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United States Patent [19]

Callon

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[54] **MULTIPLE PROTOCOL ROUTING**

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[73] Assignee: **Digital Equipment Corporation**, Maynard, Mass.

[21] Appl. No.: **245,856**

[22] Filed: **May 19, 1994**

Related U.S. Application Data

[60] Continuation of Ser. No. 59,641, May 10, 1993, abandoned, which is a division of Ser. No. 577,437, Sep. 4, 1990, Pat. No. 5,251,205.

[51] **Int. Cl.**[6] **H04L 12/46**

[52] **U.S. Cl.** **370/85.13**; 370/94.1

[58] **Field of Search** 370/85.13, 85.14, 54, 370/94.1

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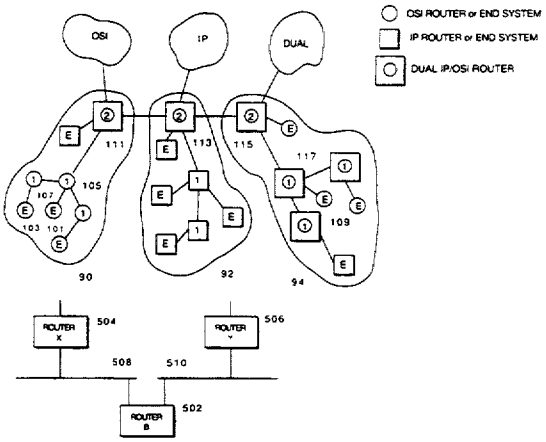
Assistant Examiner—Min Jung

Attorney, Agent, or Firm—Fish & Richardson

[57] **ABSTRACT**

A method for connecting a network so that TCP/IP and OSI 8473 packets may be routed in the same domain. The independence of the addresses is maintained: one device in the network may be assigned only a TCP/IP address, and another device may be assigned only a ISO 8473 address. Furthermore, all of the routers share link state information by using a common link state packet format (such as the ISO 10589 format); thus routes through the network may be computed without regard for the protocols supported by the routers along the route. Where necessary, packets are encapsulated and forwarded through routers which are not capable in the protocol of the packet. In some disclosed embodiments, all of the routers in a given area support a given protocol (or, in fact, have identical capabilities, in which case encapsulation is not required). In these embodiments, the encapsulation is performed by suitable modifications to each router's packet forwarding procedures. In other disclosed embodiments, these topological restrictions are removed, and the network is expanded to support additional protocols. In these embodiments, the Dijkstra algorithm is also modified to generate information on how to encapsulate and forward packets through the network.

