PL3 Enhancements

The following sections describe changes introduced in release 12.0 PL3:

- Multiple Links Between Two Nodes
- Cross-Connect Equipment Restrictions
- Multi-Vendor Ring Modelling on page RN-3-2
- User-Defined OCH Bit Rates on page RN-3-2
- Enhanced Service Availability Modelling on page RN-3-2

Multiple Links Between Two Nodes

This release provides the following new features for modelling multiple links between nodes:

- You can now define multiple links between two nodes. Previously, you could define a maximum of two links per node pair.
- To improve the visual representation of parallel links, you can also draw links with multiple line segments.

  The default length and delay properties of a link are based on the shortest distance between the end nodes; any additional length due to multiple line segments has no effect.
- You can now define parallel links at different network layers. At the OTS layer, for example, parallel links represent physically separate cables between two sites. At the OMS layer, parallel links represent fiber bundles that are routed over different underlying cables.

  At the OCH layer, parallel links represent fiber pairs that are routed over different underlying fiber bundles. This is also a new feature; previously, you could not model multiple OCH links with different underlying fiber routes.

Cross-Connect Equipment Restrictions

You can now restrict the cross-connect equipment types to be used in a specific node. This enables you to define multiple types of cross-connects within a network scenario, and to specify that certain nodes use only a specific subset of cross-connects (from a specific vendor, for example). The dimensioning algorithms consider these restrictions and upgrade the specific nodes with allowed cross-connect types only.

To specify allowed cross-connect types for a node, select that node in the Node Browser, right-click, and choose "Allowed XC Types."

For more information, see Setting Allowed XC Types on page TrP-4-19 in the SP Guru Transport Planner *User Guide*.

Multi-Vendor Ring Modelling

You can now model different types or vendors of ADMs for SDH/SONET rings. Previously, an ADM was defined by ring protection type and bit rate only: you could not represent different ADMs, from different vendors, with different costs. Now, you can create different ring models for the different vendors you want to represent. Each ring model can have different cost values for its ADMs and for individual ADM ports. This enables you to combine rings from different vendors in one scenario. You can also specify the ring model to use when upgrading a ring during a ring dimensioning operation.

For more information, see SONET/SDH Ring Equipment on page TrP-3-34 in the SP Guru Transport Planner *User Guide*.

User-Defined OCH Bit Rates

You can now create user-defined bit rates at the OCH layer to represent custom optical services that are not related to standard SONET/SDH bit rates. This supports the growing use of non-SONET/SDH-based services over optical networks such as ESCON, FICON, 10 GigE, soon 100 GigE, and so on. You can also use customized bit rates to model the newly standardized ODU (Optical Data Unit) frames.

For more information, see Creating Custom Bit Rates on page TrP-3-27 in the SP Guru Transport Planner *User Guide*.

Enhanced Service Availability Modelling

The availability calculations feature has been significantly enhanced; these enhancements support more flexible and precise calculations of end-to-end services availability at all possible layers. The main enhancements are:

- Availability calculations at all layers. Previously, this was possible at the OCH layer only.
- Choice of availability calculation or simulation for all traffic. Analytic calculations provide precise results for unprotected and 1+1 protected traffic.

- More modular calculation for any selection of traffic (from one connection to all traffic in the network) and failure type (from entire node failures to individual transponder failures).
- A new availability report that lists connections based on their availability target.

For more information, see Service Availability on page TrP-14-2 in the SP Guru Transport Planner *User Guide*.