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**Galloway et al.**

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(54) **CLASSIFICATION DATA STRUCTURE**  
**ENABLING MULTI-DIMENSIONAL**  
**NETWORK TRAFFIC CLASSIFICATION AND**  
**CONTROL SCHEMES**

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**G06F 7/00** (2006.01)  
**H04L 12/56** (2006.01)

(52) **U.S. Cl.** ..... **370/229; 370/412**

(58) **Field of Classification Search** ..... **370/392;**  
711/221

See application file for complete search history.

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*Primary Examiner*—Chau T. Nguyen

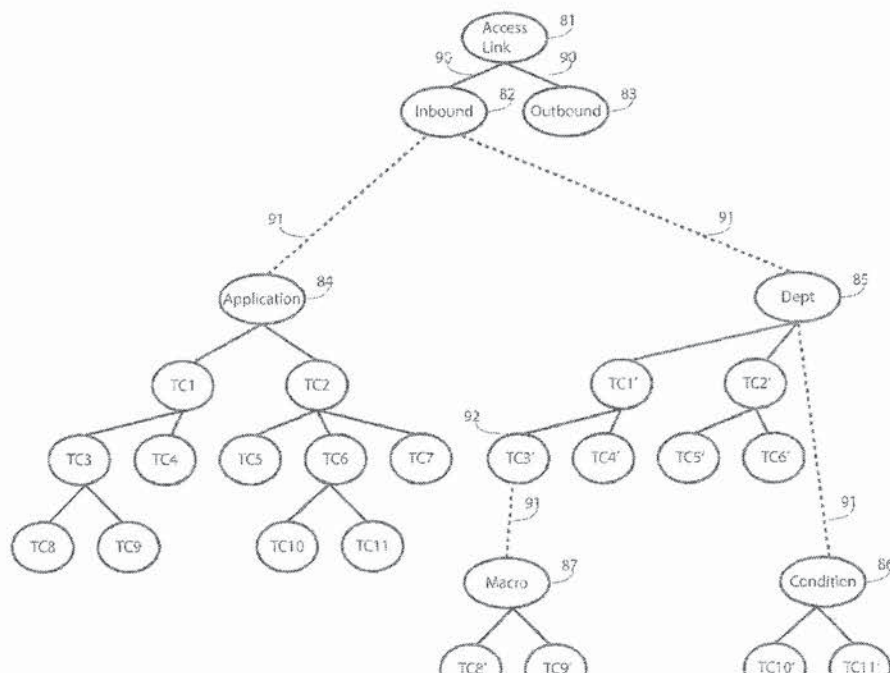
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(57) **ABSTRACT**

Methods, apparatuses and systems facilitating hierarchical network traffic classification and resource allocation schemes. In one embodiment, the present invention provides traffic classification data structure facilitating creation and configuration of multi-dimensional, hierarchical network resource allocation schemes. The present invention features a hierarchical network traffic classification scheme that allows users to logically embed (or otherwise associate) one or more reference trees within selected traffic class nodes of a given traffic classification tree. In one embodiment, an administrator can create a pool of referenceable traffic classification trees and select such trees or sub-trees from the pool to achieve a variety of different traffic classification configurations. The present invention, in one embodiment, also facilitates the implementation of a system or domain-level workflow interface that features managed access links as configurable objects as opposed to the network devices operating on the access links.

