

United States Patent [19]

[11] **Patent Number:** **5,574,950**

Hathorn et al.

[45] **Date of Patent:** **Nov. 12, 1996**

[54] **REMOTE DATA SHADOWING USING A MULTIMODE INTERFACE TO DYNAMICALLY RECONFIGURE CONTROL LINK-LEVEL AND COMMUNICATION LINK-LEVEL**

5,404,508 4/1995 Konrad et al. 395/600
 5,420,988 5/1995 Elliott 395/275
 5,446,871 8/1995 Shomler et al. 395/180

[75] **Inventors:** Roger G. Hathorn; Bret W. Holley; James L. Iskiyan; William F. Micka; Asim R. Qureshi, all of Tucson, Ariz.

FOREIGN PATENT DOCUMENTS

0212425 3/1987 European Pat. Off. G06F 13/10
 0359384 3/1990 European Pat. Off. G06F 11/10

[73] **Assignee:** International Business Machines Corporation, Armonk, N.Y.

OTHER PUBLICATIONS

"Escon I/U Interface" SA22-7202-01 Enterprise Systems Architecture/390.

[21] **Appl. No.:** 203,248

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Assistant Examiner—Terance J. Stanton
Attorney, Agent, or Firm—Floyd E. Anderson; Robert M. Sullivan

[22] **Filed:** Mar. 1, 1994

[51] **Int. Cl.⁶** **G06F 15/02**

[57] **ABSTRACT**

[52] **U.S. Cl.** 395/861; 395/200.09; 364/222.2; 364/242.94; 364/242.5; 364/DIG. 1

A remote copy system incorporates dynamically modifiable ports on the storage controllers such that those ports can operate either as a control unit link-level facility or as a channel link-level facility. When configured as a channel link-level facility, a primary storage controller can appear as a host processor to a secondary storage controller. Using dynamic switches coupled between primary and secondary sites, fewer ESCON communication links are required since the ESCON communication links can function either as a channel or as storage controller communication link.

[58] **Field of Search** 364/952, 200; 395/650, 145, 600, 575, 200.01, 200.02, 200.09, 821, 861

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,058,056 10/1991 Hammer et al. 364/900
 5,089,958 2/1992 Horton et al. 395/575
 5,155,845 10/1992 Beal et al. 395/575

