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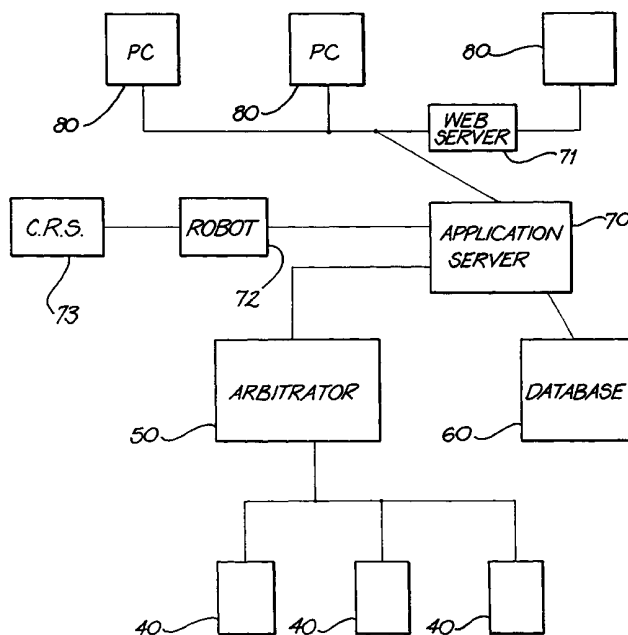
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(54) Title: DATABASE MANAGEMENT



(57) Abstract: A system having: means (50) to cause periodic interrogation of one or more databases (40) containing a catalogue of available airfares and a library of rules of validity of each of the airfares, means to parse the rules using regular expression technology and to download the rules and airfares into a normalised database, and enquiry means containing a set of standard questions for selection by a user which selects a list of fares complying with the user selected questions and causes the list to be presented to the enquirer.



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DATABASE MANAGEMENTField of the Invention

5 The present invention relates to the manipulation of large volumes of data to facilitate effective database interrogation and response with selected information in a convenient form for an inquirer. The invention extends to computer software packages and computer systems which give effect to these concepts.

10 The present invention will be exemplified with reference to the particular problem of determining options from a complex array of alternatives for airline travel to facilitate reservations and ticketing, but the invention is not necessarily so limited and extends generally to
15 similar or equivalent data management and handling tasks in other applications.

Background to the Invention

20 The complexity of international travel options is such that it is not practical for even an experienced travel agent to distil from existing published fare and timetable information for all applicable airlines a comprehensive range of options for an intending traveller. Even one particular airline travelling between two ports
25 will often have a very large number of different fares within and between different classes, for different flights, for different times and for different routings. The situation is complicated further by airlines entering into code-share arrangements and partnering to permit a
30 single ticketing plan to cover multiple airlines for multiple sectors of a complex itinerary.

Frequently particular fare packages are the subject of various restrictions and a travel agent has to satisfy passenger needs of finding an acceptable fare with
35 acceptable restrictions for an acceptable routing and finally determining seat availability for reservations that meet the criteria. Finally a booking can be made.

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Timetable information regarding the departure and arrival of flights operated by commercial airlines worldwide is provided by an independent company, "OAG". This information is updated on a monthly basis, and is
5 provided in a format that is in accordance with the IATA (International Air Traffic Authority) specification for schedule information, SSIM (Standard Schedule Information Manual). This permits an inquirer to have a list of all known flights scheduled to fly between two nominated ports
10 for the validity period of the timetable and does permit some options to be selected. However, this set of information does not provide seat availability information which must be a separate inquiry through a Customer Reservation System (CRS) which is a computer based service
15 and most importantly the timetable information does not link to any information on fare structures and restrictions relating to that route. The options are numerous on a typical route such as Sydney/London because a multiplicity of different airlines are available with a
20 large number of different routes via intermediate stops and therefore analysis of all possibilities is most time consuming. Further inquiry through different databases and systems would be needed for a travel agent to provide a comprehensive report on passenger options for travel
25 e.g. on a particular day.

To facilitate international airline travel, computerised booking systems have been developed as systems independent of individual airlines. For example, individual booking systems can be accessed by professional
30 subscribing travel agents to obtain information via that system on seat availability and timetable information, but broadly, the travel agent must have the experience and knowledge of what is essentially required by a passenger before accessing the system.

35 A system such as the Galileo system links individual airline computers so that for practical purposes up-to-date and accurate timetable and booking availability from

a multiplicity of airlines is possible. The system can assist a travel agent with acceptable, timetabled connecting flights.

However, conventionally an initial enquiry is usually made by a travel agent to a consolidator's database of published net fares, such as the Metro-Concorde system, but it is impractical for a travel agent to assess comprehensively the complex fare rules associated with each fare, so that a passenger can quickly and accurately be given all information to make an informed choice.

Limited developments have become available to facilitate passenger bookings including Internet trading but to date that has only been effective for dealing with inquiries structured on a very simple basis, usually involving very straightforward itineraries and involving only just one airline.

