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(54) **SYSTEM AND METHOD FOR TRAFFIC SHAPING BASED ON GENERALIZED CONGESTION AND FLOW CONTROL**

(75) Inventors: **Michael Freed**, Pleasanton, CA (US); **Satish Amara**, Mt. Prospect, IL (US); **Michael Borella**, Naperville, IL (US)

(73) Assignee: **3Com Corporation**, Marlborough, MA (US)

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(52) **U.S. Cl.** **370/230**; 370/236.1

(58) **Field of Classification Search** 370/229–236.1, 370/248, 412; 709/232–235
See application file for complete search history.

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Primary Examiner—Duc Ho
Assistant Examiner—Phuongchau Ba Nguyen
(74) *Attorney, Agent, or Firm*—McDonnell Boehnen Hulbert & Berghoff

(57) **ABSTRACT**

A system and methods are shown for traffic shaping and congestion avoidance in a computer network such as a data-over-cable network. A headend of the data-over-cable system includes a traffic shaper configured to calculate a packet arrival rate from a cable modem and a traffic conditioner configured to calculate an average queue size on an output interface to an external network. For example, the traffic shaper compares the packet arrival rate to three packet arrival thresholds including a committed rate threshold, a control rate threshold and a peak rate threshold. If the calculated packet arrival rate falls between the committed threshold and control rate threshold, the traffic shaper applies a link layer mechanism, such as a MAP bandwidth allocation mechanism, to lower the transmission rate from the cable modem.

35 Claims, 5 Drawing Sheets

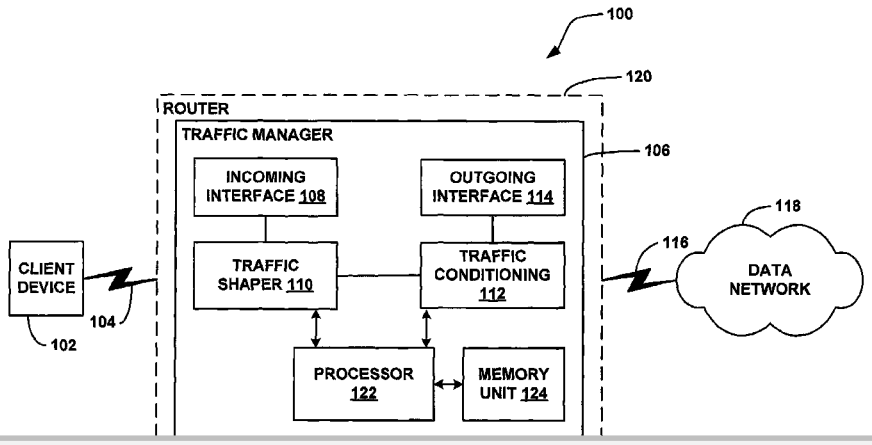

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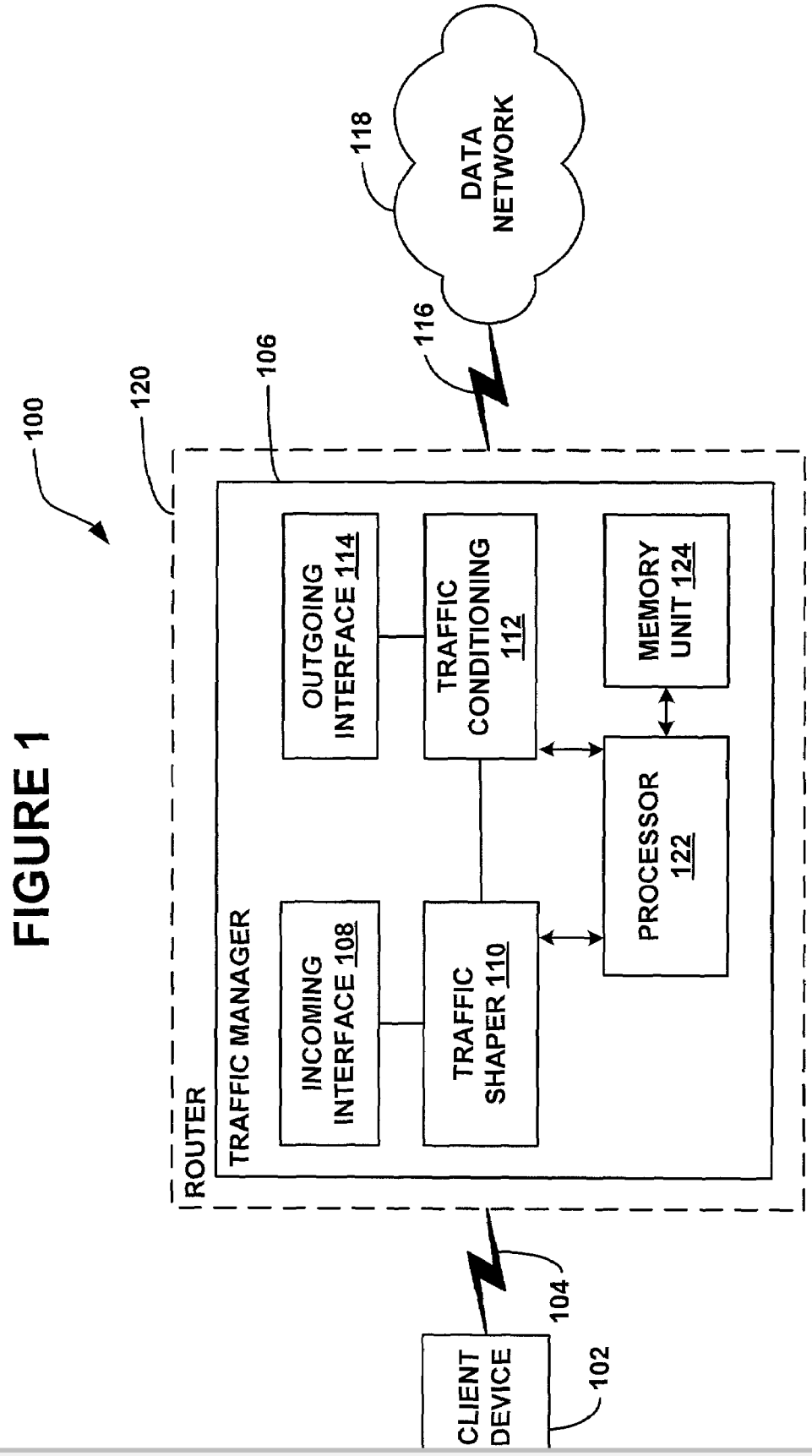
FIGURE 1



