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(54) Title: SCALABLE DISTRIBUTED DATABASE SYSTEM AND METHOD FOR LINKING CODES TO INTERNET INFORMATION

104	Access
103	Category
102	Service
101	Link
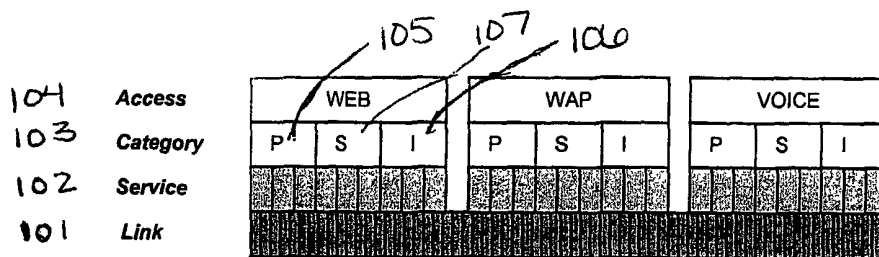
(57) Abstract: An end-user is directed to a location on the Internet based on machine-readable codes scanned by the end user. The end-user is associated with at least one of the following: an end-user country selection, an end-user language selection, a service category (105, 106, 107), an access media type (104), and the presence of an access certificate. A database with a plurality of entries (101) is provided. Each of the entries (101) is associated with a machine-readable code and includes one or more different network addresses. Code information associated with the scans of machine readable codes made by the end-user is received at a network site. In response to the scan information, entries (101) associated with the machine-readable codes scanned by the end-user are retrieved from the database. At least some of the entries (101) include information irrelevant to the information associated with the end user. Only relevant entries (101) are selected. The end user is connected with the network address selected.

SCALABLE DISTRIBUTED DATABASE SYSTEM AND METHOD FOR LINKING CODES TO INTERNET INFORMATION

5   **FIELD OF THE INVENTION**

The present invention relates to connecting an end user with locations on the

Internet based on codes inputted by the end user.

BACKGROUND OF THE INVENTION

Bar code scanning technology has been in use for quite some time. Such bar codes

10   appear on most items encountered by consumers every day – from grocery items to

driver's licenses. Other types of codes (such as private codes), and methods for acquiring

such codes, have been and are continuing to be developed. Bar codes and other codes

allow for fast and easy identification, tracking, and inventory of items as well as storage of

data relating to such items. As bar codes have become a common and familiar part of the

15   consumer experience, so has the use of web services and applications. Different types of

web services and applications continue to grow in number and popularity.

Identifying ways of converging these two apparently disparate technologies to

create a product that provides mobility, simplicity, accuracy, convenience and efficiency

to web applications and services would enable companies to reduce costs (by replacing

20   formerly manual tasks with bar coding technology), increase revenue (by offering

barcode-enabled advertising alternatives that allow consumers to learn about products,

prices, store locations etc.), increase productivity (by automating sales force tasks such as

product ordering), and improve customer loyalty (by offering barcode related value-added

services to customers).

25

SUMMARY OF THE INVENTION

The present invention provides systems and methods related to the convergence of bar code and other coding technologies and web-based applications and services, thereby fulfilling a need present in the prior art.

5   In particular, the present invention is directed to a method and system for directing an end user to a location on a network based on a code inputted by the end user. The end user is associated with at least one of the following: an end-user country selection, an end-user language selection, a service category, an access media type, and the presence of an access certificate. The access media can be one of at least two types (at least one of the types being a bar code scanner). A database that includes a plurality of entries is

10   provided. Each of the entries is associated with a machine-readable code and includes one or more different network addresses. The different network addresses are associated with different providers. Code information associated with one or more scans of machine readable codes, made by the end-user with a remote scanning device, is received at a

15   network site. In response to the scan information, entries associated with the machine-readable codes scanned by the end-user are retrieved from the database. At least some of the entries include information that is not relevant to at least one of the end-user country selection, the end-user language selection, the service category, the access media type, and the presence of an access certificate. Based on at least one of the end-user country

20   selection, the end-user language selection, the service category, the access media type, and the presence of an access certificate, one or more network addresses are selected from the retrieved entries. The end user is connected with the one or more network addresses selected.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

5   BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

10   In the drawings:

Figure 1 illustrates the manner in which links may be organized in accordance with a preferred embodiment of the present invention;

Figure 2 illustrates a preferred embodiment of a link that can be used in connection with a preferred embodiment of the present invention;

15   Figure 3 illustrates the manner in which a user may be precluded from obtaining access to certain services in accordance with a preferred embodiment of the present invention;

Figures 4A – 4C illustrate an exemplary data structure that may be used to design a database in accordance with a preferred embodiment of a system of the present invention;

20   Figure 5 illustrates a cache database schema that may be used to design a database in accordance with a preferred embodiment of a system of the present invention;

Figure 6 illustrates a preferred embodiment of a system of the present invention; and

Figure 7 illustrates a flow chart of a preferred embodiment of a method for

connecting end users to Internet information based on codes inputted by the end users.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5   Reference will now be made in detail to the preferred embodiments of the present

invention, examples of which are illustrated in the accompanying drawings. Wherever

possible, the same reference numbers will be used throughout the drawings to refer to the

same or like parts.

The present invention is directed generally to connecting a unique identifier, such

10   as a bar code, to a URL that points to a web page on the Internet. The connection is

tailored based on a number of different criteria including, for example, a particular

language of the end user, the country of the end user, service categories chosen by the end

user, and the media by which the end user accesses the system.

Figures 1 is a diagram illustrating a preferred embodiment of the manner in which

15   URLs may be organized within the inventive system. Other categorizations, groupings

and organizations will be known to those skilled in the art and are within the scope of the

present invention. Link layer 101 represents a collection of one or more unique identifiers

linked to one or more URLs (the combination of one or more unique identifiers linked to

one or more URLs is referred to herein as a "Link"). In the preferred embodiment, the

20   Links are grouped into different languages. Figure 2 illustrates an example of a Link in

which three EAN codes 201, 202 and 203 (i.e. unique identifiers) are linked to two

different URLs 204 and 205 (one in English and one in French). In one embodiment, the

unique identifier consists of a namespace and a number string that is namespace unique.

