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PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(c).

U.S. PTO
60/277187
03/19/01

Docket Number		500979.00	Type a plus sign (+) inside this box →
INVENTOR(s)/APPLICANT(s)			
GIVEN NAME (first and middle[if any])	FAMILY OR SURNAME	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)	
Jeff	Callegari	Kirkland, Washington	
<input type="checkbox"/> Additional inventors are being named on separately numbered sheets attached hereto.			
TITLE OF THE INVENTION (280 characters max)			
METHODS FOR PROVIDING VIRTUAL CONTENT			
CORRESPONDENCE ADDRESS			
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ENCLOSED APPLICATION PARTS (check all that apply)			
<input checked="" type="checkbox"/> Specification	Number of Pages	33	<input checked="" type="checkbox"/> Applicant(s) Claim(s) Small Entity Status
<input checked="" type="checkbox"/> Drawing(s)	Number of Sheets	7	<input type="checkbox"/> Other (specify) _____
METHOD OF PAYMENT (check one)			
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the Provisional filing fees		FILING FEE AMOUNT (\$)	\$75
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any deficiencies in the filing fees or credit any overpayment to Deposit Account Number: <u>50-1266</u>			

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.
☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE _____

Date March 19, 2001

TYPED or PRINTED NAME D. C. Peter Chu

REGISTRATION NO. 41,676
(if appropriate)

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FEE TRANSMITTAL SHEET (FOR FY 2001)

Complete if Known

Express Mail No.	EL 646070534 US
Filing Date	Concurrently Herewith
First Named Inventor	Jeff Callegari
Group Art Unit	Not Yet Assigned
Examiner	Not Yet Assigned
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METHOD OF PAYMENT (Check One)

1. ☒ The Commissioner is hereby authorized to charge any additional fee required under 37 C.F.R. §§ 1.16 and 1.17 and 1.136(a)(3) and credit any over payments to Deposit Account No.: 50-1266; Deposit Account Name: DORSEY & WHITNEY LLP

2. ☒ Check Enclosed

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	710	201	355	<input type="checkbox"/> Utility Filing Fee	
106	320	206	160	<input type="checkbox"/> Design Filing Fee	
108	710	208	355	<input type="checkbox"/> Reissue Filing Fee	
114	150	214	75	<input checked="" type="checkbox"/> Provisional Filing Fee	
Subtotal (1)					\$ 75

2. EXTRA CLAIM FEES

Current Claims	Prior	Extra	Fee	Fee Paid
Total	-	20	=	x \$ = \$
Ind.	-	3	=	x \$ = \$
Multiple Dependent Claims			x \$ =	\$
Subtotal (2)				\$ 0

Large Entity		Small Entity		Fee Description	
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of 20	
102	80	202	40	Independent claims in excess of 3	
104	270	204	135	Multiple dependent Claim	
109	80	209	40	Reissue independent claims over original patent	
110	18	210	9	Reissue claims in excess of 20 and over original patent	

FEE CALCULATION (Continued)

3. ADDITIONAL FEES

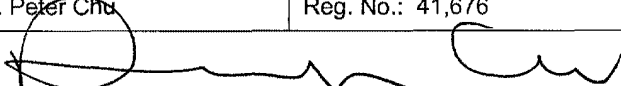
Large Entity		Small Entity		Fee Description	Fee paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
105	130	205	65	Surcharge - Late filing fee or oath	\$
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117	890	217	445	Extension for reply within 3 rd month	\$
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121	260	270	135	Request for oral hearing	\$
148	110	248	55	Terminal Disclaimer Fee	\$
140	10	240	55	Petition to revive - unavoidable	\$
141	1,240	241	620	Petition to revive - unintentional	\$
142	1,240	242	620	Utility/Reissue issue fee (+ advance copies)	\$
143	440	243	220	Design issue fee (+ advance copies)	\$
122	130	122	130	Petitions to the Commissioner	\$
123	50	123	50	Petitions related to provisional applications	\$
126	180	126	180	Submission of IDS	\$
581	40	81	40	Recording each patent assignment per property (times number of properties)	\$
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Subtotal (3)					\$ 0
Total Amount of Payment:					\$ 75

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Date: MARCH 19, 2001

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jeff Callegari

Attorney Docket No.: 500979.00

Filed : Concurrently herewith

Title : METHODS FOR PROVIDING VIRTUAL CONTENT



CERTIFICATE OF MAILING BY "EXPRESS MAIL"

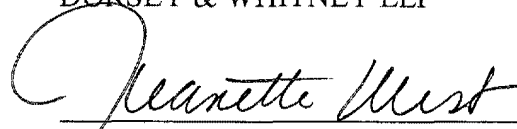
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Respectfully submitted,

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Enclosures:

Postcard
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Fee Transmittal Sheet (+ copy)
Provisional Application Cover Sheet
Application Data Sheet
Specification, Claims, Abstract (33 pages)
7 Sheets of Drawings (Figures 1-7)

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Application Information

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 Attorney Docket Number : 500979.00
 Assigned : No

Representative Information

Representative Customer No. : 27,076

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METHODS FOR PROVIDING VIRTUAL CONTENT

TECHNICAL FIELD

The technical field relates generally to providing information. More
5 particularly, it pertains to creating and accessing virtual content that is affixed to a
geographic location.

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SUMMARY OF THE INVENTION

An illustrative aspect of the invention includes a method for providing a
journal. The method includes creating a journal entry that is virtually affixed to a location
20 of interest. The method also includes presenting the journal entry to a selected person
when the selected person is within the vicinity of the location of interest.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a system showing the software architecture
25 for providing a merchant presence according to one aspect of the present invention.