17 Claims, 9 Drawing Sheets

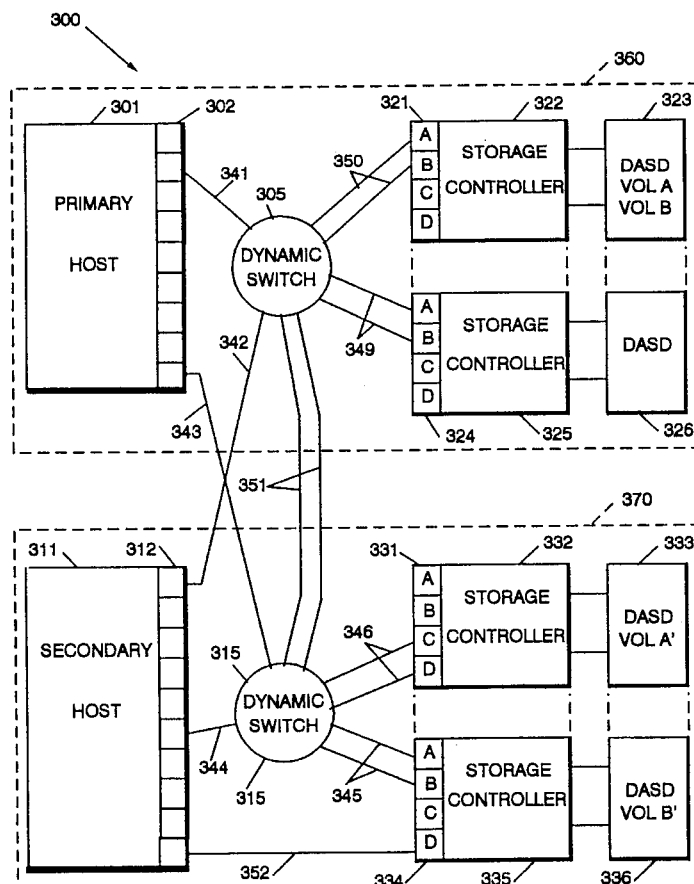


FIG. 1
PRIOR ART