**28 Claims, 10 Drawing Sheets**



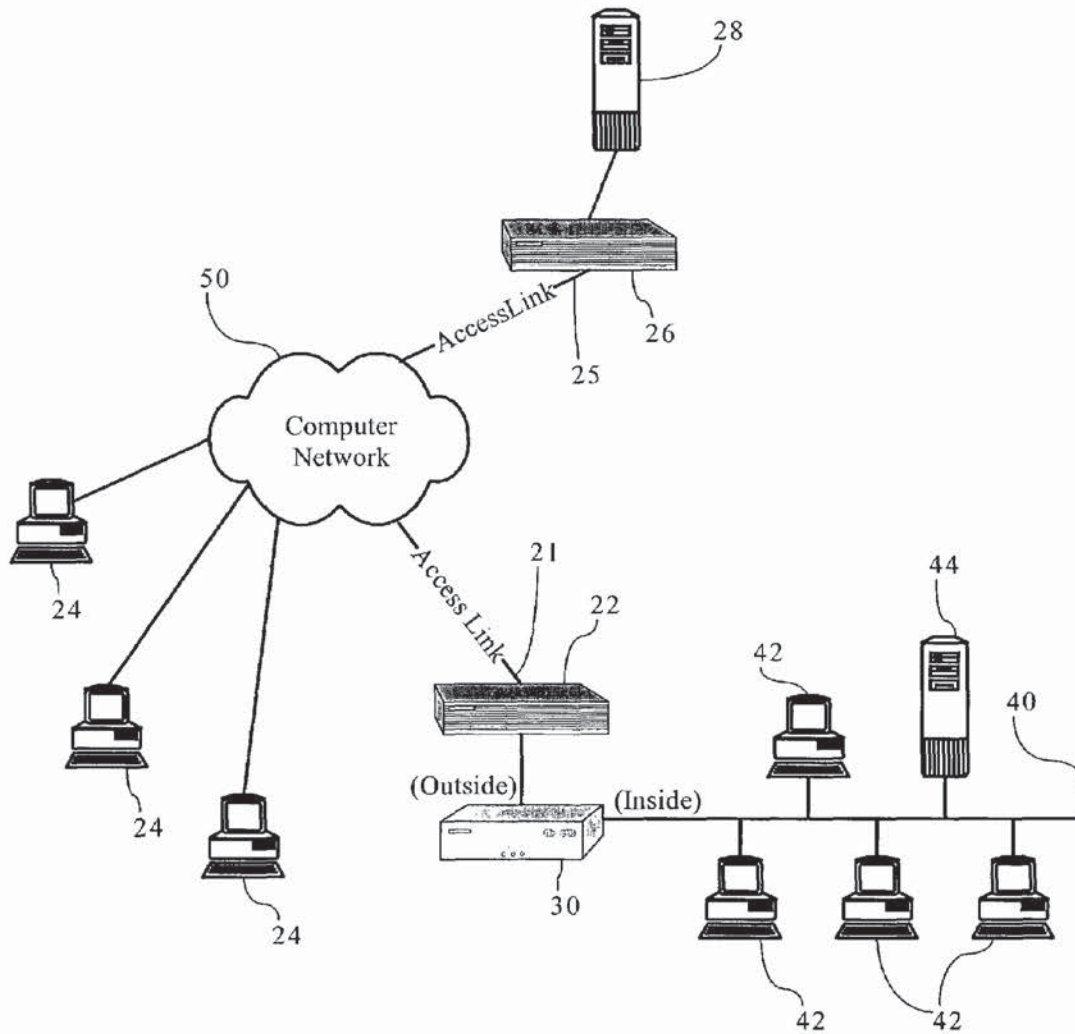


Fig. 1