This allows the inventive system to store in a database many types of unique identifiers

(e.g. for barcodes, RFID tags, credit card numbers etc.). For example, an EAN-barcode, number 7331040021186, is represented by the namespace EAN13, and the string 7331040021186. By way of further example, a credit card issued by Company ABC with the card number 1234 5678 6543 would be represented by the namespace ABC and the

5   string 123456786543. Other types of unique identifiers can be used in accordance with the present invention.

Service layer 102 contains collections of Links that are specific to particular companies (i.e., companies sponsoring the web pages to which the URLs point), each sharing properties of a particular service (i.e., groupings of Links that share a common

10   characteristic). The shared characteristic may be, by way of example, an end user country of origin, language preference, profession, or access media device type. Other types of services based on any shared characteristics can be defined in accordance with the present invention.

For example, a French medical company marketing a painkiller product available

15   only in France may create a service pursuant to which URLs pointing to marketing information on its painkiller product are presented only to users in France. Thus, the medical company could, for example, define two Links – a global Link and a French Link. A French user would be directed to URLs within the French Link, but everyone else in the world would be directed to URLs within the global Link. The medical company would,

20   thus, have the ability to engage in a country-wide campaign for the painkiller for France, but still maintain the information about the product on the Internet for the rest of the world. A Canadian company may want to create two language preferences services, namely, a service for Links containing URLs directed to web pages written in English and a service for Links containing URLs directed to web pages written in French. By way of

further example, a medical company may wish to present to doctors different URLs

pointing to information for a painkiller product than those it presents to patients. The

medical company would then create two services (one for doctors and one for patients)

each of which holds a Link for different information relating to the painkiller product.

5   In some embodiments, a company may want to create services for Links to which

only certain users or groups of users can obtain access. This can be accomplished using

certificates. For example, one service may be created for Links containing URLs that can

be accessed only by individuals that present a particular certificate. In a particular

example, the French medical company may create a service that includes Links containing

10   URLs that can be accessed only by individuals with a certificate proving that the

individual is a doctor. Figure 3 illustrates the manner in which a patient 301 has access to

buy Link 302 and medical Link 303. However, doctor 305 has access not only to buy

Link 302 and medical Link 303, but to doctor Link 304, because doctor 305 has certificate

306. Another service may be created that includes Links containing URLs that can be

15   accessed only by end users using a particular device. For example, each barcode reader

contains a serial number that is transmitted together with the barcode. Thus, certain Links

may be protected by a service that provides access only to end users employing readers

with certain serial numbers. This embodiment may be advantageous to a company

seeking to make sure only its readers can be used for obtaining access to information

20   about its products.

Category layer 103 controls how URLs are presented to the end user. Each service

in service layer 102 may belong to a particular category. A category is a group of services

that all share a common characteristic. The end user may select the categories of Links

with which the end user is presented. Thus, for example, the end user may indicate that it

is only interested in being presented with URLs relating to a particular product or, for example, to shopping sites.

One exemplary category is a product category 105 (shown in Figure 1). All services relating to a particular kind of product will be grouped into product category 105.

5   Information category 106 groups services that pertain to third party information about the service. Thus, for example, upon scanning a barcode for a video tape of a movie and choosing an information category, the end user will be presented with URLs pointing to reviews of the movie. Shopping category 107 groups services pertaining to Links with URLs identifying where an item can be purchased. Another type of category, an

10   application category, groups Links by application, rather than merely by service, which implies a more advanced interface to the system. The API of the present invention provides access to a number of system-, device- and user parameters. A call to an application can be of several types, a simple re-direct or a general call with a flexible protocol. The APIs may differ depending on the type of access. Categories can be added,

15   removed or changed on demand. Categories in addition to those described here can be created and used in the inventive system within the scope of the present invention.

Access layer 104 controls the URLs that are presented to the end user depending on the access media used by the end user. The different types of access media a user may employ include, by way of example, bar code readers (portable or tethered to a personal

20   computer), personal computers, WAP enabled mobile phones, and personal digital assistants. Each grouping of Links in the category layer are specified as belonging to a certain access type. Thus, Links in a given category are tailor-made for a specific access type, which ensures that each device receives information that the specific device can handle. For example, categories may include Links that are tailored to be shown on the

web or using WAP services. In another example, categories may include Links that are

tailored to be heard as voice/music using a mobile phone. In particular, a record company

wanting to promote one of their artists can have a Link (including URLs pointing to a web

site where the artist's music track can be heard) assigned to a category for mobile phones .

5   This music track can then be accessed using a barcode reader connected to a mobile

phone. In another example, some categories may contain Links that are tailored to be sent

back using Short Message Service ("SMS") to a mobile phone. In particular, an end user

may scan a barcode on a book and receive an SMS back with a short review of the book.

The end user may scan a barcode on a poster for a concert and receive an SMS back with

10   an electronic ticket for the concert. Other access types can be provided for in the

inventive system within the scope of the present invention.

        Preferred embodiments of a central relational database and a cache database that

may be used in connection with connecting end users to URLs in accordance with the

present invention are described with reference to Figures 4A through 4C and 5,

15   respectively. Figures 4A through 4C illustrate an exemplary data structure of central

relational database 601 (shown in Figure 6) for storing data used in connection with the

present invention. Figure 5 illustrates a preferred embodiment of a schema of cache

database 603 (also shown in Figure 6). Cache database 603 is designed, in the preferred

embodiment, to handle lookup requests with a high degree of performance in terms of

20   speed and capacity. This is accomplished through a combination of the database

architecture and RAM caching. In particular, the cache database is, in the preferred

embodiment, an object oriented hash based database, not a relational database. Each table

in the cache database has a RAM cache.