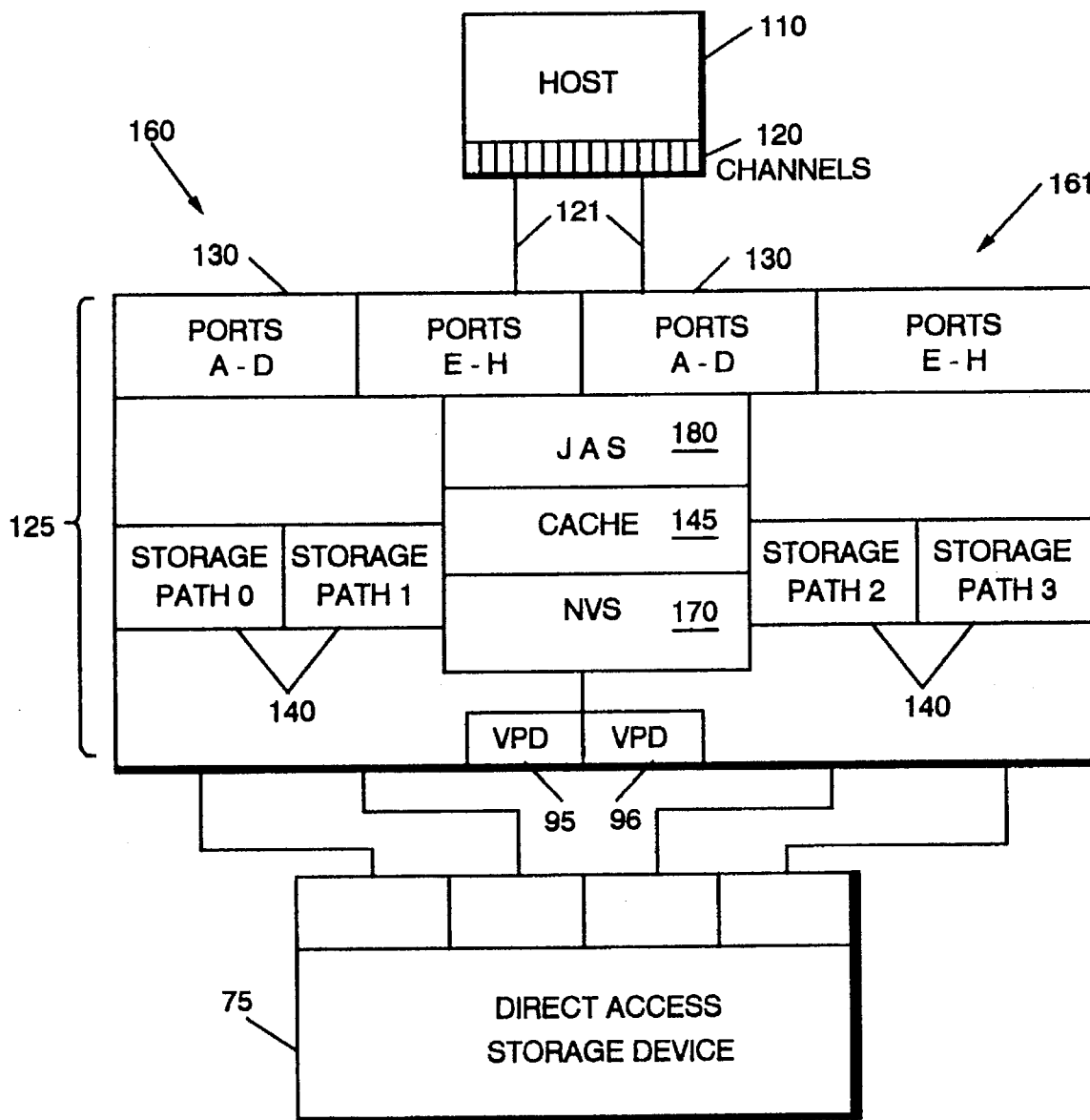


FIG. 2

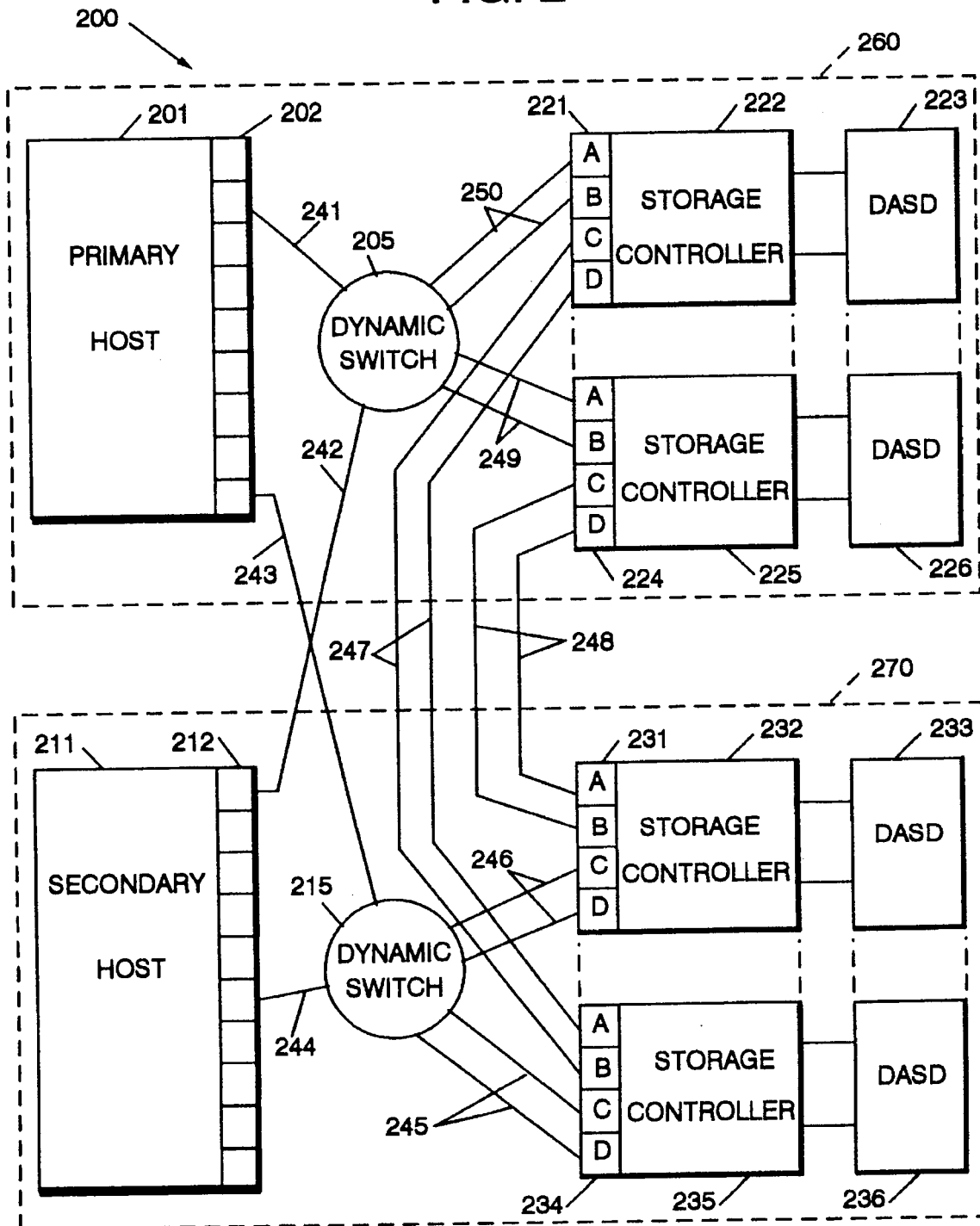