Figure 2 is a pictorial diagram of a user interface for creating virtual content
using the system of Figure 1 according to one aspect of the present invention.

Figure 3 is a pictorial diagram of a user interface for creating a list of
selected persons to access virtual content according to one aspect of the present invention.

Figure 4 is a pictorial diagram of a user interface for searching for a merchant presence by a consumer according to one aspect of the present invention.

Figure 5 is a pictorial diagram of a user interface for allowing a consumer to selectively secure his location so as to reveal or to conceal his presence according to one
5 aspect of the present invention.

Figure 6 is a pictorial diagram of a user interface for allowing a consumer to select a device to which a merchant may reveal the merchant presence so that the consumer may interact with the merchant according to one aspect of the present invention.

Figure 7 is a pictorial diagram of a user interface that allows a consumer or a
10 merchant to personalize a presence using an application according to one aspect of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

In the following detailed description of exemplary embodiments of the
15 invention, reference is made to the accompanying drawings, which form a part hereof, and in which are shown, by way of illustration, specific exemplary embodiments in which the invention may be practiced. In the drawings, like numerals describe substantially similar components throughout the several views. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention. Other embodiments may
20 be utilized and structural, logical, electrical, and other changes may be made without departing from the spirit or scope of the present invention. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined only by the appended claims.

Figure 1 is a block diagram of a system 100 according to one aspect of the
25 present invention. The system 100 includes various pieces of software and hardware that provide a merchant presence for a merchant at a desired geographic location. The desired geographic location is defined as an area where the merchant is interested in having a presence to do business with a consumer. The consumer interacts with the merchant through a consumer device. The consumer device includes any computing device that will

allow the consumer to interact with the merchant, such as a wired device or a wireless device.

The system 100 includes a presence server that reveals the merchant presence to the consumer. The presence server includes a device interface. The device
 5 interface detects the type of device the consumer is using to interact with the merchant. When the type of device has been determined, the device interface selectively communicates an appropriate user interface for the type of device the consumer is using. For example, if the consumer device can interpret hypertext markup language (HTML), the device interface may send information in the form of HTML pages to the consumer device.

10 The system 100 includes a Web server. The Web server serves HTML pages. The user interface of the presence server may be implemented as HTML pages that may communicate to the consumer device if the device interface has determined that the consumer device can interpret HTML pages.

The system 100 includes a VoiceXML server. The VoiceXML server serves
 15 Voice eXtensible Markup Language pages. The user interface of the presence server may be implemented as VoiceXML pages that may communicate to the consumer device if the device interface has determined that the consumer device can interpret VoiceXML pages.

The system 100 includes a number of applications, such as merchant applications. These merchant applications include applications that allow the merchant to
 20 interface with the presence server to create the merchant presence.

The presence server may use a number of other systems to provide the merchant presence. These other systems include a mapping system. The mapping system provides geographic addresses and routing methods to define the geographic area of the merchant presence. It may also be used by the consumer to search for a desired merchant
 25 presence within an area of interest. The database keeps information that is generated to provide the merchant presence. In one embodiment, the database is implemented using Oracle, but any suitable database technology can be used, such as Microsoft SQL server. The audio processing allows processing of audio information for voice recognition, voice to text, or text to voice. The audio processing allows the consumer device to comprise a

simple plain old telephone system (POTS) to a sophisticated cellular phone with digital personal assistant technology.

The embodiments of the present invention enable merchants to easily create, deploy, and sustain a location of specific wireless and non-wireless presence. The
 5 merchants can do so with or without assistance from a service provider or other third party agent. The embodiments of the present invention put a merchant wireless “presence” in merchant’s own hands! The aforementioned third parties may also utilize the system on behalf of clients.

Merchants can log on to their personalized system account and navigate to
 10 their own customized location-based presence. This presence is initially populated with personalization data taken from their own user accounts. From then on the merchant can come back to their setup page/wizard and modify the various data associated with them. This is a “live” presence.

The merchant works with the setup page/wizard to create/deploy their
 15 “presence” and the consumer is presented with a “consumer view” of this “presence.” This consumer view is presented in many different user interfaces and many diverse devices including but not limited to web, WAP/WML, voice/VoiceXML, SMS (text messaging), email, and other modalities.

The presence is part of an overall system, which allows consumers (or
 20 merchants) to search, find, detect and interact with the merchant all rooted in location-aware technology.

Although the system has the capability to import (through a custom interface) merchant data from existing sources such as directories and directory services, the system allows merchants to independently subscribe to the service and take full control
 25 of their presence. The overall accuracy of the system (both spatial and content) are therefore inherently more accurate than existing technologies that employ for example “spiders” that almost blindly attempt to index “location” from existing web pages. Merchant presence is “live.” Changes are immediately reflected into the overall system.

Because the system does not require any design/tech talent other than operating a browser and filling out forms (formal web experience), it is available to a broad base of merchants. Some of these merchants may have expertise in web presence and others may not. The merchant presence captures the merchant information within the system application database, which also supports links to external sources. Merchants that already have a home page (wireless or non-wireless) can link these external sources to this location-based presence, thus, in fact automatically making their existing non-location-enabled presence location sensitive.

The embodiments of the present invention provide quick and easy direct interaction between the merchant and consumer through various buttons and links: e.g., contact, home page, get map, get directions etc. The present invention also provides easy navigation to a virtual coupon offering.

The system 100 supports virtual content, which exists on the system 100 as an application. Virtual content allows users to interactively create, link, or otherwise deploy content that is geospatially encoded within the system. This content may be private (only accessible to the user/author) or can be shared with others in “buddy lists” for collaboration. These services may also be public, which is available to the entire user base of the system.

