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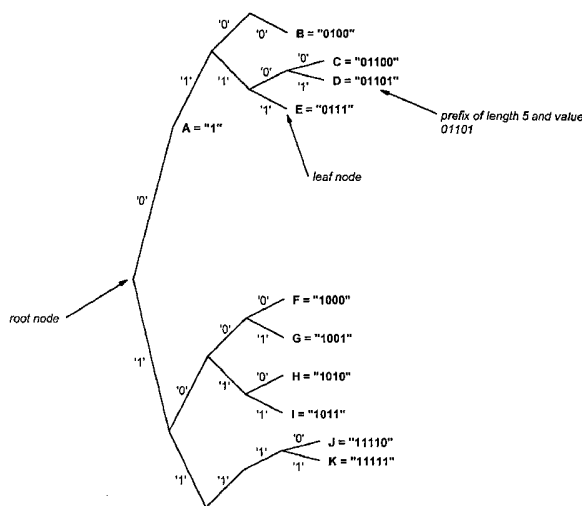
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(54) Title: EFFICIENT IPV4/IPV6 BEST MATCHING PREFIX METHOD AND APPARATUS



(57) Abstract: The present invention provides a data-structure to store a search database and provides techniques to build this datastructure given a list of prefixes (P) and to search this database efficiently for a best matching prefix for an address D. The data-structure can be stored in standard memory (14), where values are stored associated with memory address locations. The data structure includes representations of addressable linked tables (fig. 3b). The representations are related to a binary search trie (fig. 1) and each linked table (T) has at least one entry. Entries in a table span more than one level of the binary search trie. The spanning feature relates to compression of a binary search trie into a finite number of levels (and hence tables). The finite number is less than the number of levels in the binary search trie. Hence the search algorithm is restricted to a finite, and predetermined number of search accesses to the tables to obtain a best-match result.

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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/04580

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(7)	: G06F 17/30	
US CL	: 707/3, 4, 5, 100, 101, 102; 709/238	
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 707/3, 4, 5, 100, 101, 102; 709/238		
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		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,018,524 (TURNER et al.) 25 January 2000 (25.01.2000), column 15, line 32 to column 16, line 49, column 3, line 7 to column 4, line 56.	1-28
Y,E	US 6,256,055 B1 (PERLMAN et al.) 25 February 2003 (25.03.2003), column 10, line 64 to column 11, line 67, column 12, lines 1-56, column 13, lines 26-65, column 14, line 57 to column 15, line 67.	1-28
Y	US 6,052,683 (IRWIN) 18 April 2000 (18.04.2000), column 7, line 3 to column 8, line 67, column 11, lines 26-62.	1-28
Y	US 6,223,172 B1 (HUNTER et al) 24 April 2001 (24.04.2001), column 10, line 20 to column 11, line 47.	1-28
Y,E	US 6,581,106 B1 (CRESCENZI et al.) 17 June 2003 (17.06.2003), column 3, line 29 to column 4, line 26.	1-28
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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