Summary of the Invention

A most important application of the present invention is to facilitate airline travel and bookings and a particularly significant embodiment of the invention is one intended to be driven by a customer request focusing on available published fares (which need to be indicated comprehensively with applicable restrictions) and if a particular option is attractive, then the passenger request needs to be quickly processed to determine if there is in fact seat availability and if so then to make a confirmed reservation.

In the alternative the passenger focus may be one which is most sensitive to convenient travel times and/or minimum travel times and is less sensitive to price.

Preferably, a system embodying the invention facilitates both fare-focused and travel time-focused enquiries.

In one aspect the present invention consists in a software package suitable for use on a digital computer system to achieve the data processing functions described

in this specification. In another aspect the invention consists in a digital computer system mounting and operating such a software package. In a third aspect the invention consists in a method of responding in standard
5 format to queries in a standard format by utilising a uniquely developed database system which operates such a computer package. A further aspect consists in a compilation of databases arranged to facilitate such standard format answers to queries.

10 The general form of the invention may be applied to systems further characterised by selected further inventive developments or options and therefore in further aspects the invention may be defined as a system characterised by any one or more of the individual
15 inventive developments singly or in any combination.

Broadly, the present invention may be defined in one form as being founded on the concept of a system which has

- (a) means to cause periodic interrogation of one or more databases containing a catalogue of
20 available airfares and a library of rules of validity of each of the airfares,
- (b) means to parse the rules using regular expression technology and to download the rules and airfares into a normalised database, and
- 25 (c) enquiry means containing a set of standard questions for selection by a user which selects a list of fares complying with the user selected questions and causes the list to be presented to the enquirer.

30 Preferably, the parsing means is adapted to operate in plain English text by first re-defining the text into logical paragraphs, and secondly analysing each paragraph for relevant information by searching for an expression in
35 a suitable form such as two letter codes defining an

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airline on which the fare may be booked.

Preferably, the parsing means deals with information relating to the following parameters:

- rules about the fare;
- 5 • price for each port pair/date range within the fare;
- booking class for each carrier and sector within the trip;
- included segments/ports/carrier combinations;
- 10 • applicable travel dates for each segment; and
- applicable journeys for each trip.

An important embodiment of the invention is one in which the system has second interrogation means to interrogate a timetable database and to download and
15 catalogue the information into a calendar orientated datafile whereby a searcher of this datafile, by using the enquiry means, can determine the days on which a particularly priced fare may be available. Thus, the system is adapted to be mounted on a server with quickly
20 searchable data on (a) fares (b) rules relating to fares and (c) a calendar display indicating the days on which at least one flight exists with the fare potentially applicable.

The system most preferably includes a booking robot
25 in the form of a software tool having functionality to transform a seat availability request drawn from a user selection from the calendar into a formatted enquiry useable on a third party customer seat reservation computerised system and to translate the reply into an
30 indicator showing whether or not a reservation can be accepted.

A further function of a preferred embodiment is for the system to record passenger details, selected payment options and to initiate through the robot a booking,
35 including calculation of additional charges such as taxes.

The present invention lends itself to having an associated website which facilitates external persons

using the system. The system can be arranged to provide a user friendly Windows-type format which can go so far as to arrange confirmed reservations, ticket issuing, collection of passenger details, and even payments using
5 e.g. credit cards.

To facilitate clear and effective presentation of information to users on seat availability for an option, preferably a graphical calendar is provided with appropriate colour coding to indicate whether a particular
10 flight is available on a particular day and a status indicator of whether seats are available.

Embodiments of the invention may be extended to provide other advantageous options such as itinerary saving features for regular passengers and extension to
15 associated booking services such as hotel, car rental, other transport, and tour add-ons.

To illustrate concepts of the invention, an overall system in the preferred form will now be outlined.

Relevant third party databases of published airline fares are accessed periodically e.g. monthly to build the
20 file, while consolidating and normalising the data using the parsing algorithm to code the restrictions and characteristics of a particular fare. An example of sources of airline fares is use of a service such as
25 Metro/Concorde "Smart Fares" via an interface provided by the Amadeus/LCN service into a central database. The various fare options are mapped out into a set of reservation and routing rules and by virtue of a normalised form of fares from the database, this can be
30 operated upon by the booking system.

A preferred embodiment of the invention consists in a system having an inquiry facility responsive to the user putting in selected parameters (such as departure and arrival ports) and a travel date period, e.g the month of
35 proposed travel. An option is for the user to restrict the data e.g. to a particular airline or group of airlines. This causes the normalised database to be

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interrogated e.g. to provide a list in ascending fare order for the selected class of travel and with regard to any other user selected limitations. For example, a Qantas fare from Sydney to London may be available through
5 various routes under different prices on the same day and in the same class of travel possibly with code-share partner linkages. For example, in economy class, several ticket prices may be published as the airline will have a strategy of allocating different numbers of seats in the
10 aircraft at different prices but the airline does not publish the number of seats at a particular price and manipulates the number of seats at each price as frequently as it wishes. Therefore, the present preferred system does not download and store seat availability at a
15 particular price but instead makes an availability check into the Customer Reservation System (CRS) applicable to the customer selected airline and fare.