Virtual content can be multimedia/multiformat. For example, it can include text, voice, graphics etc. Presentation of this content depends on what was created and on the individual personalized settings of people who will access this content.

Virtual content creates a private or collaborative location-based messaging community. These journals or services overlay the physical world. Users can interact with the services in an ad hoc fashion.

The term “content” used here refers to being location sensitive. Discrete messages, newsgroups, bulletin boards, chat rooms, or live instant messaging can all be location sensitive. The term “content” encompasses all of these forms of communication. The term “content” throughout may also include applications and applets.

Virtual content may also be push-enabled. The term "push" means the inclusion of a technology developed in relation to the World Wide Web, designed to provide end users with personalized Web access by having a site actively "push" requested information to the user's desktop, either automatically or at specified intervals. While the
5 content may be queried using various query interfaces, it may also be configured to push to the service subscribers.

Although the specific embodiments have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement, which is calculated to achieve the same purpose, may be substituted for the specific
10 embodiments shown. This application is intended to cover any adaptations or variations of the present invention. It is to be understood that the above description is intended to be illustrative, and not restrictive. Combinations of the above embodiments and other embodiments will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention includes any other applications in which the above
15 structures and fabrication methods are used. Accordingly, the scope of the invention should only be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled.

Cellular Technical Services

A Wireless Service Network and Platform for Geolocation Applications and Services

*A virtual infrastructure for the physical
world.*

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A Virtual Infrastructure for the Physical World

Wireless Geolocation Service Network and Application Framework

1 Introduction

At this point in time both Internet, modern computing resources, and networks are abundant, commodity technologies. Wireless data, voice, and wireless appliances are the *next big thing* (or THE thing depending on your perspective!). Old and new players in the field are scrambling to come up with opportunities! Mobile computing is driving new and exciting applications. Geolocation technology is part of this mobile computing/communicating revolution. We are in the early and opportune stages of this revolution that will bring location sensitive applications and services to the masses. This enabling capability will move very rapidly into the marketplace, fueled by regulatory requirements and the prospect of new, exciting, and profitable revenue opportunities.

The combination of ubiquitous geolocation capability and state of art computing will generate new applications and whole new paradigms of how we live and work. The concept that is described here fits both: new application-new paradigm. The product that is described here has two very important aspects: it describes a product that stands alone and it provides an enabling infrastructure for the rapid development and deployment of value added applications and services on top of it. These two attributes are extremely important factors in revenue potential.

Geolocation provides an anchor between the real world and the virtual world! Up to this point applications, the web, informational services, and networks have lacked this connection to the physical world. While physical address, servers, homepages, namespaces, and the like perform some level of locality, they are for the most part artificial, difficult to maintain, and cannot be interacted with in the same way that objects can be in the physical world. They are all a poor substitutes!

2 The Vision

Envision a world where all space is "mapped" and at any particular location, there are associations to the virtual world. For any given location in space, there may be an untold number of records or "associations". You can imagine a particular "location" as having attachments or annotations connected to them. In essence we are talking about the physical world of objects and a parallel world of information or applications associated with that location; an unseen world so to speak. A world that can only be seen using a lens (cell phone, appliance, PDA or other computing resource).

In order to fully explain this product concept, it is important to arrive at a common understanding of terms. For explaining this product, a particular location has a number of dimensions:

- **Origin:** the latitude and longitude (perhaps Z) that describes the reference point for the center of the location region
- **Size:** location's may simplistically be described as a circle or ellipse. The radius can be used to describe the Area Of Interest (AIO) for a location or a use of the location
- **Context:** information, applications, or behavior at a location may be different depending on the Context that is being applied to it. A given location may have information that may be Private, Public, Public Moderated, or Commercial for example. In this example "Private" would classify information that is only accessible by a user, "Public" would be free and open to all, "Public Moderated" would be managed by a third party, and "Commercial" would be managed by a commercial enterprise. Other Context could also be used like Gov and Edu. In many ways, this would appear to somewhat track the .gov, .edu, .com etc... Context of the Internet. An "all" Context could also be implemented.
- **Categories** describe topic "filters" on the location in the context of the Context. Channels could be things like Restaurants, Historical, Crime, Geology, Graffiti, Travel, ad infinitum!
- **Time:** Every location also has a sense of time. All attachments/associations with a location are time stamped. Users may access the location in the time domain.
- **Behavior:** Every location can have a "behavior" associated with it. Behavior's may differ based on access device, user, Context, Topic, time, etc... Behavior may be implemented by applications. One example of a behavior may be a "notification" or a "display" etc...

In addition to the characteristics of a "location", the content/s at the location may also have some properties. Some potential properties may be:

- **Type:** Content may vary extremely and is dependent on both Use preferences, supplied content, and devices.
- **Persistence:** how long does the originator want their contribution to persist...what is the lifetime.
- **Security:** Although some level of security is present in the Context system, the contributor may wish to apply another level of security on their informational blob.
- **Radius/Area Of Interest:** although a particular location has a defined area of interest (that is how you know if you are at the location or outside the location), the contributor may wish to ascribe a smaller or larger area of interest (radius) for a contribution.
- **Behavior:** Similar to the behavior of a location, when a piece of content is accessed there may be a predetermined behavior associated with it. This could as simple as registering how many times the content is accessed, by whom, when, etc... all the way to complex scripts or applications.

Devices are varied and standards are in flux: there is no one single method of presenting information to the User and to the User's mobile device.

