



US006412000B1

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

(10) **Patent No.: US 6,412,000 B1**
(45) **Date of Patent: Jun. 25, 2002**

(54) **METHOD FOR AUTOMATICALLY CLASSIFYING TRAFFIC IN A PACKET COMMUNICATIONS NETWORK**

(75) Inventors: **Guy Riddle; Robert L. Packer**, both of Los Gatos, CA (US)

(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.

5,495,426 A	*	2/1996	Waclawsky et al.	709/226
5,838,919 A	*	11/1998	Schwaller et al.	709/224
5,870,561 A	*	2/1999	Jarvis et al.	709/238
5,903,559 A	*	5/1999	Acharya et al.	709/236
5,923,849 A	*	7/1999	Venkatraman	709/224
6,028,842 A	*	2/2000	Chapman et al.	370/252
6,046,980 A	*	4/2000	Packer	370/230
6,137,782 A	*	10/2000	Sharon et al.	709/238
6,209,033 B1	*	3/2001	Datta et al.	709/224

* cited by examiner

(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

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,251,152 A * 10/1993 Notess 709/224

Primary Examiner—Zarni Maung

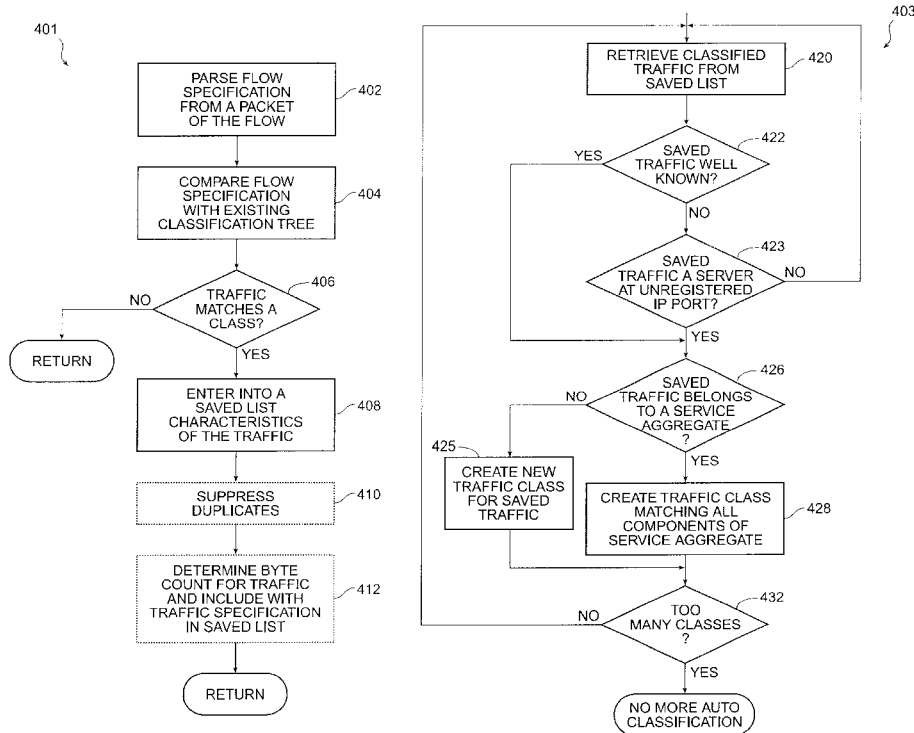
Assistant Examiner—Bharat Barot

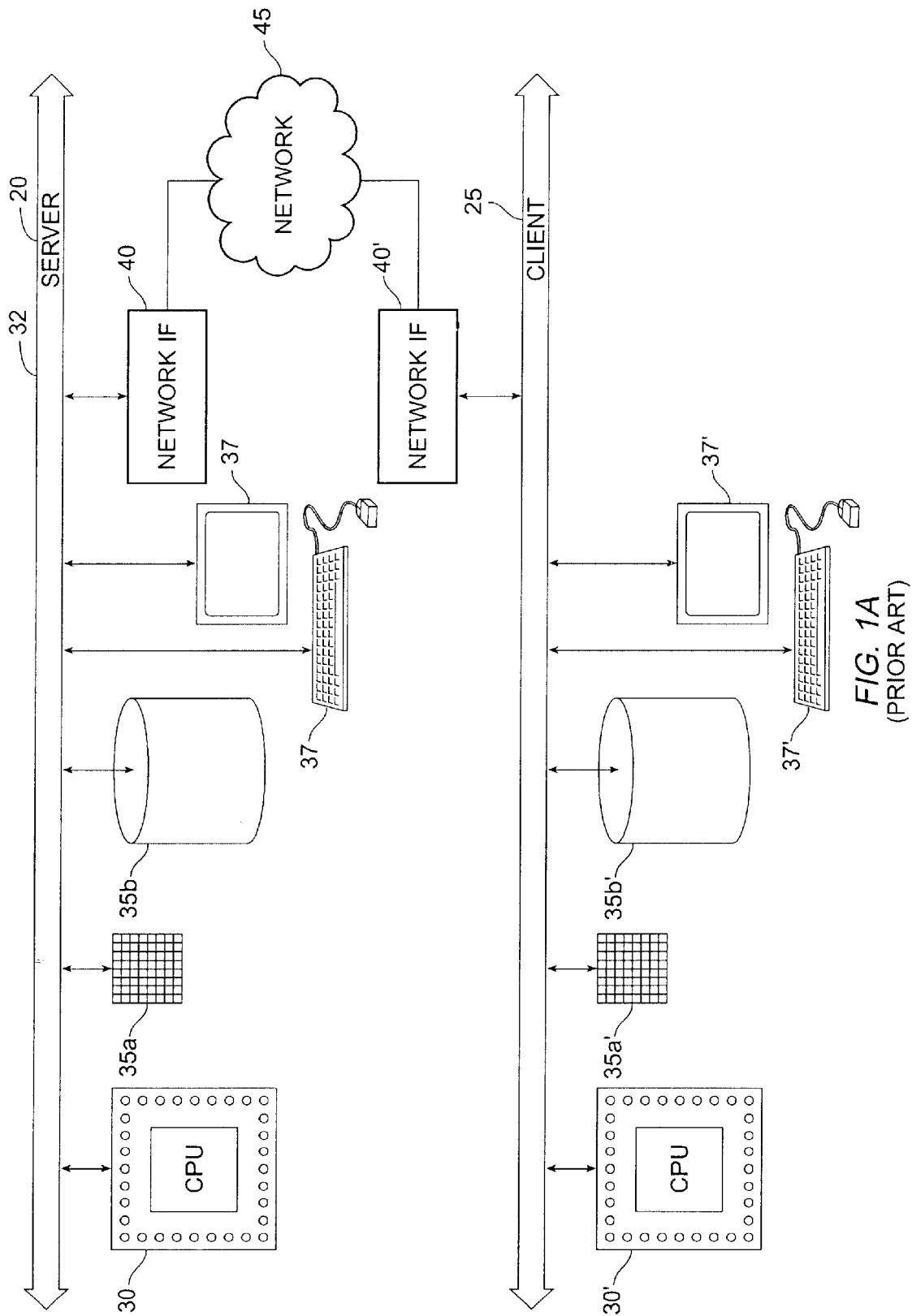
(74) *Attorney, Agent, or Firm*—Townsend and Townsend and Crew LLP; Kenneth R. Allen

