Title (en)

STRICTLY NONBLOCKING MULTICAST MULTI-SPLIT LINEAR-TIME MULTI-STAGE NETWORKS

Title (de)

STRIKT NICHT BLOCKIERENDE MULTICAST-MEHRFACHVERZWEIGUNGS-LINEARZEIT-MEHRSTUFEN-NETZWERKE

Title (fr)

RESEAUX MULTI-ETAGES, MULTIDESTINATION, MULTIFRACTIONNES, A TEMPS LINEAIRE, STRICTEMENT NON BLOQUANTS

Publication

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Application

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Abstract (en)

[origin: WO2005027390A2] A three-stage network is operated in strictly nonblocking manner in accordance with the invention includes an input stage having r1 switches and n1 inlet links for each of r1 switches, an output stage having r2 switches and n2 outlet links for each of r2 switches. The network also has a middle stage of m switches, and each middle switch has at least one link connected to each input switch for a total of at least r1 first internal links and at least one link connected to each output switch for a total of at least r2 second internal links, if m >= s * MIN(n1, n2) where s = 2 when r2 = [9,11], s = 3 when r2 = [25,48], s = 4 when r2 = [49,99], s = 5 when r2 =[1 00,154], s = 6 when r2 =[155,224], and s = 7 when r2 = [225,278]. In one embodiment, each multicast connection is set up through such a three-stage network by use of at most s middle stage switches. When the number of input stage r1 switches is equal to the number of output stage r2 switches, and r1 = r2 = r, and also when the number of inlet links in each input switch n1 is equal to the number of outlet links in each output switch n2, and n1 = n2 = n, a three-stage network is operated in strictly nonblocking manner in accordance with the invention if m >= s * n where s = 2 when r = [9,11]; s = 3 when r = [25,48]; s = 4 when r = [49,99]; s = 5 when r = [100,154]; s = 6 when r = [155,224]; and s = 7 when r = [225,278]. In one embodiment, each multicast connection is set up through such a three-stage network by use of at most s middle stage switches.

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