The mobile device e.g. cellular phone or PDA, is the key to this virtual world. The application described here consists of the I/O, database, network, and applications to create an interactive experience. This experience links Users, location, and content together in a unified system.

The product in many ways tracks the Internet structure. The product has both controlled and non-controlled aspects and relies on a community to both foster it's growth and maintain it's viability. Individuals or corporations may interact in private, public, and controlled public ways with the system.

Essential to this product is the concept of adhoc content creation, adhoc access, ease of use, and self-propagation of content.

2.1. The System

A database and respective application software are implemented to create the information system of "locations" and "content". There are subscriber subsystems, billing subsystems, administration subsystems to assist in deployment of this system. (whatever is necessary to support product deployment!).

In practice, this system will interact with locations by using a location technology provider source such as SignalSoft or other *Location Service Provider* (LSP). This provides the "where" attribute and fundamental "where" base functions so necessary for this system implementation.

Subscriber I/O is diverse and includes standard web access, voice input through an IVR system, SMS messaging, email, and other types of messaging technology.

Depending on device capability, the system may be acting as transmitter to the user, receiver from the user or interacting in a concurrent manner.

The front end is implemented through a high performance application server. This application server implements application logic and I/O connectivity. The backend is a highly scalable relational database or portal class capacity. Capacity and performance are prime design goals; required to present a real time perspective to the user (as much as is possible with the various technologies in the chain).

In very narrow and mobile/wireless carrier specific terms: create the data infrastructure to support location oriented information. The Location Service Provider provides location determining technology abstraction...we provide the next layer up...the location information services framework or application framework?!!! They answer "how do we locate" and we answer "where do we put the data and what do we do with it".

2.2. Content

"Content" can be anything: text notes, SMS, WebPages, WAP, voice memos, sound, images etc. Content can be stored by value or by reference. Locations can be absolute or regionalized into "views". Behaviors can be created for locations and/or particular location views . Establish the essence that we can map physical location/physical entities to data in new and unique ways.

The web is content with little location. So how do we give the web location? In addition, what can we do with a web that has location?

To create a database that contains information (meaningful or not) about all points...is virtually impossible in short time! Unless you were to support a free and open interchanges...ad hoc data entry by the masses that is. However, to do this would create mass chaos...for any location you would end up eventually with disorganized, outdated, or otherwise bad data. These are all separate problems to solve.

Some ideas for solution may be in moderators, robots, authorization, filters, or channels. You could investigate creative solutions to these problems that put the solutions in control of the public.

3 Market Analysis

Carriers are required to have geolocation capability in place during 2001. This presents us with pervasive geolocation technology in FY2001. Geolocation capability represents both compliance with FCC requirements and a new revenue opportunity. Carriers, Internet services providers, portals etc.. are all wheeling and dealing to partner and strategize their plans and implementations for this. Product and services are currently be developed for this marketplace. Delivery of some products and services is occurring in some locations/markets, and there are some already existing specialized GPS vertical markets mature.

The goal will be to deliver this product to beta trials by end of 2000. Selected activity with potential carriers can begin sooner than this.

This product presents itself to the customers as an exciting product as is and as an infrastructure to rapidly deploy other applications and functionality on top of it. It is application and service infrastructure. In this respect, this product is both timely and innovative; promising immediate revenue opportunity and the potential of continued revenue opportunity through the rapid development and deployment of additional applications.

Deployment and enhancement of this product will take one development thread at CTS, another thread will be to rapidly develop and deploy other applications and services on top of it. The overall intention is to put in place a system, which will give CTS massive competitive advantage over other application, develops in this space.

4 Product Description/Feature List

- Acquire and link information and location from Users into an meaningfully organized database.
- Provide information and application services to Users based on their location and their interests.
- Provide an innovative information service portal that has both a design and usability to support participation by all. Reduce barriers to content creation and to content access. Allow non-sophisticated and sophisticated users to participate almost equally in this application.
- Support both adhoc (on the street and right now) and structured participation in this network of services.
- Provide an organizational framework that makes it easy for Users to understand, navigate, or otherwise use the system.

- Allow Users to create location aware content of many different types e.g. SMS, text, WML, HDML, WDML, etc..
- Provide users with the ability to both deploy and access information using a variety of wireline or wireless devices.
- Provide web access to user accounts, preferences, and settings.
- Provide web access to applications and services in that medium. This is the web view of the application.
- Provide a geolocation application infrastructure that supports rapid development and deployment of additional applications.
- Provide an application that will encourage Users to increase their use of the service providers' resources and therefore add revenue to our customer.
- Provide easy mobile access to private, public, commercial, government, and educational information and services.
- Provide a standardized method of interacting with wireless resources; provide consistent usability across the application "system".
- Provide an infrastructure that easily supports advanced functionality through the inclusion of location and content external reference calls based on User actions. These User actions should include both location and content events.
- Provide an application framework that supports by design (out of the box) most of the "informational" types of "applications" that would otherwise require discrete applications to be developed and deployed.
- Free form entry and access - open to all
- Community sustainable...lives and grows with contributors just as the Internet has. Does not need massive content initialization it's adhoc..but its also amenable to structure and commercialization
- Provides a balance of private and public interactive experiences
- Multimedia support and no limits...
- Provides "just enough" organization
- Pulls location, content, and time into a controllable tool.

5 How Do We Make Money TBD!!!

5.1. Sell To Carrier

Sell a turnkey system to carriers. Acquire revenue through, sale, maintenance, transactions, and follow on applications or some combination.

Getting the system into use strategically allows us to follow on with rapid application deployment to the system and thus the carrier.

5.2. Sell to ISP

Similar to carrier but customer is ISP like AOL etc..

