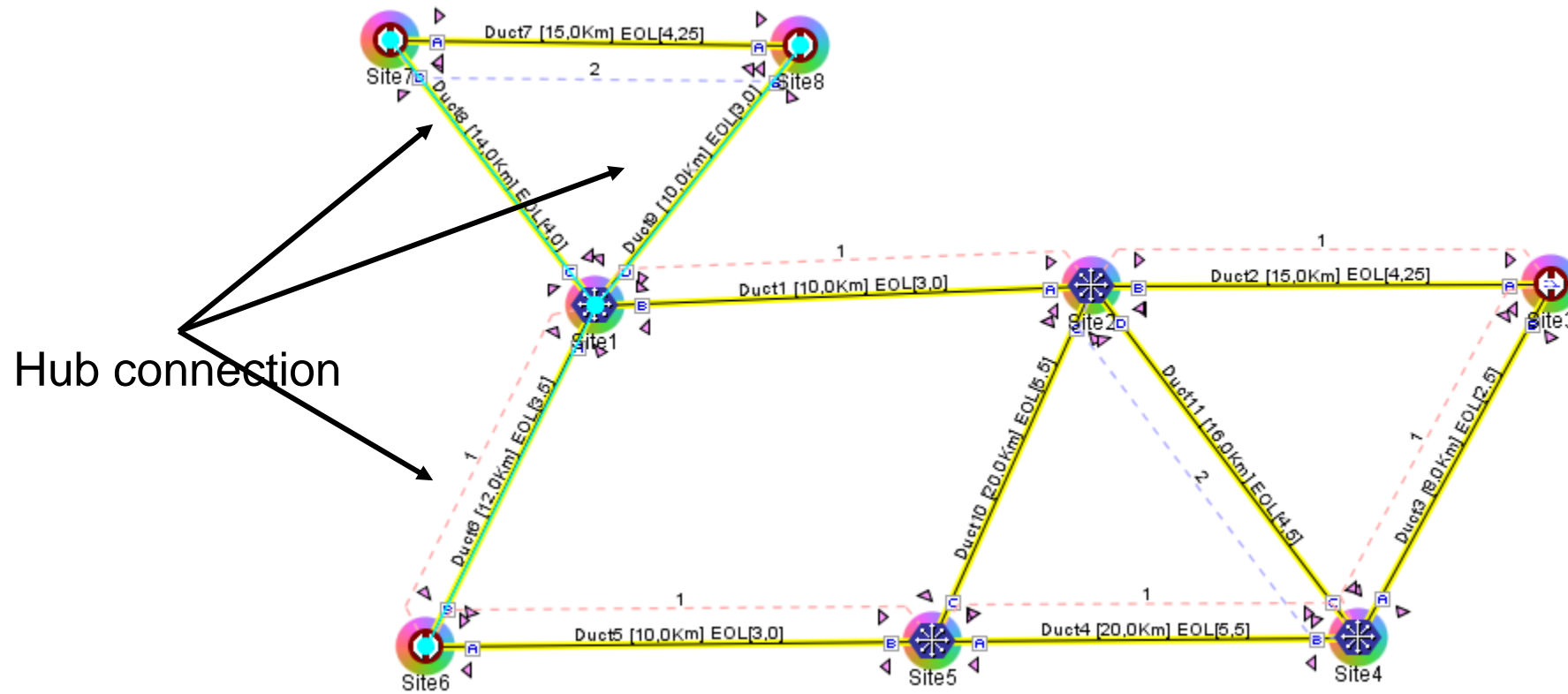
# P\_Ring Service



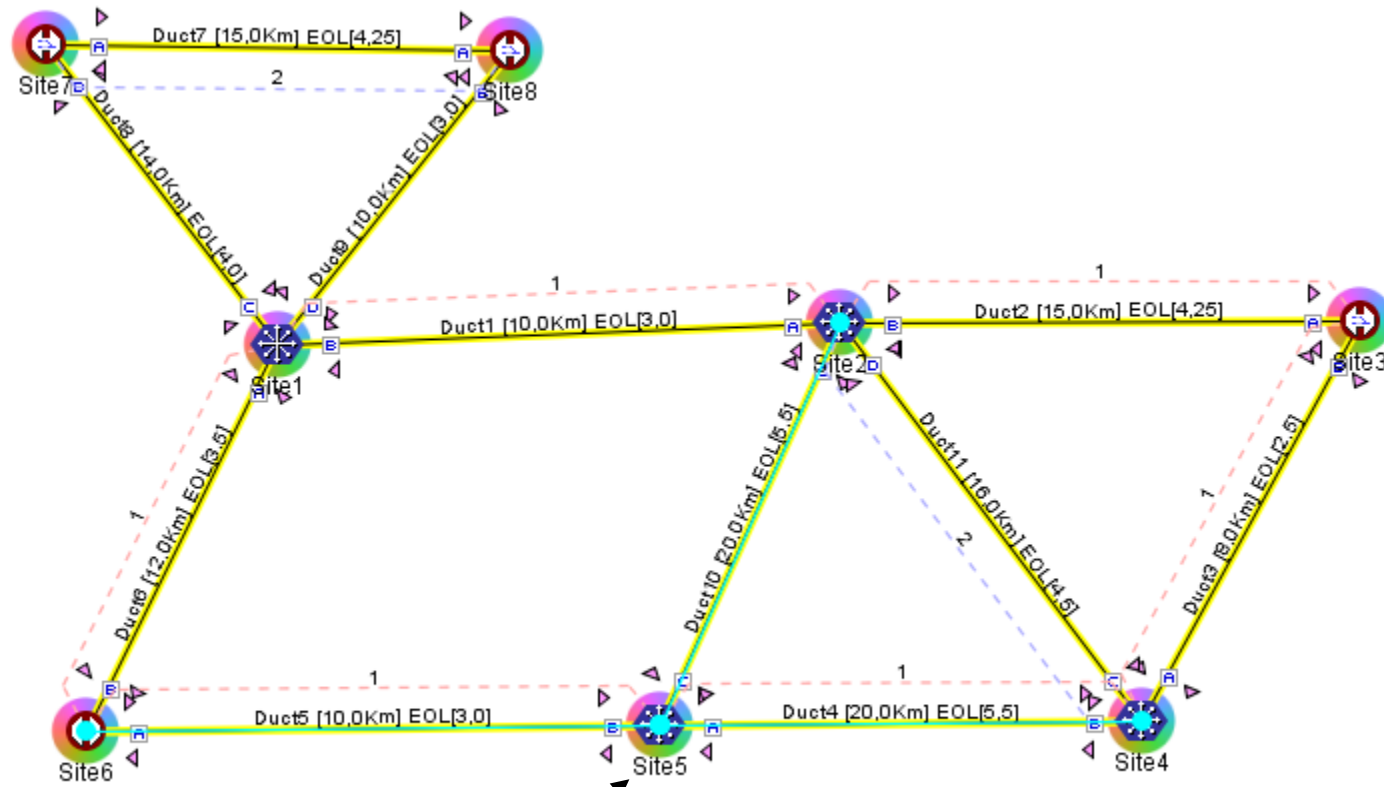
# ROADM demand 1



# Roadm Demand 2



# Roadm Demand 3



Hub site

# Wavelength Report

Details																				
Export Help		Messages		Any		TrafficSubnet_1 [Ring]				Site7 - Site8										
#	$\lambda$	Site1	Duct1	Site2	Duct2	Site3	Duct3	Site4	Duct4	Site5	Duct5	Site6	Duct6	Site1						
		B	Couple1	A	B	Couple1	A	B	Couple1	A	B	Couple1	A	B	Couple1	A	B	Couple1	A	
O-03	1.530,33	█	┌───┐	█	┌───┐	█	┌───┐	█	┌───┐	█	┌───┐	█	┌───┐	█	█	┌───┐	█	┌───┐	█	
E-03	1.530,72																			
O-04	1.531,12			█	┌──────────┐			█												
E-04	1.531,51																			
O-05	1.531,90																			

## Viewing Wavelength Routing

Use the following procedure to view the wavelength routing map for the network that was analyzed:

### Procedure

- Step 1** Click the **Networks Mgmt Tree** tab, and click the analyzed network.
- Step 2** In the **Tasks** pane, click **Wavelength Routing**. The **Wavelength Routing** tab appears. Each wavelength supported by the platform is represented by a row.

