

(12) **United States Patent**
Riddle et al.

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- (54) **METHOD FOR AUTOMATICALLY CLASSIFYING TRAFFIC IN A PACKET COMMUNICATIONS NETWORK**
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- (73) Assignee: **Packeteer, Inc.**, Cupertino, CA (US)
- (*) 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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- (21) Appl. No.: **09/198,090**
- (22) Filed: **Nov. 23, 1998**

Related U.S. Application Data

- (60) Provisional application No. 60/066,864, filed on Nov. 25, 1997.
- (51) **Int. Cl.⁷** **G06F 15/173**
- (52) **U.S. Cl.** **709/224; 709/223; 709/230; 709/238; 709/242; 370/230; 370/235; 370/252; 370/355; 370/356**
- (58) **Field of Search** **709/223-226, 709/230, 235-236, 238-239, 242, 246; 370/229-230, 235, 252-253, 355-356, 401, 466-469**

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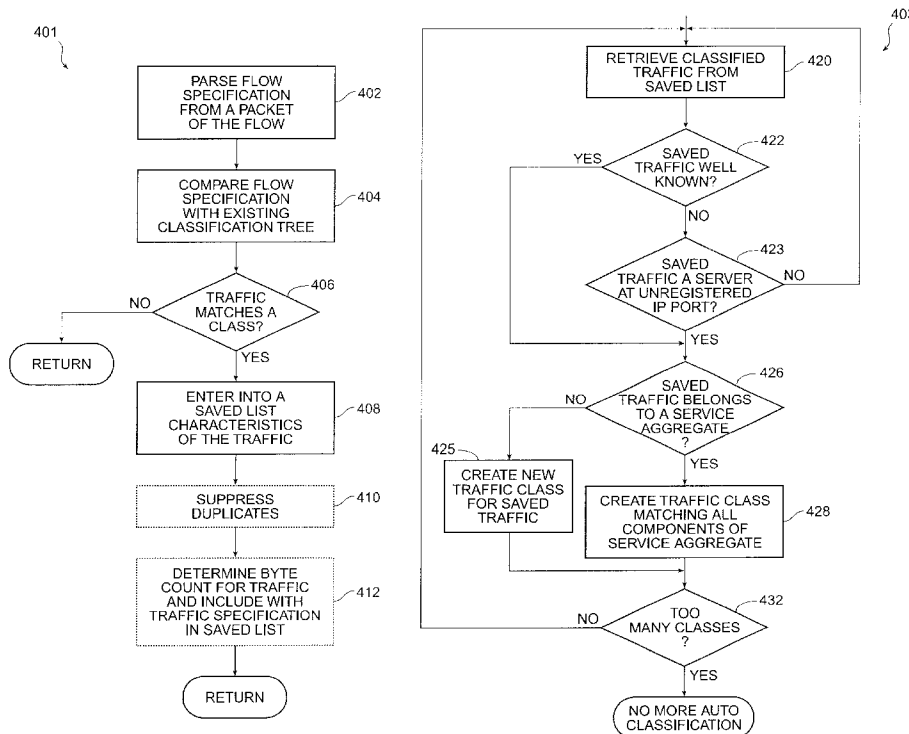
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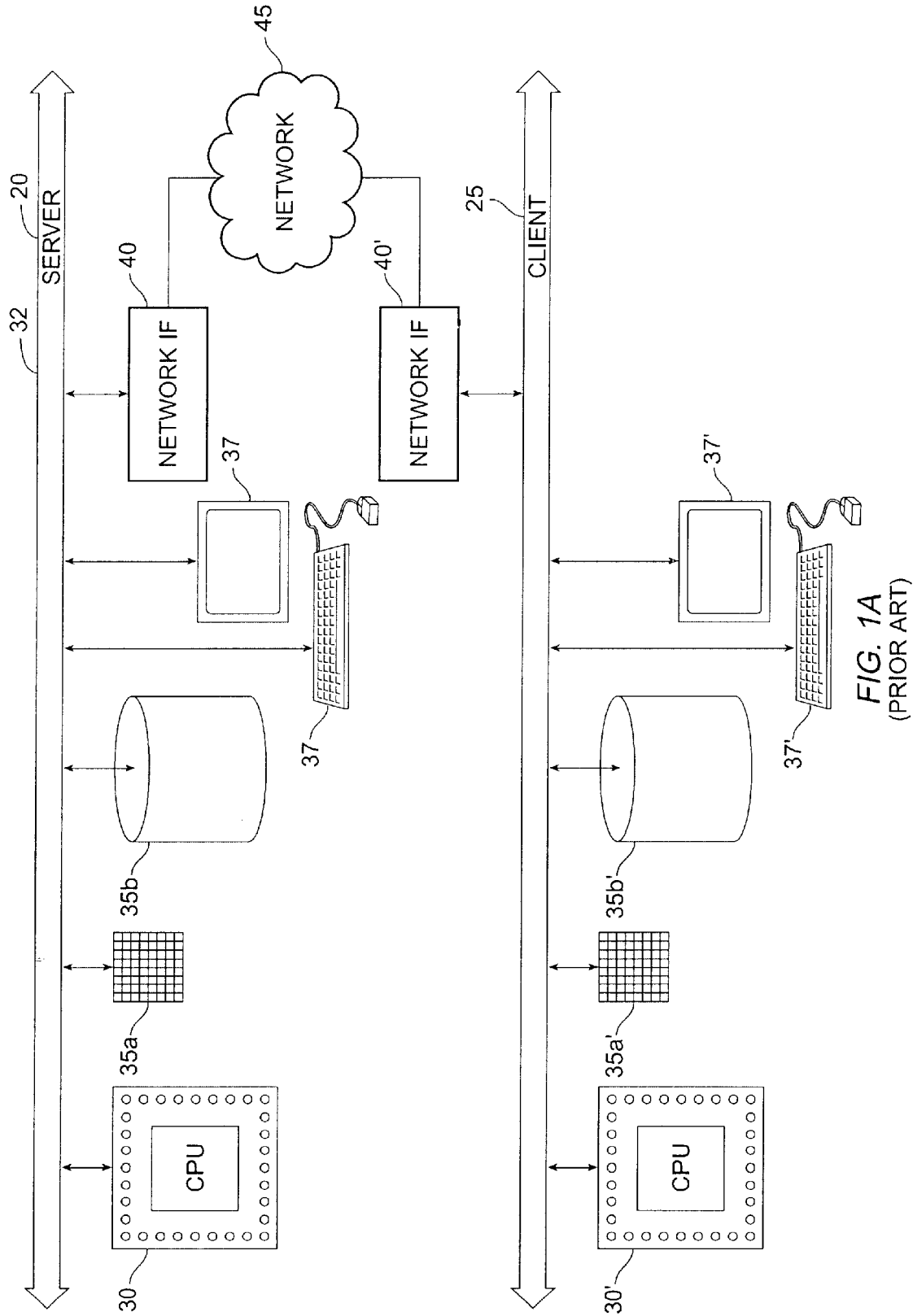
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(57) **ABSTRACT**

In a packet communication environment, a method is provided for automatically classifying packet flows for use in allocating bandwidth resources by a rule of assignment of a service level. The method comprises applying individual instances of traffic classification paradigms to packet network flows based on selectable information obtained from a plurality of layers of a multi-layered communication protocol in order to define a characteristic class, then mapping the flow to the defined traffic class. It is useful to note that the automatic classification is sufficiently robust to classify a complete enumeration of the possible traffic.

