Lightpath design & management system for IP-over-CWDM networks with ROADMs, employing parallel processing

Abstract:

A lightpath design and management system with parallel processing capabilities and a flexible upgradability has been designed and implemented for IP-over-CWDM networks with ROADMs. The system can process applications composed of some sub applications in parallel in multi machines for high-speed performance. In addition, the system was designed to have a flexible upgradability, i.e. no changes of the system programs are required when adding new functions. The system functions are to design lightpaths and wavelengths allocated to ROADMs for the lightpaths required to groom given traffic. The system can also search possible lightpath routes made by ROADMs with specified switch states, and output the total optical losses of the routes. By the new system implemented for the parallel processing, the total time to obtain the results for a 5-node IP-over-CWDM network was reduced down to 65% of the total time by the system with a single machine without parallel processing.