5.3. Sell the Technology

Sell the technology and receive recurring revenue through royalty or other creative schemes.

5.4. Host it ourselves

We offer the service etc. directly to Users

6 Location Service Provider Interface

The LSP abstracts the Position Determining Equipment and provides interoperability between service regions and disparate equipment/technology providers. The LSP provides the application developer with a common API with which to develop.

LSPs are represented by companies such as SignalSoft, Cell-loc, and Ericsson. Signal soft implement an MLSP with their LocationManager product. The others have their particular products as well.

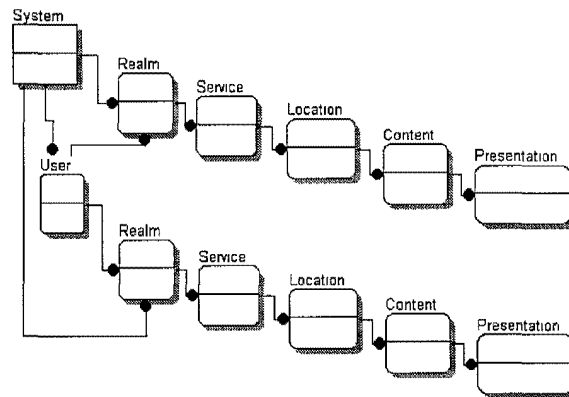
The LSP Interface shall provide the application with an interface that is not LSP specific. Various existing LSP interfaces shall be evaluated. This evaluation and any application specific requirements shall produce a base LSP interface class.

7 Application Model

7.1. Overview

The "application" consists of a central database/application called the "System" and 'n' number of distributed databases/applications each of, which are called a "Realm".

Figure 1 Model Overview



7.2. System

The System database and application is the centralized service that pulls together Realms and Users. The System will be deployed as a CTS resource and will be managed centrally at the CTS System Server. The System applies application and business rules to the interaction of Users and Realms.

In effect the System implements something somewhat like the no-clone zone of the Blackbird product.

The System administrator has scope that is propagated throughout the application.

7.3. Realm

Realms are distributed applications and databases. Realms interface with the System to manage user activity and accounting, user roaming events, and other system wide interactions.

The Realm application and database include the Location, Content, and Presentation objects of the entire system. The primary function of a Realm is to manage a list of Location objects.

The Realm administrator is constrained to administration of the respective Realm.

7.4. User

User accounts are managed by the System object.

User objects capture user identification, account info for billing, telecom detail, security info, preferences, and other detail such as "buddy lists".

Billing: credit card, cell phone bill, etc..

Telecom detail: phone number, email, phone/device model, etc..

Preferred Content Presentation list: SMS, WML, Voice etc. to be used to mediate "best fit" presentation to the user's desire.

Security info: login, password,

Preferences: accept pushes e.g. Audio, SMS, etc..

Buddy list: list 1, list 2, etc...

Etc.

Services can add preference pages to the user preferences web interface.

User u = new User();

7.5. Location

Location objects implement the data and behavior of geographical entities.

Locations are added to a Realm databases based on Realm logic and a creation event. When a Real is created, there are no Locations. Locations must be initialized by the creator of the Realm or through the creation event of user/s. Locations may be created that have an area beyond the origin point and the resolution of the position determining equipment.

All locations contain content.

Figure 2 Example Location Structure

Item	Detail
Latitude	geolocation

Longitude	geolocation
Altitude	geolocation
Radius	Optional definition of how "big" this location is. Describes a circle from the origin points of lat, long.
Rectangle	Optional definition of how "big" this location is. Describes a rectangle from reference of the lat, long.
ServiceList	Reference to a list of Services
OnEnter	Reference to an executable to run when a User enters this location.
OnIn	Reference to an executable that will run when the User stays within the location area for a specified period of time
OnExit	Reference to an executable that will be run when the User exits from this location.
Rating	Accumulates the overall rating of this Location. A summary of all ratings.

7.5.1. Size of Location

The size of a location is determined by the resolution of the positioning technology and of this application. The Location Service Provider will return the default "size" will be the origin and the approximated resolution eg. Origin with radius of uncertainty.

This resolution and therefore "size" will change if equipment is swapped out with higher or lower resolution technology or as upgrades to the system occur. This size factor determines if a User is in or out of the Location (other issues too).

7.6. Service

Locations may have one or many services associated with them. Services provide the gestalt for the User, content, and applications that are associated with them. Services are primarily identified by their Context and Topic.

7.6.1. Users

When users subscribe to a service, their reference is attached to a service.

7.6.2. Context

Services are organized by the context in which they will be used. Context in many ways is similar to "domain". In order to prevent confusion and more clearly denote

function differences, the term "Context" is applied to this aspect of a service. The context of a Content item describes how that content is accessed and controlled. Context supports security and exclusivity.

Available contexts are presented to users and are managed through the user account setup process. User account setup will strive to keep things as simple as possible. E.g. There is certain contexts, which will have not pertinent meaning to the public. These contexts are important to some organizations however.

Figure 3 Example Contexts

Context	Access		
	Read	Write	Admin (R/W/D)
pub	User	User	
pub_moderated	User	User	pub.topic.admin
priv	User	User	User
priv_moderated	User.BuddyList	User.BuddyList	User
com	User	com.topic.admin	com.topic.admin
com_moderated	com.topic.BuddyList	com.topic.BuddyList	com.topic.admin
com_private	com.topic.BuddyList		com.topic.admin
gov	User	User	gov.topic.admin
gov_moderated	gov.topic.BuddyList	gov.topic.BuddyList	gov.topic.admin
gov_private	gov.topic.BuddyList		gov.topic.admin
edu	User	User	edu.topic.admin
edu_moderated	edu.topic.BuddyList	edu.topic.BuddyList	edu.topic.admin
edu_private	edu.topic.BuddyList		edu.topic.admin

This initial set of context is intended to cover public, personal, commercial, government, and educational organizations.