With reference to Figures 4A through 4C, central relational database 601 includes a number of tables. Tables 401, 402, 403, 404 and 405 allow companies to set up and access accounts, and create and manipulate data relating to Links. For example, table 401 is used to store data on the company, such as identification information, password, address

5 and other contact information. Each company has associated with it one or more users that enter information into the system. Tables 402 and 404 are used to store preferences for each user in the system (e.g., whether the user prefers help screens, whether the user prefers to have URLs confirmed prior to their entry into the system etc.). Tables 403 and 405 are used to store information relating to a language preference for the user as well as

10 to set templates for the language fields used by the user when entering Link information. Tables 406, 407 and 408 are used to store and manipulate codes implemented by a company in bulk.

Table 410 is used to store product information and, in particular, Links based on unique identifiers from table 409 and URLs from table 421. For each product identified in

15 table 410, information regarding the company sponsoring the product can be identified from table 411, along with information regarding the user that inserted the product into the system (identified from table 401). Each product identified in product table 410 is associated with a particular service (identified in table 413), and a category (identified in table 412).

20 Company data stored in table 411 is associated with data relating to a particular market, stored in tables 415, 416 and 417. Service data stored in table 413 is associated with channel information stored in table 418 and channel type information (i.e. access media device type) stored in table 419, as well as service information stored in table 414. Keyword data, stored in table 420, is used to further separate services that share a

common characteristic within a category. For example, two shopping services A (a book

store) and B (a pet shop) are separated by the keywords bookstore for service A and pet

shop for service B. Service information stored in table 414 relates services of a particular

type (defined in table 413) that are owned and shared by a number of companies (defined

5   in table 411).

The lookup procedure can be described with reference to Figure 5, which

illustrates several exemplary tables of cache database 603. Based on a particular code

inputted by an end user (e.g., scanned) and the symbology of that code, object dictionary

table 501 is used to obtain all entries (each of which includes a service ID and an object

10   ID) from entry table 502. All data associated with the service ID and object ID for each

entry is then obtained. In particular, for each object ID, a link is identified from object

table 503 and, for each link, link data is obtained from link table 504. For each service

ID, a service parent ID is determined from service table 505. The service parent ID

allows the inventive system to identify whether a particular service is globally valid or

15   whether the service pertains only to a particular country.

Also, for each service ID, using service table 505, a company ID (identifying the

company that has inserted the service into the system) is identified. Using the company

ID, company information is obtained from company table 506. The company information

includes, for example, whether a parent company exists as well as whether the company is

20   active in the system. Based on the reference country ID in company table 506, country

data is obtained from reference country table 507.

Returning again to service table 505, a service data ID is identified. Using the

service data ID, service data information is obtained from service data table 508. The

service data information includes, for example, the name for the service, whether a

10

priority has been set, the type of service, whether any certificates are required to access

the service, and a description of the service. The service information (in particular,

"pre_url" and "post_url") allows for the construction of URLs from strings defined in the

service. "Service hook" determines whether such URLs should be constructed and what

5   type of URL compositing should occur. From service data table 508, a channel ID is

determined, which allows channel data (i.e. category information described with reference

to Figure 1) to be obtained from channel table 509. From channel table 509, a channel

type ID is determined which allows channel type data (i.e. access media device type) to be

obtained from channel type table 510.

10   The superset of data identified is then filtered to obtain Links that are particular to

the current end user session. In particular, as discussed in more detail above, Links that

are not associated with the country from which the end user has inputted the code; the

preferred language of the end user; the channel (i.e. categories); and/or the channel type

(access media) being used by the end user, are removed. In addition, if a certificate is

15   required for access to a particular Link (identified in service data table 508), and the end

user does not possess the required certificate, such Links are removed. The information

relating to the country from which the end user has inputted the code; the preferred

language of the end user; the channel and/or channel type may be provided directly or

automatically from the user's access media to site 604 (identified in Figure 6) either via a

20   cookie stored on the access media, based on user selections that have previously been

stored on the access media or other ways known in the art. U.S. Patent No. 6,314,457,

which is hereby incorporated by reference, provides a description of exemplary access

media that can be used in accordance with the present invention. The end user is then

presented with the remaining Links. In some embodiments, companies may set priorities

within the system (identified in service data table 508), thereby controlling the order in which Links are presented to end users.

A preferred embodiment of a system 600 that may be used to support the linking

5   of unique identifiers to URLs using databases of the type described above is illustrated with reference to Figure 6. Variations on the components and configuration of the system 600 will be known to those skilled in the art and are within the scope of the present invention. The system described herein is highly scalable, thereby enabling it to handle a large number of Links. Further, the system is also designed to handle many end user lookups per second. The system also provides for both global and local load balancing, is

10   stable and highly reliable.

System 600 includes a central relational database 601 (e.g., as described with reference to Figures 4A through 4C) for storing all information used in connection with system 600. Central relational database 601, for example, handles the companies' member accounts, which are used for online insertion or deletion of Links. Central

15   relational database 601 is maintained on a central site 604 and one or more cache databases 603 (e.g., as described with reference to Figure 5) are maintained on cache servers 602. In a preferred embodiment, system 600 includes a standby relational database 605 on standby site 606 that is a real time mirror of central relational database 601. In case of a crash or scheduled downtime on the central relational database 601, the

20   standby relational database 605 will take over.

Updates to the system 600 (for example, the addition of new Links) are handled through the central relational database 601 and are propagated to the cache-server databases 603. In particular, when changes are made in central relational database 601, that information is extracted by the master cache server 607 (recording the change in its

transaction log database) and broadcasted through net layer 608 to the different database

sites, from which the data is retrieved by the cache servers 602 and stored in cache

databases 603. The transaction log works as a persistent buffer such that cache servers

602 that are brought on line can obtain transactions missed while offline.