**Note** ROADM (Any-to-Any) demands are not shown in this report.

# Traffic Matrix

Cisco Transport Planner Version: 11.1.0.64

Customer name: claro27

Created by: wzucchi

System release: System Release 11.1

Março 03, 2021 at 14:44:06

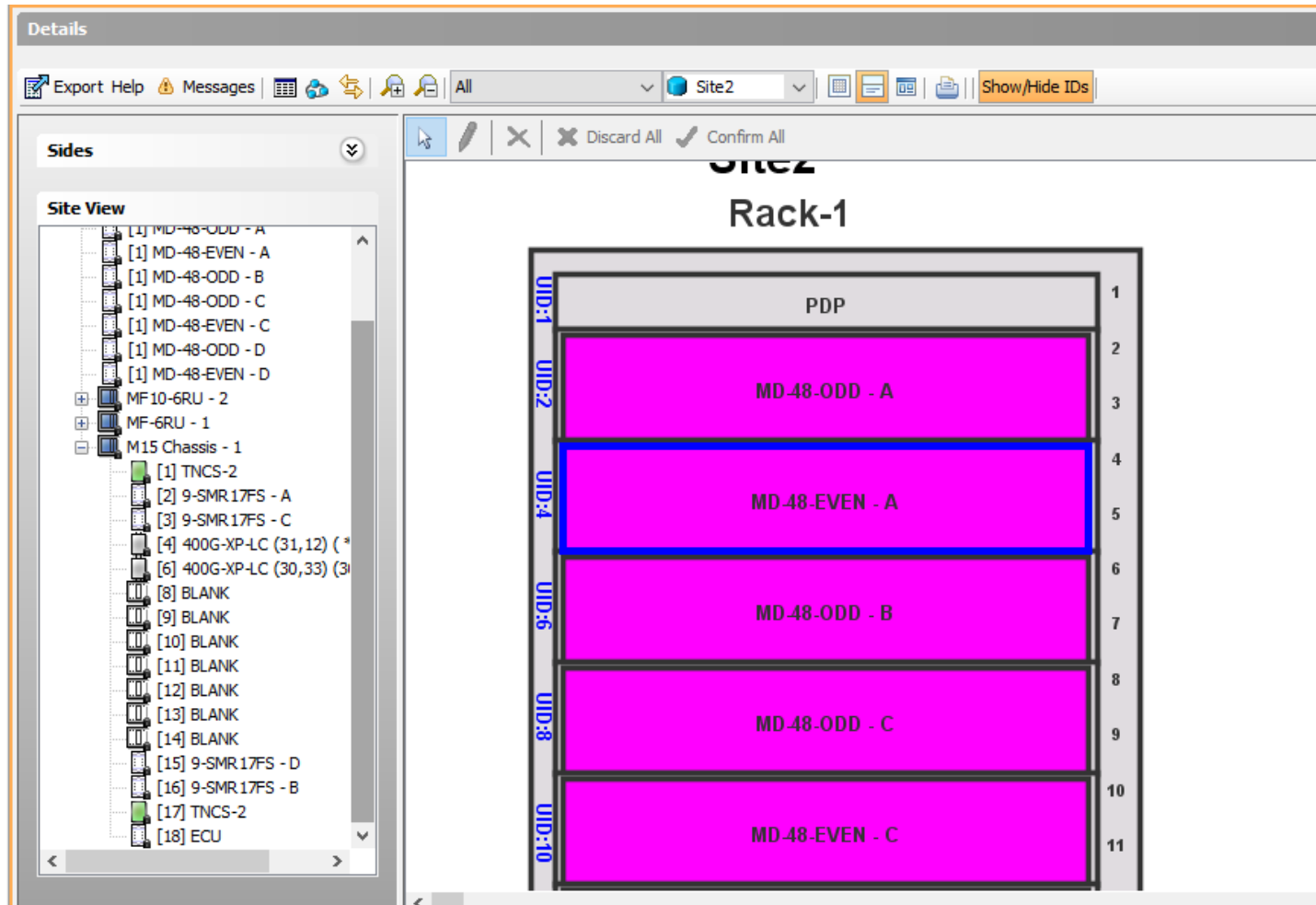
Export New query Help Messages

Query Preview

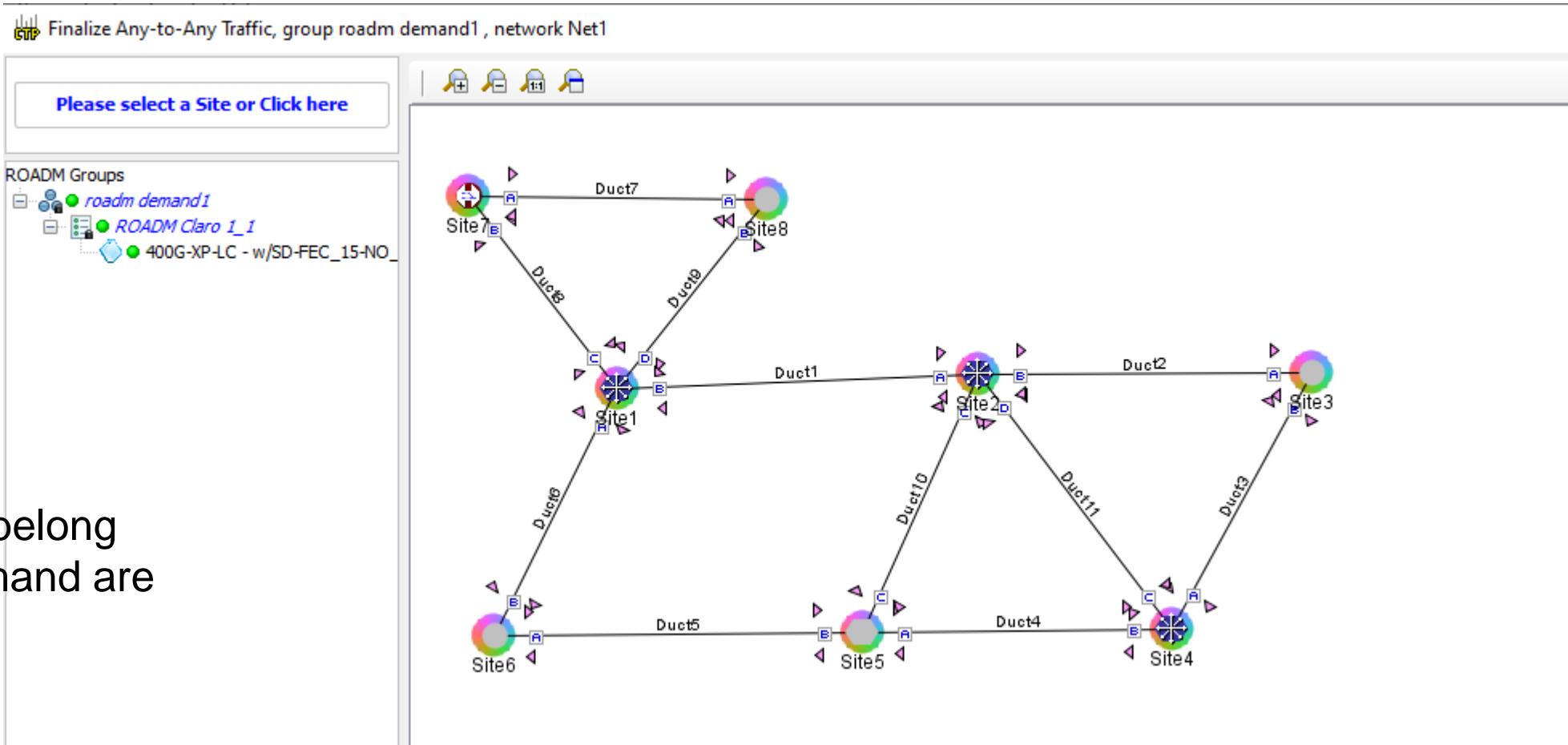
Query Dialog

Demand	Section	Src Site	Src Position	Src Card	Src Clie...	Src ClientPPM	Src Tru...	Src trunk PPM	Src Card OpMode	Src T/C ...	A/D Src Position	A/D Src Unit	A/D Src Port
Site7 - Site8													
Service_1													
OCH-CC		Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	8	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-3-RX
		Site8	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-3-RX
Service_2													
OCH-CC		Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	7	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Site7	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	7-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-3-RX
		Site8	Rack 1.M15 Chassis 1.Slot 3	400G-XP-LC	7-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-3-RX
Site2 - Site4													
Service_1													
OCH-CC		Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-1	ONS-QSFP-4X10-...			M200G	w/SD-FE...			
Trail_1		Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-1-RX	ONS-QSFP-4X10-...	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 3.Slot 1	MD-48-ODD	CHAN-4-RX
		Site4	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-1-RX	ONS-QSFP-4X10-...	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-4-RX
Service_2													
OCH-CC		Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-2	ONS-QSFP-4X10-...			M200G	w/SD-FE...			
Trail_1		Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Site2	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-2-RX	ONS-QSFP-4X10-...	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 3.Slot 1	MD-48-ODD	CHAN-4-RX
		Site4	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-2-RX	ONS-QSFP-4X10-...	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-4-RX
P-Ring													
Service_1													
OCH-CC		Site1	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_1		Site1	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			
	Section_1	Site1	Rack 1.M15 Chassis 1.Slot 4	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 3.Slot 1	MD-48-ODD	CHAN-3-RX
		Site2	Rack 1.M15 Chassis 1.Slot 6	400G-XP-LC	8-RX	QSFP-100G-SR4-S	11-TX	ONS-CFP2-WDM	M200G	w/SD-FE...	Rack 1.MD-40 SHELF 1.Slot 1	MD-48-ODD	CHAN-3-RX
OCH-CC		Site2	Rack 1.M15 Chassis 1.Slot 6	400G-XP-LC	10	QSFP-100G-SR4-S			M200G	w/SD-FE...			
Trail_2		Site2	Rack 1.M15 Chassis 1.Slot 6	400G-XP-LC			11	ONS-CFP2-WDM		w/SD-FE...			

# Rack Layout - site 4



# Finalize ROADM Demands





# Select a Site

Finalize Any-to-Any Traffic, group roadm demand1 , network Net1

Please select a Site or Click here

Type the site name for searching

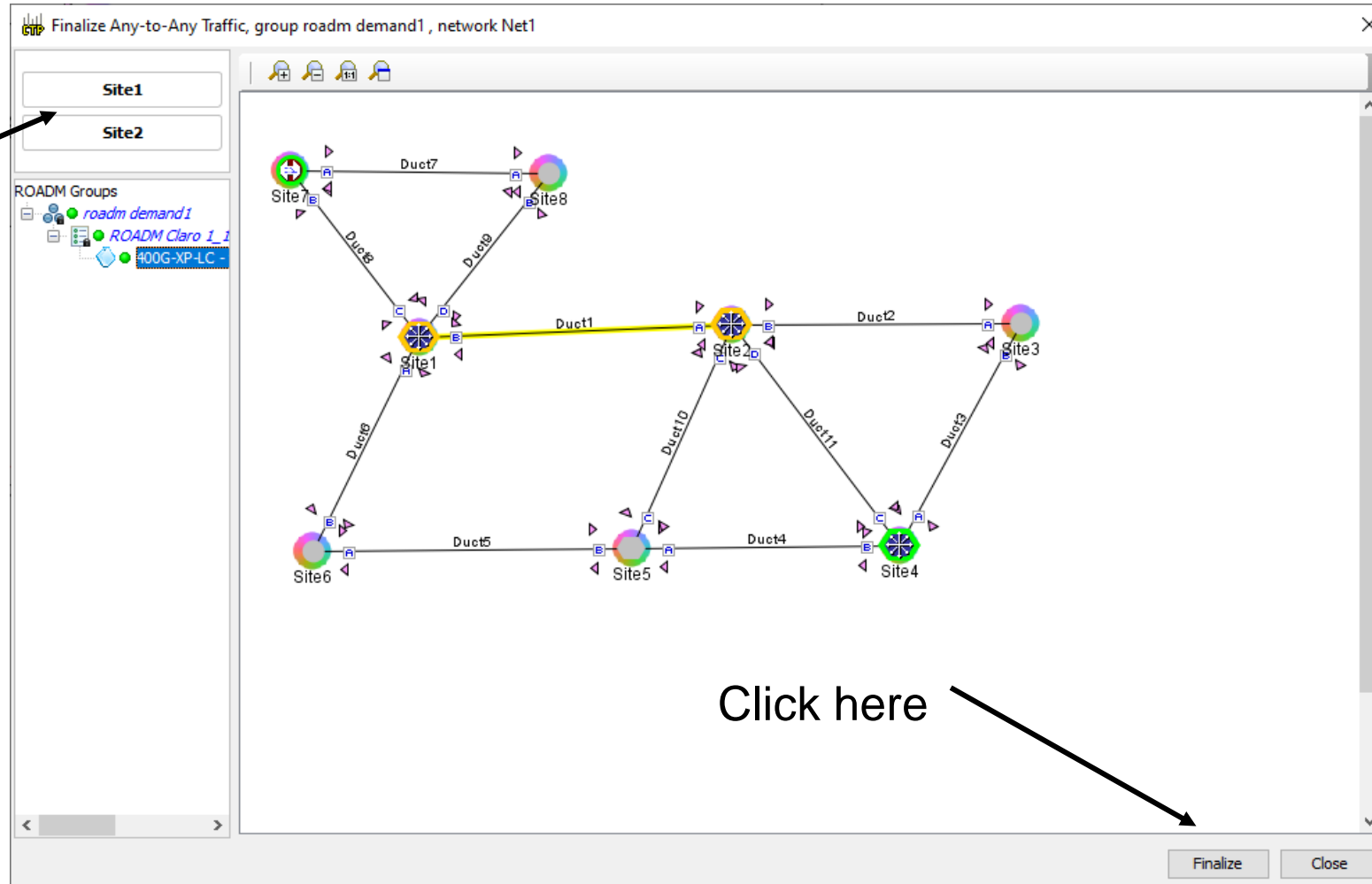
- Site1
- Site2
- Site4
- Site7

OK Cancel

```
graph TD; Site1((Site1)) --- Duct1[Duct1] --- Site2((Site2)); Site2 --- Duct2[Duct2] --- Site3((Site3)); Site2 --- Duct3[Duct3] --- Site4((Site4)); Site4 --- Duct4[Duct4] --- Site5((Site5)); Site5 --- Duct5[Duct5] --- Site6((Site6)); Site6 --- Duct6[Duct6] --- Site7((Site7)); Site7 --- Duct7[Duct7] --- Site8((Site8)); Site8 --- Duct8[Duct8] --- Site1; Site1 --- Duct9[Duct9] --- Site7; Site1 --- Duct10[Duct10] --- Site8; Site2 --- Duct11[Duct11] --- Site4; Site3 --- Duct12[Duct12] --- Site4;
```

# Select a Connectivity

select



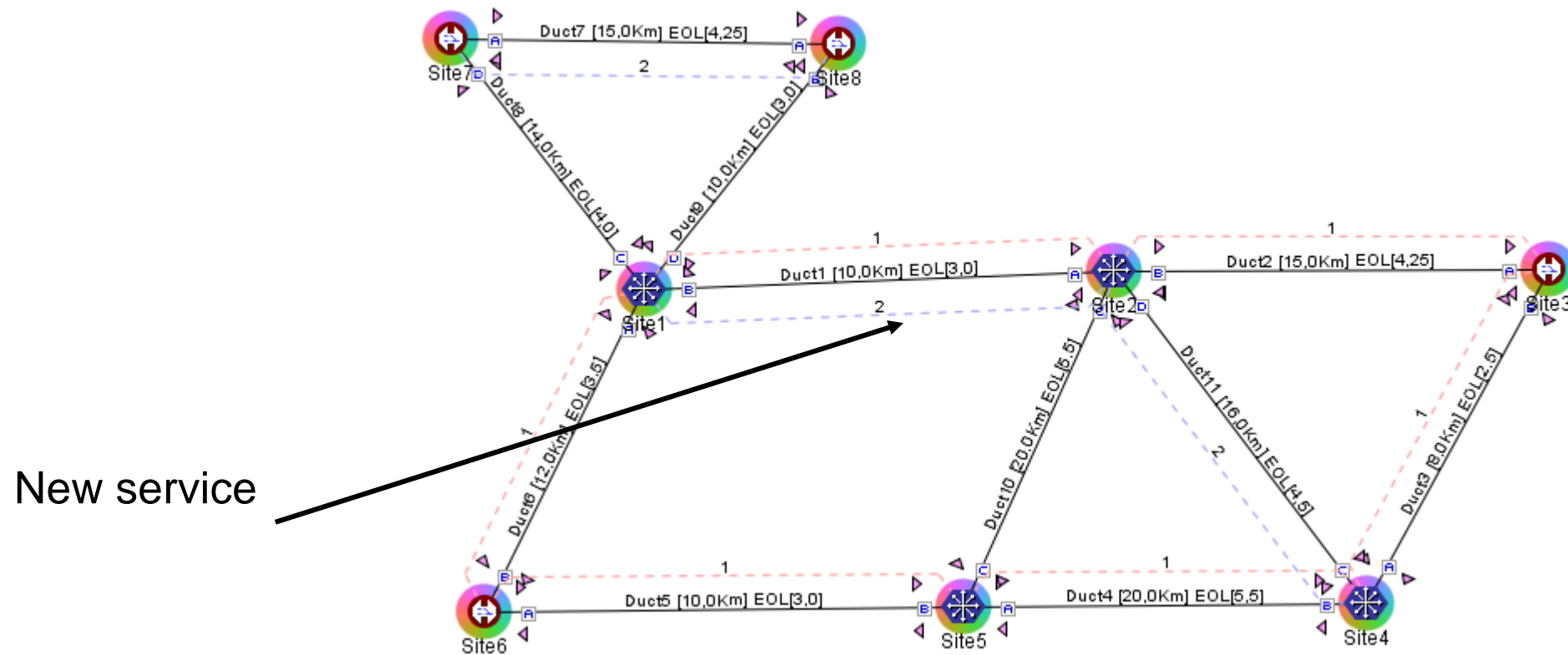
# ROADM Finalize

The image shows a software dialog box titled "ROADM Finalize Connectivity Wizard". It features a "Steps" sidebar on the left with two options: "1.General Parameters" (which is selected and highlighted) and "2.Platform Parameters". The main area is titled "General Parameters" and contains several input fields: "Label" with the text "Site1 - Site2 dem 1", "Source" with "Site1", "Destination" with "Site2", "Service Type" with a dropdown menu showing "100GE", "Present # ch" with the value "2", and "Forecast # ch" with the value "2". At the bottom of the dialog, there are five buttons: "Help", "<Back", "Next>", "Finish", and "Cancel".

Field	Value
Label	Site1 - Site2 dem 1
Source	Site1
Destination	Site2
Service Type	100GE
Present # ch	2
Forecast # ch	2

# New Services Finalized

Analyze the network again





## Example 8

Create a mesh network with 4 multi-degree nodes

Create a ROADM demand between all nodes

Finalize all the demands with 100GE traffic

Between nodes

Examine the configuration generated by CTP

# Ethernet Aggregated Demands

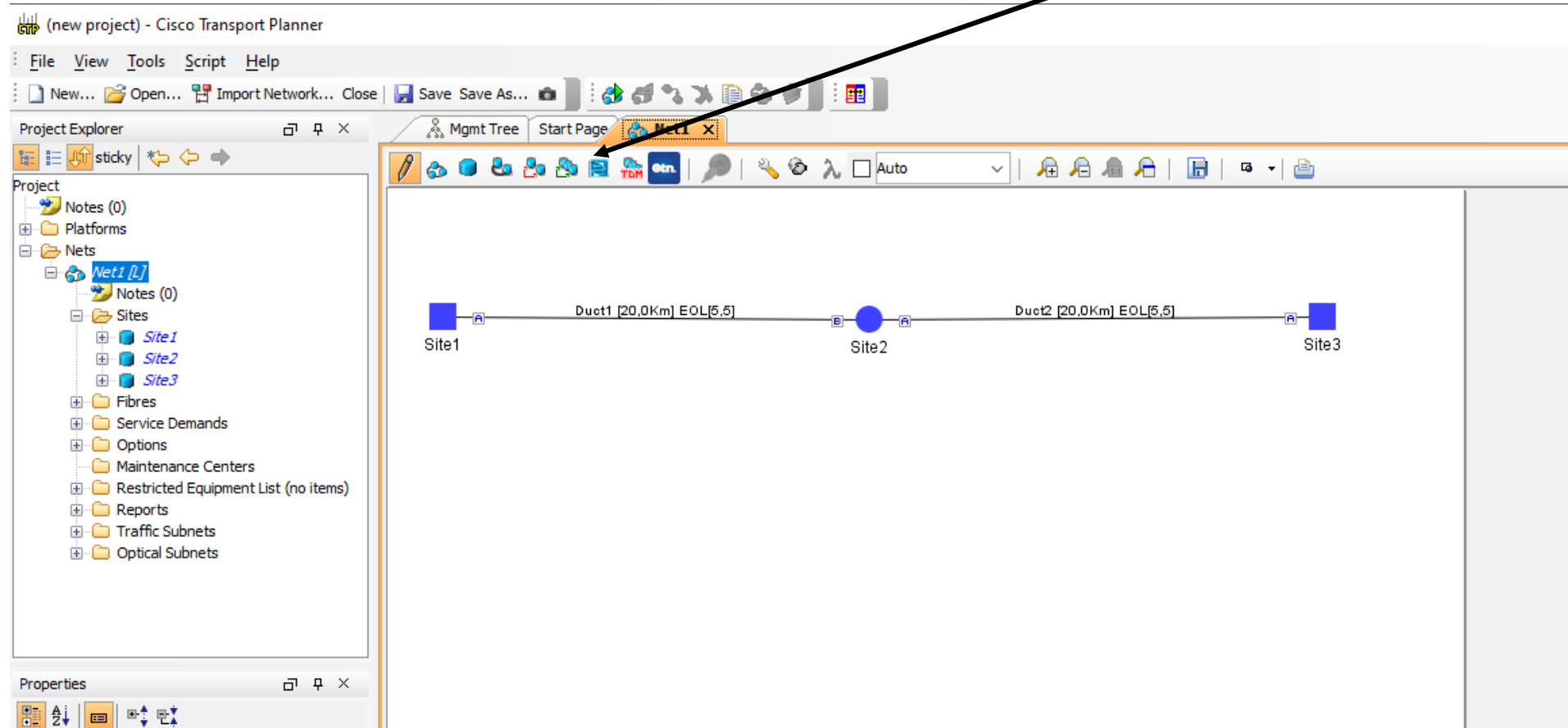
An Ethernet aggregated demand is a collection of low-rate Gigabit Ethernet/10Gigabit Ethernet services that can be aggregated on a single 10-Gbps wavelength division multiplexing (WDM) trunk. This demand is supported only by the GE\_XP, 10GE\_XP, GE\_EXP, and 10GE\_EXP cards when configured as an L2-Switch.

