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(54) Title: END-SYSTEM DYNAMIC RATE LIMITING OF BACKGROUND TRAFFIC

(57) Abstract: Dynamic rate limiting of background traffic to alleviate congestion in the access network is enabled. ICMP echo round-trip times and ICMP losses to a nearby node outside the local area and just beyond the divergence in end-to-end paths are measured, allowing unambiguous discrimination of nearby from distant congestion points. Using round-trip time samples, either short-run delay or short-run variance in delay can be measured to estimate congestion. When combined with an appropriate control law, background traffic can be rapidly reduced to allow interactive traffic to traverse unhindered through the access network. The described system and methods can be implemented in the application-layer and without any additional support from the network.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/10176

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **G01R 31/08(2006.01)**

USPC: 270/229-232,236
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 270/229-232,236

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EAST (USPAT,PGPUB), key words: congestion, threshold, shared path, identify path

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,741,555 B (US LI et al) 25 May 2004 (25.05.2004), Column 5 lines 14-53	1
Y	US 7,333,487 B (NOVAES) 16 Jan 2003 (16.01.2003), Col 2 lines 60-67	1

Further documents are listed in the continuation of Box C. See patent family annex.

Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

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