

ABSTRACT

A communications network protection design method in which a spare is notionally added to the network for a simulated span failure and the respective values for network restorability merit, as defined herein, are calculated. The notionally added spare having the greatest value of restorability merit is added to the network design and the process repeated, being extended to add two spares at a time if need be, and finally to add a complete path of spares to restore a failed span, the process ending after any addition of a spare or spares for which a network restorability target is reached. Following this forward synthesis phase, a tightening phase reduces the network cost by trying to remove spares and checking whether the restorability target can still be met. When no further single spares can be removed without violating the restorability target, this phase proceeds through various combinations namely: - removing one spare and adding one spare; removing two spares and adding one or two spares; and removing three spares and adding two or three spares. Each such combination is accepted only if it will reduce the network cost.

Fig. 1