The Ethernet Aggregation Creation wizard allows you to:

- Create one WDM transport channel at a time over a predefined traffic subnet.
- Specify the wavelength to be used for the channel, and define a list of locations with add/drop VLAN circuit capability.
- Create a set of desired VLAN circuits on this WDM transport channel.
- The check functionality generates a report showing for each section of the subnet where the WDM transport channel is over allocated and then perform corrective action when required.
- The clone functionality creates an identical copy of the current WDM transport channel with the same add/drop sites and WDM channel configuration parameters. You can then start filling this channel with the desired circuits.

# Aggregate Ethernet Example

Click here





# Creation Wizard

The screenshot shows a dialog box titled "EthernetAggr Creation Wizard" with a close button (X) in the top right corner. The dialog is divided into two main sections: a "Steps" sidebar on the left and a main content area on the right.

**Steps:**

- 1. Traffic Subnet (highlighted)
- 2. General Parameters
- 3. Sites Selection
- 4. Node Configuration Selection

**Traffic Subnet Selection:**

Traffic Subnet: TrafficSubnet\_1 [Linear] v

Create new traffic subnet

**Bottom Bar:**

Help <Back Next> Finish Cancel

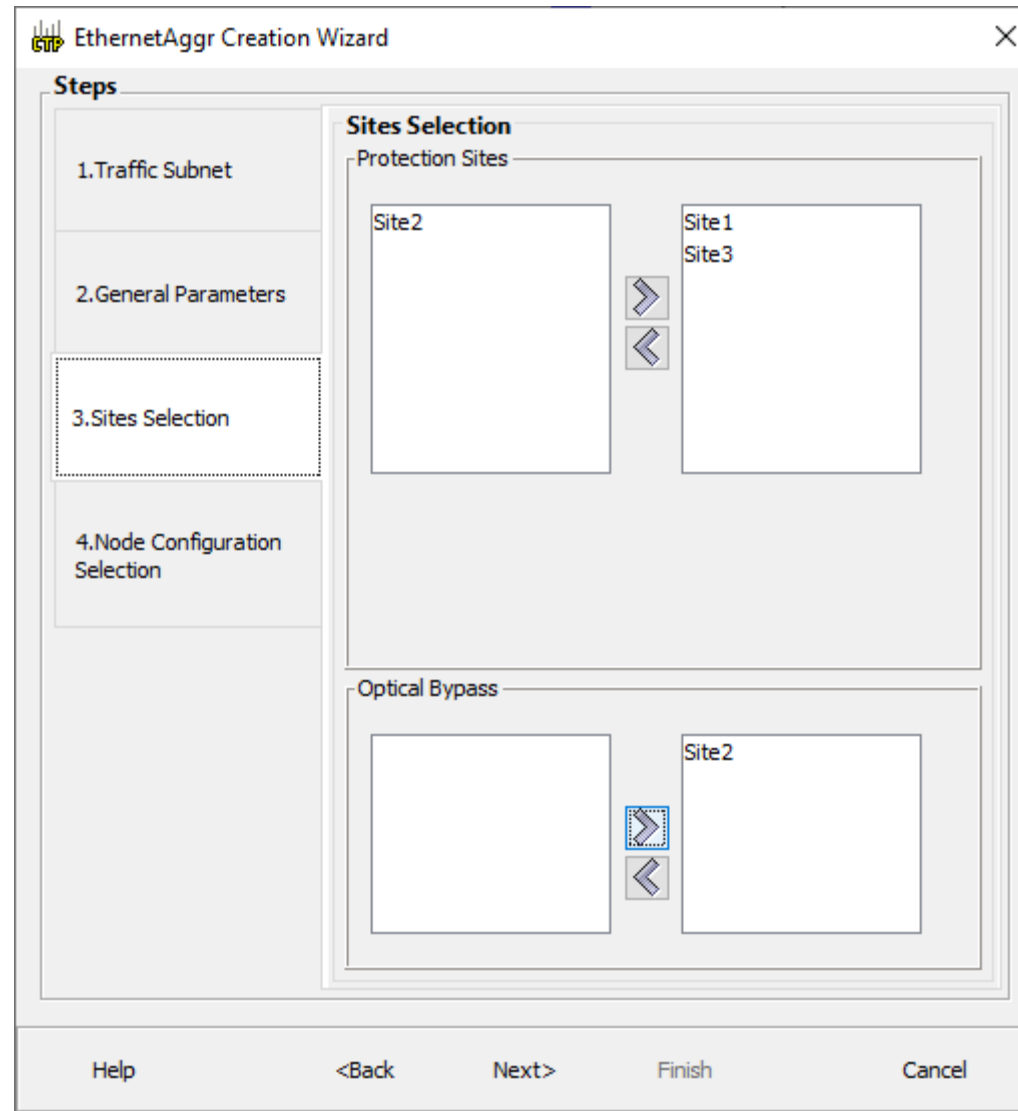
# General Parameters

The screenshot shows a software dialog box titled "EthernetAggr Creation Wizard". On the left, a "Steps" pane lists four steps: "1. Traffic Subnet", "2. General Parameters" (which is highlighted with a dotted border), "3. Sites Selection", and "4. Node Configuration Selection". The main area of the dialog is titled "General Parameters" and contains the following fields:

- Label:** A text input field containing "EthernetAggr1".
- Present / Forecast:** A checkbox that is currently unchecked.
- Colorless:** A dropdown menu currently set to "Auto".
- Omni-directional:** A dropdown menu currently set to "Auto".

At the bottom of the dialog, there is a navigation bar with five buttons: "Help", "<Back", "Next>", "Finish", and "Cancel".

# Site Selection



# Node Configuration

EthernetAggr Creation Wizard

**Steps**

- 1. Traffic Subnet
- 2. General Parameters
- 3. Sites Selection
- 4. Node Configuration Selection**

**Node Configuration Selection**

DWDM Trunk: ONS-XC-10G-C - w/EFEC

Wavelength: 1.531, 12 (195,80000)

Sites	New CFG
Site 1	10GE XP
Site 3	10GE XP

Help <Back Next> Finish Cancel

Click here



# Traffic

The screenshot displays a network management application window titled "EthernetAggr1 Demand". The interface includes a toolbar with "Clone" and "Check" buttons, and a tabbed menu with "Traffic", "DWDM channel", "Report", and "Traffic Result". The "Traffic" tab is active, showing a table with the following data:

AL	Label	F	Src Site	Dst Site	Rate	Client Prot	Trunk Prot	Message
.....	VLAN circuit_1	<input type="checkbox"/>	Site1	Site3	1 Gbit/sec	Unprotected	Unprotected	

At the bottom of the window, there are "Close" and "Help" buttons.

# DWDM Channel

The screenshot shows the configuration interface for an EthernetAggr1 Demand. The window title is "EthernetAggr1 Demand". At the top, there are tabs for "Traffic", "DWDM channel", "Report", and "Traffic Result". The "DWDM channel" tab is active. Below the tabs is a toolbar with various icons. The main area is divided into several sections:

- Table:** A table with columns "Name", "Add/Drop Sites", and "Forecast". The row "Section 1" is selected and highlighted in blue. It shows "Site 1 to Site3" under "Add/Drop Sites" and a small square icon under "Forecast".
- Label:** A text field containing "EthernetAggr1".
- Nodes Configuration:** A table with columns "Sites", "Current CFG", "New CFG", and "Interlink Modules".
- Properties Panel:** A panel on the right side with expandable sections: "General", "Traffic", "Src", and "Dst".

**Nodes Configuration Table:**

Sites	Current CFG	New CFG	Interlink Modules
Site 1	10GE XP	10GE XP	Auto
Site3	10GE XP	10GE XP	Auto

**Properties Panel Details:**

- General:** Add/Drop Sites: Site 1 to Site3
- Traffic:** Forecast: ; Optical Bypass: Site2; Wavelength: 1.531,12 (195,80000)
- Src:** Card Type: 10GE XP; DWDM Trunk Type: ONS-XC-10G-C - w/EFEC; Colorless: Auto; OmniDirectional Side: Auto
- Dst:** Card Type: 10GE XP; DWDM Trunk Type: ONS-XC-10G-C - w/EFEC; Colorless: Auto; OmniDirectional Side: Auto

At the bottom right, there are buttons for "Apply", "Close", and "Help".

# Report

EthernetAggr1 Demand

Clone Check

Traffic DWDM channel Report Traffic Result

The measurement unit used in this table is Gbit/sec

Demand	Site1	Duct1	Site2	Duct2	Site3
EthernetAggr1		10%		10%	

↓ ↑ ↔ 📄 📄

Header	Action	Source
--------	--------	--------

Close Help

# Traffic Result

The screenshot shows a window titled 'EthernetAggr1 Demand' with a close button (X) in the top right corner. Below the title bar are two buttons: 'Clone' and 'Check'. A tabbed interface is visible with three tabs: 'Traffic', 'DWDM channel', and 'Report', with 'Traffic Result' selected. An 'Export' button is located below the tabs. The main content area contains a table with the following data:

Label	F	Src Site	Dst Site	Trunk Prot...	Path Forcing	Client Prot...	Circuit Rate	Src Wrk Po...	Src Prt Por...	Dst Wrk Po...	Dst Prt Por...	Src Wrk Po...
VLAN circuit_1	<input type="checkbox"/>	Site1	Site3	Unprotected	A	Unprotected	1 Gbit/sec	1	NA	1	NA	1.0

At the bottom of the window, there are two buttons: 'Close' and 'Help'.



## Example 9

Create a point-to-point network with 3 nodes

Create a ethernet aggregated demand between the sites. Which cards can be used?

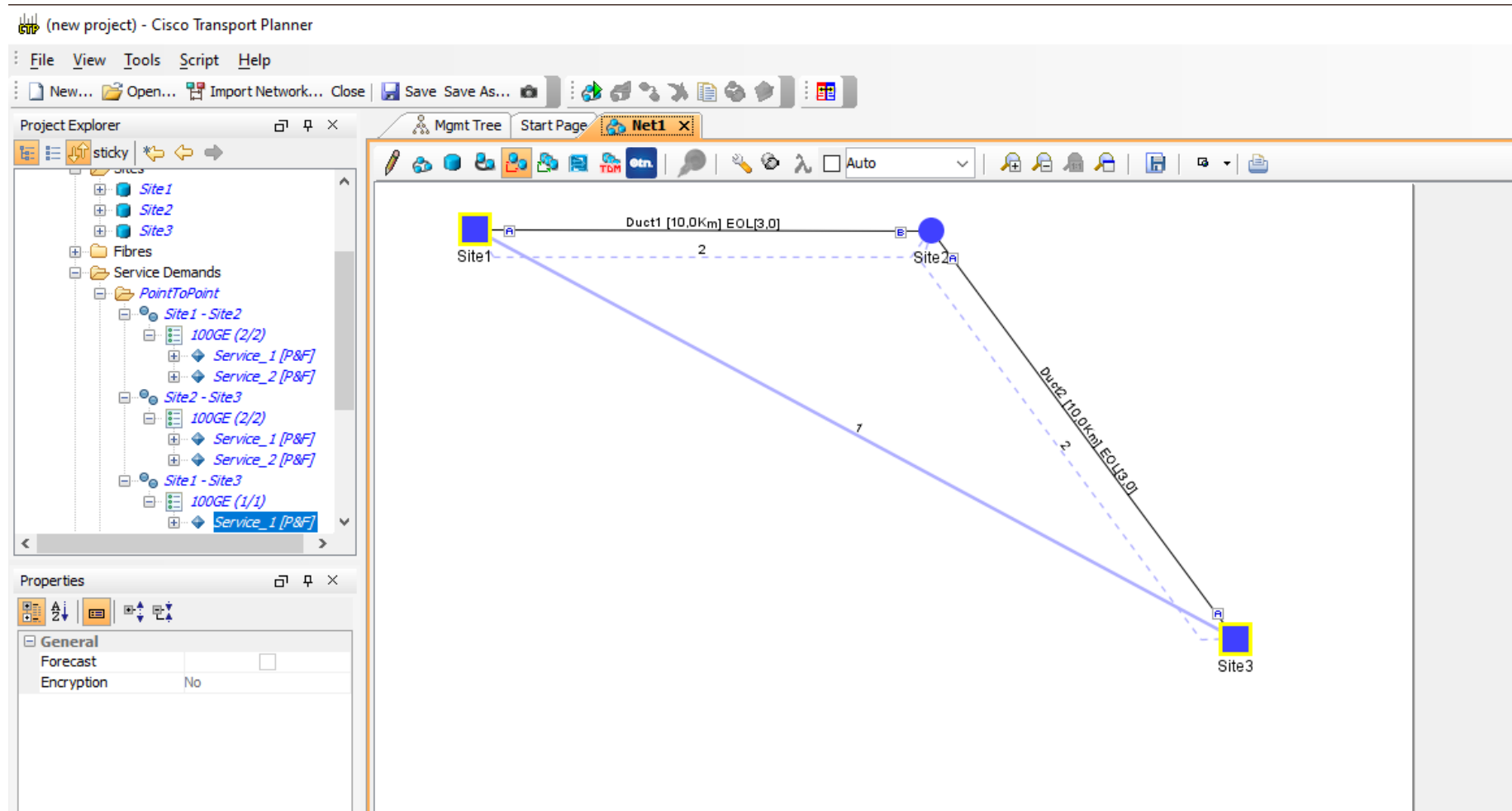
Identify the VLAN number used by each demand

