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Barsheshet et al.

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(54) **METHOD AND SYSTEM FOR DEEP PACKET INSPECTION IN SOFTWARE DEFINED NETWORKS**

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(51) **Int. Cl.**
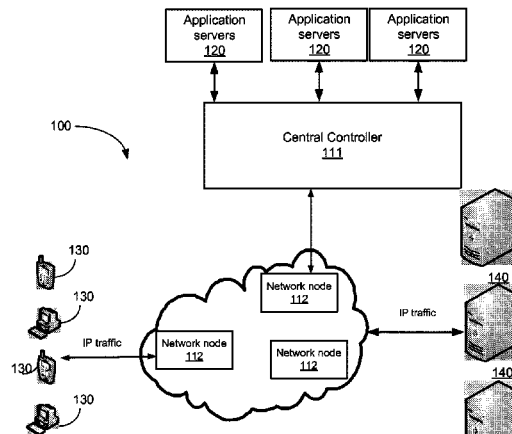**H04L 12/26** (2006.01)
H04L 12/64 (2006.01)
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(52) **U.S. Cl.**
CPC **H04L 43/028** (2013.01); **H04L 12/6418** (2013.01); **H04L 43/026** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC . H04L 43/026; H04L 12/6418; H04L 43/028; H04L 49/70; H04L 69/161
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(57) **ABSTRACT**

A method for deep packet inspection (DPI) in a software defined network (SDN). The method includes configuring a plurality of network nodes operable in the SDN with at least one probe instruction; receiving from a network node a first packet of a flow, the first packet matches the at least one probe instruction and includes a first sequence number; receiving from a network node a second packet of the flow, the second packet matches the at least one probe instruction and includes a second sequence number, the second packet is a response of the first packet; computing a mask value respective of at least the first and second sequence numbers indicating which bytes to be mirrored from subsequent packets belonging to the same flow; generating at least one
(Continued)

mirror instruction based on at least the mask value; and configuring the plurality of network nodes with at least one mirror instruction.

54 Claims, 6 Drawing Sheets

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H04L 12/931	(2013.01)
H04L 29/06	(2006.01)

(52) **U.S. Cl.**
CPC *H04L 47/2483* (2013.01); *H04L 49/70* (2013.01); *H04L 69/161* (2013.01)

(58) **Field of Classification Search**
USPC 370/389
See application file for complete search history.

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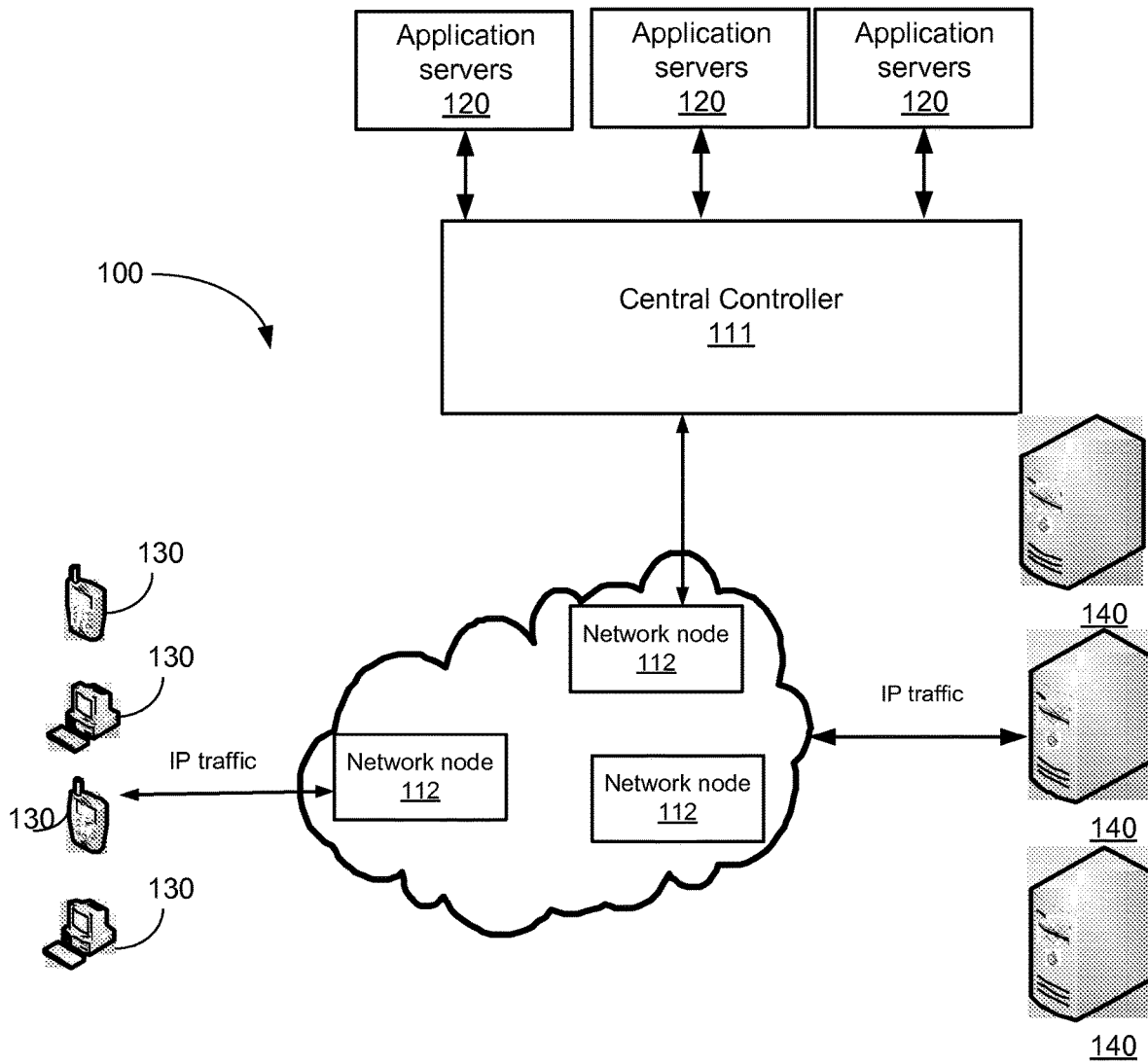
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FIG. 1

