IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent	PATENT NO. 8,243,593
Inventor: NATCHU, Vishnu	Issued: August 14, 2012
Appln. No.: 11/022,599	Art Unit: 2462
Confirm. No.: 8956	Examiner: WONG, Xavier S.

Filed: 22 December 2004

Title: MECHANISM FOR IDENTIFYING AND   **Customer No. 43490**
PENALIZING MISBEHAVING FLOWS IN
A NETWORK

LIMITED STATUTORY DISCLAIMER UNDER 35 USC 253 AND 37 CFR 1.321

Commissioner for Patents
P.O. 1450
Alexandria, VA 22313-1450

Sir:

IDENTIFICATION OF OWNERSHIP

Sable Networks, Inc. is the owner of 100 percent interest in and to the within-referenced

patent by virtue of assignment duly recorded with the United States Patent and Trademark

Office. A chain of title from the inventors of the patent, identified above, to the current assignee

is as follows:

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   A copy of a duly executed statement under 37 CFR 3.73(b) is attached hereto.

IDENTIFICATION OF CLAIMS IMPACTED BY LIMITED STATUTORY DISCLAIMER

The Patent Holder, Sable Networks, Inc, owner of 100 percent interest in the instant patent hereby statutorily disclaims all, right, title and interest in and to claims 1, 2, 4-8, 14-16, 25-28, 34-36 in the within-identified patent, which read as follows:

1. A machine-implemented method for processing a single flow, the flow comprising a plurality of packets, and the method comprising: creating a flow block as the first packet of a flow is processed by a single router; said flow block being configured to store payload-content-agnostic behavioral statistics pertaining to said flow, regardless of the presence or absence of congestion; said router updating said flow block with the payload-content-agnostic behavioral statistics of each packet belonging to said flow, as each packet belonging to said flow is processed by said router, regardless of the presence or absence of congestion; said router heuristically determining whether said flow exhibits undesirable behavior by comparing at least one of said payload-content-agnostic behavioral statistics to at least one pre-determined threshold value; and upon determination by said router that said flow exhibits undesirable behavior, enforcing, relative to at least one packet, a penalty; wherein the preceding steps are performed on said router without requiring use of inter-router data.

2. A non-transitory computer-readable medium having computer-executable instructions for performing a method to process a single flow, the flow comprising a plurality of packets, and the method comprising: creating a flow block as the first packet of a flow is processed by a single router; said flow block being configured to store payload-content agnostic behavioral statistics about said flow, regardless of the presence or absence of congestion; said router updating said flow block with the flow's behavioral statistics of each packet belonging to said flow, as each

packet belonging to said flow is processed by said router, regardless of the presence or absence of congestion; said router heuristically determining whether said flow is exhibiting undesirable behavior by comparing at least one of said behavioral statistics to at least one pre-determined threshold value; and upon determination by said router that said flow is exhibiting undesirable behavior, enforcing, relative to at least one packet belonging to said flow, a penalty; wherein the preceding steps are performed on said router without requiring use of inter-router data.

4.   A machine implemented method for processing a flow, the flow comprising a series of information packets, the method comprising: maintaining a set of behavioral statistics for the flow, wherein the set of behavioral statistics is updated based on each information packet belonging to the flow, as each information packet belonging to the flow is processed; determining, based at least partially upon the set of behavioral statistics, whether the flow is exhibiting undesirable behavior, regardless of the presence or absence of congestion; and in response to a determination that the flow is exhibiting undesirable behavior, enforcing a penalty on the flow.

5.   A machine implemented method for processing a flow, the flow comprising a series of information packets, the method comprising: maintaining a set of behavioral statistics for the flow, wherein the set of behavioral statistics is updated based on each information packet belonging to the flow, as each information packet belonging to the flow is processed, regardless of the presence or absence of congestion; determining, based at least partially upon the set of behavioral statistics, whether the flow is exhibiting undesirable behavior; and in response to a determination that the flow is exhibiting undesirable behavior, enforcing a penalty on the flow.

6.   The method of claim 1, wherein enforcing the penalty has an effect of correcting the flow's behavior such that the flow exhibits less undesirable behavior.

7.   The method of claim 1, wherein enforcing the penalty comprises: imposing an increased drop rate on the flow such that the information packets belonging to the flow have a higher probability of being dropped than information packets belonging to other flows that do not exhibit undesirable behavior.

8.   The method of claim 1, wherein the penalty is enforced when a congestion condition is encountered.

14.   The method of claim 12, wherein the penalty is enforced on the flow when a congestion condition is encountered.

15.   The method of claim 12, wherein no penalty is enforced on the flow unless a congestion condition is encountered, regardless of how undesirably the flow is behaving.

16.   The method of claim 12, wherein the penalty is determined and enforced on the flow even when no congestion condition is encountered.

25.   A misbehaving flow manager (MFM) for processing a flow, the flow comprising a series of information packets, the MFM comprising: means for maintaining a set of behavioral statistics for the flow, wherein the set of behavioral statistics is updated based on each information packet belonging to the flow, as each information packet belonging to the flow is processed, regardless of the presence or absence of congestion; means for determining, based at least partially upon the set of behavioral statistics, whether the flow is exhibiting undesirable behavior; and means for enforcing, in response to a determination that the flow is exhibiting undesirable behavior, a penalty on the flow.

26.   The MFM of claim 25, wherein enforcing the penalty has an effect of correcting the flow's behavior such that the flow exhibits less undesirable behavior.

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