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(54) Title: OPTICAL MULTICHANNEL SYSTEM

(57) Abstract

A communication network has a flexible bi-directional bus architecture (FBDNA) and is arranged as a ring structure. Each node of the network has at least one on/off node switch, i.e., a switch that permits or blocks transmission around what would otherwise be a ring. If the network has one node switch per node, one node switch is set initially off to avoid problems with circulating amplified spontaneous emission (ASE) normally associated with a ring structure. If a fiber break occurs, the node switch (or node switches) in the node (or nodes) next to the break and on the same side of the node as the break switches off, and the node switch that was off before the break switches on, permitting the network to operate largely as before. If the network has two node switches per node, two node switches next to each other in neighboring nodes are initially set off, and if a cable break occurs, both node switches around a break switch off, and the node switches that were initially off switch on. The network provides protective switching of traffic and solves the problem of circulating ASE in a simple and economical way. The network also permits wavelength reconfiguration to reduce the number of required wavelengths.