The preferred embodiment of the present system permits access to any CRS of which the Amadeus system is
20 an example. The system uses a normalised command language to instruct the CRS to make availability checks for flights which match the fare rules criteria.

A further important part of the present system is automatic interrogation of a CRS to determine which
25 flights and which carriers have a flight for the selected day and colour coding in a window is used to indicate if seat availability for the selected fare exists on a particular flight. For example, on a particular date, the customer may have identified a "V" class fare as the
30 cheapest economy published fare, potentially available on Flight QF1. If seats are available at this price on QF1, it will be highlighted in green as well as any other options such as QF5 which might also be available. Thus, there is a listed alternative conveniently displayed.

35 The customer then makes a selection and the system proceeds with the booking dealing with passenger details, payment arrangements and the production of a documentary

trail with a confirmed reservation.

The system thus can solve the problem of complex and different databases being coordinated to provide a user-friendly customer-orientated service which can be used, for example, by a travel agent or even by a passenger using an Internet provided interface to make their own fully informed choices and booking arrangements.

It is believed that the present invention for the first time permits effective coordination and integration of hitherto disparate databases for fare information and timetable information and then provides effective search options to determine actual seat availability.

Further options to enhance the basic system according to the invention include the capacity to have a user "save function" for regular travellers and the capacity to re-interrogate seat availability at a particular price at a later time. For example, an airline may have decided to allocate 20 seats on a Sydney-London flight at the cheapest special fare, possibly with severe restrictions such as advance payment and no change to travel dates. Simultaneously, the customer may have the choice of a somewhat higher fare with fewer restrictions. All the cheapest seats may be sold and nearer travel time the airline may find that its reservations at the higher fares are poor and decides to release more seats in the cheapest category. Re-interrogation may then locate these extra seats.

The present invention can be implemented in a system which essentially automates the functions of a travel agency in an efficient way by centralising and automating work flow processes. The system preferably has a Graphical User Interface (GUI) back office system which monitors the processes in bookings created either directly in a CRS or from inquiry from an Internet website.

A preferred embodiment will be further explained with reference to the accompanying diagrams of which:

Figure 1 is a schematic diagram illustrating the

basic scheme for query processing in an embodiment of the invention;

Figure 2 is a schematic diagram showing the overall system in which the invention can be implemented; and

5 Figure 3 to Figure 10 are examples of computer screen data presentation available from the system.

Figure 1 illustrates a broad basic concept used in an embodiment of the present invention. An intersection 30 is indicated for a subset of data where preferred carriers 20
10 operate on a given date or range of dates chosen by the customer, having regard to a timetable database 10 for a given destination from a starting point.

Referring now to Figure 2, the overall hardware comprises third party databases 40 each containing data on
15 published fares with associated relevant restrictions for particular carriers, and an arbitrator 50 adapted to operate periodically, e.g. monthly, to interrogate and download data from the fare databases 40, and to normalise the data using a parsing algorithm so that all the
20 information from the various databases 40 are in the same format and readable by a travel inquiry. The system includes an application server 70 which is adapted to operate as a travel booking engine.

The arbitrator 50 acts as a "Fare Loader" which
25 permits access to timetable information from diverse third party databases 60. Each time the Fare Loader processes its run, e.g. hourly, daily, weekly or monthly, a check is made to establish whether a particular fare rule has been updated or deleted. The preferred system includes a
30 program known as a Rule Parse Inspector which lets the human operator verify that the rule sheet has been correctly interpreted.

The application server 70 is adapted to be
interrogated by independent personal computers PC 80
35 either directly or through a webserver 71.

In the above process, the parameters required are that the parsing algorithm normalises its data into a

useable uniform form which contains:

- rules about a particular fare;
- price of fare between nominated ports and the data availability for validity of that fare;
- 5 • booking class for each carrier;
- segment within a multi-flight trip.

When a customer selects through a PC80 a choice, the system causes a booking request to be issued from the application server

Referring now to Figure 3, an illustration is made of the raw information downloaded from an independent database containing catalogued fares. The left column shows the database coding of fares with arbitrary codes relating to a particular fare, the second column indicates the particular selection of fares applicable to the first selected fare code M2TYAKL and the main display shows the plain English rules applicable for this fare on a carrier having the carrier code 2T. These rules represent the traditional form of information available to travel agents. Travel agents thus have a mass of complex variable rules which need to be understood and explained to a customer.

Figure 4 is a similar computer screen of information for fare code MKEPRC3MB but in this case the rules have been parsed into distinct paragraphs having topic headings which are summarised in the third column. However, a system with such cataloguing is simply an intermediate step to a system embodying the invention. Regular expression technology is used to distil out of the particular paragraphs salient information which can be catalogued, an example being given in Figure 5 wherein the selected display of certain paragraphs has now been catalogued into computer useable coded information.

The system also accesses a timetable database in order to recatalogue, for a particular fare, the dates on which at least one journey (potentially composed of many

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flights) is available between the various departure and arrival airports covered by the fare.