15 Claims, 7 Drawing Sheets





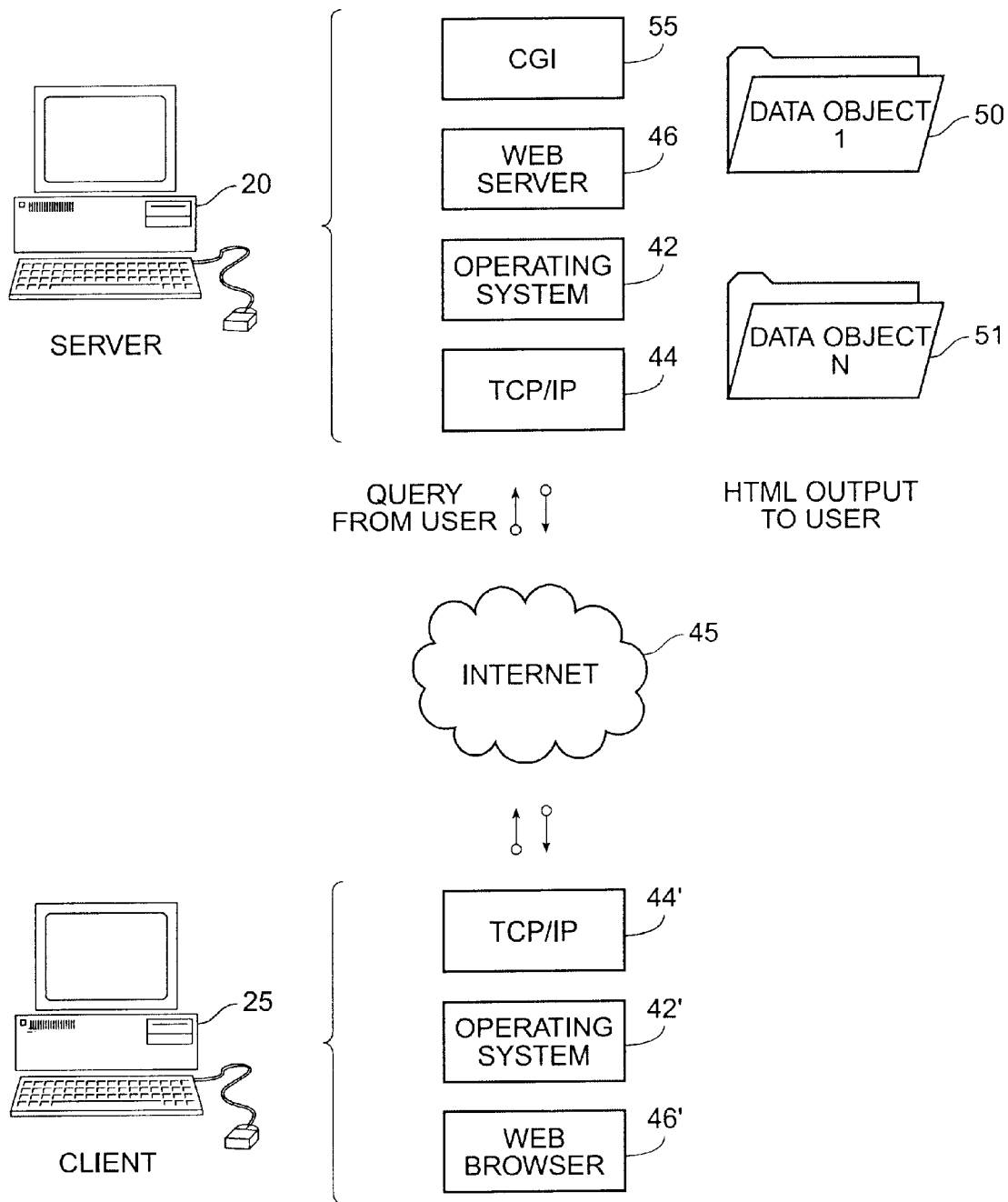


FIG. 1B
(PRIOR ART)