(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





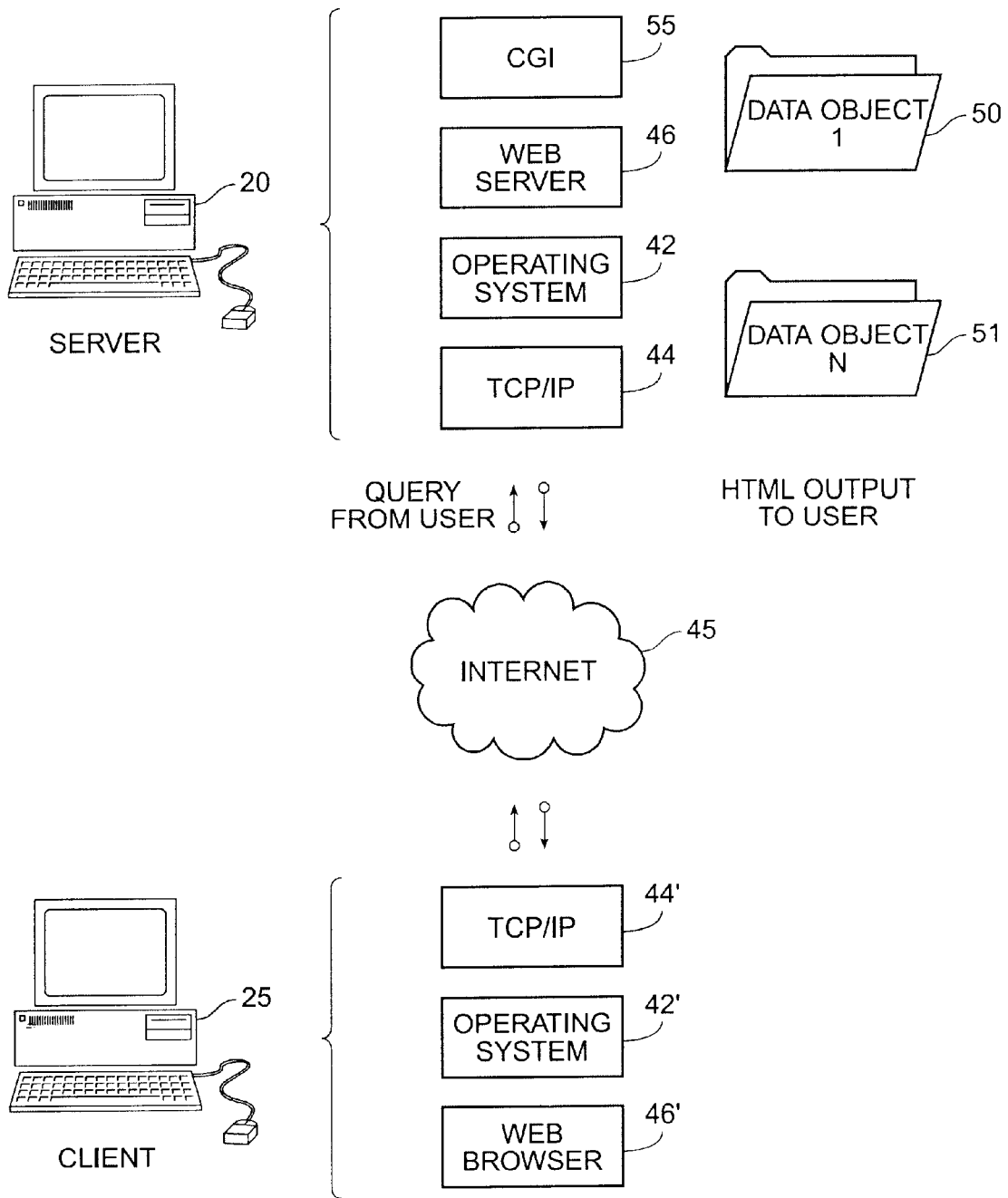


