US006092110A

United States Patent [19]

Maria et al.

[11] **Patent Number: 6,092,110**

[45] **Date of Patent: *Jul. 18, 2000**

[54] **APPARATUS FOR FILTERING PACKETS USING A DEDICATED PROCESSOR**

[75] Inventors: **Arturo Maria**, Bellevue; **Leslie Dale Owens**, Issaquah, both of Wash.

[73] Assignee: **AT&T Wireless Svcs. Inc.**, Redmond, Wash.

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

[21] Appl. No.: **08/956,993**

[22] Filed: **Oct. 23, 1997**

[51] **Int. Cl.**[7] **G06F 13/00**

[52] **U.S. Cl.** **709/225**; 709/238; 709/250; 713/201

[58] **Field of Search** 709/217, 218, 709/219, 227, 224, 225, 229, 250, 313, 206, 238; 713/201; 707/9, 10

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,715,030	12/1987	Koch et al.	370/85
4,888,796	12/1989	Olivo, Jr.	379/101.01
5,172,111	12/1992	Olivo, Jr.	386/126
5,396,493	3/1995	Sugiyama	370/403
5,448,698	9/1995	Wilkes	709/245
5,481,720	1/1996	Loucks et al.	364/284.2
5,561,770	10/1996	de Bruijn et al.	709/225
5,606,668	2/1997	Shwed	380/42
5,615,340	3/1997	Dai et al.	709/250
5,826,014	10/1998	Coley et al.	713/201
5,848,233	12/1998	Radia et al.	713/201
5,884,025	3/1999	Baehr et al.	713/201

FOREIGN PATENT DOCUMENTS

0 743 777	11/1996	European Pat. Off. .
WO96/13113	5/1996	WIPO .

OTHER PUBLICATIONS

Patent Abstracts of Japan, vol. 097, No. 010, Oct. 31, 1997 & JP 09–152969 A (Kenwood Corp.), Jun. 10, 1997.

Skokowski P.: Penny–Pinching Networks for Distributed Control, Control Engineering, vol. 39, No. 5, Jan. 1992, pp. 35–37.

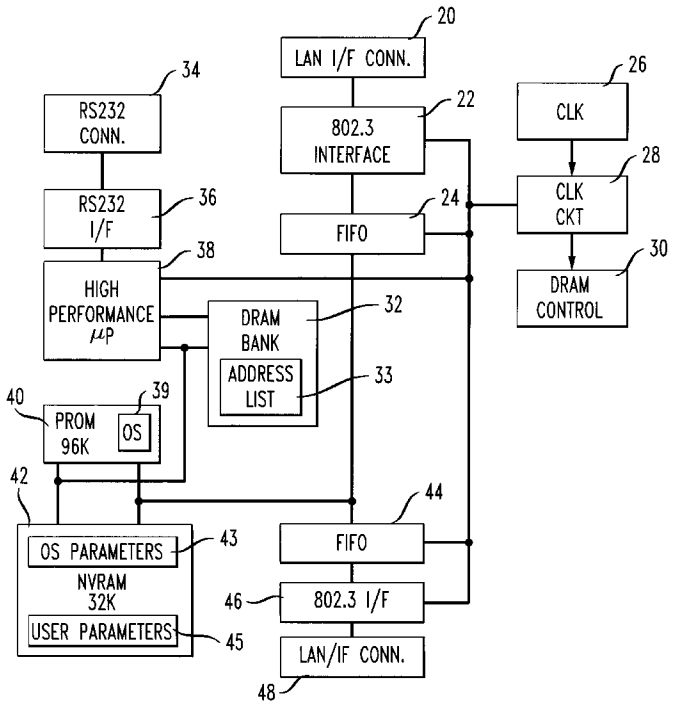
Andrew S. Tanenbaum: Computer Networks, 1996, Prentice–Hall International, Upper Saddle River, New Jersey, US, pp. 7–16.

