

(19) World Intellectual Property Organization
International Bureau



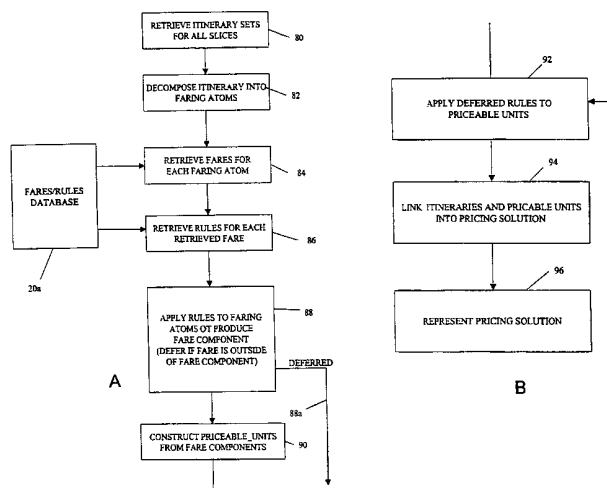
(43) International Publication Date
13 January 2000 (13.01.2000)

PCT

(10) International Publication Number
WO 00/02152 A3

- (51) International Patent Classification⁶: **G06F 17/60**
- (74) Agent: **MALONEY, Denis, G.**; Fish & Richardson, P.C.,
225 Franklin Street, Boston, MA 02110-2804 (US).
- (21) International Application Number: **PCT/US99/14961**
- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.
- (22) International Filing Date: **1 July 1999 (01.07.1999)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
- | | | |
|------------|--------------------------|----|
| 09/109,327 | 2 July 1998 (02.07.1998) | US |
| 09/109,328 | 2 July 1998 (02.07.1998) | US |
| 09/109,486 | 2 July 1998 (02.07.1998) | US |
| 09/109,622 | 2 July 1998 (02.07.1998) | US |
| 09/109,871 | 2 July 1998 (02.07.1998) | US |
| 09/109,873 | 2 July 1998 (02.07.1998) | US |
| 09/109,876 | 2 July 1998 (02.07.1998) | US |
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- (71) Applicant: **ITA SOFTWARE, INC.** [US/US]; One Kendall Square, Building 400, Suite 411, Cambridge, MA 02139 (US).
- (88) Date of publication of the international search report:
11 October 2001
- (72) Inventor: **DEMARCKEN, Carl, G.**; 34 Fairmont Street, Arlington, MA 02174 (US).
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PRICING GRAPH REPRESENTATION FOR SETS OF PRICING SOLUTIONS FOR TRAVEL PLANNING SYSTEM**



(57) Abstract: An airline travel planning system is described. The system includes a server computer executing a server process including a search process to search for set of pricing solutions in accordance with at least one destination and at least one origin. The search process represents the set of pricing solutions in the form of a directed acyclic graph. The system also includes a client computer executing a client process on the set of pricing solutions. The client process has a manipulation process that manipulates the set of pricing solutions in response to user preferences. Several processes are described including a process responsive to user preferences and to set of pricing solutions that provides pricing solutions sorted by said user preference, a process that sorts set of pricing solutions to produce a subset of said set of pricing solutions in accordance with user specified preferences, and a process that prunes from the directed acyclic graph nodes that are no longer contained within the subset of set of pricing solutions.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/14961

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/60

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 7 G06F

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 191 523 A (WHITESAGE MICHAEL D) 2 March 1993 (1993-03-02) column 4, line 54 -column 5, line 41 column 10, line 33 -column 11, line 40 ---	1-6,8,9, 18, 33-38, 40,44, 46-49, 52,53, 58-61
X	EP 0 762 306 A (SABRE GROUP INC) 12 March 1997 (1997-03-12) column 4, line 36 -column 6, line 42; figures 14C,D --- -/--	1-6,8,9, 11-18, 21-26, 33-38, 40-42,56

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

18 October 1999

Date of mailing of the international search report

25/10/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Bowler, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/14961

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 4 862 357 A (AHLSTROM MARK L ET AL) 29 August 1989 (1989-08-29) figures 1,4 -----	1-61
P,X	US 5 832 454 A (JAFRI SAJID H ET AL) 3 November 1998 (1998-11-03) column 3, line 3 -column 7, line 5; figure 2 -----	1-24, 27-55, 57-61

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/14961

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5191523 A	02-03-1993	NONE	
EP 0762306 A	12-03-1997	AU 6551096 A CA 2184937 A JP 9245097 A NZ 299303 A SG 43400 A	13-03-1997 07-03-1997 19-09-1997 23-12-1998 17-10-1997
US 4862357 A	29-08-1989	CA 1276301 A	13-11-1990
US 5832454 54 A		NONE	