The use of "BuddyList" pertains to a list of users that may be set up by a context administrator.

7.6.3. Topic

Topics define related subject matter. When Context and Topic are combined, they function like "channels". Topical content may be very difference depending on the "context" with which they are accessed.

E.g. Topic = restaurant

A context of "com" (commercial) will access content that has been generated by the commercial enterprise in this location. A context of "pub" will access content that has been generated by the public at this location.

Realms will be deployed with a "standard" set of topics and additional topics may be added. This flexibility allows for the evolution of the service and for locale and carrier specific requirements implementation.

Figure 4 Example Topics

E.g. Topics	Detail
Restaurants	<p>Of course influenced by context:</p> <p>Com.restaurants will provide restaurants with an avenue to promote and communicate with consumers in the location area.</p> <p>Pub.restaurants will provide the public with an avenue to communicate about a restaurant at the current location.</p> <p>Pub_moderated.restaurants will provide the use with access to a moderated public point of view about the restaurant. The moderator of this could be a food critic for example.</p> <p>Com.private would provide the restaurant with an avenue to communicate with restaurant employees or suppliers etc...</p>
Traffic	<p>Com.traffic will provide an avenue for commercial traffic information. This could allow various commercial services to supply information/apps about their services.</p> <p>Com_moderated.traffic would provide a commercial vehicle for information and application use by users.</p> <p>Traffic value added services could operate in this "channel".</p> <p>Pub.traffic would provide an avenue for public communication of traffic in that location.</p> <p>Gov.traffic would provide an avenue for government in content.</p>

There is obviously a huge ranges of applications within this paradigm.

7.6.4. Service Definition

Figure 5 Service Definition

Item	Detail
context	Scope, security, domain!
Topic	Subject matter or function
UserList	List of Users who are subscribed to this service
OnSubscribe	<p>Database field that holds a path to an executable action to take when someone subscribes to this service.</p> <p>This path/executable may point to any special requirements or set up</p>

	that the user is required to make.
OnUnsubscribe	Database field that holds a path to an executable action to take when someone unsubscribes to this service.
OnActive	Database field that holds a path to an executable action to take when someone is actively using this service.
OnInactive	Database field that holds a path to an executable action to take when someone is actively using this service.
Special	Special information that is unique to this service.

7.6.5. Built In Capabilities

Service should have access to a number of built in functions.

1.1.1.1 Preferences

Service can draw on a preferences interface which allows services to dynamically add preference pages to the User Preferences. The User object must therefore include service management in its portfolio of capabilities.

1.1.1.2 Billing – Host Interface

Many services will have the need for payment. Since this application is targeted at a carrier or ISP/ASP then we can make one assumption that the end customer is paying for the use of some aspect of the system. As a baseline we will provide easy access for a service to acquire payment through the host billing interface.

A Base Billing object will be provided in the system. If a service is to bill the customer then this object will management that bill.

Functionality eg.

```
BillingObject myServiceBill = new BillingObject();
```

```
myServiceBill.subscribe();    //
```

```
myServiceBill.setMethod(active, minutes, 10, 1.00); //bill me 1$/10 minutes
whenever I am in the active state
```

```
myServiceBill.start();        //start billing now
```

```
myServiceBill.stop();         //stop billing now.
```

7.7. Content

Services contain content. Content is described through a system of Context.Topic pairs. Context broadly describes the accessibility and control of a Topic. Topic describes the content theme.

E.g. Content in Public.Restaurants: describes content which is not moderated, open to the public, which deals with the subject of "restaurants" at this location.

Figure 6 Example Content Structure

Item	Detail
Presentation	Defines the type of content by presentation. Content type could be text, SMS, URL, URL-HDML, URL-TinyHTML, URL-WML, Voice, Picture, etc...
Date	Date that content was created
Time	Time that content was created
Author	The User who submitted the content
OnAccess	Reference to external executable to run when this content is accessed by a User
OnDelete	Reference to an external executable to run when a User deletes this content.
OnEdit	Reference to an external executable to run when a User edits this content.
Rating	A User based rating score applied to this content. E.g., 1-10 based on system rating system.
Data	Reference to actual content data.

7.7.1. Order

Content shall be ordered by both System preferences and by User preferences. Ordering of some topics may be by "nearest" or by "best" or other characteristic.

7.8. Presentation

The presentation of content will vary widely depending on device. Robust Presentation objects will implement this interface. Some example presentation objects could include: SMS messaging, HTML, HDML, WML, IVR (Voice), Email, etc..

Presentation objects may also be constructed to support multiple presentations from single content source. E.g. Content could be text...user preferences could put preference on SMS rather than WML or email...user preference could be satisfied by sending to SMS only...many permutations for this could be applied.

The separation of Presentation from content allows flexibility to respond to changes in technologies and in device capability/performance.

7.9. Web Interface

Web access is provided to satisfy the needs of user account administration, preferences, billing, geolocation related tasks, and some level of data-mining and reporting.

7.9.1. User Account Administration

Users will need to provide information that is normally expected from a service like this. This information will include name, address, phone number, etc...

7.9.2. User Preferences

Users will access their personalized setup which will include device type/model, preferences for messaging, selection of services, and other preferences which will assist them in modifying the behavior of there experience.