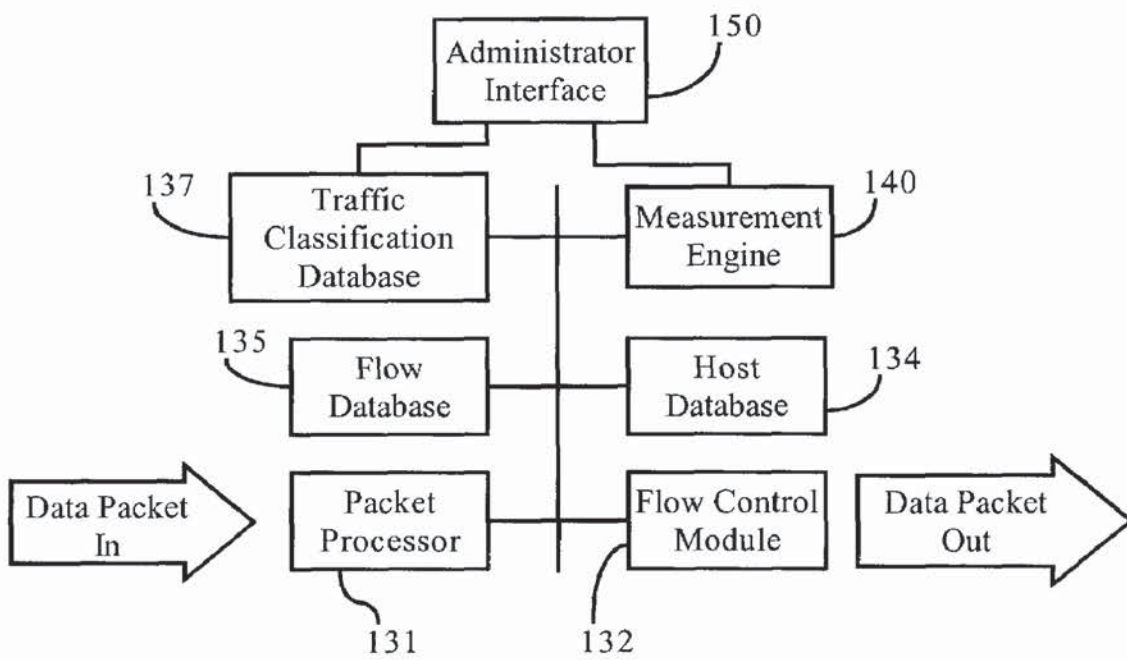


Fig. 2

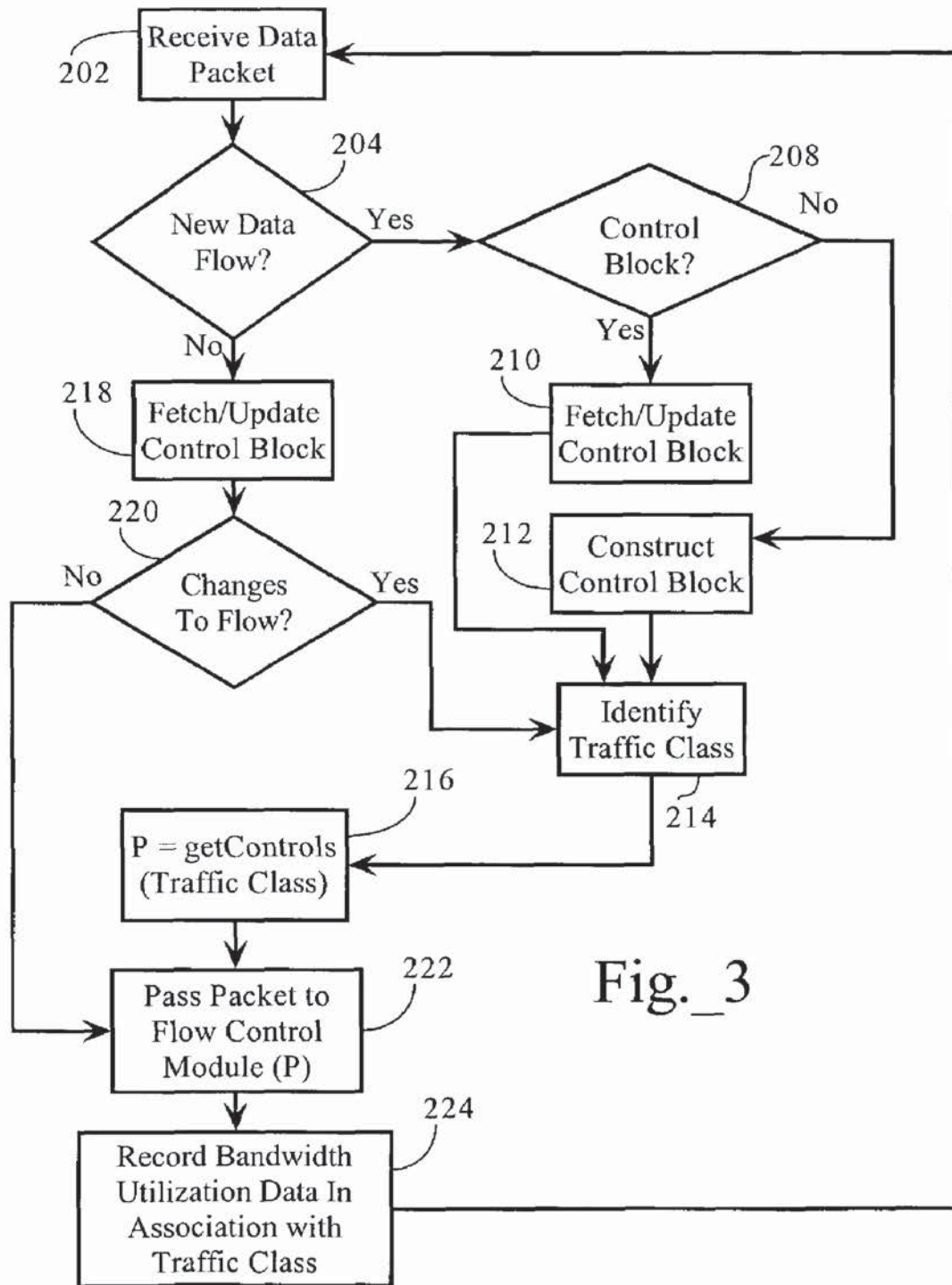


Fig. 3