Figure 6 shows a typical inquiry screen for the present system. In this case the intending passenger has designated the routes Sydney to London for a return economy travel and only wishes to know about premium airlines. This feature permits airlines to be coded into groups so as to give customers airline quality selections where requested. The inquiry is for one adult ticket and the range of travel dates is specified in the lower portion of the screen. A system in this form permits the travel inquiry to be pursued either by a search aimed at available in ascending order or a search focused on particular dates with available fares then displayed. The user simply uses a mouse to point at the relevant search button and clicks. The system then searches its compiled and normalised database to find a list of catalogued fares. An example of a customer report is shown in Figure 7 which is a convenient graphical display with fares in ascending order and clicking on buttons permits the user to go further and find information on e.g. restrictions.

However, the information in Figure 7 does not indicate on which days each fare may be available or the availability of seats. By clicking on the "select" button the user can go to a graphic calendar of the type shown in Figure 8. The calendar will be encoded with the days of the months and for a particular fare selected the calendar will be colour painted having regard to the specially formatted database of airline timetables. A square will be painted yellow if at least one flight is available on the selected day for the selected fare and grey if there is no flight available on that day for the selected fare. For example, QF1 and QF5 might both fly everyday from Sydney to Bangkok and on Tuesday 04 April 2000 the selected fare may only be potentially available on QF5 but on Wednesday 05 April 2000 it might be available on both flights and neither on Thursday 06 April 2000. In this

case yellow squares will appear on Tuesday and Wednesday 04 and 05 April and a grey square on Thursday 06 April. If a customer then selects the Wednesday option and clicks, then the system will then determine if there is an available seat on a journey between the departure port and the arrival port that is in accordance with the various restrictions entailed by the fare code that was previously selected. On clicking, a robot of the system codes the inquiry into the required form to suit the third party computer reservation system and makes an inquiry which will work through to the airlines reservations system at the instant of the inquiry.

Behind the system seen by the customer is a calendar datafile, which stores all the combinations of fare code, departure date, departure airport, and arrival airport, for which there is at least one journey (which may require potentially many flights) departing on the departure date, from the departure airport, ending at the arrival airport, and remaining within the other rules of the fare code.

Figure 9 is an example of the data on which a customer inquiry may operate. This is a simplified example where a carrier with the code 2T flies only on Tuesdays Sydney to Auckland and the applicable fare code is M2TYAKL.

In summary, the principal advantages over the prior art achieved by at least a preferred embodiment of the invention include the following points:

- analysis of fare options from several prior art databases occurs in the manner to meet an untrained user to make an informed decision; these databases are not held within CRS systems presently;
- bookings can easily be made in multi-point combinations on several different airline carriers on the same fare code;
- the user needs only check for flight availability on dates for which travel is likely since the

system can be developed to predict and advance the dates on which a particular published fare can be used;

- 5 • an interactive graphical calendar is provided to facilitate the user determining when they can travel from selected dates;
- 10 • availability can be determined by a combination of several sources including specific CRS systems as well as accessing other sources such as directly into airlines reservation systems;
- a large party of up to nine persons with association of the bookings in a group can be effected.
- 15 • the rules are interpreted into easily understood jargonless format.

