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Datta et al.

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(54) **TOOLS AND TECHNIQUES FOR DIRECTING PACKETS OVER DISPARATE NETWORKS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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ABSTRACT

(57) Methods, configured storage media, and systems are provided for communications using two or more disparate networks in parallel to provide load balancing across network connections, greater reliability, and/or increased security. A controller provides access to two or more disparate networks in parallel, through direct or indirect network interfaces. When one attached network fails, the failure is sensed by the controller and traffic is routed through one or more other disparate networks. When all attached disparate networks are operating, one controller preferably balances the load between them.

24 Claims, 6 Drawing Sheets

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/034,197, filed on Dec. 28, 2001.

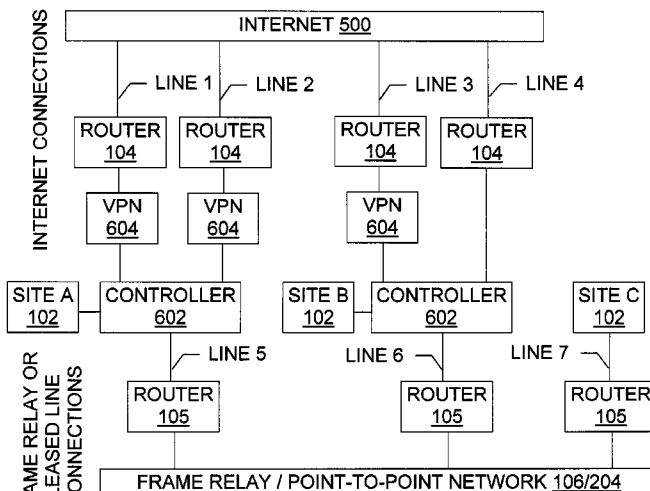
(60) Provisional application No. 60/355,509, filed on Feb. 8, 2002, and provisional application No. 60/259,269, filed on Dec. 29, 2000.

(51) **Int. Cl.**⁷ **H04L 12/64**
(52) **U.S. Cl.** **370/238; 370/252; 370/352**
(58) **Field of Search** **370/252, 352, 370/230, 235, 238**