FIG. 1B
(PRIOR ART)

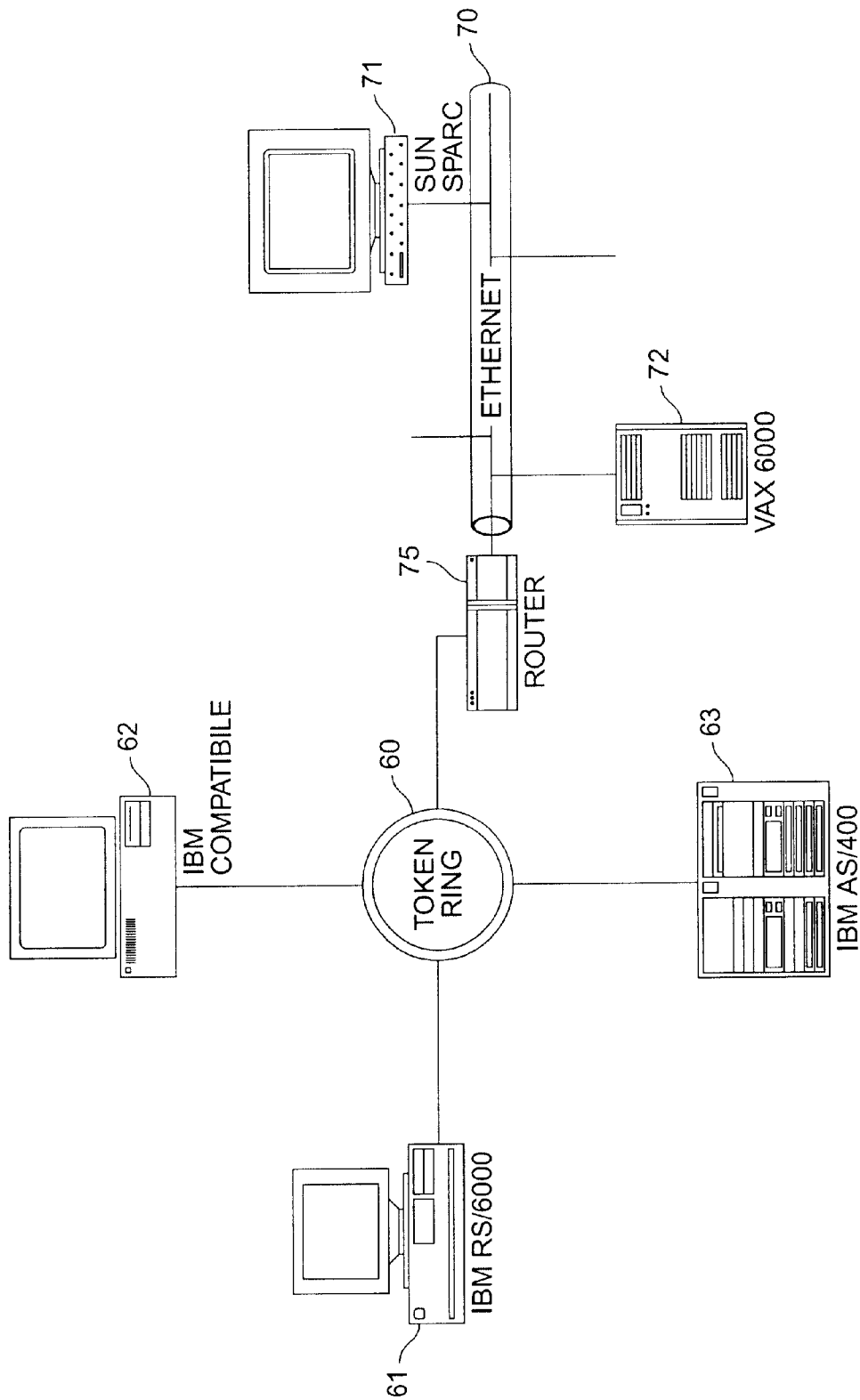
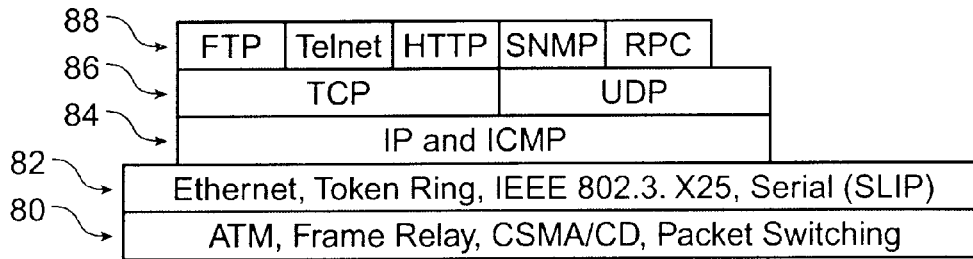