Examine the layout of each site



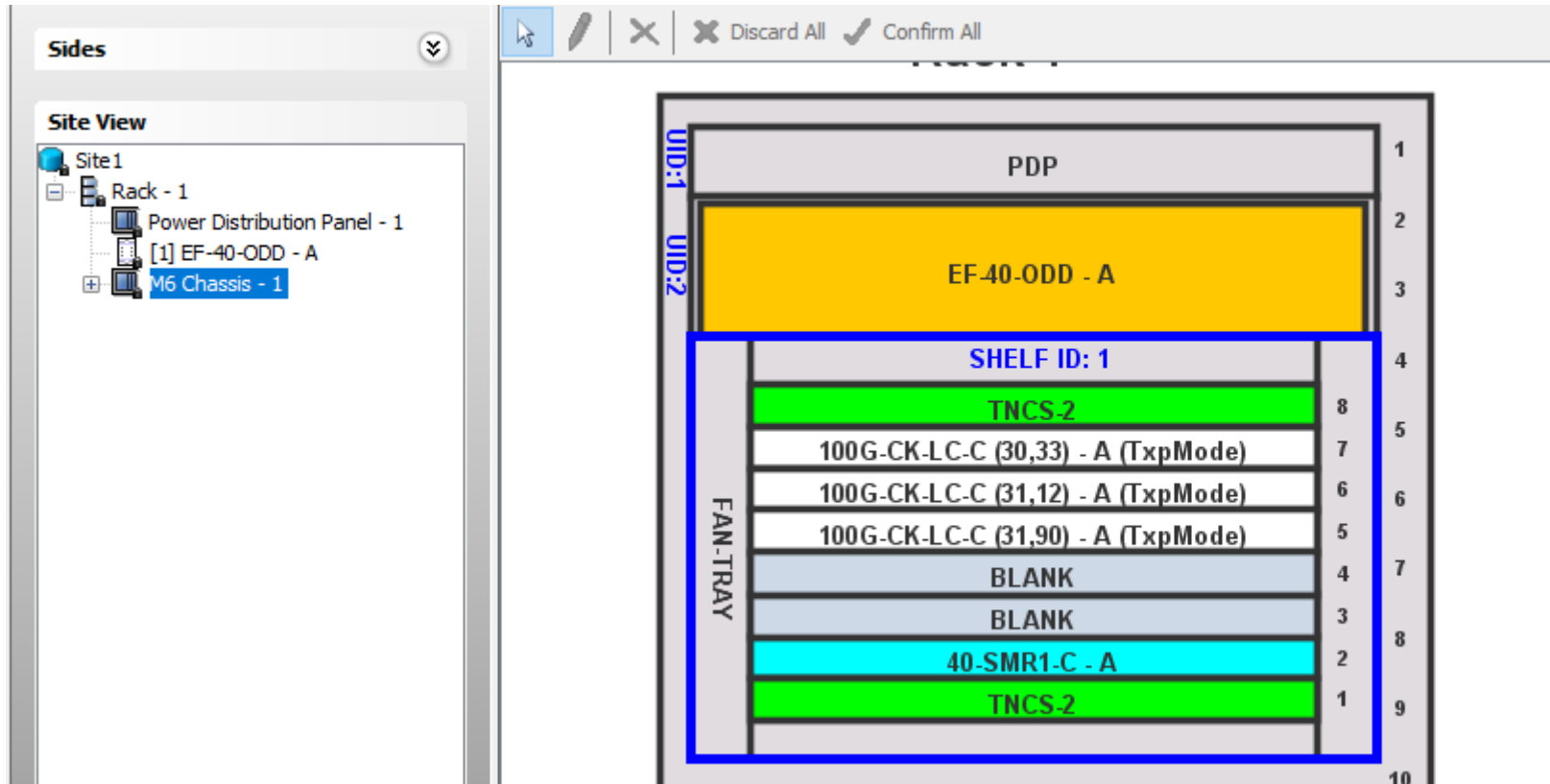
## Comparing Node Types

# Rede Linear -MSTP 15454 100G 40 channel non hybrid

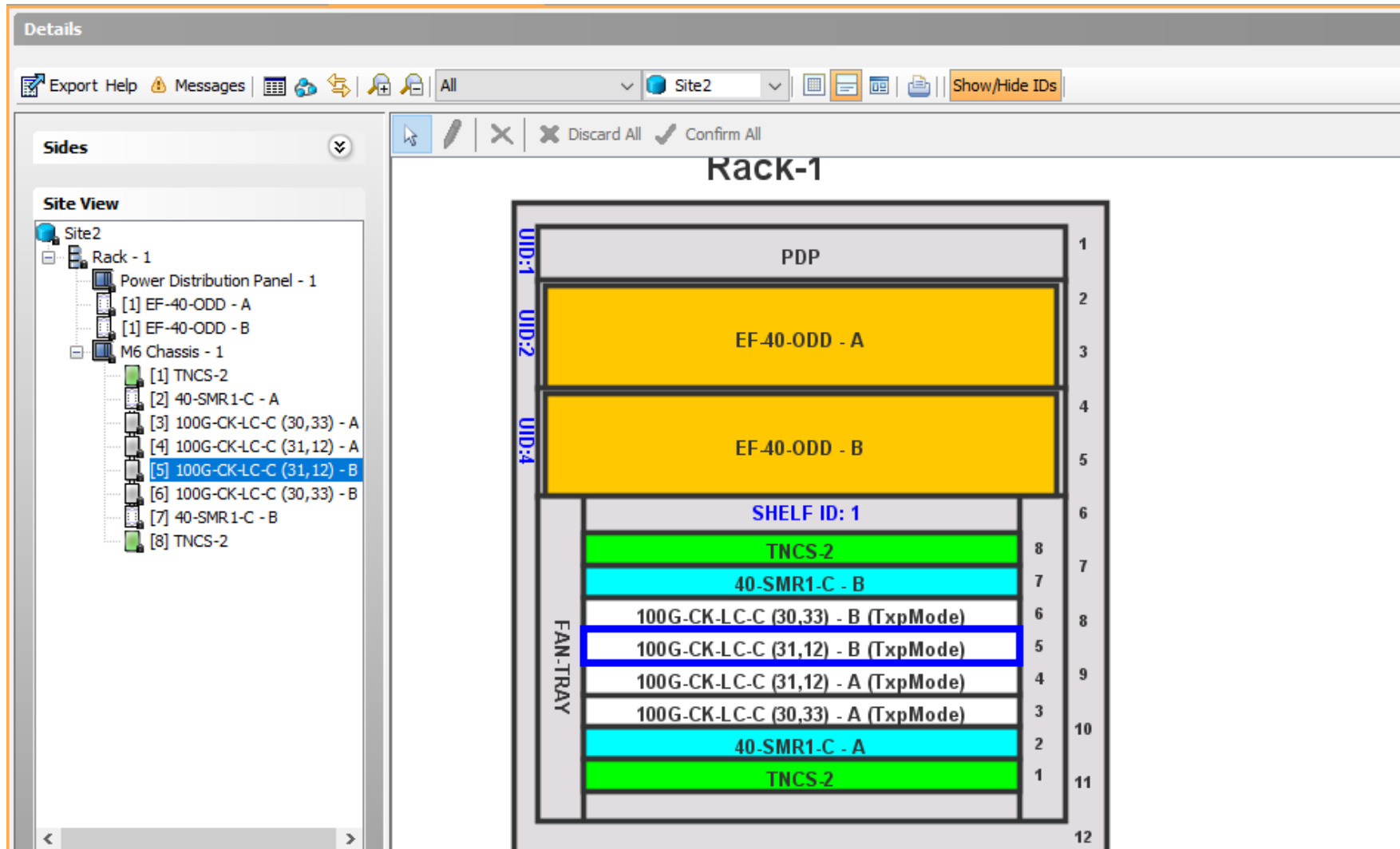


Transceiver: 100GK-LC-C

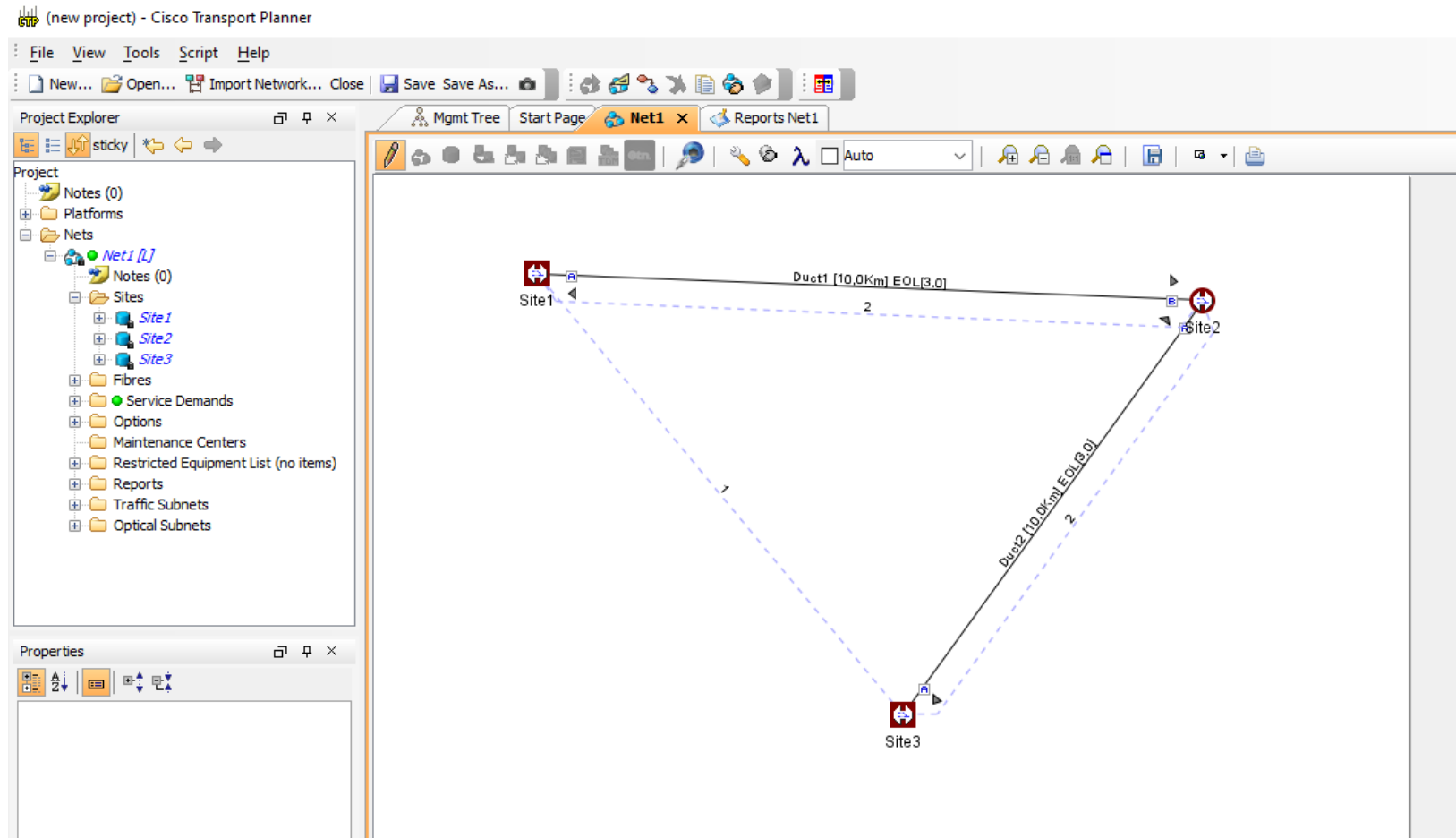
# Rede Linear -MSTP 15454 100G 40 channel non hybrid