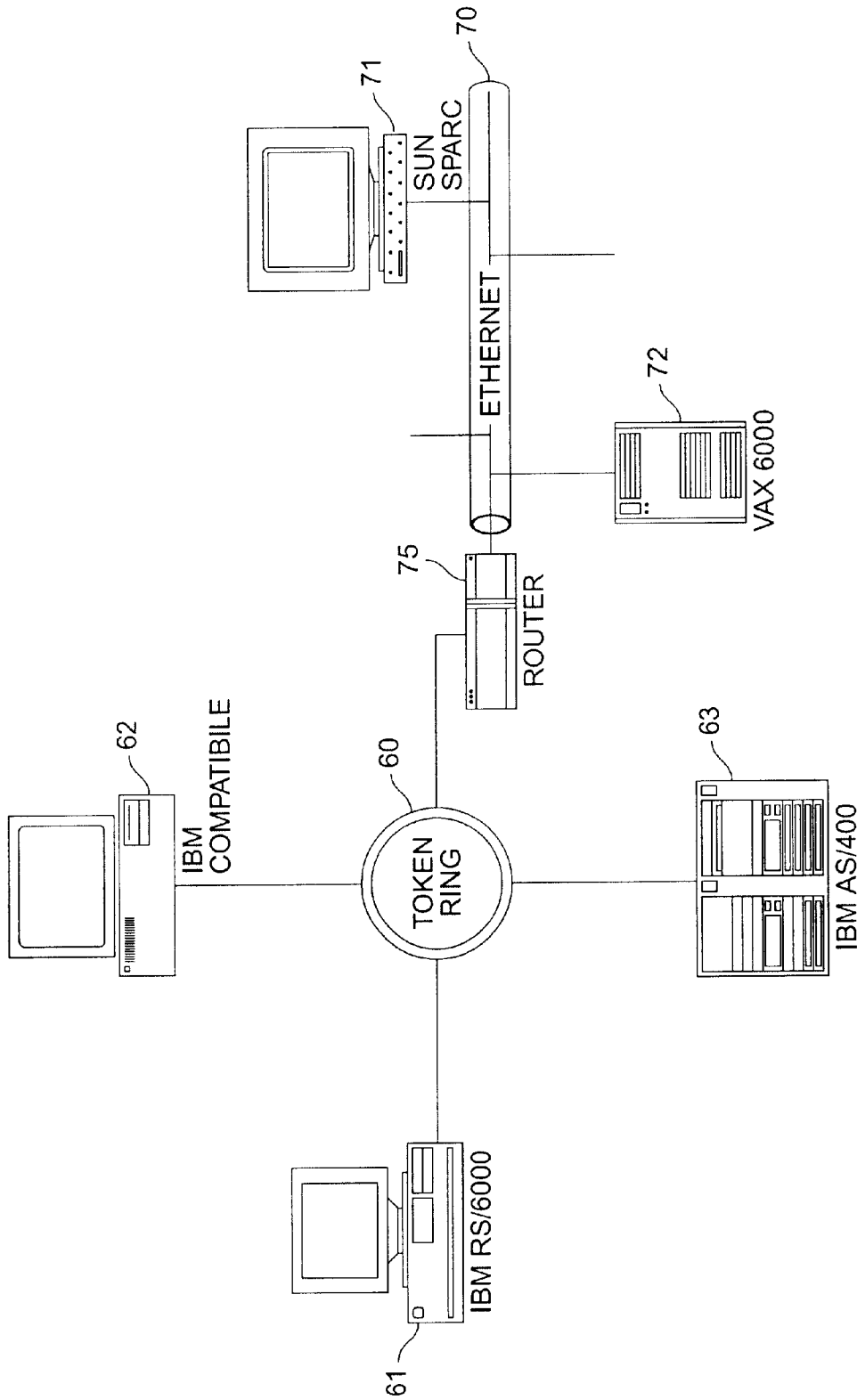
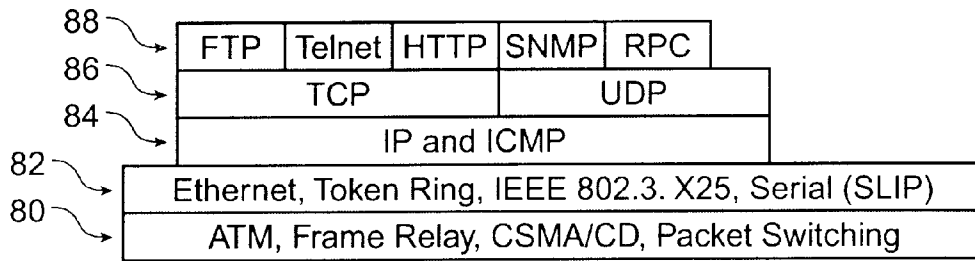