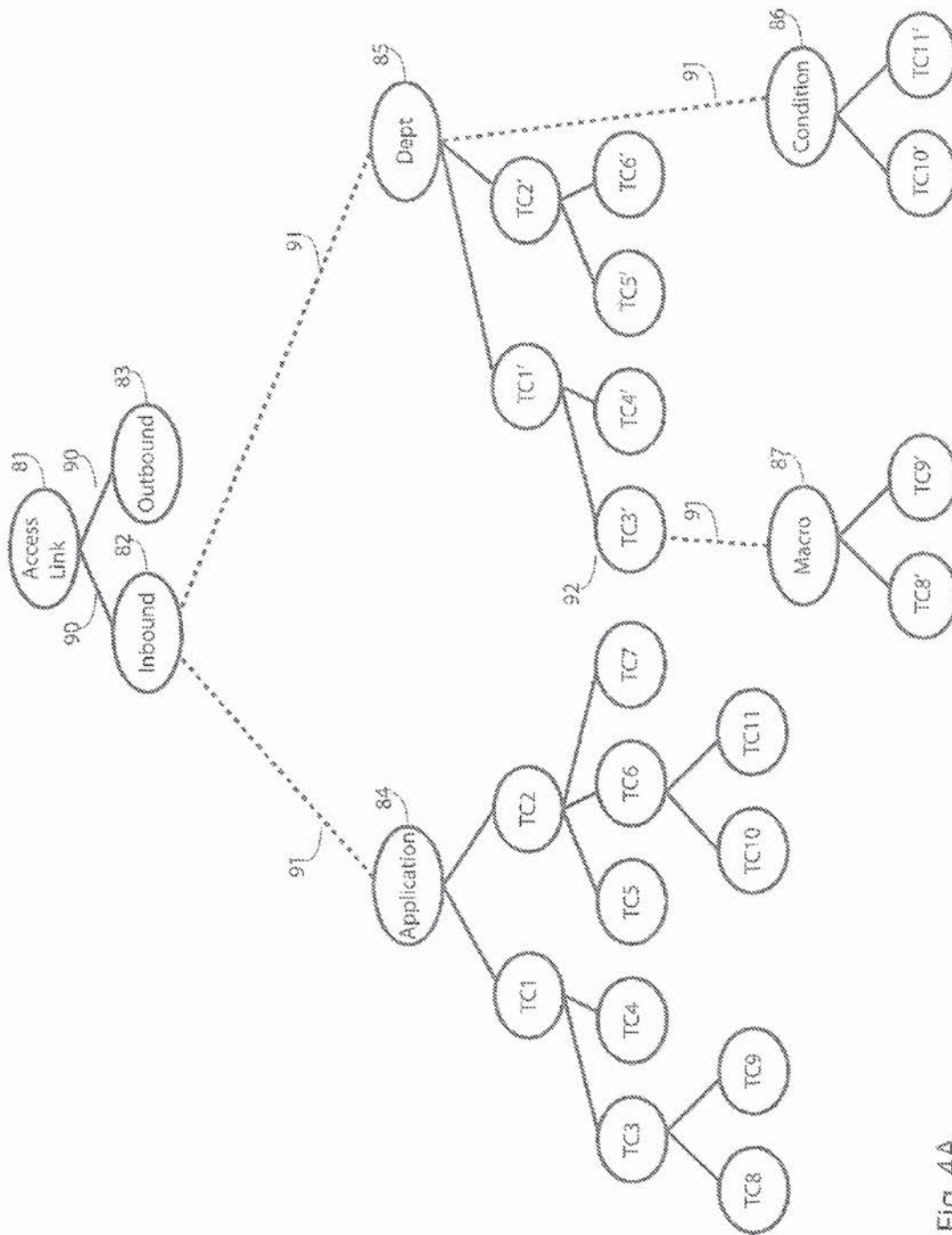


Fig. 4A



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