7.9.3. Geolocation

User will be able to display maps with various features such as locations, services, content, etc. This is a prolific opportunity to add functionality and innovation.

The mapping interface will also allow the user to edit their personalized system behavior.

7.9.4. Data-Mining, Views, and Reporting

The web interface will also allow the user to perform some level of data-mining on the system. They will be able to access different views eg. Show me where I have participated, click on a location and see what I have left. Some standard reports should also be available.

7.10. Session

Users will interact with the application through a Session. Sessions may be started through a number of different interfaces including: web, IVR, WAP, SMS, email, etc...

It is expected that a Session\ may span across servers/processes/ etc...

7.11.

8 External Interfaces

8.1. Database Access

External access for service developers may be provide *clean room style*. After testing this service it will be brought on line. CTS will maintain control over this access. Access may be through an application developer kit.

8.2. External Calls/Events

The system is capable of generating many interesting calls. Some calls will be constrained to developers only and others will be more freely available.

8.3. Reporting

This system should make available some level of reporting.

9 Developing Value Added Applications

A number of use cases are submitted here from various people...and the list keeps coming in!

9.1. Example: Traffic Informational Application

Develop a traffic application similar to "TrafficStation".

The primary tasks of a TrafficApp as we now it is to:

- Manage user accounts and preferences
- Allow users to select routes
- Provide communication methods for alerts
- Provide real time traffic info

9.1.1. The Traffic Application

In this system the traffic application will execute within the processing environment of this product or will execute externally at the developers deployment site.

The Realm administrator will register this new service by adding reference to it in a Service table. It's Context and Topic will be entered after scrutiny by the administrator.

The behavior fields: OnSubscribe, OnUnSubscribe, OnActive, OnInactive fields will be set to the appropriate callbacks of this new service. Each of these will perform some service specific function. OnSubscribe may validate billing and perform some there subscription tasks. OnActive indicates to the application that I am currently actively using the service.

9.1.2. Real Time Traffic

The application will acquire a real time traffic feed from DOT or a commercial provider. This information would be parsed and stored in Locations that are placed on traffic routes such as highways etc. The traffic system would be in effect initialized with Locations of Content type "com.traffic". Users tuning to com.traffic would therefore get access to this information. A traffic application could also therefore get traffic information by walking along routes and picking up traffic info placed there by the traffic application's real time traffic agent (feed).

9.1.3. Traffic Alerts

Each of the Content objects at these route Locations has an "OnEdit" field which may be used as a callback to the TrafficApplication. When there is a change in the content...the OnEdit action will fire. The TrafficApplication will process these callbacks and perform actions as required.

9.1.4. User Routes

Users would map their routes using the TrafficApplications third party mapping software. The user routes would "overlay" the complete set of routes. The routes defined in the com.traffic Realm Locations would be cloned to the user routes under "private.traffic". Cloning would reduce the duplication of data. The OnEdit callbacks of com.traffic events would trigger actions on all "attached" Users with content in private.traffic.

9.1.5. Communication of Alerts and Traffic Info

User preference for alerts etc... are set through account management. The application will place corresponding alerts in respective private.traffic Content. Presentation of this Content will be via the associated Presentation object.

9.2. Easy Traffic Application

Create a commerical.traffic service. Simply take the DOT feeds and update this Services content with the data. As people cruise into locations or as the turn the service on...they get traffic info! You could easily provide more intelligence by having the service walk through locations along the road you are on.

9.3. Example: Pay for Tour

A commerical or government organization will pay or otherwise obtain a Service position with us: eg. Commerical.tours

They can create content eg. Voice, text, URL etc and attach this content to locations that are placed in the context of this commercial.tours service. This is very simple!

Anyone who has activated this service will cause the Service to execute the path (application/script etc...) that is contained in the OnSubscribe field in the Service data table. The OnSubscribe handler that the service call the applications built-in commerce feature that will prompt the customer to accept a charge for this service that will be placed on there carrier bill eg. \$5.00. If the user accepts this the service will be enabled for that user.

Services should also have the ability to add preferences to the user page so that automatically pay might be applied to reduce interaction complexity.

The user ensures there device e.g. cell phone is on and continues with the tour. As the User navigates from location to location on the tour, the content at that location is presented to the user as per the user's preferences. Eg. Voice tour, SMS messages etc.

This basic pay for content while geolocating is a model that will be applied to many different applications/services.

9.4. eCoupons

Retail location puts a text coupon in there location under a service such as retail.coupons or public etc... Anyone who has activated this service that comes by the business will get the message automatically SMS'd or voice to them. They come in and pick up there reward (and hopefully spend more money or come back again!).

9.5. Auto Pay: Toll

Commuter continually has to pass through a toll point (or ferry). The org than controls this gets a service on our system eg. Washington.tolls. Same basic pay model as illustrated above. You set the service up with your pay method. The user activates the Washington.tolls service and drives on by the toll center. When the driver enters the toll point location, and OnEnter event is fired which could transmit the drivers license plate or other info to the toll point supervisor who is also tuned to the service. I guess this would be to validate the honesty?!!!

9.6. Family Archive

Glen and his two sons are out mountain biking and come across an outstanding view where they eat lunch and talk about life. To mark this occasion and moment Glen pulls out his cell phone and enters a voice message (the sons speak too). Glen puts this message in his Private class and Sports channel. The system naturally timestamps this and attaches it to this location with the default area of interest applied. Glen could just as easily have taken a digital picture or some other media. There is now a record of this great Dad/Son event attached to this physical location and on this trip there may have been many others associated to waypoints along the

way. This information can be accessed in the comfort of Glens home via the web when he returns. Glen can also use data-mining and presentation tools/apps to display the entire trip and other applications may be used to add to the experience.