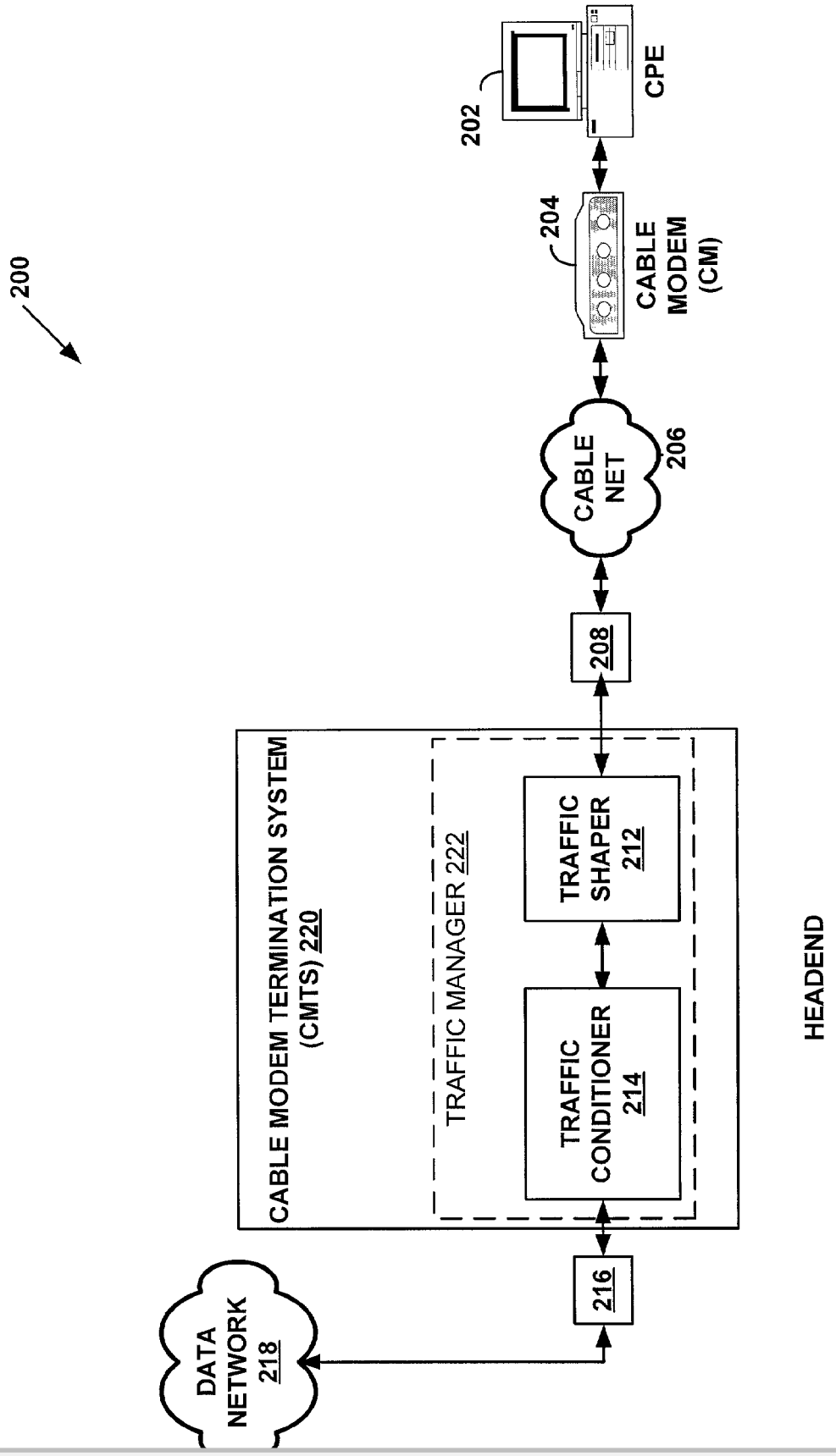


FIGURE 2

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