5   Lookups are handled from the Internet through the global load balancing layer

(GLB) 609 to whichever web server 610 at the site has the shortest latency and load. The

web server 610 connects to any of the cache servers 602 at the site and performs the

lookup in the various tables (as described with reference to Figures 5). The result of the

lookup is then transmitted back to the end user client 611 via the web servers 610. As

10   lookups are being performed, statistics for each lookup request are gathered by the cache

servers 602. That data is then sent at regular intervals back to the master cache server 607

that inserts the data into the central relational database 601.

         In the preferred embodiment, operations in the system 600 can be performed in

two modes: read only or read write. When in read write mode, the operations to the

15   database are guarded through transactions, whereas, in read only mode, the system will

bypass normal transaction handling. In this manner, lookup operations will not interfere

with insert or delete operations, thereby allowing lookup operations to be performed

without transaction locks, which greatly enhances the performance of the system.

         Company accounts are managed through an administration site internal to system

20   600, which is also connected to the central relational database 601. Company clients 612

(i.e. local clients at companies sponsoring web pages to which the URLs point) can

connect securely using a standard web browser through one more or HTTPS servers (i.e.

web servers 610) at each site. The connection is load balanced just as the end-user lookup

requests. An application program interface (API) provides a remote way of accessing

13

central relational database 604. This allows for company clients 612 that are running

locally at the company to connect to and change the contents of the central relational

database 604 (for example, to access their accounts and manage their Links). The API

requests are directed from the web servers 610 to one of cache servers 602, that transmits

5   the request back to one of master servers 607, that connects to the central relational

database 604 and performs the request. The result is transmitted back from the cache

master server 607 to the cache server 602, to the web server 610, that transmits it back to

the API and the remote company client 612.

Thus, for example, a plugin to a desktop publishing program allows a newspaper

10   editor to retrieve and link up barcodes that can be used in magazines. The plugin allows

the editor to login to his account in the system 600 and directly manage his Links from

within the desktop publishing program. Each barcode can be retrieved through the tool as

an image to be printed in the magazine.

As mentioned previously, a preferred embodiment of the system 600 uses global

15   load balancing in order to meet demands in different parts of the world. This is also

important for ensuring low latency and high reliability. The global load balancers 609 that

the system 600 uses act like a global web server that routes requests through to the most

suitable site. In particular, when a DNS request is made to a global load balanced system

(such as system 600), load balancers 609 intercept the request and, depending on different

20   parameters such as server health, site capacity, and round trip time, return the IP address

of the site which is most suitable. At each site, local load balancing is used to increase

performance and ensure site level reliability. In particular, the local load balancer

distributes the load between local servers at a site to increase the lookup capacity at a

particual site. Extending performance of the system 600 is, thus, simplified. In the event a

need arises to add more capacity to a particular site, new hardware can be added to that site. In the event more capacity is needed in another part of the world, a new site can be added to the global system. Other load balancing schemes will be known to those skilled in the art.

5   Figure 7 is a flow chart illustrating a method for directing an end-user to a location on a network. The end-user is associated with at least one of the following: an end-user country selection, an end-user language selection, a service category, an access media type, and the presence of an access certificate. The service category may be a product- or service-specific category or a third party service provider category. The service category

10   in effect for a session may be chosen by the end user. The access media can be one of at least two types (at least one of the types being a bar code scanner). In step 701, a database that includes a plurality of entries is provided. Each of the entries is associated with a machine-readable code and includes one or more different network addresses. The different network addresses are associated with different providers (i.e. companies). In

15   some embodiments, the entries further include one or more services, each service comprising a collection of network addresses grouped in accordance with at least one shared characteristic. The shared characteristic may be an identified profession; a country of origin; a language; or an access media device type, for example.

In step 702, code information associated with one or more scans of machine

20   readable codes, made by the end user with a remote scanning device, is received at a network site. In step 703, in response to the scan information, entries associated with the machine-readable codes scanned by the end user are retrieved from the database. At least some of the entries include information that is not relevant to at least one of the end-user country selection, the end-user language selection, the service category, the access media

type, and the presence of an access certificate. In step 704, based on at least one of the

end-user country selection, the end-user language selection, the service category, the

access media type, and the presence of an access certificate, one or more network

addresses are selected from the retrieved entries. In step 705, the end user is connected

5   with the one or more network addresses selected in step 704. In some embodiments, in

step 706, the network addresses are sorted based on a provider-indicated priority.

Although the foregoing description is directed to the preferred

embodiments of the invention, it is noted that other variations and modifications will be

apparent to those skilled in the art, and may be made without departing from the spirit or

10   scope of the invention.

What is claimed is:

1.   A method for directing an end-user to a location on a network, the end-user being

associated with at least one of an end-user country selection, an end-user language

selection, a service category, an access media type, the access media type comprising at

5   least two types of access media at least one of which comprises a bar code scanner, and

presence of an access certificate, the method comprising:

A.   providing a database comprising a plurality of entries each of which is

associated with a machine-readable code, wherein the entries comprise one or more

different network addresses, the different network addresses being associated with

10   different providers;

B.   receiving at a network site code information associated with one or more

scans of machine readable codes made by the end-user with a remote scanning device;

C.   retrieving from the database, in response to the scan information, entries

associated with the machine-readable codes scanned by the end-user, at least some of the

15   entries comprising information irrelevant to at least one of the end-user country selection,

the end-user language selection, the service category, the access media type, and the

presence of an access certificate;

D.   based on at least one of the end-user country selection, the end-user

language selection, the service category, the access media type, and the presence of an

20   access certificate, selecting one or more network addresses from the retrieved entries; and

E.   connecting the end user with the selected one or more network addresses.

2.   The method of claim 1 further comprising:

F.   sorting the one or more network addresses based on a provider indicated

priority.

3.   The method of claim 1 wherein the entries further comprise one or more services, each service comprising a collection of network addresses grouped in accordance with at least one shared characteristic.

4.   The method of claim 3 wherein the shared characteristic comprises an identified

5   profession.

5.   The method of claim 3 wherein the shared characteristic comprises a country of origin.

6.   The method of claim 3 wherein the shared characteristic comprises a language.

7.   The method of claim 3 wherein the shared characteristic comprises an access

10   media device type.

