Translucent Mode Transport

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Outline

Description Variables

Variables	Description
(i,j)	Origin node, i and destination node, j of a Link
(o,d)	Origin node, o and destination node, d of a Demand
c	Client traffic Type (1 to 5)
L	number of ODU-o from node o to node d between (i,j)
W	Number of optical channels
B	Client signals granularities (1.25, 2.5, 10, 40, 100)
D	Client traffic demands
G	Network topology in form of Adjacency matrix
BD	Bandwith

Table: Table with description of variables

Objective Function

$$\textit{minimize} \qquad \sum_{(o,d,b)} W_{od} \tag{1}$$

subject to

$$\sum_{j \neq i} L_{ij}^{od} = D_{odc} \qquad \forall o, c, d : o < d \tag{2}$$

$$\sum_{j \neq i \ j \neq o} L_{ij}^{od} = \sum_{j \neq i \ j \neq o} L_{ji}^{od} \qquad \forall s, d, p, o : s < d : p \neq s : p \neq d \tag{3}$$

$$\sum_{i \neq j} L_{ji}^{od} = D_{odc} \qquad \forall o, d, c : o < d \tag{4}$$

$$\sum_{(o,d,c):o<d} (B(c) \times L_{ij}^{od}) \leq \sum_{b} BD_b \times W_{ijb} \qquad \forall i, j \tag{5}$$

Objective Function

$$L_{ij}^{od} \geq 0; \qquad \forall o, d, i, j : o < d \tag{6}$$

$$\sum_{i \neq j} y_{ij}^{od} = W_{od} \qquad \forall i, j, b \tag{7}$$

$$\sum_{j \neq i \ j \neq o} y_{ij}^{od} = \sum_{j \neq i \ j \neq d} y_{ji}^{od} \qquad \forall o, d, i, b : i \neq d : i \neq o \tag{8}$$

$$\sum_{j \neq i} y_{ji}^{od} = W_{od} \qquad \forall o, d, b \tag{9}$$

$$\sum_{(o,d,b)} \left(y_{ij}^{od} + y_{ji}^{od} \right) \leq 80 G_{ij} \qquad \forall i, j : i < j \tag{10}$$

$$y_{ij}^{od} \geq 0 \qquad \forall o, d, i, j, b \tag{11}$$