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(54) **Title:** DYNAMIC DSL LINE BANDWIDTH MANAGEMENT WITH THE SUBSCRIBER'S CONSENT

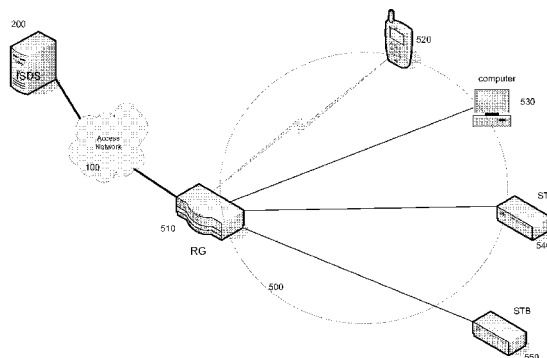


FIG. 2

(57) **Abstract:** A system and method for allocating bandwidth to a plurality of subscriber devices operably connected to a DSL subscription network is described. An embodiment according to the invention comprises a bandwidth management system that operably connects a service network to a plurality of subscriber devices attached to a LAN. After allocating bandwidth to the plurality of subscriber services based on requirements determined from information provided by the service provider and the plurality of subscriber devices, the bandwidth management system can borrow bandwidth from noncritical subscriber services to meet the increased bandwidth requirement of other subscriber services in accordance to the subscriber's instructions. On completion of the subscriber services requiring the increased bandwidth, the bandwidth management system can reallocate bandwidth in accordance with the requirements determined from information provided by the service provider and the plurality of subscriber devices.



# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. H04L12/28 H04L12/56

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)  
 H04L

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 practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/201446 A1 (WRIGHT STEVEN A [US]) 30 August 2007 (2007-08-30) page 3, paragraph 24 - page 6, paragraph 46 figures 1-8 -----	1-23
A	US 2006/215650 A1 (WOLLMERSHAUSER STEVEN M [US] ET AL) 28 September 2006 (2006-09-28) page 2, paragraph 11 - page 4, paragraph 33 figures 1-3 -----	1-23
A	WO 02/21841 A (REARDEN STEEL INC [US]) 14 March 2002 (2002-03-14) page 6, line 17 - page 7, line 4 page 12, line 4 - page 13, line 8 page 33, line 18 - page 44, line 17 figures 1,8b-9m ----- -/--	1-23

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See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007/041384 A1 (DAS ABHIMANYU [US] ET AL) 22 February 2007 (2007-02-22) page 4, paragraph 67 - page 5, paragraph 80 page 7, paragraph 100 - page 8, paragraph 115 page 9, paragraph 139 - page 10, paragraph 154 figures 3,6,10-15 -----	1-23

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007201446 A1	30-08-2007	NONE	
US 2006215650 A1	28-09-2006	NONE	
WO 0221841 A	14-03-2002	AU 3815302 A	22-03-2002
US 2007041384 A1	22-02-2007	NONE	