FIG. 1C
(PRIOR ART)



LEGEND

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

FIG. 1D
(PRIOR ART)

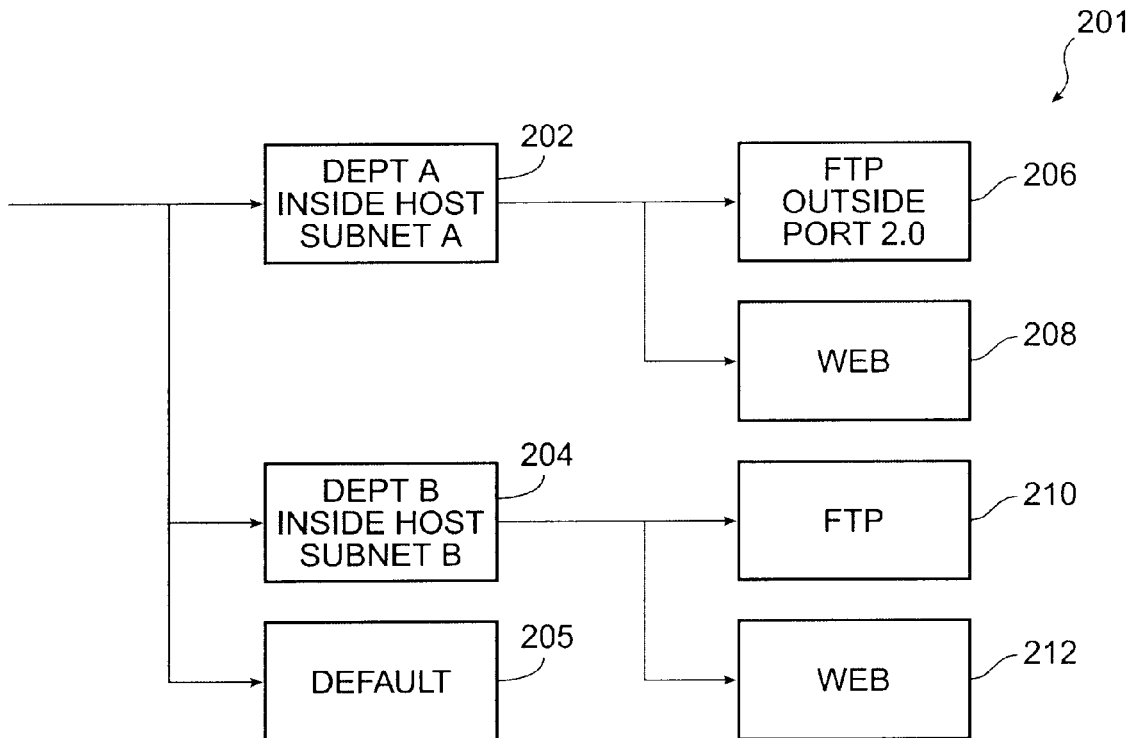


FIG. 2A

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.