

Title (en)

OPTICAL NETWORK TOPOLOGY DATABASES AND OPTICAL NETWORK OPERATIONS

Title (de)

TOPOLOGIEDATENBANKEN FÜR OPTISCHE NETZWERKE UND OPERATIONEN FÜR OPTISCHE NETZWERKE

Title (fr)

BASES DE DONNEES DE TOPOLOGIE D'UN RESEAU OPTIQUE ET FONCTIONNEMENTS DE RESEAUX OPTIQUES

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Application

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Abstract (en)

[origin: WO2005001620A2] Optical network topology databases and optical network operations. According to one embodiment of the invention, a number of wavelength division multiplexing access nodes employ a distributed search based scheme to build network topology databases based on a set of one or more connectivity constraints. According to another embodiment of the invention, a set of one or more connectivity constraints that include quality of service (QoS) based criteria are applied on a physical network topology of a wave length division multiplexing optical network to divide that optical network into separate service levels. In addition, service level topologies are determined for each of the service levels. According to another embodiment of the invention, a number of wavelength division multiplexing access nodes of an optical network employ a source based scheme to establish communication paths. Each of these access nodes stores a set of one or more network topology databases based on a set of one or more connectivity constraints. According to another embodiment of the invention, a wavelength division multiplexing optical network includes a number of nodes each having an optical cross connect and each having stored therein a database representing conversion free connectivity from that node to others of the nodes. In addition, each of the nodes employs a messaging scheme to propagate notification of changes in the optical network to others of the nodes to maintain their databases. The messaging scheme in each of the nodes transmits messages to only selected ones of the other nodes based at least in part on the conversion free connectivity to minimize the number of communications between nodes.

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