

METHODS AND SYSTEM FOR IMMEDIATELY CONNECTING AND
RESWITCHING DIGITAL CROSS-CONNECT NETWORKS

ABSTRACT OF THE DISCLOSURE

A method and system to immediately connect and reswitch connection configurations through a rearrangeable communications matrix that immediately connects an input gate causing rearrangeably blocked condition through the communications matrix to an output gate through a dedicated or extra switching element of the center. With the rearrangeably blocked condition, the method and system select a set of switching elements pairs from the center stage switches to form a plurality of possible connections from the input gates to the output gates that excludes the dedicated switching element. The method and system then determines from the possible connections a minimum rearrangement connection configuration that excludes the dedicated switch and that requires the minimum number of rearrangements of existing communications matrix connections. Then, the invention reswitches the matrix according to the minimum rearrangement connection configuration while maintaining all signal flow from the input gates to the output gates while removing connections through the dedicated switching element. The preferred embodiment has particular application for digital cross-connect networks that include a time domain and a space domain for connection configurations where rearrangeably blocked condition may occur in either domain.