8.   The method of claim 1 wherein the service category is indicated by the end user.

9.   The method of claim 1 wherein the service category comprises a product-specific category.

10.   The method of claim 1 wherein the service category comprises a service-specific

15   category.

11.   The method of claim 1 wherein the service category comprises a third party service provider category.

12.   A system for directing an end-user to a location on a network, the end-user being associated with at least one of an end-user country selection, an end-user language

20   selection, a service category, an access media type, the access media type comprising at least two types of access media at least one of which comprises a bar code scanner, and presence of an access certificate, comprising:

a database comprising a plurality of entries each of which is associated with a machine-readable code, wherein the entries comprise one or more different network addresses, the different network addresses being associated with different providers;

a network site that receives code information associated with one or more scans of

5   machine readable codes made by the end-user with a remote scanning device;

one or more processors that, in response to the code information, retrieve from the database entries associated with the machine-readable codes scanned by the end-user, at least some of the entries comprising information irrelevant to at least one of the end-user country selection, the end-user language selection, the service category, the access media

10   type, and the presence of an access certificate; and that, based on at least one of the end-user country selection, the end-user language selection, the service category, the access media type, and the presence of an access certificate, select from the retrieved entries one or more network addresses; and that connect the end user with the selected one or more network addresses.

15   13.   The system of claim 12 wherein the processors further sort the one or more network addresses based on a provider indicated priority.

14.   The system of claim 12 wherein the entries further comprise one or more services, each service comprising a collection of network addresses grouped in accordance with at least one shared characteristic.

20   15.   The system of claim 14 wherein the shared characteristic comprises an identified profession.

16.   The system of claim 14 wherein the shared characteristic comprises a country of origin.

17.   The system of claim 14 wherein the shared characteristic comprises a language.

18. The system of claim 14 wherein the shared characteristic comprises an access media device type.

19. The system of claim 12 wherein the service category is indicated by the end user.

20. The system of claim 12 wherein the service category comprises a product-specific
5 category.

21. The system of claim 12 wherein the service category comprises a service-specific category.

22. The system of claim 12 wherein the service category comprises a third party service provider category.

FIGURE 1

		105	107	106					A	
104	Access	WEB			WAP			VOICE		
103	Category	P	S	I	P	S	I	P	S	I
102	Service									
101	Link									

FIGURE 2

201	EAN	en URL
202	EAN	
203	EAN	fr URL

Figure 3

302 — Buy
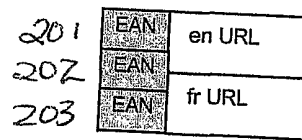303 — Medical   ← Patient   301

302 — Buy
303 — Medical   ← Doctor   305
304 — Doctor

                  Cert   306

FIGURE 4A

Figure 4B

421

URL	
PRODUCT_ID	NUMBER
NAME	VARCHAR2(100)
URL_REF	VARCHAR2(1000)
LANGUAGE	VARCHAR2(5)

(A)

(B)

USER_ID = USER_ID

(C)

USER_ID = PAR_USER_ID

401

USERS	
USER_ID	NUMBER
PAR_USER_ID	NUMBER
COMPANY_ID	NUMBER
USERNAME	VARCHAR2(20)
USER_PASSWORD	VARCHAR2(20)
SEC_LEVEL	CHAR(1)
FNAME	VARCHAR2(25)
SNAME	VARCHAR2(25)
ADDRESS	VARCHAR2(100)
ZIP_CODE	VARCHAR2(10)
CITY	VARCHAR2(25)
COUNTRY	VARCHAR2(25)
EMAIL	VARCHAR2(25)
PHONE	VARCHAR2(20)
FAX	VARCHAR2(20)

COMP_GROUP	
COMP_GROUP_ID	NUMBER
NAME	VARCHAR2(50)
DESCRIPTION	VARCHAR2(50)

(G)

COMP_GROUP_ID = COMP_GROUP_ID

USER_ID = USER_ID

COMPANY_ID = COMPANY_ID

USER_ID = USER_ID

402

USERS_CODES	
USER_ID	NUMBER
CODE_ID	VARCHAR2(2)
CODE_VALUE	VARCHAR2(5)

403

USERS_LANG	
LANG_ID	VARCHAR2(5)
USER_ID	NUMBER

(H)

COMPANY_ID = COMPANY_ID

EAN_SERIE	
COMPANY_ID	NUMBER
EAN_SERIE	VARCHAR2(14)

CODE_ID = CODE_ID

LANG_ID = LANG_ID

404

405

CODES	
CODE_ID	VARCHAR2(2)
DESCRIPTION	VARCHAR2(20)

LANG	
LANG_ID	VARCHAR2(5)
NAME	VARCHAR2(50)

(E)

(D)

COMPANY_ID = COMPANY_ID

PRODUCT_ID = PRODUCT_D

USER_ID = USER_ID

PRODUCT_N	
PRODUCT_ID	NUMBER
COMPANY_ID	NUMBER
USER_ID	NUMBER
SERVICE_ID	NUMBER
CATEGORY_ID	NUMBER

406

PRODUCT_ID = PRODUCT_D

EAN_CODE_N	
PRODUCT_ID	NUMBER
EAN_CODE	VARCHAR2(20)