Primary Examiner—Viet D. Vu

[57] **ABSTRACT**

A dedicated data packet filtering processor whose only function is to filter data packets based on a list of source IP addresses stored in high-speed memory of the processor. The processor has a specialized operating system which controls the operation of the processor. The processor examines the source IP address of each received data packet to determine if the source IP address matches one of the stored source IP addresses, and if there is a match, either discards or forwards the data packet depending on the processor configuration. The list of source IP addresses are updated by a service provider having a central administrative site. The service provider keeps these lists up to data and periodically updates the source IP addresses stored in the random access memory of the dedicated IP filtering processors.

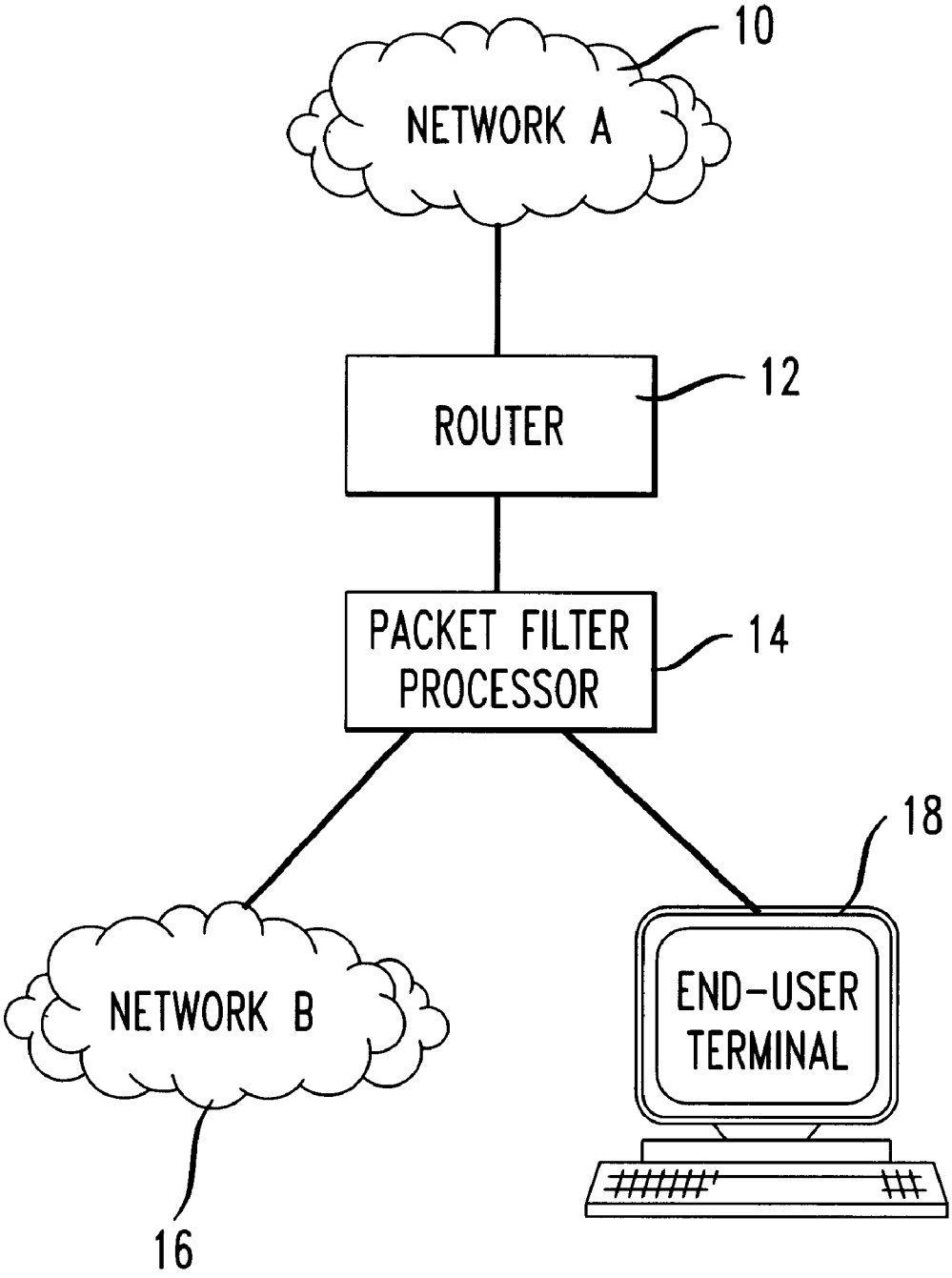
21 Claims, 4 Drawing Sheets



DOCKET ALARM

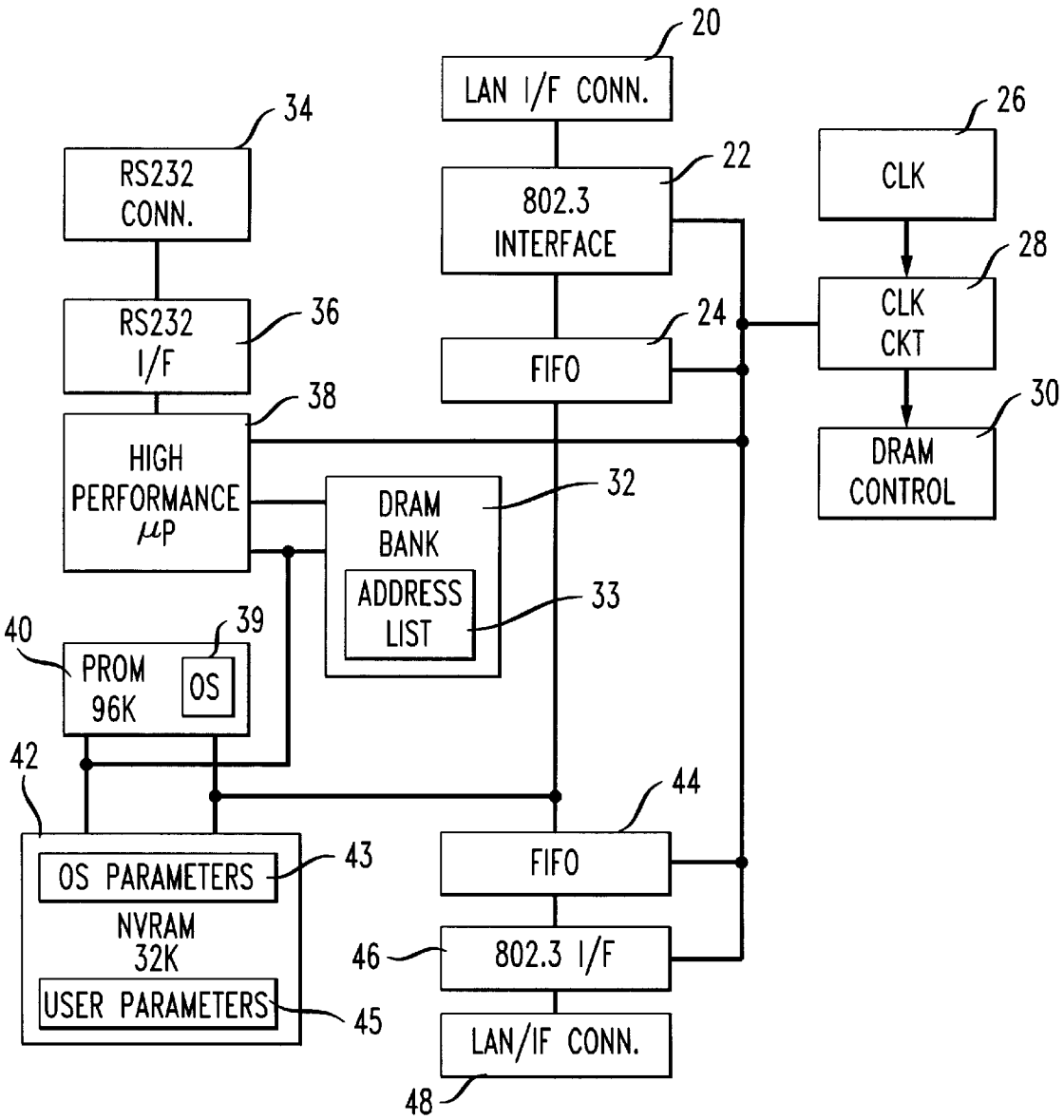
Find authenticated court documents without watermarks at docketalarm.com.

