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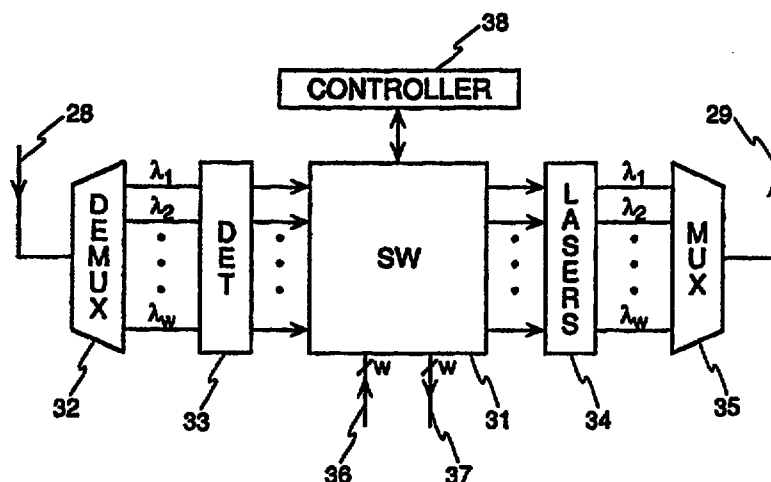
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(54) Title: INTER-RING CROSS-CONNECT FOR SURVIVABLE MULTI-WAVELENGTH OPTICAL COMMUNICATION NETWORKS



(57) Abstract

A cross-connect for a multi-ring, multi-channel telecommunications network, especially for a wavelength-division multiplexed (WDM) optical network. Each of the interconnected rings is self-healing by provision of a redundant counter-rotating ring or excess capacity on pairs of counter-rotating rings. Because an interconnect between self-healing rings does not need to connect working to protection fibers, or similarly redundant fibers, the complexity of the interconnect can be substantially reduced. For several important architectures, the interconnect can be decomposed into one or two 3x3 interconnects. Further, a wide-sense non-blocking 3x3 interconnect can be advantageously implemented as four 2x2 switches, which may be a basic building block of optical switches. A novel algorithm is available to add new paths through such a 3x3 interconnect. The interconnect can be decomposed into one or two 4x4 interconnects when another pair of add/drop lines are added. Such an architecture provides full connectivity between user nodes connected to the add/drop lines and user nodes attached to the rings.