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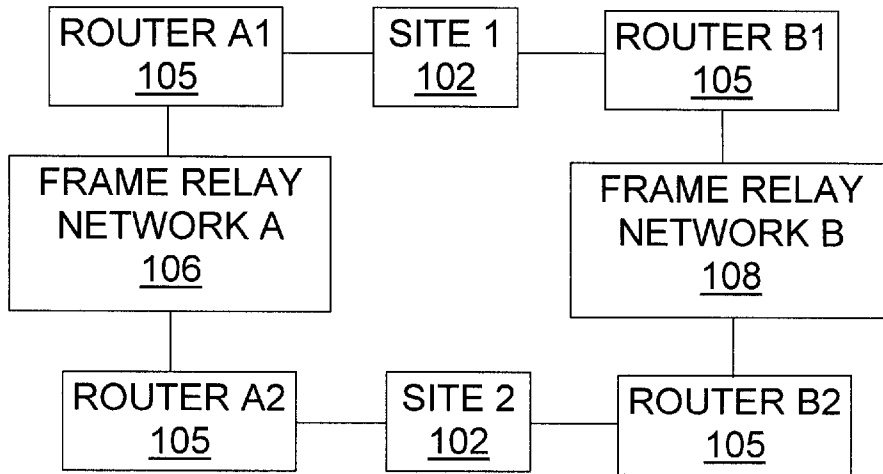
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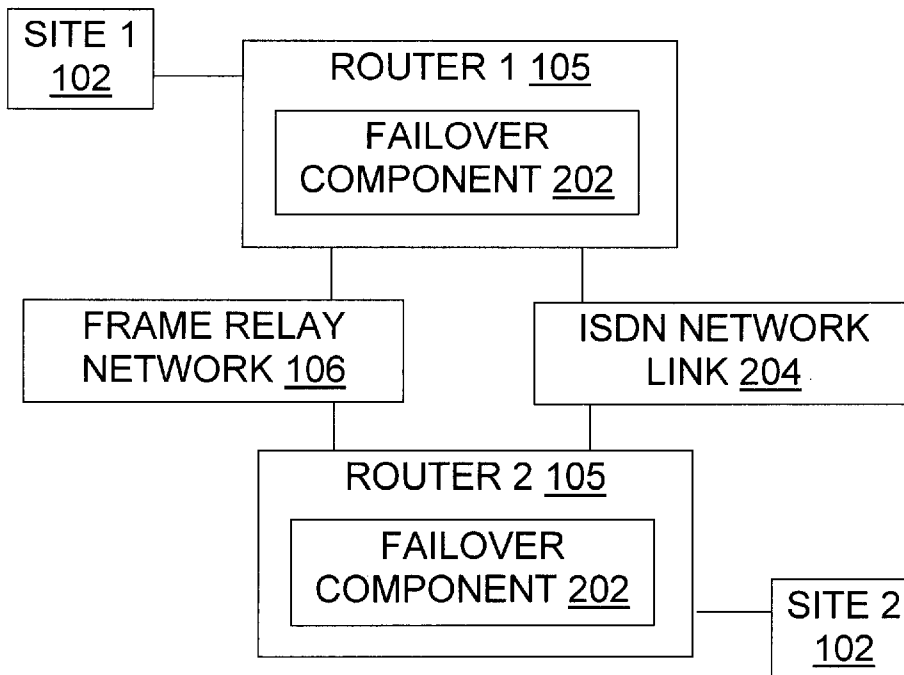
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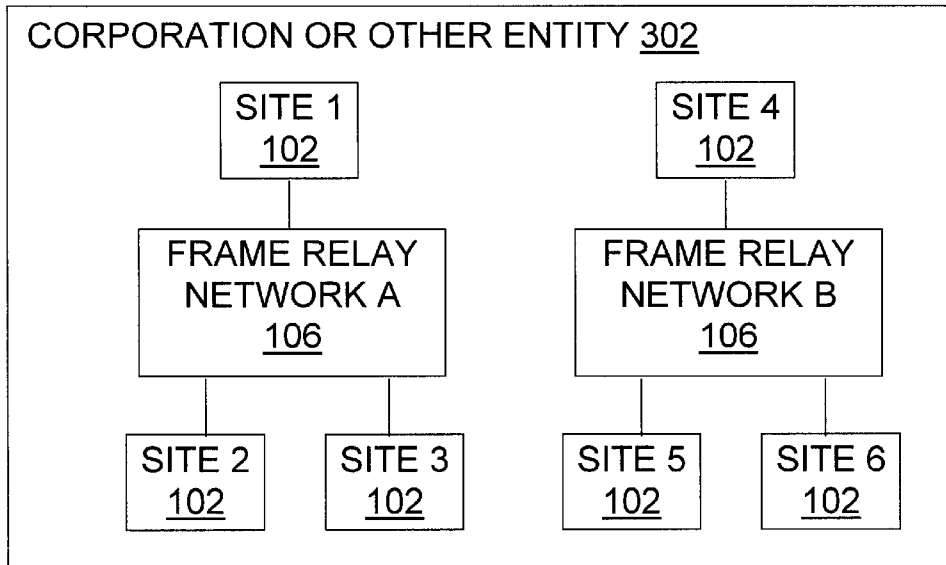
(PRIOR ART)

Fig. 1



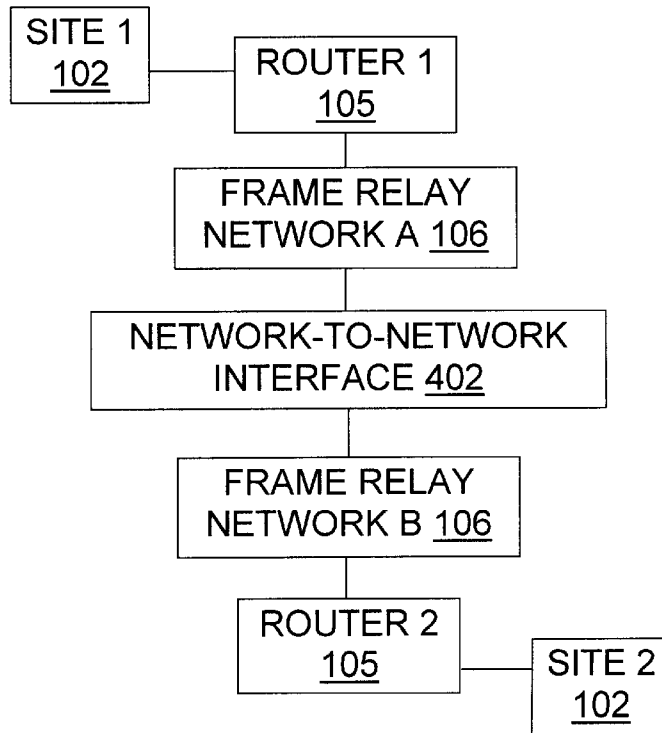
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Fig. 2



