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61/500,717 24 June 2011 (24.06.2011) US(71) Applicant (for all designated States except US): **TELCORDIA TECHNOLOGIES, INC.** [US/US]; One Telcordia Drive 5G116, Piscataway, NJ 08854-4157 (US).

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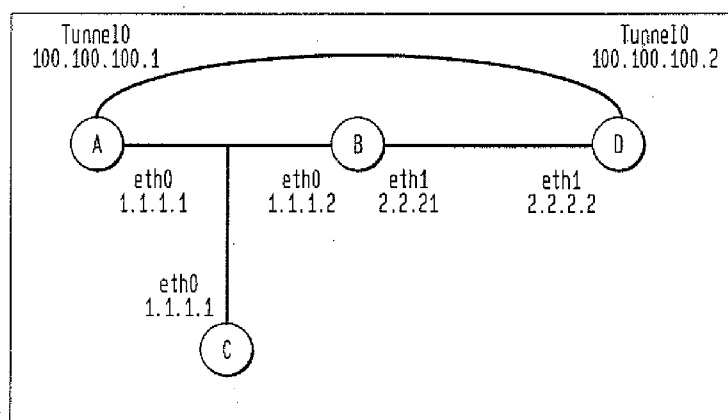
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(54) Title: OPTIMAL NETWORK CONFIGURATION REPAIR

FIG. 2



(57) Abstract: Changing a network configuration to restore compliance to one requirement may invalidate the network compliance with another requirement. A method changes a configuration to restore compliance to all requirements at minimum cost. The requirements are a hybrid of symbolic, arithmetic and bit-vector constraints, so traditional optimization techniques such as linear programming, that work only for purely arithmetic constraints, do not apply. The requirements are represented as SMT (satisfiability-modulo-theory) constraints on configuration variables, and then a weighted Max-SAT solver is used to compute the optimal configuration changes in order to minimize the cost.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/044001

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 7/60 (2012.01)

USPC - 703/2

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)

IPC(8) - G06F 7/60, 15/16, 15/173 (2012.01)

USPC - 703/2, 706/13, 709/223, 709/226

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)

MicroPatent, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0248597 A1 (FICKIE et al) 01 October 2009 (01.10.2009) entire document	1-4
Y	US 2010/0306308 A1 (ANDRAUS) 02 December 2010 (02.12.2010) entire document	1-4
Y	DUTERTRE et al. The YICES SMT Solver. Computer Science Laboratory, SRI International. 24 April 2009 (24.04.2009). [retrieved on 2012-08-29]. Retrieved from the Internet: <URL: http://yices.csl.sri.com/tool-paper.pdf> entire document	2-3
A	US 2010/0281306 A1 (SINHA) 04 November 2010 (04.11.2010) entire document	1-4
A	US 2010/0251222 A1 (GANAI) 30 September 2010 (30.09.2010) entire document	1-4
A	US 2009/0265296 A1 (NARAIN et al) 22 October 2009 (22.10.2009) entire document	1-4

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"&" document member of the same patent family

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