FIG. 3

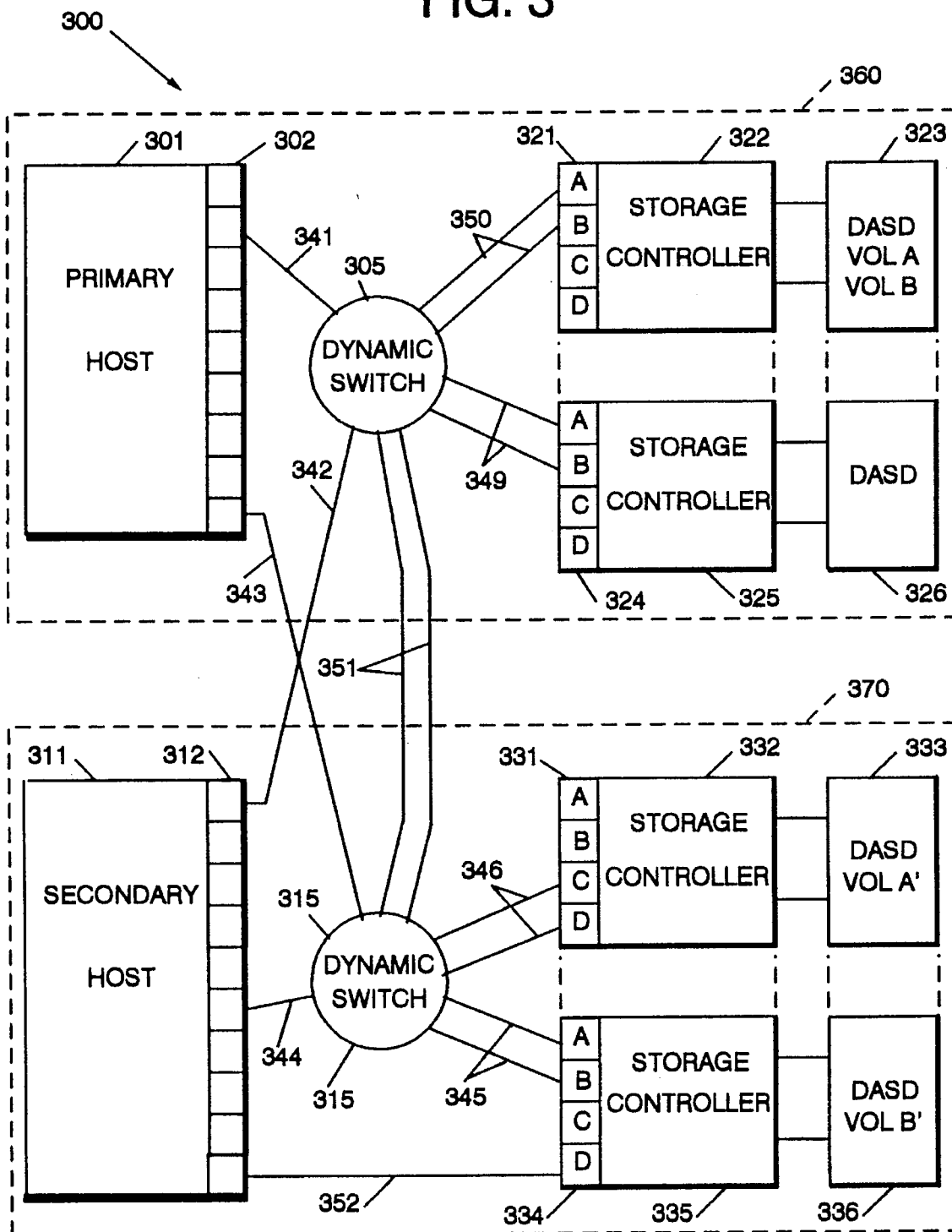
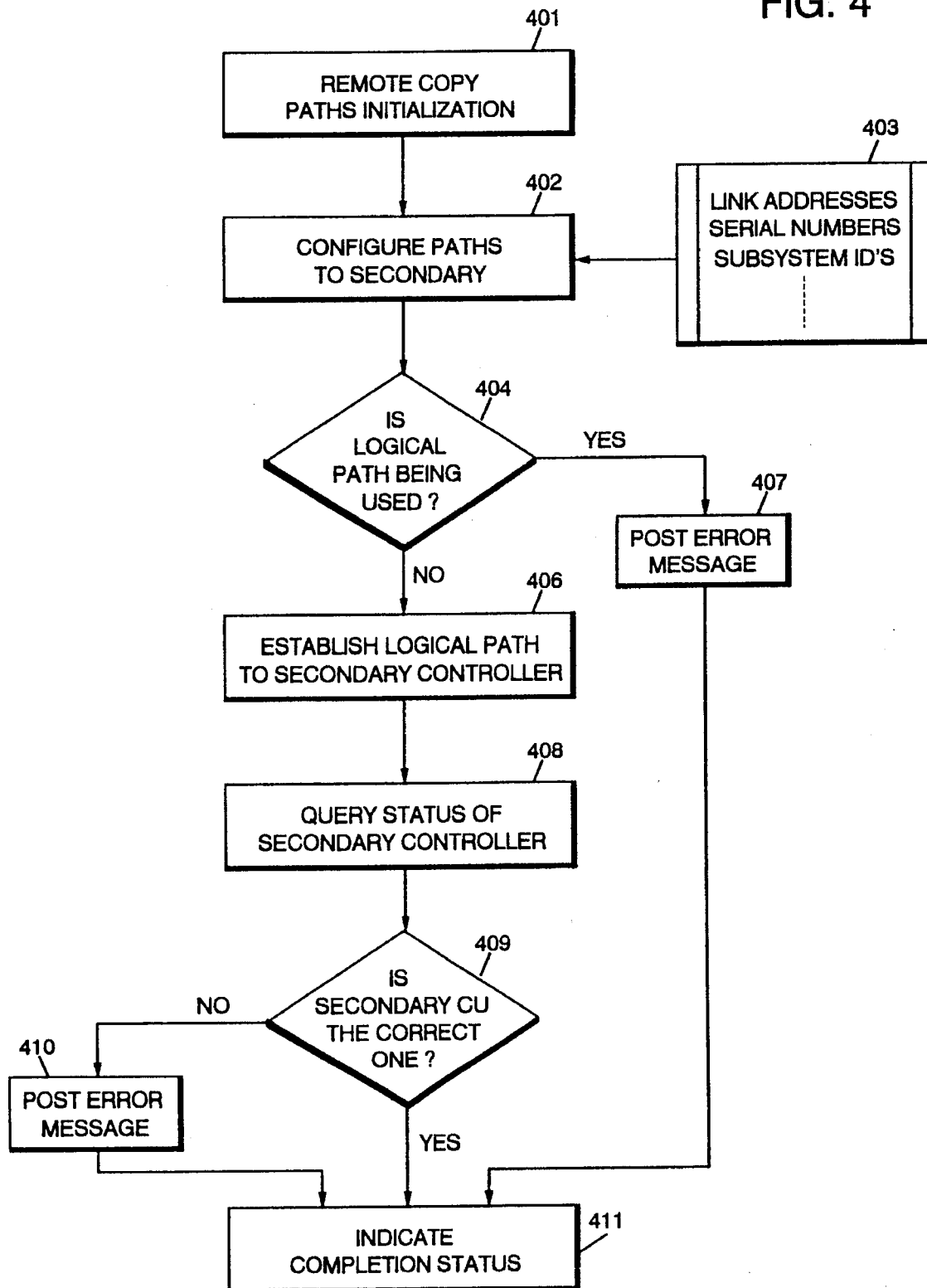


FIG. 4



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