CLAIMS

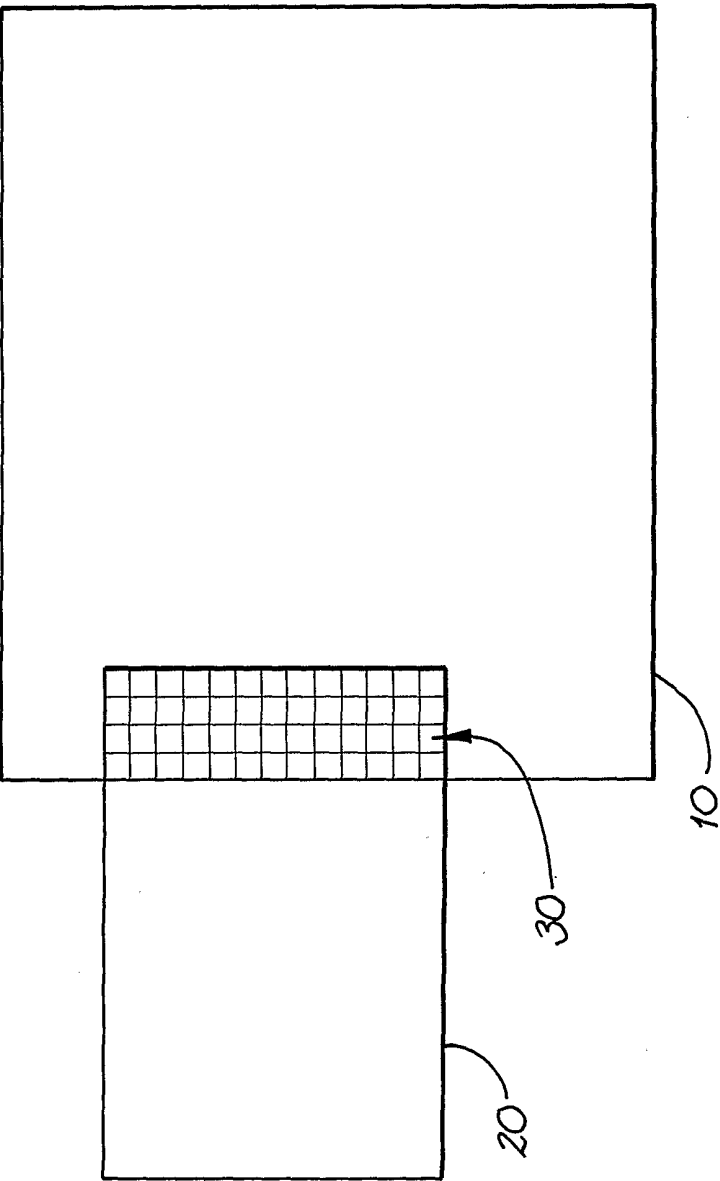
1. A system having:
 - 5 (d) means to cause periodic interrogation of one or more databases containing a catalogue of available airfares and a library of rules of validity of each of the airfares,
 - 10 (e) means to parse the rules using regular expression technology and to download the rules and airfares into a normalised database, and
 - 15 (f) enquiry means containing a set of standard questions for selection by a user which selects a list of fares complying with the user selected questions and causes the list to be presented to the enquirer.
2. A system as claimed in claim 1, wherein the parsing means examines the rules, which are in plain English, re-defines the text into logical paragraphs, analyses each paragraph for relevant information by searching
20 for an expression in an understandable defined form and then stores the results in the normalised database.
3. A system as claimed in claim 2, wherein the parsing means analyses the rules with reference to:
25
 - rules about the fare;
 - price for each port pair/date range within the fare;
 - booking class for each carrier and sector within the trip;
 - 30 • included segments/ports/carrier combinations;
 - applicable travel dates for each segment; and
 - applicable journeys for each trip.
4. A system as claimed in any one of claims 1-3 wherein

- the system has second interrogation means to interrogate a timetable database and to download and catalogue the information into a calendar orientated datafile whereby a searcher of this datafile, by
5 using the enquiry means, can determine the days on which a particularly priced fare may be available.
5. A system as claimed in any one of the preceding claims, wherein the system includes booking software having means to transform a seat availability request
10 drawn from a user selection from the calendar into a formatted enquiry useable on a third party customer seat reservation computerised system and to translate the reply into an indicator showing whether or not a reservation can be accepted.
- 15 6. A system as claimed in any one of claims 1-5 wherein the system has reservation means for recording passenger details, presenting payment options, calculating final costs and processing a booking request.
- 20 7. A system as claimed in any one of claims 1-6, and including a website adapted to interface within other components of the system to facilitate user enquiry and making of confirmed reservations.
- 25 8. A system as claimed in any one of claims 1-7 wherein the system has a graphical calendar with means characterising whether:
- (a) a particular fare code is available on a particular day, and
 - (b) seats are available.
 - 30 (c) the booking, routing, ticketing, code share and other reservation rules are met.
9. A system as claimed in claim 8, wherein the

characterising means applies a colour coding to the graphical calendar to indicate both flight availability and seat availability after a seat availability enquiry has been made.

- 5 10. A method of travel data processing comprising:
- (a) accessing databases of published airline fares;
 - (b) building a consolidated and normalised data
10 file using a parsing algorithm to code
 restrictions relating to each fare whereby fare
 options are mapped into a set of reservation
 and routing rules on which a computerised
 booking system can operate;
 - (c) loading the data file into a computer booking
 system;
 - 15 (d) using inquiry means adapted to receive a user
 enquiry with selected travel parameters;
 - (e) interrogating the data file to provide a list
 of options responsive to the enquiry in terms
 of ticketing price options;
 - 20 (f) responding to a user selection and initiating a
 seat availability enquiry as a reservation
 system, and
 - (g) making a reservation when a seat is available.
11. A method as claimed in claim 10, and further
25 characterised by establishing a graphical calendar
 display and applying a colour coding such that date
 on which a fare code is not available, or, is
 potentially available, or, is confirmed to have at
 least one available seat, or is confirmed to have no
30 available seats, is displayed.
12. A compilation database derived from airline published

fares and timetables, and derived by building a consolidated and normalised data file using a parsing algorithm to code restrictions relating to each fare whereby fare options are mapped into a set of reservation and routing rules on which a computerised booking system can operate and adapted to be used in the method of claim 10.