# Rede Linear -MSTP 15454 100G 40 channel non hybrid

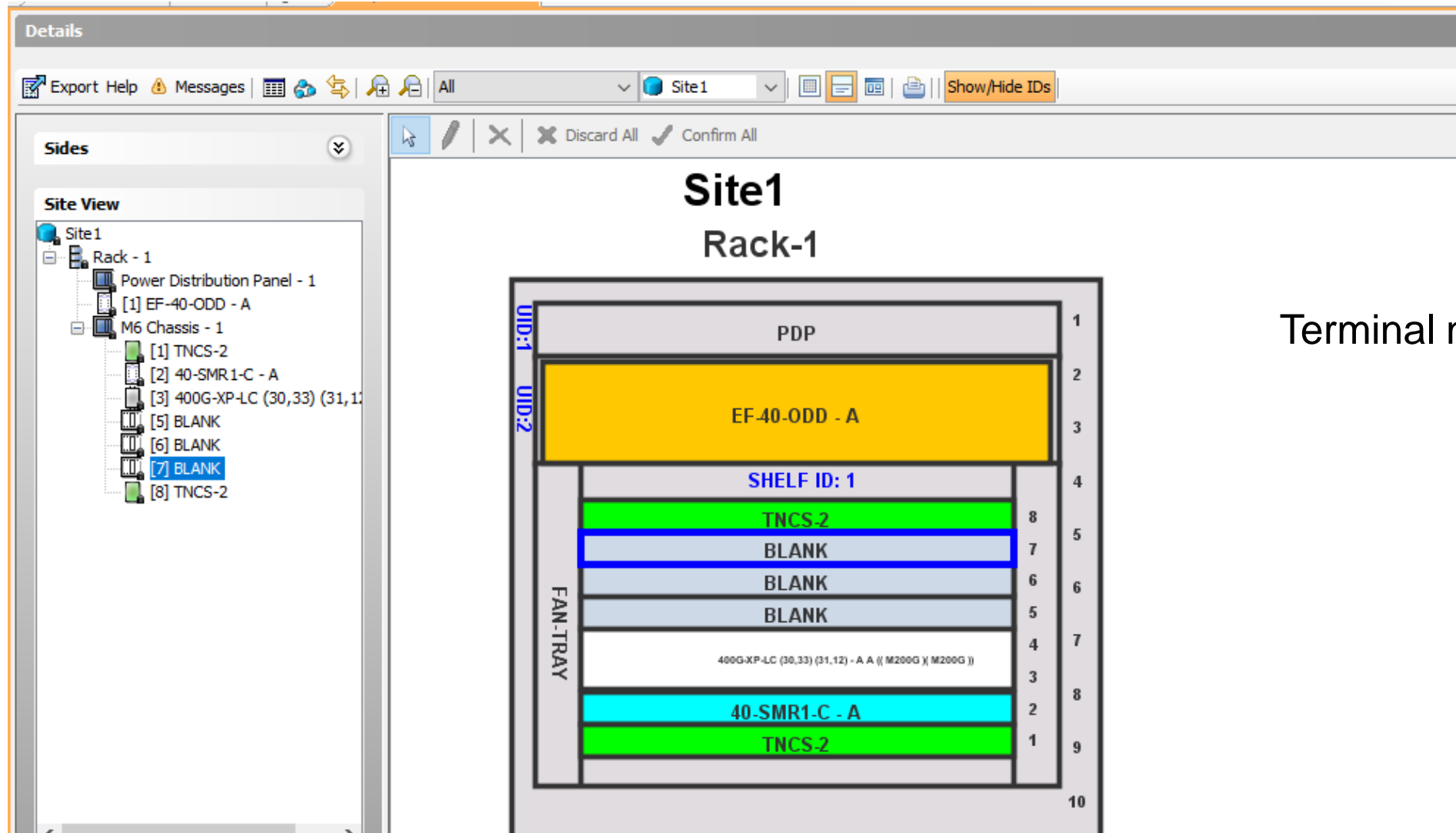


# Rede Linear -MSTP 15454 100G 40 channel non hybrid

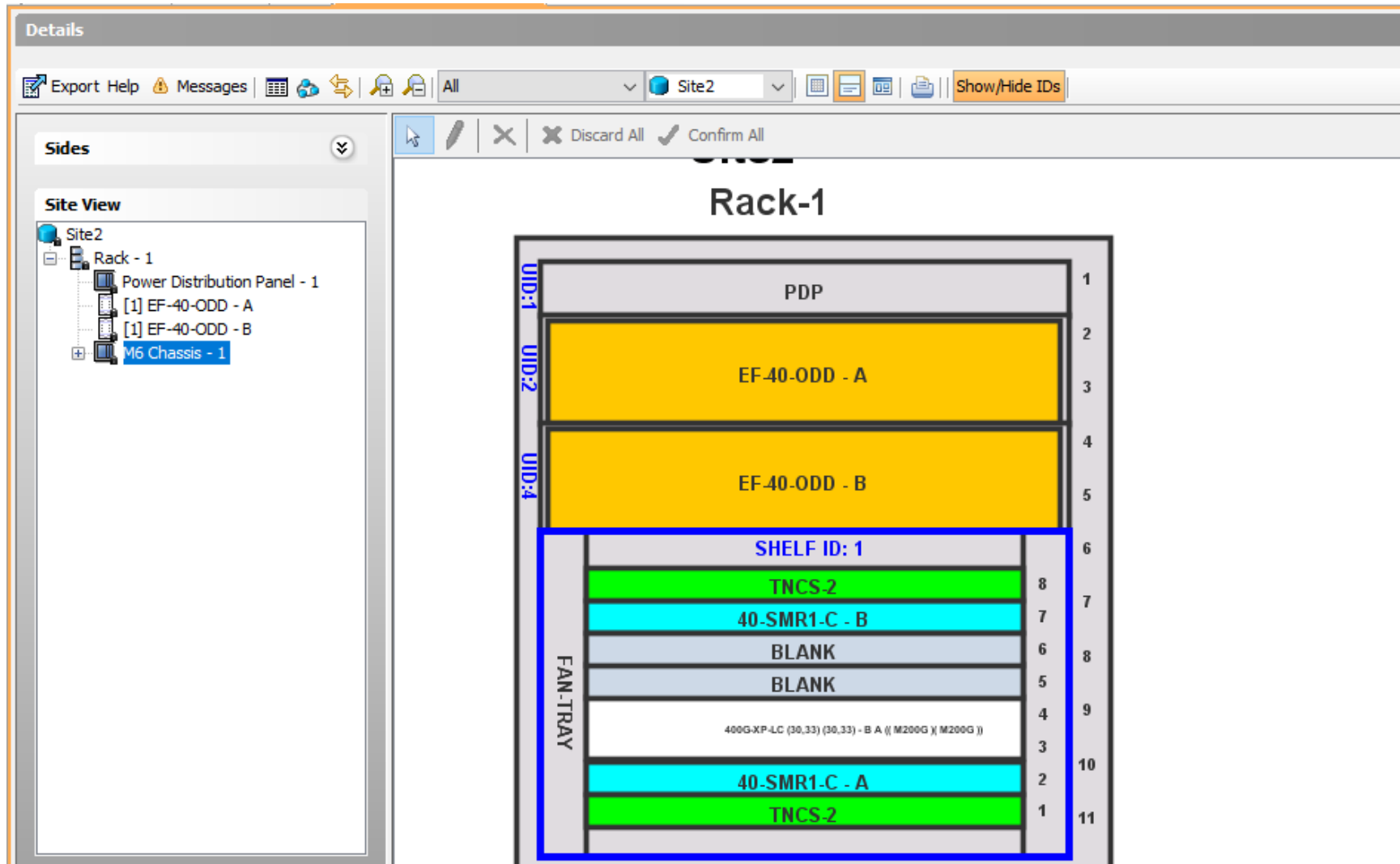


Transceiver free

# Rede Linear -MSTP 15454 100G 40 channel non hybrid



# Rede Linear -MSTP 15454 100G 40 channel non hybrid



Line Node



# Rede Linear -MSTP 15454 100G 40 channel hybrid

The screenshot displays the Cisco Transport Planner interface for a network design project. The main workspace shows a network topology with three sites: Site1, Site2, and Site3. Site1 and Site2 are connected by a duct labeled "Duct1 [10,0K.m] EOLB,0". Site1 and Site3 are connected by a duct labeled "Duct1 [10,0K.m] EOLB,0". Site2 and Site3 are connected by a duct labeled "Duct1 [10,0K.m] EOLB,0". The ducts are shown as solid lines with dashed lines indicating the path. The interface includes a Project Explorer on the left, a Properties panel at the bottom left, and a Tasks Pane on the right. The status bar at the bottom indicates "Version - 11.1.0.64 Design Analyzed NetworkDesigner\_ZP 164M of 362M".

**Project Explorer**

- Notes (0)
- Platforms
- Nets
  - Net1 [2]
- Sites (0)
- Sites
  - Site1
  - Site2
  - Site3
- Fibres
- Service Demands
- Options
- Maintenance Centers
- Restricted Equipment List (no items)
- Reports
- Traffic Subnets
- Optical Subnets

**Properties**

Misc

Name	Net1
Position	180; 40

General

Created By	
Status	Design Analyzed
Measurement Units	Km
Per Side Installat...	<input type="checkbox"/>
Node Split	<input type="checkbox"/>
Enable Layout Mo...	<input checked="" type="checkbox"/>
Encryption Always...	<input type="checkbox"/>
Network Type	Non-SSON

Bill of Material

Use Bundles	<input type="checkbox"/>
Use Spare Parts	<input type="checkbox"/>
Use Global Discount	<input type="checkbox"/>
Global Discount	0,0
Use Client Payg	<input checked="" type="checkbox"/>

(Name)  
(Description)

**Tasks Pane**

Network Tasks

- Copy
- Delete
- Install
- Upgrade
- Upgrade To Design
- Analyze
- Design
- Show Templates
- Convert as SSON

System Tasks

- Release Upgrade
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...
- Release Upgrade to ...

Fibres

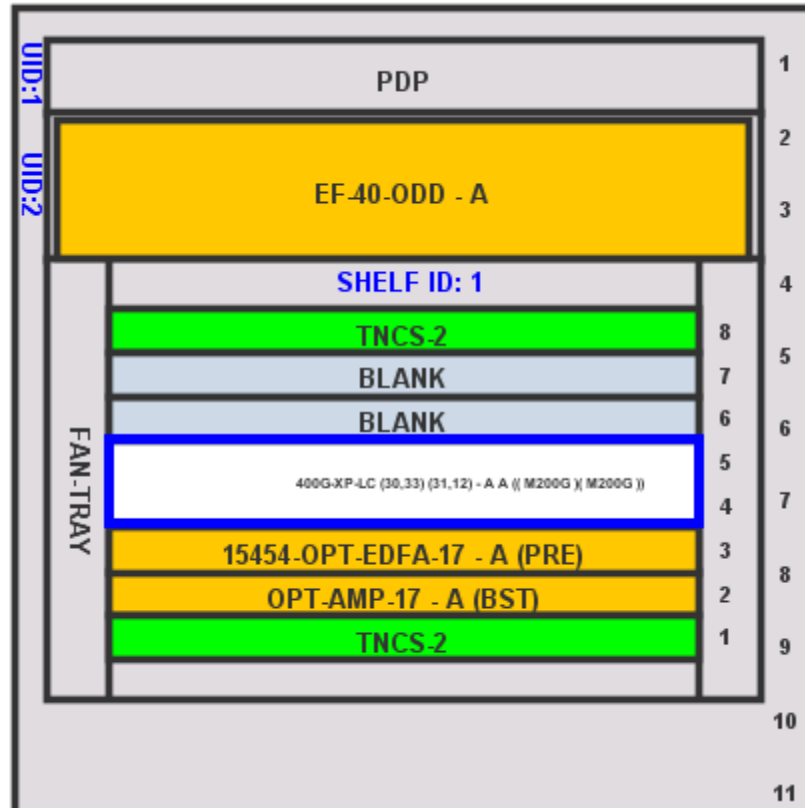
- Fibres Dialog
- Fibres Options

Reports

- Bill of Material
- Wavelength Routing
- Optical Results
- Installation Parameters

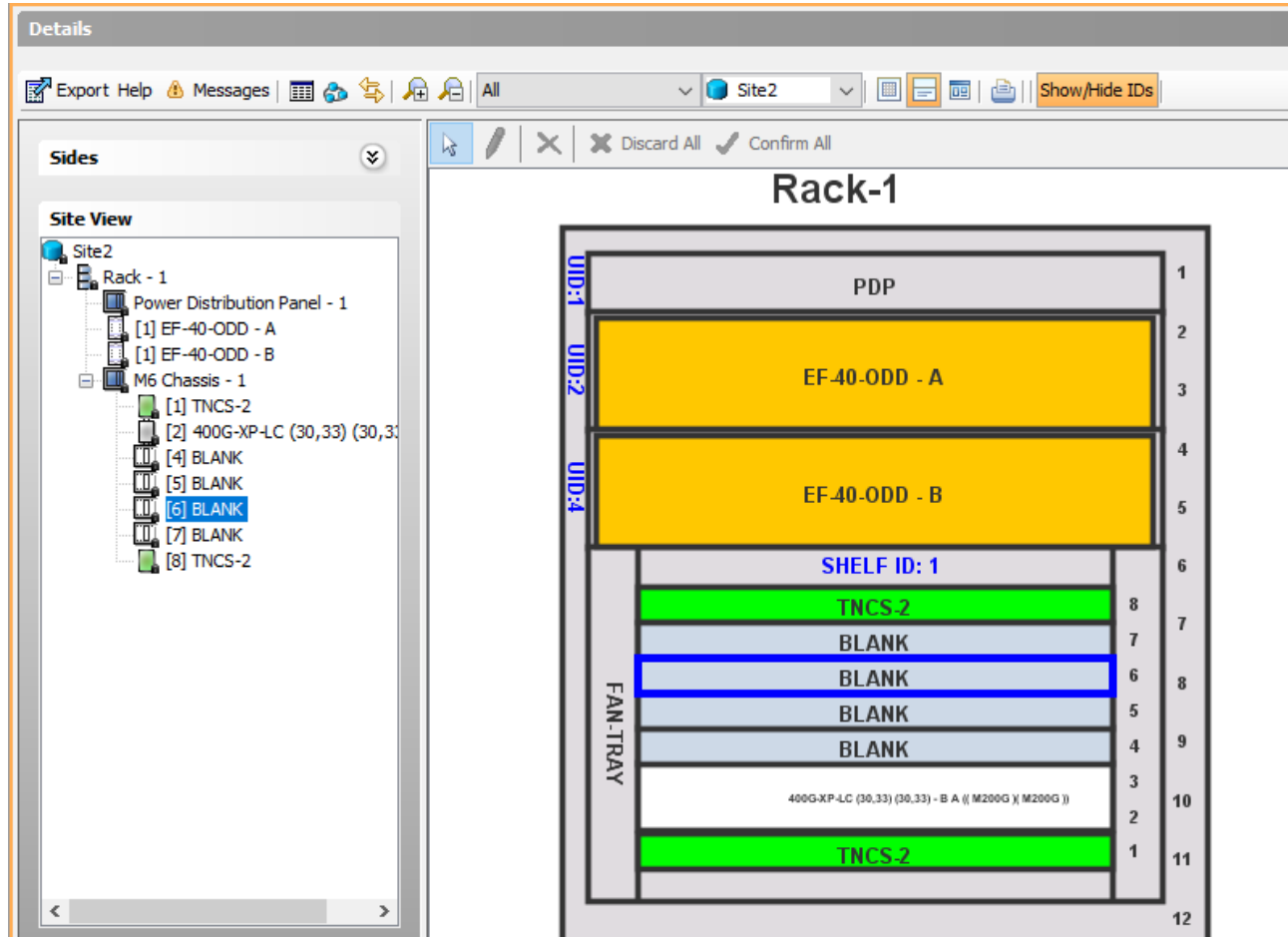
Version - 11.1.0.64 Design Analyzed NetworkDesigner\_ZP 164M of 362M