FIG. 1C
(PRIOR ART)



- LEGEND
- 88 Session/Application Layer
 - 86 Transport Layer
 - 84 Network Layer
 - 82 Data Link Layer
 - 80 Physical Layer

FIG. 1D
(PRIOR ART)

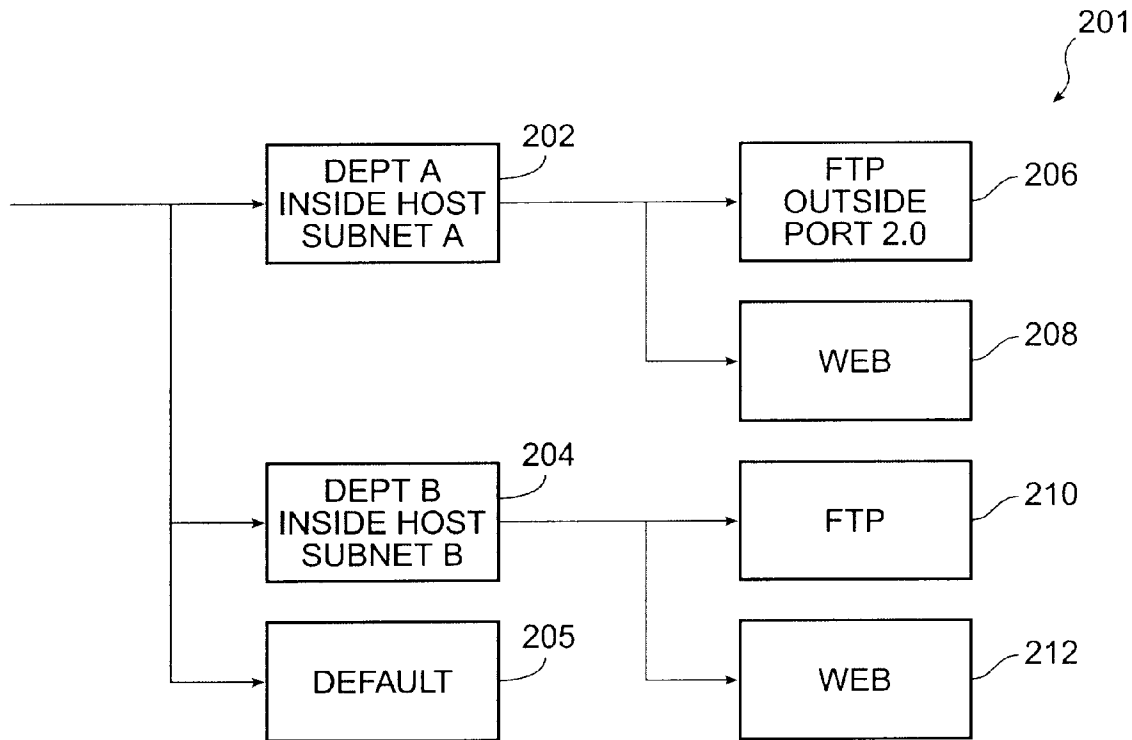


FIG. 2A

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