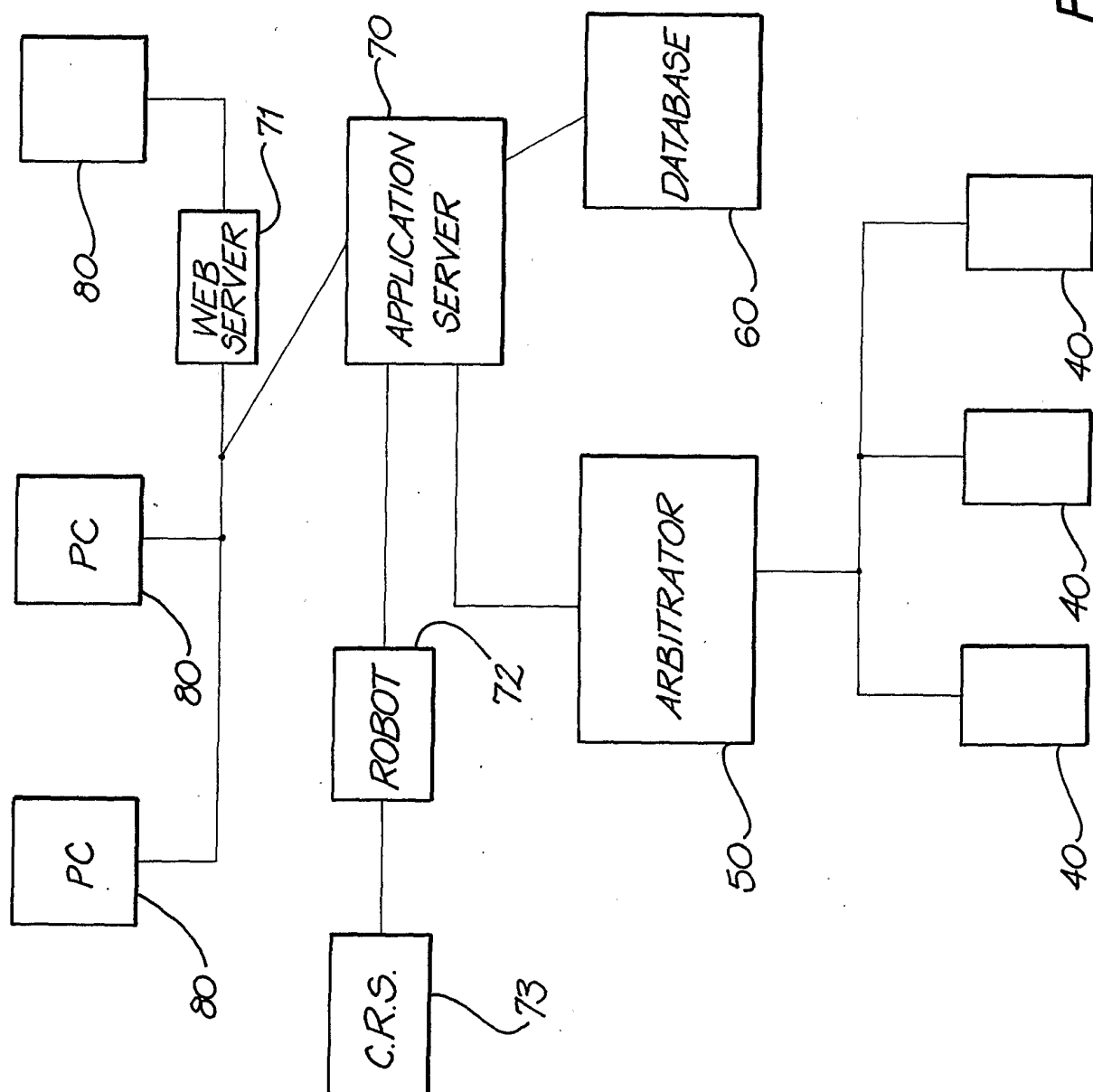


FIG. 2

FARES		FLIGHTS		RULES			
FARE CODE	Class	From	To	Price	Parse Rules	Re-Parse	Clear Results
MZTYAKL	2T	SYD	AKL	\$392.00			
MZTYHNA	2T	SYD	AKL	\$490.00			
MAABEURXX	2T	SYD	AKL	\$392.00			
MAAEUR	2T	SYD	AKL	\$490.00			
MAAFCEAST							
MAAFCWEST							
MAAFUEUR							
MAAVEAST							
MAAVWEST							
MAAYSAM							
MAESGN2							
MAESPL							
MAETPE							
MANBRY1Y							
MANBRY35							
MANDHK6							
MANDHKTW							
MANDJAP							
MANDMJP							
MANHK61Y							
MANHK635							
MANHK6MIX							
MANHK6SP							
MANJBKK							
MANJMT							
MANJSG							
MANTP61Y							
MANTP635							
MANTP6MIX							
MANUSASP							
MANJBKK							
MANJHK6							
MANJHK61							