# Rede Linear -MSTP 15454 100G 40 channel hybrid



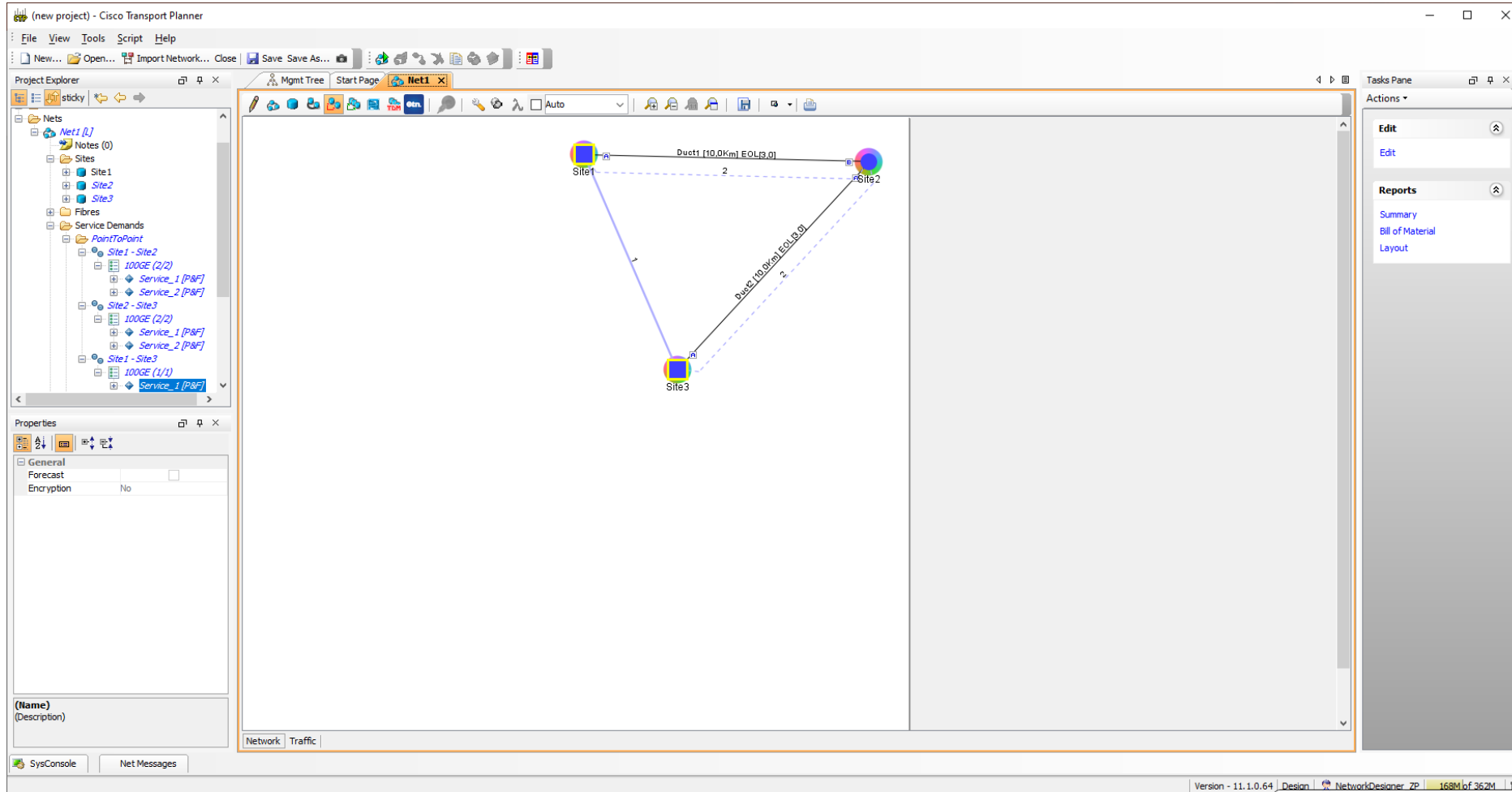
Terminal node

# Rede Linear -MSTP 15454 100G 40 channel hybrid

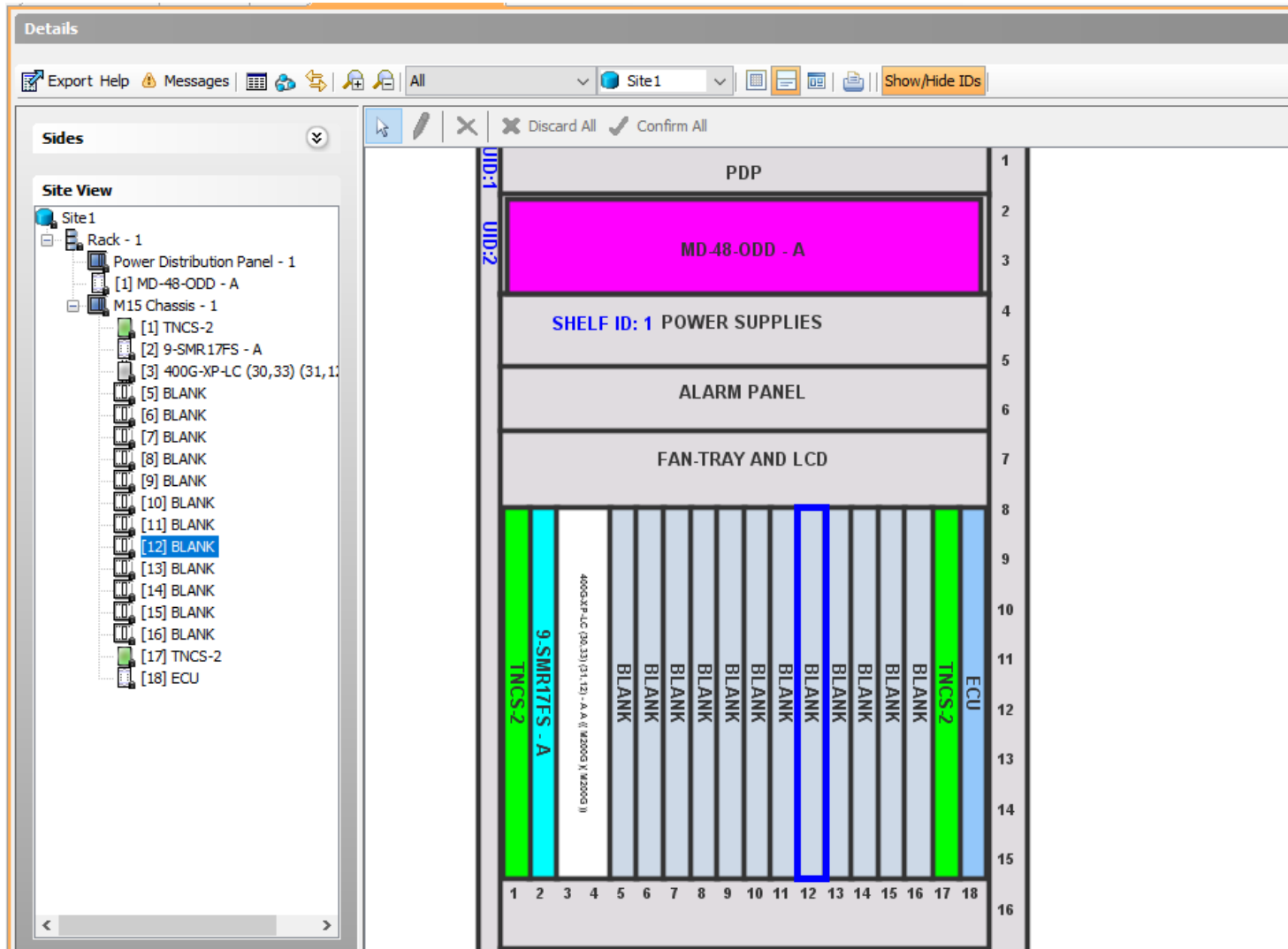


Line Node

# Rede Linear - Flex Spectrum 100G 40 channel



# Rede Linear - Flex Spectrum 100G 40 channel

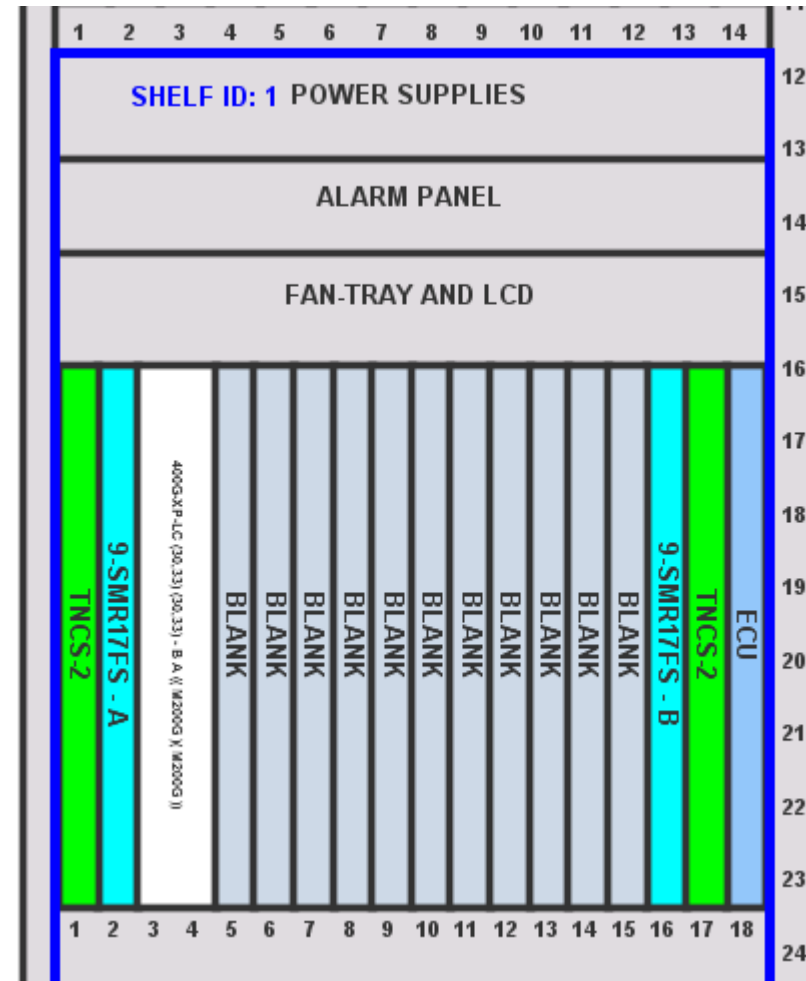
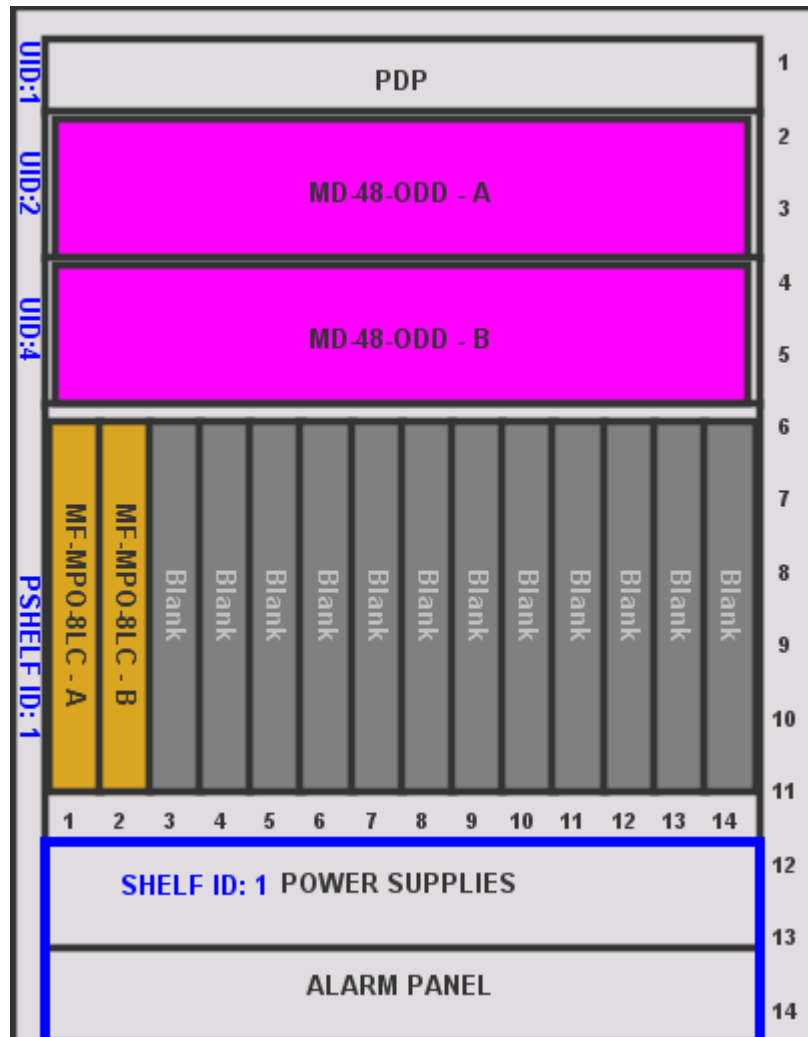


Terminal node

# Example 10

Design the same network with legacy, hibrid and Flex Spectrum configuration and compare the results

# Rede Linear - Flex Spectrum 100G 40 channel



Line node

# OTDR

Optical Time Domain Reflectometry is used to provide information about basic characteristics of the optical fiber among optical nodes, like Insertion Loss and concentrate point of reflection.

OTDRs are widely used for detecting fiber anomalies, such as fiber-to-fiber connection losses and reflectance. They can be fusion splices, butt joints and connectors. Typically an OTDR instrument transmits a pulse along an optical fiber (the Pulse method). A portion of the light of the pulse is returned toward the transmitter from each point along the optical fiber. Such returns are produced both from the natural light backscattering (Rayleigh Scattering), and from localized Fresnel reflection from fiber-to-fiber connections.

By measuring the amount of light returned back at a given delay from pulse injection into the fiber, and comparing this light pulse with the original probe signal injected into the fiber, it is possible to detect many fiber characteristics and anomalies, such as fiber Insertion Loss (dB/km) and fiber-to-fiber Connections Loss and Reflection Loss (dB).



# OTDR & TNCS-O

Pulse OTDR, however, requires laser pulses with relatively high peak power, which do not fit very well with the objective of integrating OTDR capabilities into TNCS-O. For this reason a different measurement strategy has been selected, the correlation method.

In the correlation method, a Pseudo Noise Bit Sequence is transmitted in the fiber instead of just an optical pulse. The reflected light is sampled against time and mathematically correlated with the original probe sequence. Similar to the Pulse method, the correlation of transmitted and received signals at a given time delay provides information about losses and reflections. The correlation method allows for better noise filtering, providing a significant noise advantage respect to pulse method (12 dB measured). Also, since pulse probe energy spreads along a bit stream, this method better adapts to the typical lasers used in pluggable interfaces, which can provide lower TX Power. OTDR signals operate at 1518nm offering bi-directional operations, allowing so Tests both fibers and both directions of the fiber with a single device.

# Configuring TNCS-O

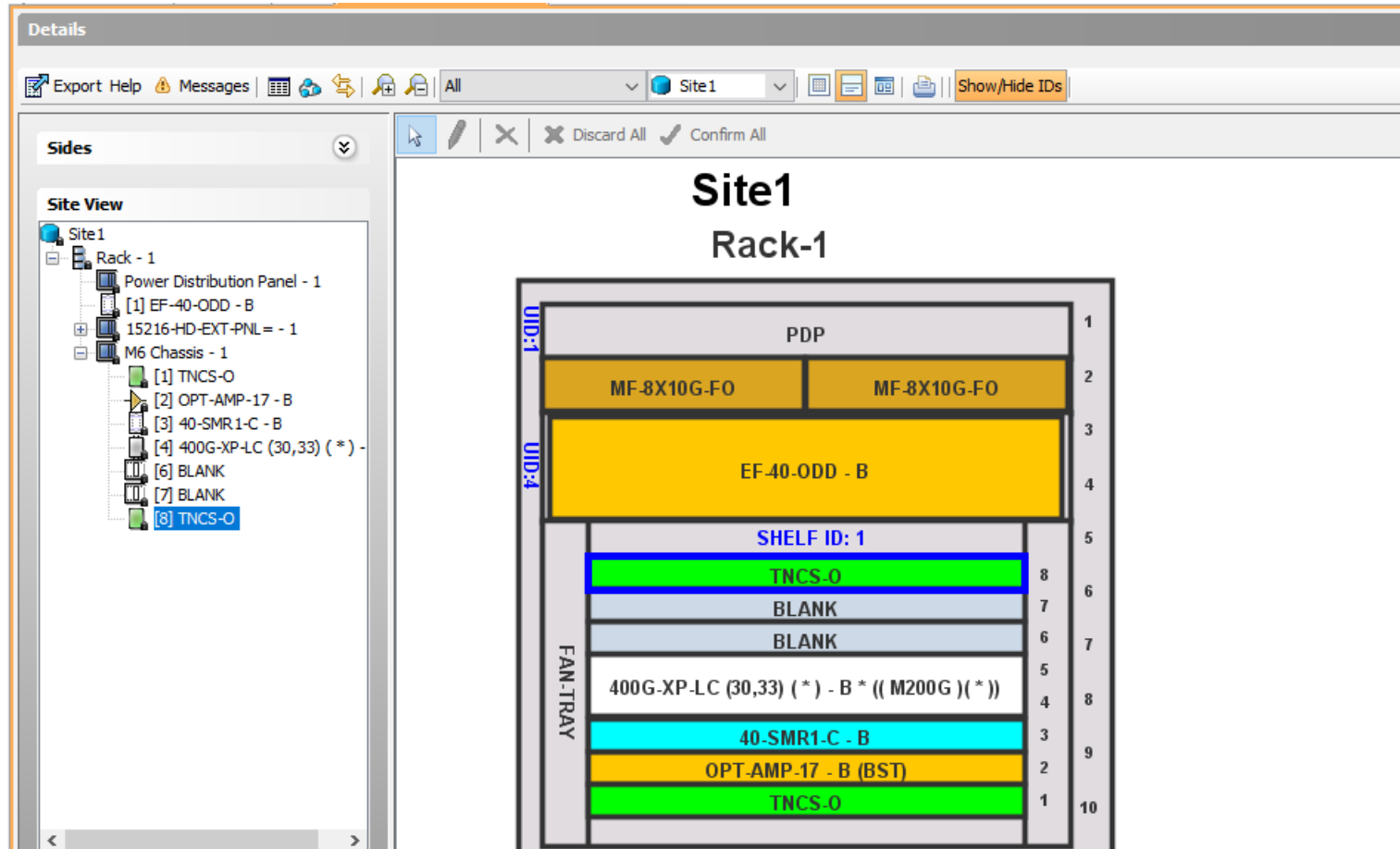
The screenshot displays a network management application interface. On the left, the Project Explorer shows a tree structure for a project named 'Net1 [L]'. The tree includes folders for 'Notes (0)', 'Platforms', 'Nets', and 'Sites'. Under 'Sites', there are two sites: 'Site1' and 'Site2'. 'Site1' has sub-items for 'B', 'Clients', 'Routing', and 'NEs'. Other folders include 'Fibres', 'Service Demands', 'Options', 'Maintenance Centers', 'Restricted Equipment List (no items)', 'Reports', 'Traffic Subnets', and 'Optical Subnets'.