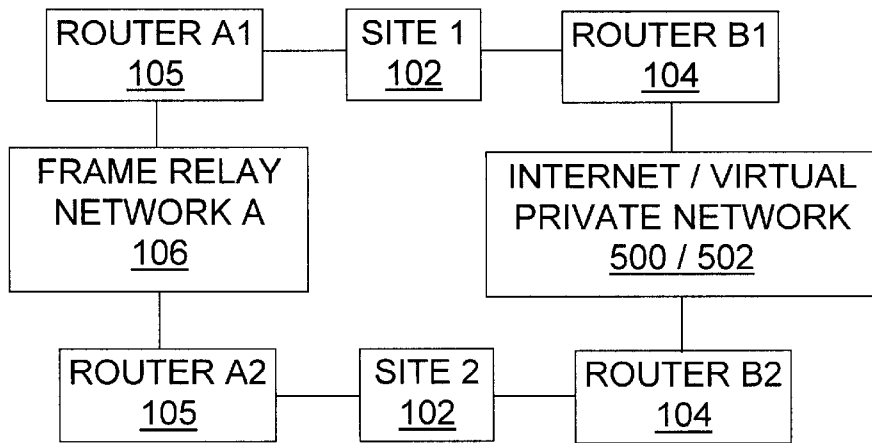
(PRIOR ART)

Fig. 3



(PRIOR ART)

Fig. 4



(PRIOR ART)

Fig. 5

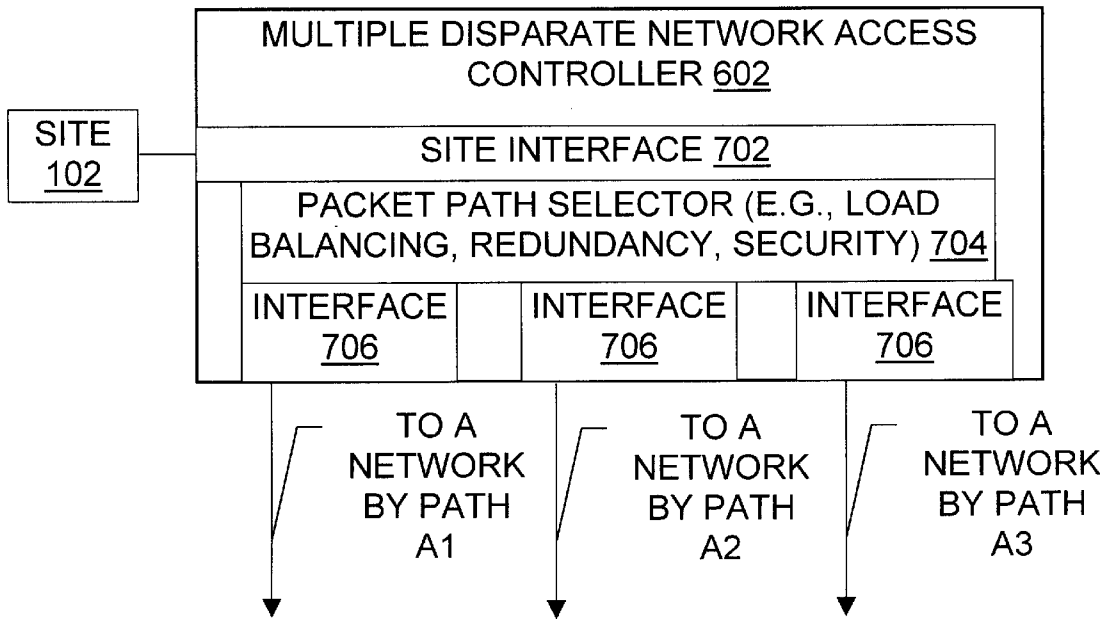


Fig. 7

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