8 Claims, 20 Drawing Sheets



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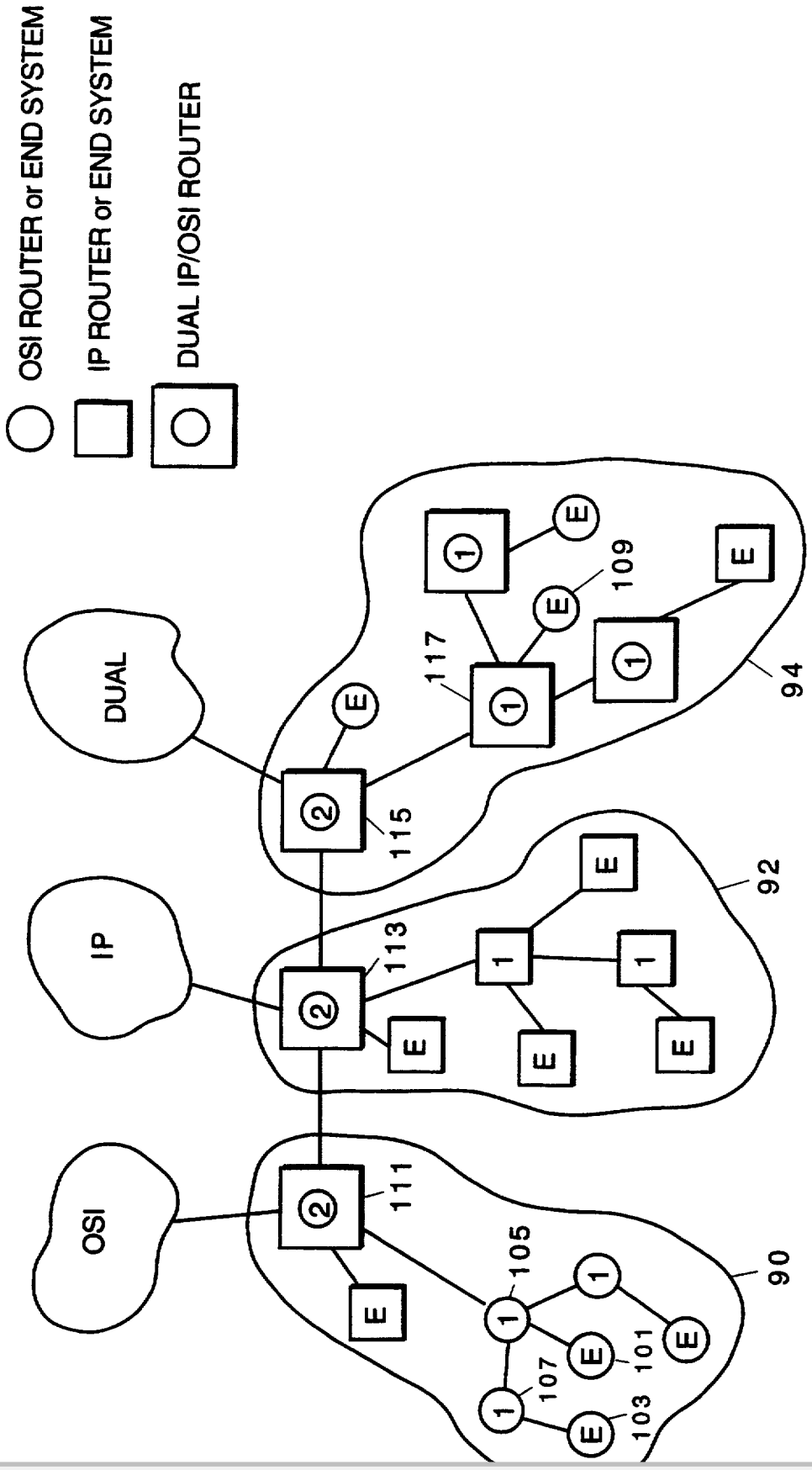