FIG. 1



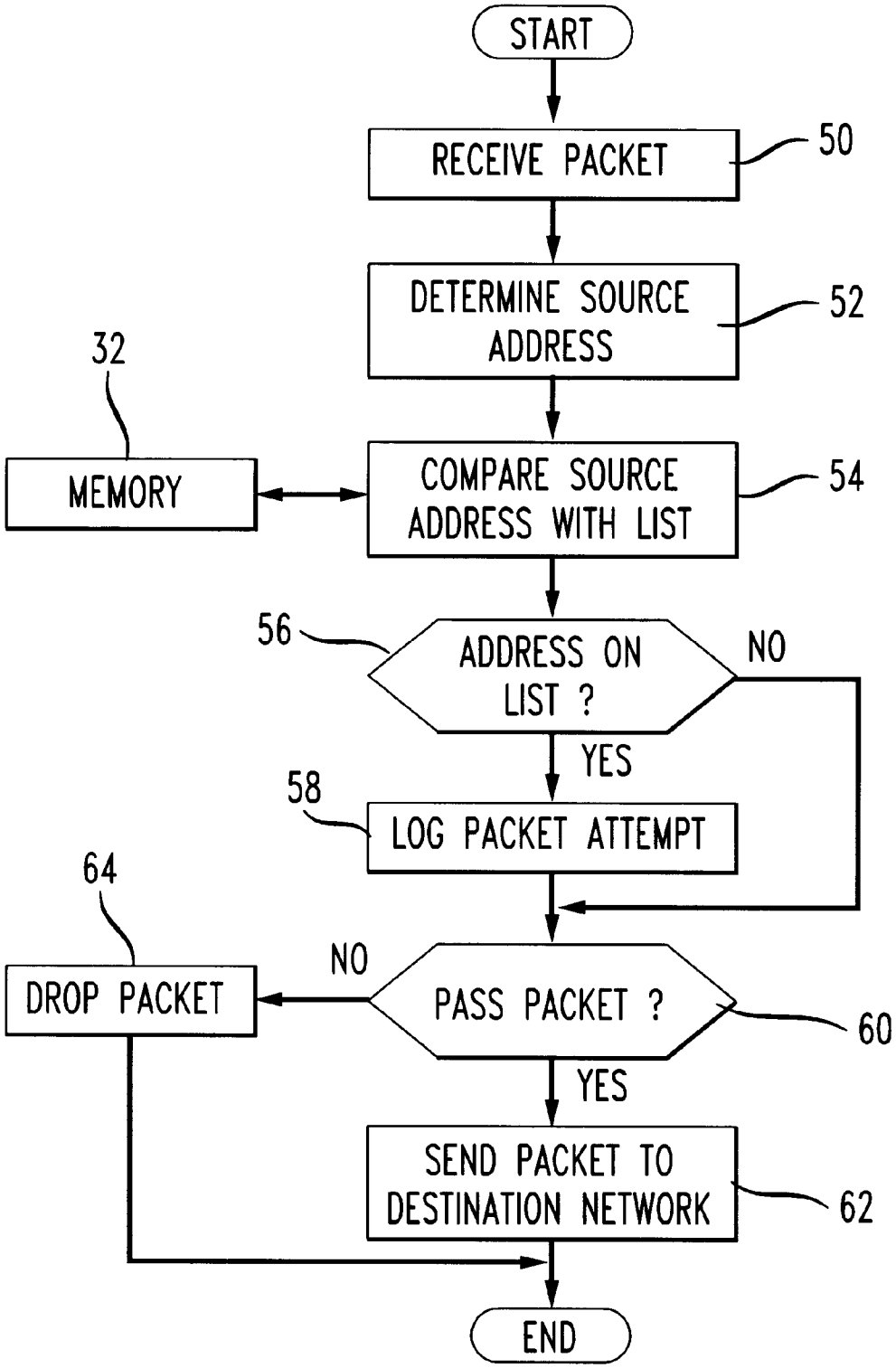
DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