407

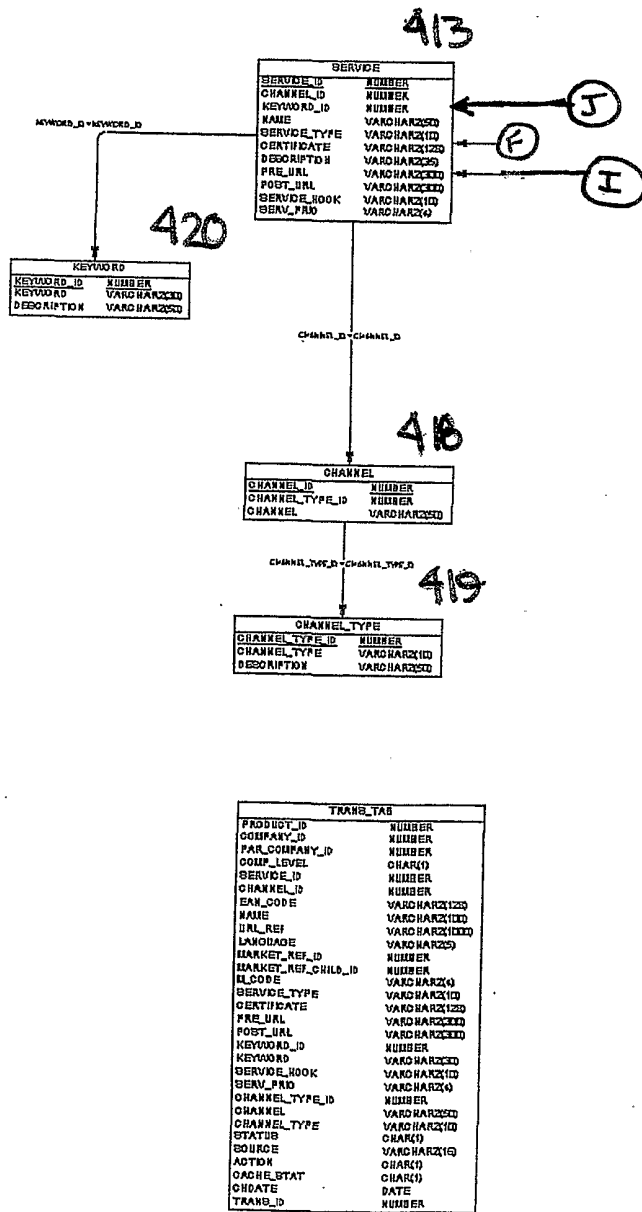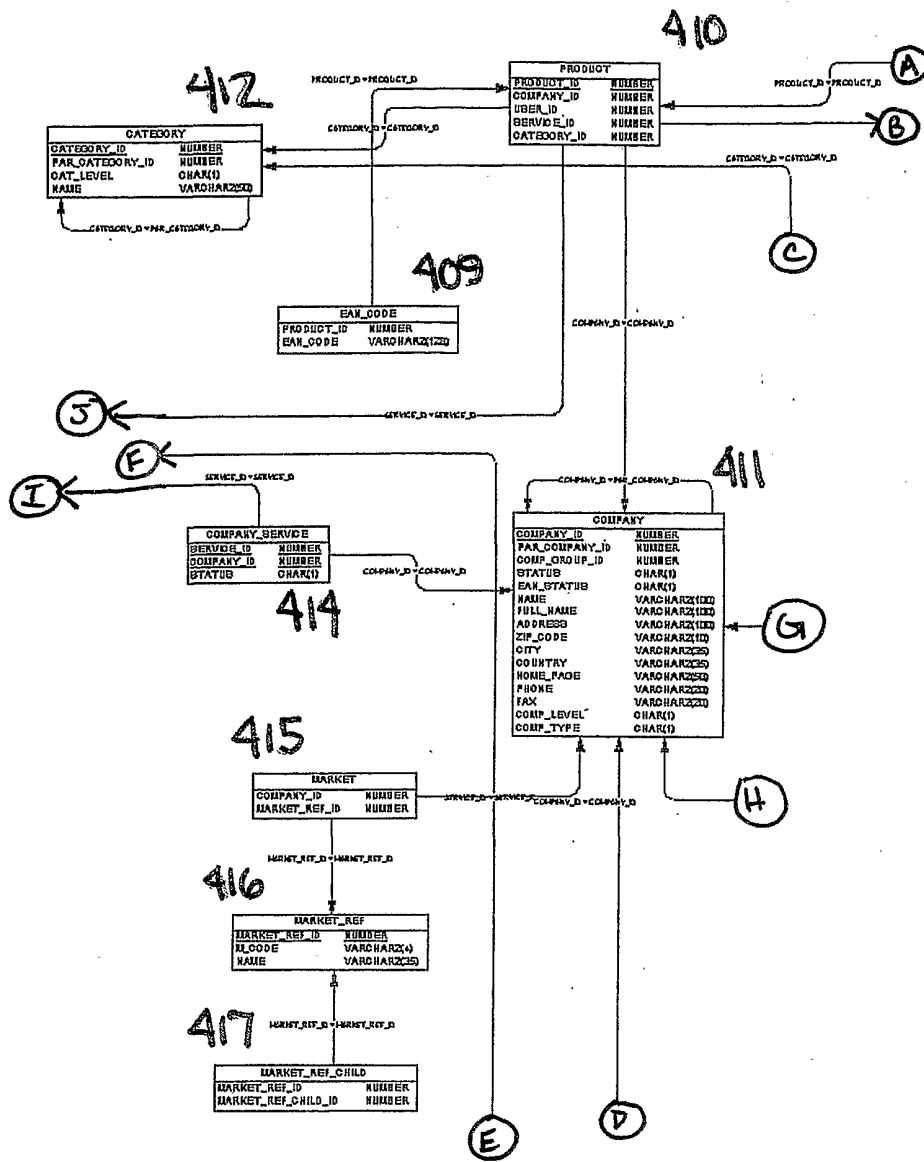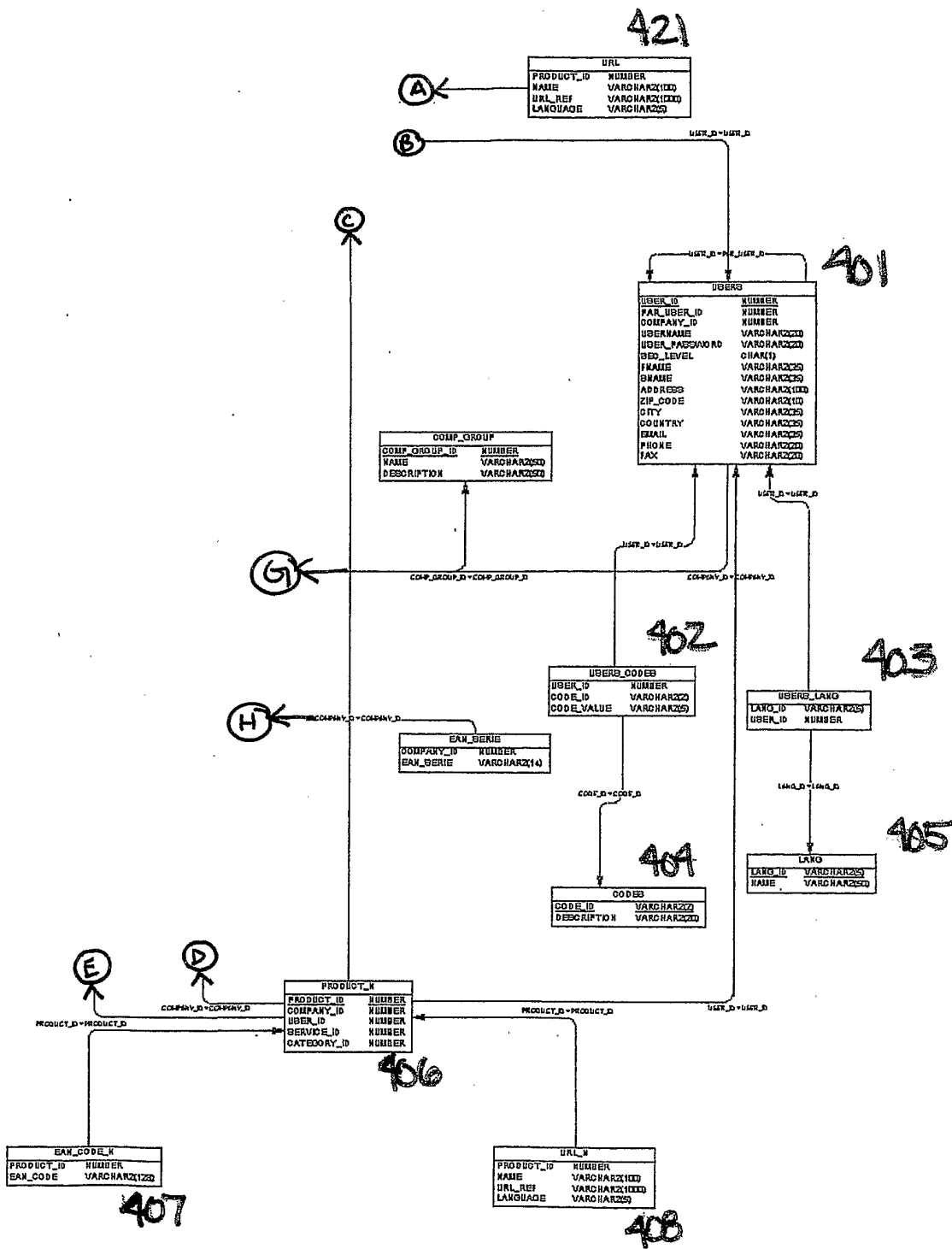| URL_N	
PRODUCT_ID	NUMBER
NAME	VARCHAR2(100)
URL_REF	VARCHAR2(1000)
LANGUAGE	VARCHAR2(5)