The main workspace shows a network diagram with two sites, 'Site1' and 'Site2', connected by a line labeled 'Duct1 [80,0Km] EOL[20,5]'. The interface includes a toolbar with various icons and a 'Properties' window at the bottom.

The Properties window shows the following configuration for the selected 'M6/M2 Controller ...':

Property	Value
Number of Alien S...	Auto
Alien Shelf Name	Auto
Chassis Type	M6 Chassis
Power Supply	Auto
Redundant Power	Auto
UTS AC Power Ca...	Auto
Redundant Contr...	Auto
M6 Chassis in Use	Auto
M12 Chassis in Use	Auto
Filler Card Type	Blank
Node Controller	Auto
TCC Type	Auto
M6/M2 Controller ...	TNCS-O
M15 Chassis in Use	Auto

# Point-to-point with OTDR



# Maintenance Center

The screenshot displays the Cisco Transport Planner interface. On the left, the Project Explorer shows a tree structure with 'Maintenance Centers' highlighted. A black arrow points from this text to the 'Maintenance Centers' folder in the Project Explorer. The main workspace shows a network diagram with three sites (Site1, Site2, Site3) connected by links labeled 'Duct1 [10,0Km] EOL[3,0]' and 'Duct2 [10,0Km] EOL[3,0]'. A second black arrow points from the text 'Or click here' to the 'New Maintenance Center' button in the Actions pane on the right. The bottom status bar shows 'Ready' and 'Version - 11.1.0.64 | Design | NetworkDesigner\_ZP | 197M of 506M'.

Right click here

Or click here

# Example 11

Design a point-to-point network with OTDR controller

# Maintenance Center Parameters

The screenshot displays a network management application with a Project Explorer on the left and a Properties window at the bottom. The Project Explorer shows a tree structure under 'Project' with folders for 'Notes (0)', 'Platforms', and 'Nets'. Under 'Nets', there is a 'Net1 [L]' folder containing 'Notes (0)', 'Sites' (with 'Site1', 'Site2', and 'Site3'), 'Fibres', 'Service Demands', 'Options', 'Maintenance Centers' (with 'Maintenance Center 1' selected), 'Restricted Equipment List (no items)', 'Reports', 'Traffic Subnets', and 'Optical Subnets'. The Properties window shows the following data:

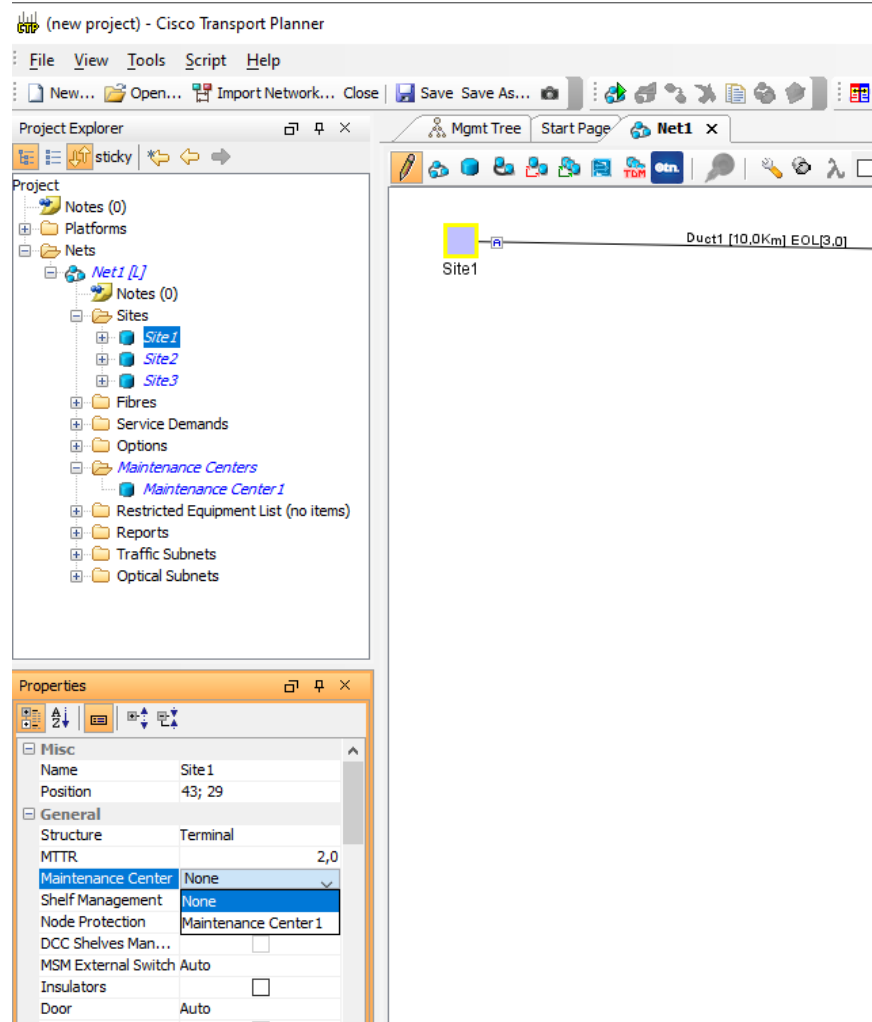
Misc	
Name	Maintenance Center 1

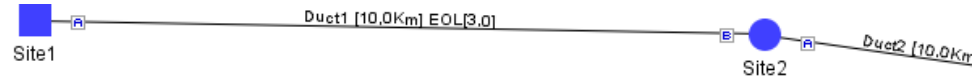
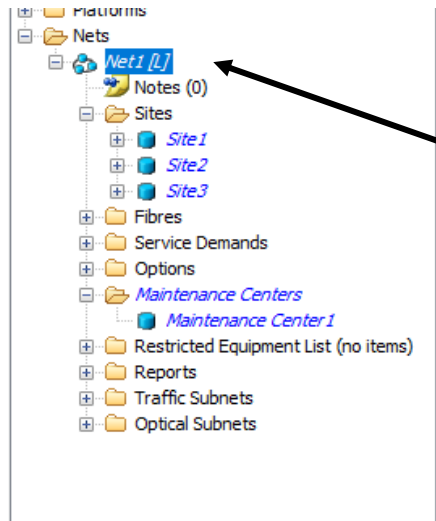
General	
Restocking Time	30
Confidence Level	50
Default CTP Softwa...	System Release 11.1

Annotations with arrows point to the 'Name' field (labeled 'name'), the 'Restocking Time' field (labeled 'time (days)'), and the 'Confidence Level' field (labeled 'confidence level'). The main workspace shows a 'Site1' node connected to a 'Duct1 [10,0Km]' line.

# Associate Site with Maintenance Center



# Using Spare Parts



select here

Properties

Misc	
Name	Net1
Position	180; 40
General	
Created By	
Status	Design
Measurement Units	Km
Per Side Installati...	<input type="checkbox"/>
Node Split	<input type="checkbox"/>
Enable Layout Mo...	<input checked="" type="checkbox"/>
Encryption Always...	<input type="checkbox"/>
Network Type	Non-SSON
Bill of Material	
Use Bundles	<input type="checkbox"/>
Use Spare Parts	<input checked="" type="checkbox"/>
Use Global Discount	<input type="checkbox"/>
Global Discount	0,0
Use Client Base	<input type="checkbox"/>

set here



# Bill of Materials

Details										
Export Help  Messages										
BoM total discounted: 0,00						Price List: Master Price DB				
Spare total discounted: 0,00						Price List last update: Never				
BoM + Spare total discounted: 0,00						Currency: Usd				
<input type="checkbox"/> Use MSM Bundle			<input checked="" type="checkbox"/> Use Spare Parts			<input type="checkbox"/> Use Global Discount				
<span style="background-color: #f4a460; padding: 2px;">BoM</span> <span style="padding: 2px;">Spare</span>										
Product ID	Description	Quantity	Unit Price	Unit Discount	Total Price	Discounted Total Price	Site1	Site2	Site3	
QSFP-100G-SR4-S=	100GBASE SR4 QSFP Transceiver, MPO, 100m ...	8	0,00	0.0	0,00	0,00	4	0	4	
NCS2K-400G-XP=	400G CFP2 MR Xponder	2	0,00	0.0	0,00	0,00	1	0	1	
15454-M-ALMCBL2=	SCSI Alarm cable 24AWG 8 inputs	2	0,00	0.0	0,00	0,00	1	0	1	
15454-LC-LC-2=	Fiber patchcord - LC to LC - 2m	14	0,00	0.0	0,00	0,00	7	0	7	
15454-M-USBCBL=	USB cable for passive devices	2	0,00	0.0	0,00	0,00	1	0	1	
ONS-SE-155-1510=	SFP - OC3/STM1 CWDM, 1510 nm, EXT	2	0,00	0.0	0,00	0,00	1	0	1	
NCS2006-SA=	NCS 2006 Shelf Assembly	2	0,00	0.0	0,00	0,00	1	0	1	
NCS2006-ECU-S=	NCS 2006 External Connections Unit - w/2x US...	2	0,00	0.0	0,00	0,00	1	0	1	
NCS2006-LCD=	NCS 2006 LCD Display with Backup Memory	2	0,00	0.0	0,00	0,00	1	0	1	
15454-BLANK=	Empty slot Filler Panel	6	0,00	0.0	0,00	0,00	3	0	3	
NCS2006-FTA=	NCS 2006 Fan Tray	2	0,00	0.0	0,00	0,00	1	0	1	
NCS2006-DC40=	NCS 2006 40A DC Power Filter	4	0,00	0.0	0,00	0,00	2	0	2	
ONS-CFP2-WDM=	100G QPSK / 200G 16-QAM - WDM CFP2 Plugg...	4	0,00	0.0	0,00	0,00	2	0	2	
NCS2K-TNCS-2-K9=	NCS 2000 Transport Node Controller, version 2	4	0,00	0.0	0,00	0,00	2	0	2	
15216-ATT-LC-10=	Bulk Attenuator - LC Connector - 10dB	2	0,00	0.0	0,00	0,00	1	0	1	
15454-SMR1-LIC=	SM ROADM 1-PRE-AMP 100GHZ-CBAND-10ch L...	2	0,00	0.0	0,00	0,00	1	0	1	
15454M-R1110SWK9=	MSTP - ANSI & ETSI, R11.1 - RTU LIC DVD, NO...	2	0,00	0.0	0,00	0,00	1	0	1	
15216-EF-ODD-LIC=	Licensed 10ch Exposed Faceplate mux demux ...	2	0,00	0.0	0,00	0,00	1	0	1	

# Spare Parts

### Details

Export Help Messages

BoM total discounted: 0,00  
Spare total discounted: 0,00  
BoM + Spare total discounted: 0,00

Price List: Master Price DB  
Price List last update: Never  
Currency: Usd

Use MSM Bundle  Use Spare Parts  Use Global Discount

**BoM** **Spare**

Product ID	Description	Quantity	Unit Price	Unit Discount	Total Price	Discounted Total Price	Maintenan...
QSFP-100G-SR4-S=	100GBASE SR4 QSFP Transceiver, MPO, 100m ...	1	0,00	0.0	0,00	0,00	1
NCS2K-400G-XP=	400G CFP2 MR Xponder	1	0,00	0.0	0,00	0,00	1
ONS-SE-155-1510=	SFP - OC3/STM1 CWDM, 1510 nm, EXT	1	0,00	0.0	0,00	0,00	1
NCS2006-SA=	NCS 2006 Shelf Assembly	1	0,00	0.0	0,00	0,00	1
NCS2006-ECU-S=	NCS 2006 External Connections Unit - w/2x US...	1	0,00	0.0	0,00	0,00	1
NCS2006-LCD=	NCS 2006 LCD Display with Backup Memory	1	0,00	0.0	0,00	0,00	1
NCS2006-FTA=	NCS 2006 Fan Tray	1	0,00	0.0	0,00	0,00	1
NCS2006-DC40=	NCS 2006 40A DC Power Filter	1	0,00	0.0	0,00	0,00	1
ONS-CFP2-WDM=	100G QPSK / 200G 16-QAM - WDM CFP2 Plugg...	1	0,00	0.0	0,00	0,00	1
NCS2K-TNCS-2-K9=	NCS 2000 Transport Node Controller, version 2	1	0,00	0.0	0,00	0,00	1
15454-SMR1-LIC=	SM ROADM 1-PRE-AMP 100GHZ-CBAND-10ch L...	1	0,00	0.0	0,00	0,00	1
15216-EF-ODD-LIC=	Licensed 10ch Exposed Faceplate mux demux ...	1	0,00	0.0	0,00	0,00	1

# Example 12

Create a maintenance center and a DWDM project with spare parts

# Alien Interfaces

Cisco Transport Planner allows you to define a third-party DWDM interface to be used in project creation.

After you define third-party DWDM interfaces, you can choose them when creating traffic demands.

If you create a network design with a third-party interface and need to share the design with other users, you must provide not only the saved network MPZ file but also the exported database file containing the third-party interface definition. To view this project, the other user first must import the database with the third-party interface values.

**Step 1** Click **Tools > DB Parts Mgmt.** The **DB Parts Manager** dialog box appears.

**Note** You cannot open the **DB Parts Manager** if a project is open or if you are using the **Base Network Designer** profile.

**Step 2** Right-click **Platform Parts** and choose **Expand** from the shortcut menu.

**Step 3** Right-click **Group** and choose **New Group** from the shortcut menu. The new group appears under **Group** and in each system release under **parts DB**.

**Step 4** In the **Group Editor** dialog box, complete the following information:

- **Name of group**—Enter the name of the new database.
- **Note**—(Optional) Enter a description of the group.

**Step 5** In the **parts DB** for the desired system release, click the group that you created.

**Step 6** In the **Parts** tab of the **DB Parts Manager** dialog box, right-click and choose **Client** and then **Alien** from the shortcut menu. A new row appears on the **Parts** tab for the client hardware.

# Creating New Component

The screenshot shows the 'DB Parts Manager' application window. On the left is a tree view with a hierarchy of folders and components. The right side features a 'Parts' tab with a search bar and a table. An arrow points from the text 'click here to select' to the search bar.