200

|		KEY 210								DATA 220				
Client IP address	Server IP address	Client source TCP port	Server destination TCP port	IP protocol number	Flow ID	Client→ Server sequence number M	Server→ Client sequence number N	state	Creation timestamp	Client→ Server Hit counter X [bytes]	Server→ Client Hit counter Y [bytes]	Client→ Server data buffer	Server→ Client Client buffer	Age bit
192.1.1.1	209.1.4.4	15431	21	6	1	0xf46d5c34	0x3c98b9ab	ACK	15:32:13					

FIG. 2
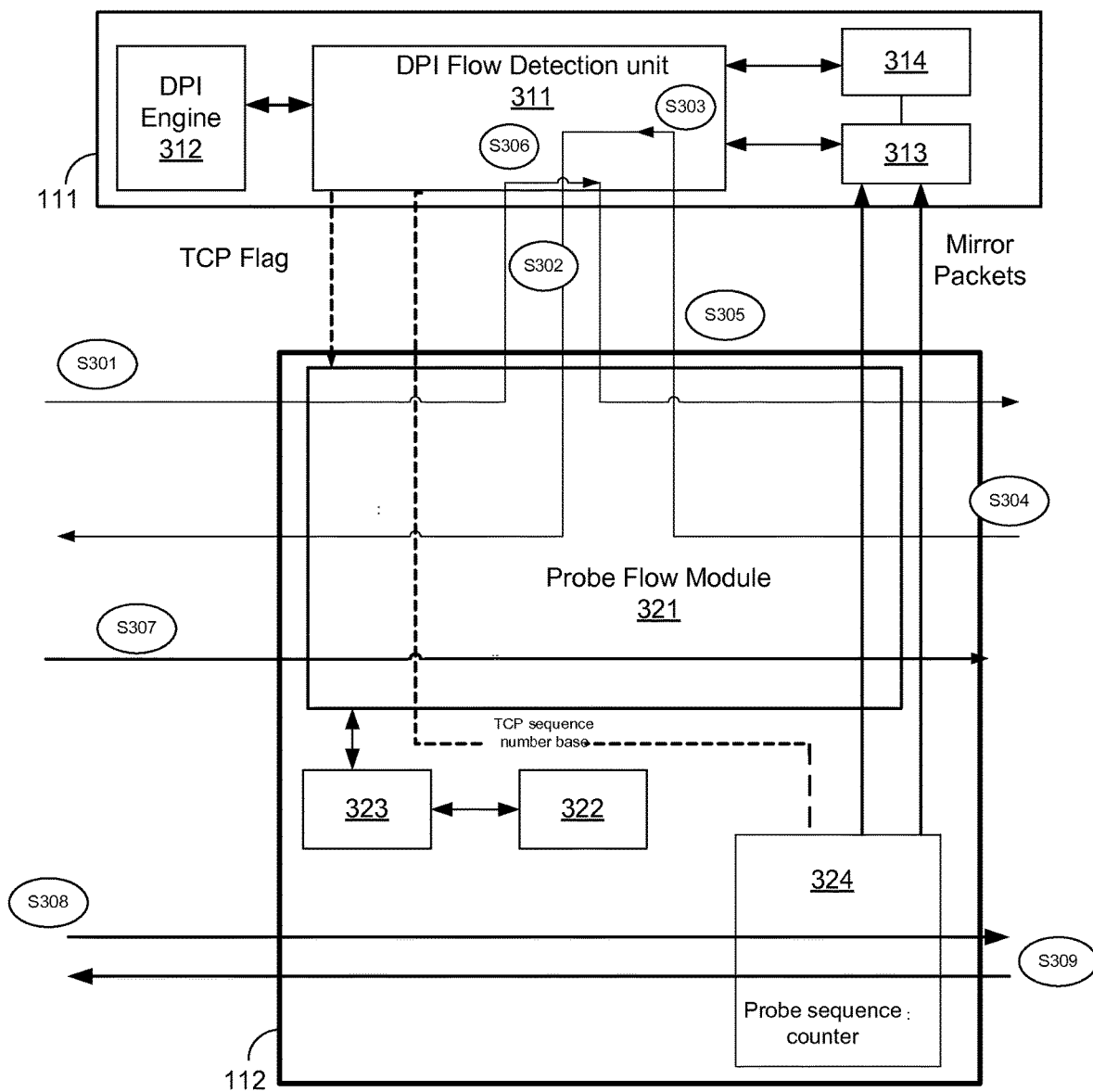
FIG. 3

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