Conditions	Paragraphs	Parse Summary
GENERAL	: REFER TO MZTINFO99 FOR GENERAL CANADA 3000 CONDITIONS.	
ROUTING	: VALID 2T CHARTER SERVICES ONLY.	
CODESHARE	: RESTRICTIONS DO NOT APPLY.	
VALIDITY	: 49 DAYS- MIN: NIL MAX: 49 DAYS	
RESERVATIONS	: 49 DAYS PLUS- MIN: NIL MAX: 1 YEAR	
TICKETING	: ALL SECTORS MUST BE CONFIRMED PRIOR TO OPEN-DATED NOT PERMITTED	
STOPOVERS	: WAITLIST PERMITTED	
DISCOUNTS	: RESERVATIONS MADE.	
TAX	: NOT APPLICABLE	
PAYMENT	: CHD 2-15 YEARS INCL PAY 80 PCT OF NETT. INF UNDER 2 YEARS PRIOR TO RETURN DATE OF TRAVEL FREE OF CHARGE WHEN ACCOMPANIED BY AN ADULT 16 YEARS OR OVER. UNACCOMPANIED CHD 5-12 YEARS PAY ADULT FARE. UNDER 5 YEARS NOT ACCEPTED.	
CHANGES	: ALL APPLICABLE TAXES MUST BE COLLECTED. FULL PAYMENT REQUIRED WITHIN 7 DAYS OF CONFIRMATION OF RESERVATION.	
CANX/REFUNDS	: PERMITTED AT A COST OF AUD150 PER CHANGE.	
BAGGAGE	: NON REFUNDABLE AFTER TICKET ISSUE. 30 KG PER PERSON. EXCESS BAGGAGE CHARGE OF AUD7.50 PER KG.	
PRODUCT CODE	PER JOURNEY	
COPYRIGHT	SPORTING EQUIPMENT CARRIED FREE OF CHARGE	
GENERAL	CLT/XC - NON N/R	
ROUTING	: THE CONTENTS OF THIS PAGE ARE UNABLE TO BE REPRODUCED IN ANY MANNER WITHOUT WRITTEN AUTHORISATION FROM THE PUBLISHER.	
CODESHARE	: REFER TO MZTINFO99 FOR GENERAL CANADA 3000 CONDITIONS.	
VALIDITY	: VALID 2T CHARTER SERVICES ONLY.	
	: RESTRICTIONS DO NOT APPLY.	
	: 49 DAYS- MIN: NIL MAX: 49 DAYS	
	: 49 DAYS PLUS- MIN: NIL MAX: 1 YEAR	

FIG. 3

FARES				FLIGHTS				RULES				Page Rules		Re-Perse	Clear Results	MKEPROC3MV	
FARECODE	Car	From	To	Price	Conditions	Paragraphs	Sections	Page Summary	Re-Perse	Clear Results	Page Rules	Page Rules	Page Rules	Page Rules	Page Rules	Page Rules	Page Rules
MJLYKOR	KE	MEL	SHA	\$1,265.00													
MJLYPAC1	KE	MEL	SHA	\$1,265.00													
MJLYPAC2	KE	MEL	SHA	\$1,397.00													
MJLYSGN	KE	MEL	SHA	\$1,397.00													
MJLYTHAP	KE	MEL	SHA	\$1,265.00													
MKECOMBOQ	KE	MEL	SHA	\$1,265.00													
MKEEURN	KE	MEL	SHA	\$1,397.00													
MKEEURN2	KE	MEL	SHA	\$1,397.00													
MKEEURV																	
MKEEUSFN																	
MKEEUSPN2																	
MKEEUSPY																	
MKEJAP1Y																	
MKEJAP1Y2																	
MKEJAP1YV																	
MKEJAP35																	
MKEJAP35Z																	
MKEJAP35V																	
MKEMID																	
MKENAM																	
MKENAM2																	
MKENAMGM																	
MKENAMGM2																	
MKENAMGMV																	
MKENAMV																	
MKENZKOG1																	
MKENZKOG2																	
MKEPRC3M2																	
MKEPRC3MV																	
MKEPROC																	
MKEPROC2																	
MKEPROC3M																	
MKEPROCV																	

FIG. 4

FARES		FLIGHTS		RULES			
FARECODE	Caml	From	To	Price	Conditions	Paragraphs	Fare Summary
M2TYAKL	AN	SYD	HKG	\$985.00			
M2TYHNC	AN	SYD	HKG	\$985.00			
MAA8EURXX	AN	SYD	HKG	\$1,127.00			
MAAEUR	AN	SYD	HKG	\$1,127.00			
MAAFCEAST	AN	SYD	HKG	\$1,127.00			
MAAFCEWEST	AN	SYD	HKG	\$1,127.00			
MAAFJEUR	AN	SYD	HKG	\$1,499.00			
MAAVEAST	AN	SYD	HKG	\$1,499.00			
MAAVWEST	AN	SYD	HKG	\$747.00			
MAAYSAM	AN	SYD	HKG	\$747.00			
MAESGN2	AN	SYD	HKG	\$823.00			
MAESPCCL	AN	SYD	HKG	\$823.00			
MAETPE	AN	SYD	HKG	\$823.00			
MANBRYIY	AN	SYD	HKG	\$823.00			
MANDRY35	AN	SYD	HKG	\$1,042.00			
MANDHKG	AN	SYD	HKG	\$1,042.00			
MANDHKTW	AN	SYD	HKG	\$1,285.00			
MANDJAP	AN	SYD	HKG	\$1,285.00			
MANDMAP	AN	SYD	HKG	\$1,433.00			
MANHKGTY	AN	SYD	HKG	\$1,433.00			
MANHKG35	AN	SYD	HKG	\$1,433.00			
MANHKG6IX	AN	SYD	HKG	\$1,433.00			
MANHKG6SP	AN	SYD	HKG	\$1,799.00			
MANHKGK	AN	SYD	HKG	\$1,799.00			
MANJMY							
MANJSG							
MANTPe1Y							
MANTPe35							
MANTPeMIX							
MANUSASP							
MANHKGK							
MANHKG1							