FIG. 1A

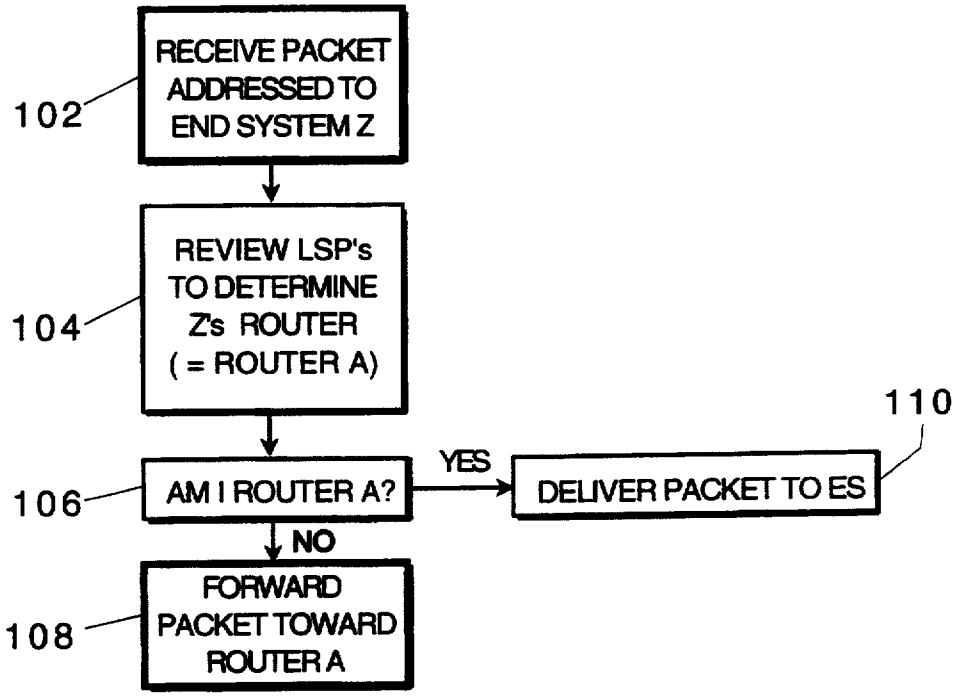

FIG. 1B

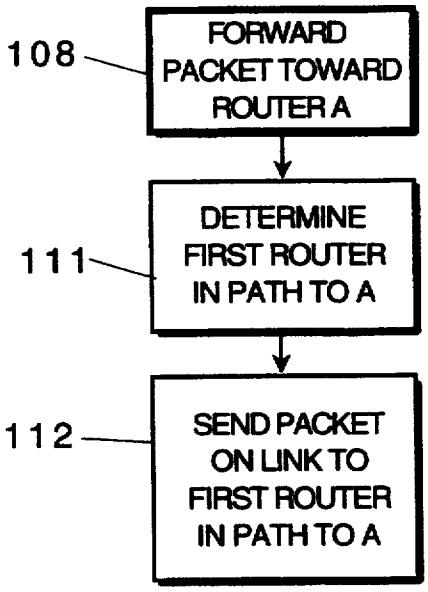

FIG. 1C

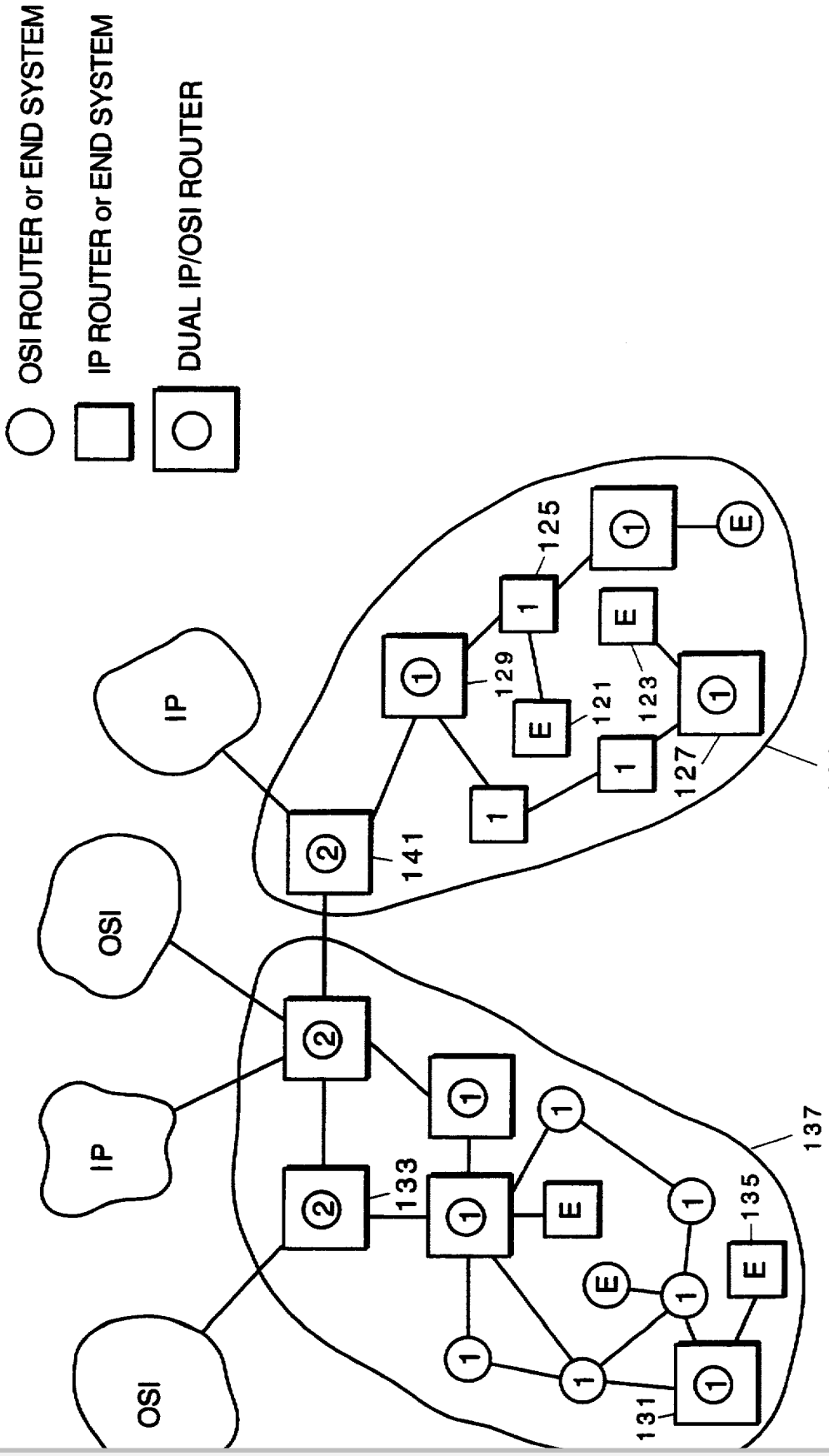

FIG. 2A

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