FIG. 2



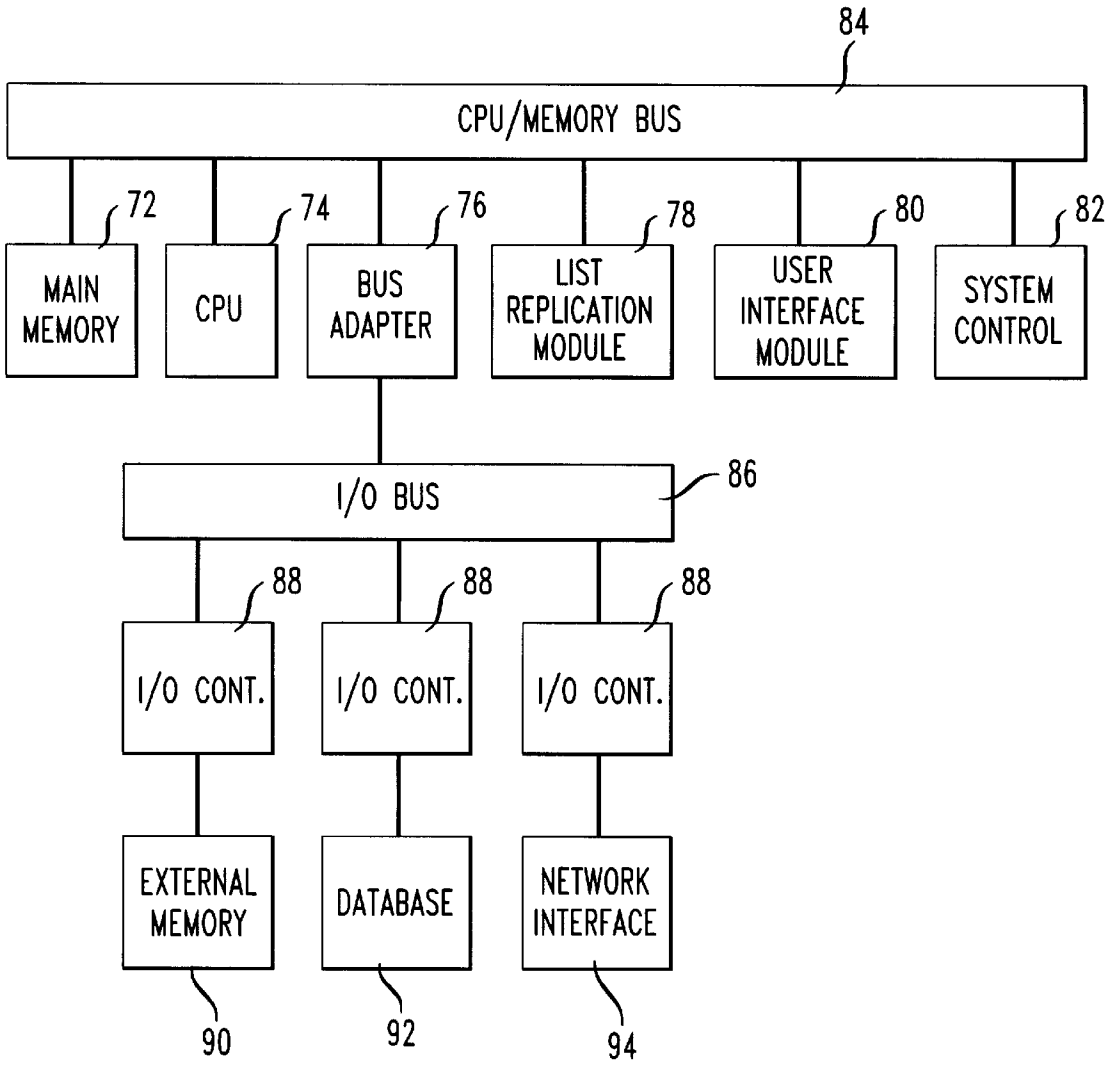
DOCKET ALARM Find authenticated court documents without watermarks at docketalarm.com.

FIG. 3



DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

FIG. 4



DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.