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,799.00				
AN	SYD	HKG	\$1,799.00				

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,799.00				
AN	SYD	HKG	\$1,799.00				

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,799.00				
AN	SYD	HKG	\$1,799.00				

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,799.00				
AN	SYD	HKG	\$1,799.00				

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$747.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$823.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,042.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,285.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,433.00				
AN	SYD	HKG	\$1,799.00				
AN	SYD	HKG	\$1,799.00				

Reservations		Discounts		Reservations		Routing	
Carrier	From	To	Price	From	To	From	To
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$985.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,127.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$1,499.00				
AN	SYD	HKG	\$747.00				
AN							

My travel dates are flexible. Search for the lowest fares offered and show me the dates I can travel. Only for travel originating within Australia.

Departure City :	<div>SYDNEY</div>
Destination City :	<div>LONDON</div>
Fare Type :	<div>RETURN</div>
Travel Class :	<div>ECONOMY</div>
Airline Preference :	<div>Premium</div>
Adults :	<div>1</div>
Children :	<div>0</div> 2-11 Years
Infants :	<div>0</div> 0-2 Years

search

My travel dates are fixed. Search for the lowest fares offered on the dates I have entered below. Only for travel originating within Australia

Departure Date :	<div>24</div>	<div>April</div>	<div>EARLY AM</div>	<div>Calendar</div>
Return Date :	<div>8</div>	<div>May</div>	<div>EARLY AM</div>	<div>Calendar</div>

search

FIG. 6

These are the fares which match your chosen destination and fare class. Select a fare according to your airline and price preference. Fares are shown for one month only. Choose another month by making a selection from the box below and pressing "select"

April

▼

select

Beyond the Blue Fares for : RETURN ECONOMY CLASS FROM SYDNEY TO LONDON



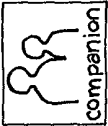




Select	Fare \$	Carrier	Arriving	Available	Special	Rules
<div>select</div>	1,960.20	 MALAYSIA AIRLINES(MH)	LON	From 01 Apr 2000 To 15 May 2000		<div>i</div> More Information
<div>select</div>	2,019.60	 JALJAPAN AIRLINES(JL)	LHR	From 01 Apr 2000 To 15 May 2000	 companion	<div>i</div> More Information
<div>select</div>	2,019.60	 JALJAPAN AIRLINES(JL)	LON	From 01 Apr 2000 To 15 May 2000	 companion	<div>i</div> More Information
<div>select</div>	2,079.00	 JALJAPAN AIRLINES(JL)	LHR	From 01 Apr 2000 To 15 May 2000		<div>i</div> More Information
<div>select</div>	2,079.00	 JALJAPAN AIRLINES(JL)	LON	From 01 Apr 2000 To 15 May 2000		<div>i</div> More Information

FIG. 7

2001

April▼

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Click the date you want to travel on.

FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU01/00376

A. CLASSIFICATION OF SUBJECT MATTER																						
Int. Cl. ⁷ : G06F 17/60																						
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: G06F 17/60																						
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) WPAT with keywords																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	WO 89/07798 A (SYSTEMONE HOLDINGS, INC.) 24 August 1989	1 - 12																				
X	US 4862357 A (AHLSTROM et al) 29 August 1989	1 - 12																				
X	US 5253166 A (DETTELBAACH et al) 12 October 1993	1 - 12																				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>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</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>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</td> </tr> <tr> <td>"L"</td> <td>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)</td> <td>"Y"</td> <td>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</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"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	"E"	earlier application or patent but published on or after the international filing date	"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	"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)	"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	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"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																			
"E"	earlier application or patent but published on or after the international filing date	"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																			
"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)	"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																			
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																			
"P"	document published prior to the international filing date but later than the priority date claimed																					
Date of the actual completion of the international search 4 June 2001		Date of mailing of the international search report 7 June 2001																				
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929		Authorized officer J.W. THOMSON Telephone No : (02) 6283 2214																				

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU01/00376

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5422809 A (GRIFFIN et al) 6 June 1995	1 - 12
X	EP 762306 A (THE SABRE GROUP, INC) 12 March 1997	1 - 12
X	US 5832454 A (JAFRI et al) 3 November 1998	1 - 12
X	WO 99/01822 A (ROSENBLUTH INTERNATIONAL, INC) 14 January 1999	1 - 12

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU01/00376

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
WO	8907798	AU	32035/89	EP	401283
US	4862357	CA	1276301		
US	5253166	NONE			
US	5422809	NONE			
EP	762306	AU	65510/96	CA	2184937
		NZ	299303	SG	43400
US	5832454	NONE			
WO	9901822	AU	82828/98		
END OF ANNEX					