Release	Group	Category	Label	Name
r111	teste alien	Alien Card	Alien	Alien

click here to select

# Edit General Parameters

The dialog box is titled "Alien" and contains the following parameters:

General	
Name	Alien wagner
Label	Alien wagner
Custom Group	teste alien
Category	Alien Card
Release	System Release 11.1

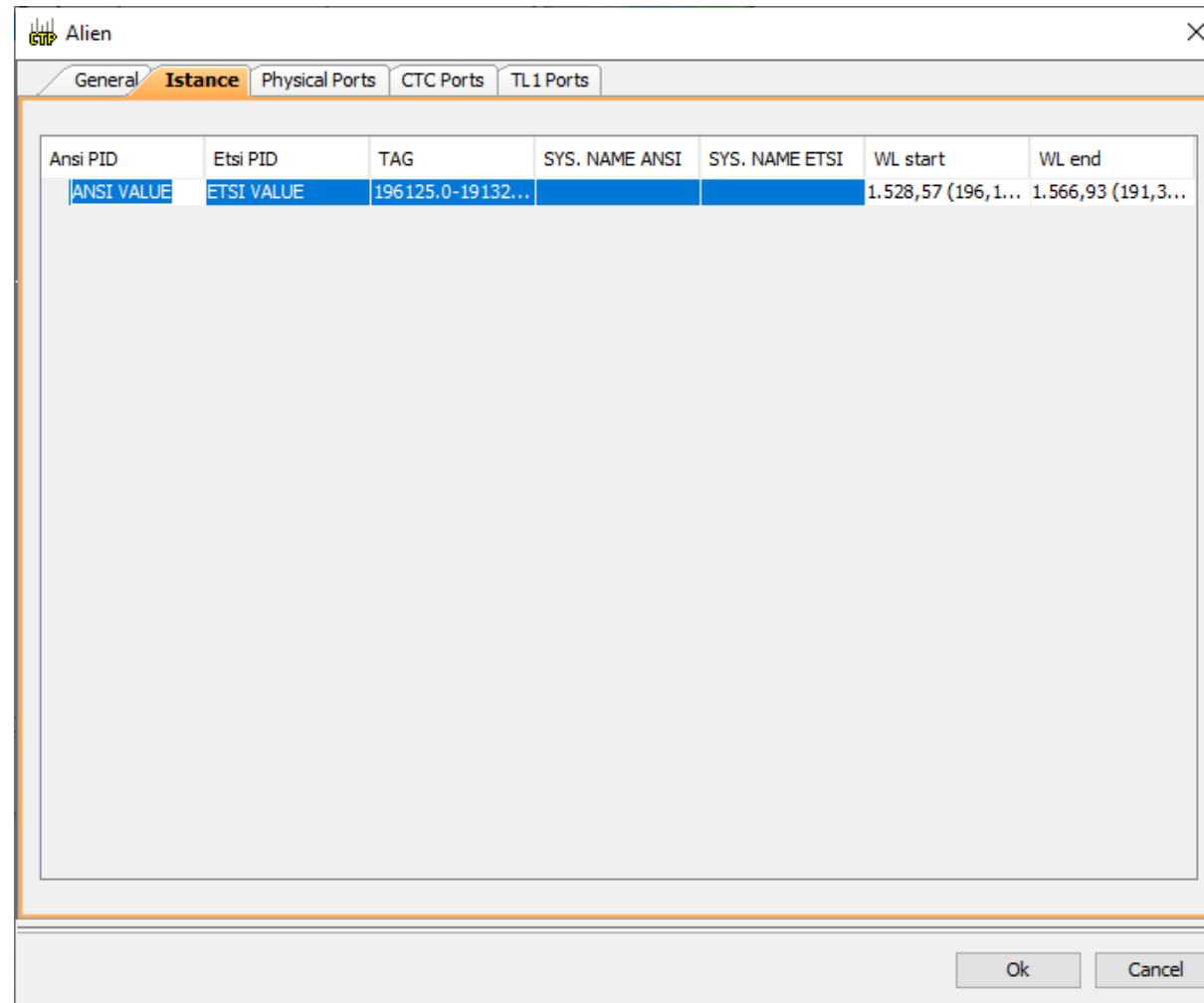
Card	
Available in Restricted Equipment List	<input type="checkbox"/>
Visible in BoM	<input type="checkbox"/>
Visible in Layout	<input type="checkbox"/>
Licensed version Available	<input type="checkbox"/>
Max Power Consumption [W]	0,0
Power Generated [W]	0,0
Typical Power Consumption [W]	0,0
Heat Dissipation [W]	0,0
FIT [ms]	0,0
Unit Weight [Kg]	0,0
Latency [ms]	0,0
Equipment Type	EQT TYPE
Equipment Type Description	EQT DESCRIPTION

**Label**  
Unique label of the item

Buttons: Ok, Cancel

# Interface Identification



The screenshot shows a software window titled 'Alien' with a close button in the top right corner. The window has a tabbed interface with four tabs: 'General', 'Instance', 'Physical Ports', 'CTC Ports', and 'TL1 Ports'. The 'Instance' tab is currently selected and highlighted in orange. Below the tabs is a table with the following columns: 'Ansi PID', 'Etsi PID', 'TAG', 'SYS. NAME ANSI', 'SYS. NAME ETSI', 'WL start', and 'WL end'. The first row of the table is highlighted in blue and contains the following data: 'ANSI VALUE', 'ETSI VALUE', '196125.0-19132...', 'SYS. NAME ANSI', 'SYS. NAME ETSI', '1.528,57 (196,1...', and '1.566,93 (191,3...'. At the bottom right of the window, there are two buttons: 'Ok' and 'Cancel'.

Ansi PID	Etsi PID	TAG	SYS. NAME ANSI	SYS. NAME ETSI	WL start	WL end
ANSI VALUE	ETSI VALUE	196125.0-19132...	SYS. NAME ANSI	SYS. NAME ETSI	1.528,57 (196,1...	1.566,93 (191,3...

# Physical Ports

not applicable

Port	Dir	Type	Link	Mech	Label
1	IN	DWDM	Don't Care	LC	RX
2	OUT	DWDM	Don't Care	LC	TX
3	IN	OPT	Don't Care	LC	Client-RX
4	OUT	OPT	Don't Care	LC	Client-TX



# Software Definitions

click here to include

The screenshot shows the 'DB Parts Manager' application window. On the left is a tree view with folders for releases r109, r110, r111, and a Group. Each release folder contains sub-folders for 'common', 'tm', 'core', 'layout', and 'payg', and a 'parts DB' folder containing 'Cisco' and 'teste alien' items. The 'teste alien' item under the 'Group' folder is highlighted with a blue selection box. On the right, the 'Parts' tab is active, showing a search bar and a table with two rows of data. An arrow points from the text 'click here to include' to the search bar.

Release	Group	Category	Label	Name
r111	teste alien	Alien Card	Alien	Alien wagner
r111	teste alien	SW Item	AlienSoft	AlienSoft

# Alien Soft Definitions

The screenshot shows a configuration window titled "AlienSoft" with a "General" tab. The "General" section contains the following fields:

Name	AlienSoft wagner
Label	SW::Alien
Custom Group	teste alien
Category	SW Item
Release	System Release 11.1

The "Data Value" section contains the following fields:

Signal Hierarchy	Alien
Related Item	Alien wagner

At the bottom of the window, there are "Ok" and "Cancel" buttons. A "Related Item" section at the bottom left contains the text "Related item".

change here

# Optical parameters

The screenshot shows the 'Default - OCh' configuration window in the AlienSoft application. The window is titled 'AlienSoft' and has a close button in the top right corner. The main content area is divided into several sections:

- Rule:** Design Rule is set to 'Auto'.
- Technology:** Modulation Format is 'NRZ', Transmitter Type is 'MZ', Receiver Threshold is 'Optimal', Regeneration Type is '3R', FEC Mode is 'no FEC', Transmitter Stability is '+/- 12.5 pm', Oper Mode is 'MODE UNKNOWN', and Ber Target is '1E-12'.
- Bit Rate:** Bit Rate is '2.5 Gb/s'.
- TX Power Range:** TX Max Power [dBm] is '0,0' and TX Min Power [dBm] is '0,0'.
- Back to Back Receiver Sensitivity:** This section is currently collapsed.

Below the configuration table, there is a section for '(Name) (Description)' which is empty. At the bottom, there is a table with the following headers:

	OL_Power [dBm]	OL_OSNR [dB]	PL_Power [dBm]	PL_OSNR [dB]
--	----------------	--------------	----------------	--------------

At the bottom of the window, there are 'Ok' and 'Cancel' buttons.

The OCh parameters are defined according to a Cisco defined model.

See CTP manual p.36

# Including RAMAN

The screenshot displays the Cisco Transport Planner interface for a new project. The main workspace shows a network diagram with two sites, Site1 and Site2, connected by a fiber duct labeled "Duct1 (200.0km) EOL(60.0)". A dashed blue line indicates the fiber path. The Properties panel on the left is expanded to show the "Raman Amplification" section, which is currently set to "Raman Amplified". Below this, it specifies "Attenuation at Lambda One" and "Attenuation at Lambda Two" as "Auto". A note at the bottom of the Properties panel states: "Raman Amplified Allows Raman Amplifier placement at end points of the span". The Project Explorer on the left shows a tree structure with "Net1 [L]" selected, containing "Network Journal", "Notes (0)", "Sites", "Fibres", "Duct1 ( Site1 - Site2 )", "Couple1 ( A - A )", "Fibre A ( Site1.A - Site2.A )", and "Fibre B ( Site2.A - Site1.A )". The Properties panel also lists other parameters: CD C-Band (16,5), CD L-Band (19,0), Loss (0,25), PMD at Fiber (0,06), Extended DRBS coeff. (0,002), and Totals. The bottom status bar shows "Design Network Designer 72M of 469M" and the system clock indicates "10:52 07/08/2013".

Property	Value
CD C-Band	16,5
CD L-Band	19,0
Loss	0,25
PMD at Fiber	0,06
Extended DRBS coeff.	0,002
Raman Amplification	Raman Amplified
Attenuation at Lambda One	Auto
Attenuation at Lambda Two	Auto

# RAMAN

The image shows two windows from a software application. The top window is the 'Project Explorer' showing a hierarchical tree structure. The bottom window is the 'Properties' window for the selected 'C-Band Amplifiers' object, showing various configuration options.

**Project Explorer**

- Project
  - Notes (0)
  - Platforms
  - Nets
    - Net1 [L]
      - Network Journal
      - Notes (0)
      - Sites
        - Site1
          - A
            - C-Band
              - C-Band Amplifiers
              - Add/Drop
            - L-Band
          - Clients
          - Routing

**Properties**

Attenuator Out: Auto

**General**

OSC: Auto

**Raman Amplification**

RAMAN	Auto
DCU 1	Auto
DCU 2	RAMAN-CTP
Gain	RAMAN-COP-CTP
Tilt	OPT-RAMP-CE
Co-propagating Gain	OPT-RAMP-C
TDCU	OPT-RAMP-C

**RAMAN**  
Raman Amplification

# RAMAN

The screenshot displays the Cisco Transport Planner interface. The main workspace shows a network diagram with two sites, Site1 and Site2, connected by a duct labeled "Duct1 (150,0km) EOL@7,5". A dashed blue line indicates the path of the duct. The Project Explorer on the left shows a tree view with "Duct1 ( Site1 - Site2 )" selected. The Properties panel on the bottom left provides details for the selected duct:

Misc	
Name	Duct1
Connection Type	Line

General	
EOL Ageing Loss	0,0
EOL Ageing Factor	1,0
Measurement Units	Km
Fiber Type	G652-SMF - 28E
Span Length	150,0

Physical	
Length Based Loss	<input checked="" type="checkbox"/>

The Properties panel also includes a (Name) field and a (Description) field. The bottom status bar shows "Design Network Designer 67M of 469M" and the system tray displays the time "10:58" and date "07/08/2013".

# RAMAN

## Without RAMAN

SOL OSNR [dB]	EOL OSNR [dB]	SOL OSNR margi...	EOL OSNR margi...	SOL RX [dBm]	EOL RX [dBm]	SOL Power marg...	EOL Power marg...		
6,25	6,25	■	-5,51	■	-5,51	-11,80	-11,80	1,76	1,76
6,25	6,25	■	-5,51	■	-5,51	-11,80	-11,80	1,76	1,76

## With RAMAN

EOL OSNR [dB]	SOL OSNR margi...	EOL OSNR margi...	SOL RX [dBm]	EOL RX [dBm]	SOL Power marg...	EOL Power marg...	SOL Overload...
20,61	8,76	8,76	-13,49	-13,49	4,29	4,29	4,27
20,61	8,76	8,76	-13,49	-13,49	4,29	4,29	4,27

## Example 13

Design a point-to-point network with two long spans (150 km) and modify the project to use RAMAN amplifiers



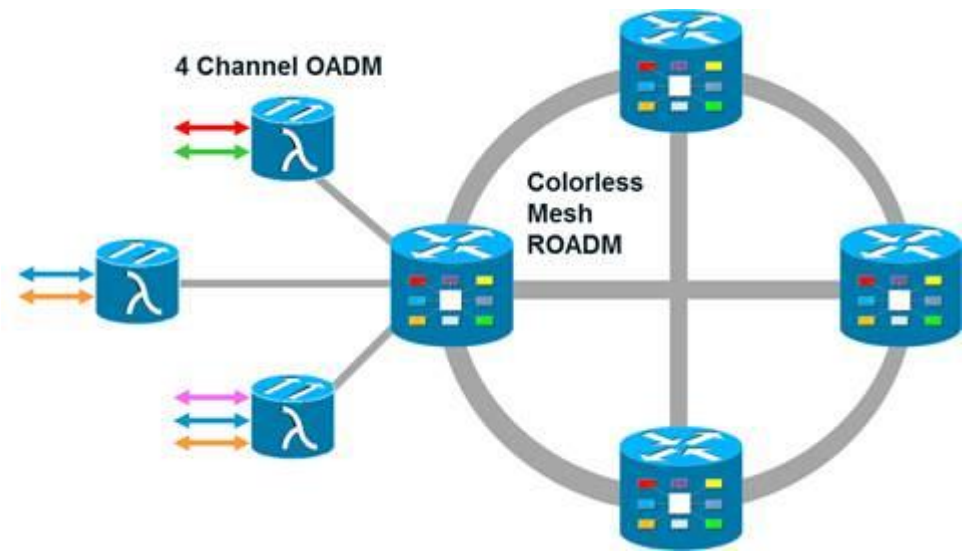
The logo features a stylized graphic of five horizontal, parallel lines in a light blue-grey color, slanted upwards from left to right. To the right of this graphic, the words "Fast Lane" are written in a bold, italicized, dark red serif font.

***Fast Lane***



15216 Odd Patch Panel		
Power module	LCD	Power mod
ECU		
Fan tray	TNC/TSC	8
	Available	7
	Available	6
	Available	5
	Available	4
	Available	3
	40-SMR1-C	2
TNC/TSC	1	

Cisco ONS 15454 M6



**Table 6.** 40-Channel Wavelength Plan – Odd – C band

$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)
1530.3	1534.2	1538.1	1542.1	1546.1	1550.1	1554.1	1558.1
1531.1	1535.0	1538.9	1542.9	1546.9	1550.9	1554.9	1558.9
1531.9	1535.8	1539.7	1543.	1547.7	1551.7	1555.7	1559.7
1532.6	1536.6	1540.5	1544.5	1548.5	1552.5	1556.5	1560.6
1533.4	1537.4	1541.3	1545.3	1549.3	1553.3	1557.3	1561.4

**Table 7.** 40-Channel Wavelength Plan – Even – C band

$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)
1530.7	1534.6	1538.5	1542.5	1546.5	1550.5	1554.5	1558.5
1531.5	1535.4	1539.3	1543.3	1547.3	1551.3	1555.3	1559.3
1532.2	1536.2	1540.1	1544.1	1548.1	1552.1	1556.1	1560.2
1533.0	1537.0	1540.9	1544.9	1548.9	1552.9	1556.9	1561.0
1533.8	1537.7	1541.7	1545.7	1549.7	1553.7	1557.7	1561.8

**Table 8.** 32-Channel Wavelength Plan – L band

$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)	$\lambda$ (nm)
1577.8	1581.1	1584.5	1587.8	1591.2	1594.6	1598	1601.4
1578.6	1582.0	1585.3	1588.7	1592.1	1595.4	1598.8	1602.3
1579.5	1582.8	1586.2	1589.5	1592.9	1596.3	1599.7	1603.1
1580.3	1583.6	1587	1590.4	1593.7	1597.1	1600.6	1604.0