408

FIGURE 4C

OBJECT_DICT 501
Code
Symbology
[ENTRY]

ENTRY 502
Service_ID
Object_ID

OBJECT 503
Object_ID
[LINK]

LINK 504
Language
URL
Description

SERVICE 505
Service_ID
ServiceData_ID
Company_ID
ServiceParent_ID

COMPANY 506
Company_ID
CompantParent_ID
CompanyLevel
LockFlag
[RefCountry_ID]

REF_COUNTRY 507
RefCountry_ID
Country

SERVICE_DATA 508
ServiceData_ID
Channel_ID
Name
Priority
ServiceType
Certificate
PreUrl
PostUrl
Keyword
ServiceHook
Description

CHANNEL 509
Channel_ID
ChannelType_ID
Name

CHANNEL_TYPE 510
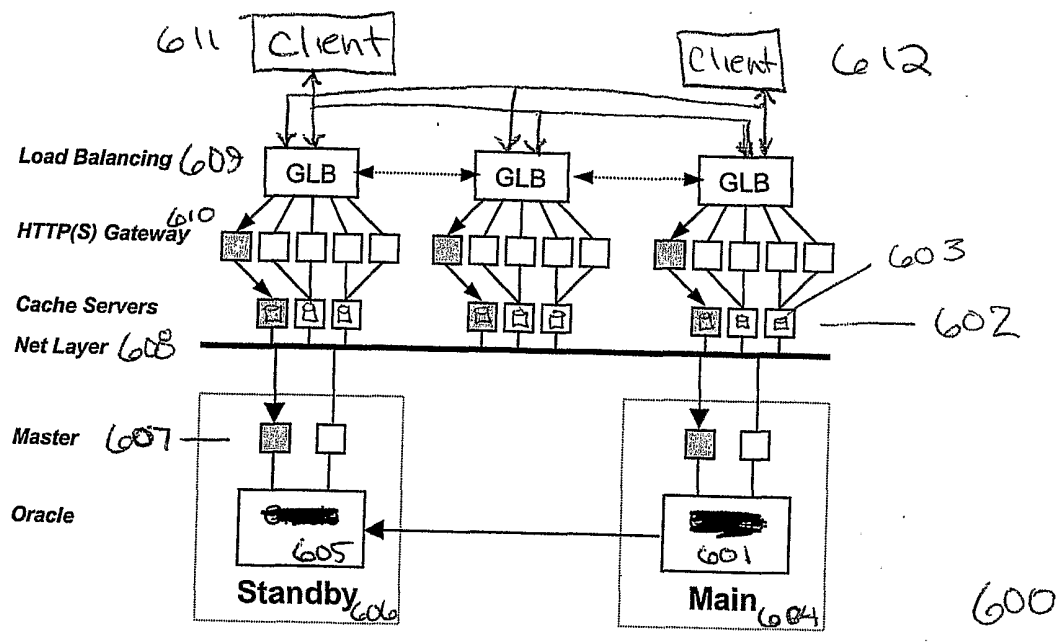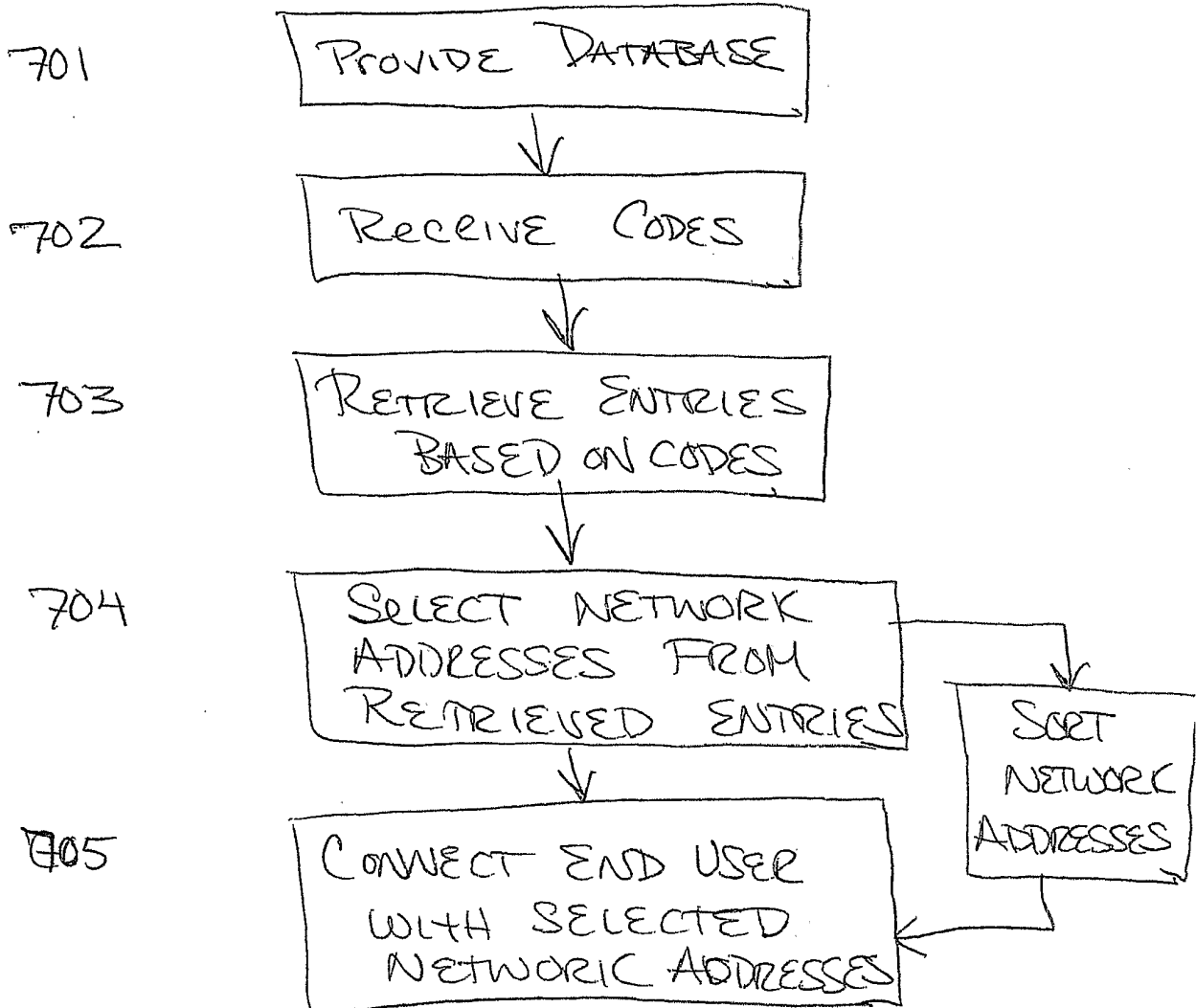*ChannelType_ID*
ChannelType

FIGURE 5

Figure 6

701　　　PROVIDE DATABASE

702　　　RECEIVE CODES

703　　　RETRIEVE ENTRIES BASED ON CODES

704　　　SELECT NETWORK ADDRESSES FROM RETRIEVED ENTRIES

SORT NETWORK ADDRESSES

705　　　CONNECT END USER WITH SELECTED NETWORK ADDRESSES

FIGURE 7

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/30
US CL : 235/375, 462.01

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)

U.S. : 235/375, 462.01

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 search terms: Bar code URL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,064,979 A (PERKOWSKI) 16 May 2000 (16/05/2000), see especially figures 1 and 2, and column 3, lines 35 - 60.	1-22
Y	US 6,049,835 A (GAGNON) 11 April 2000 (11/04/2000), see column 1, line 15 to column 5, line 13.	1-22
Y	US 6,032,195 A (REBER ET AL) 29 February 2000 (29/02/2000), see especially figure 2, and column 6, line 45 to column 7, line 57.	1-22
Y	US 5,978,773 A (HUDETZ ET AL) 02 November 1999 (02/11/1999), see especially column 5, line 13 to column 6, line 44).	1-22

[X] Further documents are listed in the continuation of Box C.   [ ] See patent family annex.

*	Special categories of cited documents:	"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
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier document 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		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 MARCH 2002	0 4 APR 2002

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	MARK TREMBLAY
Facsimile No. (703) 305-3230	Telephone No. (703) 305-5176

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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.
Y	US 5,938,727 A (IKEDA) 17 August 1999 (17/08/1999), see especially figures 3-7 and 11.	1-22
Y	US 5,804,803 A (CRAGUN ET AL) 08 SEPTEMBER 1998 (08/10/1998), see especially figures 2-4.	1-22