Two summers later Glen and his kids take the same trip again. This time, along the way, they access the system in sense mode, choosing same Context and channel. As they enter these "hot" locations they are presented with the messages that were left several years ago...and of course can add on this trip as well.

In this scenario, Glen could also have left public messages for others to discover...and could have accessed public experiences as well.

9.7. Restaurant

A restaurant owner has a web site on the world wide web. The owner places a reference (URL) along with location data to this system. When people are in the area and are attempting to sense a restaurant or this restaurant, this page becomes accessible via whatever device the potential customer or interest is using. The chef may pick up a cellular phone that morning and enter today's specials via voice, text, or SMS message to the system. Potential patrons coming into that location will now have an option to view (WAP) the home page of the restaurant, listen to today's specials, or receive an SMS message on their device. While in front of the restaurant the customer may access public/Restaurant/Rating for an rating that is tabulated from all previous entries by the public (unmoderated), or from the Public (moderated) rating which in this case was created by the food critic at the Seattle Times. Concerned about how late it is and the safety of the area, the prospective customer could pick up public safety rating, anecdotes or what have you. While in the restaurant, the customer (who has an interest in architecture) notes how old and beautiful the restaurant is. The customer then access the Public/History channel and is presented with numerous anecdotes and tidbits that have been contributed by others with a similar interest. For information that is more, sterile the customer may access a moderated version of this channel for a more "textbook" view on the history of this location. The patron may then wonder if they know who has eaten here before and any messages were left. The patron then applies his "buddy list" filter on the public forums associated with this location and comes up with several interesting and comical messages/stories left by friends/family who have visited this place.

9.8. Finding movie theatres or concerts in your area, and info & amateur reviews of the shows

This is the same kind of idea as the restaurant example. Say you're in your hotel room on business in an unfamiliar city, and you want to go to a movie. Or maybe even your own city, but you don't know what's playing everywhere. You pull up a map of all theatres in your area. Alternatively, if you don't have a graphical display, you can get a list (by voice or text) starting with the closest one. Access the info for the closest theatres, get the list of movie titles and times, and ticket prices. Access the comments left by people who've seen the movie. You could also find out about the theatre - bad sound system, good popcorn, dirty seats, etc. Of course this same concept can be

applied to find concerts, etc. Also, you can apply searching and filtering to find, "the closest theatre with THX or Dolby Digital sound that's showing Mission to Mars between 7 and 8 PM" or something like that.

9.9. Finding other folks in the same general location that you are (or the location that you are heading toward) that have some kind of mutual interest -- some reason to possibly want to hook up.

(This is actually a rehash of my submission for geolocation app ideas. This one got the lowest vote score of all, BTW! But it seems to fit with the concept...)

This is an extension of "buddy alert" idea, where your phone beeps at you when one of your buddies is in the area. You could meet unknown people in your proximity whose profile matches the profile you set up indicating types of people you want to meet. This could be like a real-time personal ad - you could arrange to meet a fellow festival-goer with similar interests in a coffee shop down the street after the show. Or post an ad to other mountain-bikers in downtown Seattle saying, "I'm a female mountain biker heading to Tiger Mountain at 11:00 this morning -- any other lady bikers want to go along and share costs? BTW, I'm a casual rider who takes it easy, so no gung-ho types please." Or, post an ad to bikers in Whistler if you're heading up there on vacation. Or you can advertise you have a ticket for sale when you're in a crowd outside an event, and get contacted by people at the event who set up their profile indicating they want to buy a ticket, etc.

Of course your actual location wouldn't be disclosed automatically, but it would merely provide the opportunity to contact someone.

Safeguards and handshaking procedures would be used to control who can contact who. For example, if you don't want to give out your cell phone number, a message center could be used for the first correspondence.

9.10. Tracking movements of others (such as friends) who've been there before.

If you're going on vacation, and you think your friends may come to the same place, leave a trail so they can follow some of your movements and hear your comments.

9.11. Nearest Doctors in Health Plan

I'm at home and need to see a dentist/doctor type person. I go through my plan list of doctors and find 10 that are near me. Having no idea which one to go see I use the internet access to the application and look for any reviews at the addresses of the doctors listed. I can then make a better informed choice.

9.12. Graffiti

Okay...sordid issue but the youth market is a huge target for carriers. This system would allow and even promote all sorts of virtual graffiti by *youth*! I don't like it but they would sure use a lot of minutes and storage!!! \$\$\$

9.13. Employment

A service for people seeking jobs. People could easily activate a public Service at or before a job interview and find all sorts of info out about the company they may work for.

9.14. Smell!

Very easy to create a service that is just one thing: it holds content which consists of a number between 1 -10 or "bad", "good", "great". People can drop content at a location which merely rates the location. This input is averaged etc. to a single rating. Wherever you go it would be simple to find out "is this a good location?".

9.15. Asset Tracking

ASPECTS OF THE PRESENT INVENTION

We have:

1. A method for providing a journal, comprising:
creating a journal entry that is virtually affixed to a location of interest; and
presenting the journal entry to a selected person when the selected person is
within the vicinity of the location of interest.

ABSTRACT OF THE DISCLOSURE

Methods for providing virtual content are discussed. One aspect of the present invention includes a method for providing a journal. The method includes creating a journal entry that is virtually affixed to a location of interest. The method also includes presenting the journal entry to a selected person when the selected person is within the vicinity of the location of interest.

\\sefile03\files\ip\documents\clients\cellular technical services\500979.00\application for journal.doc

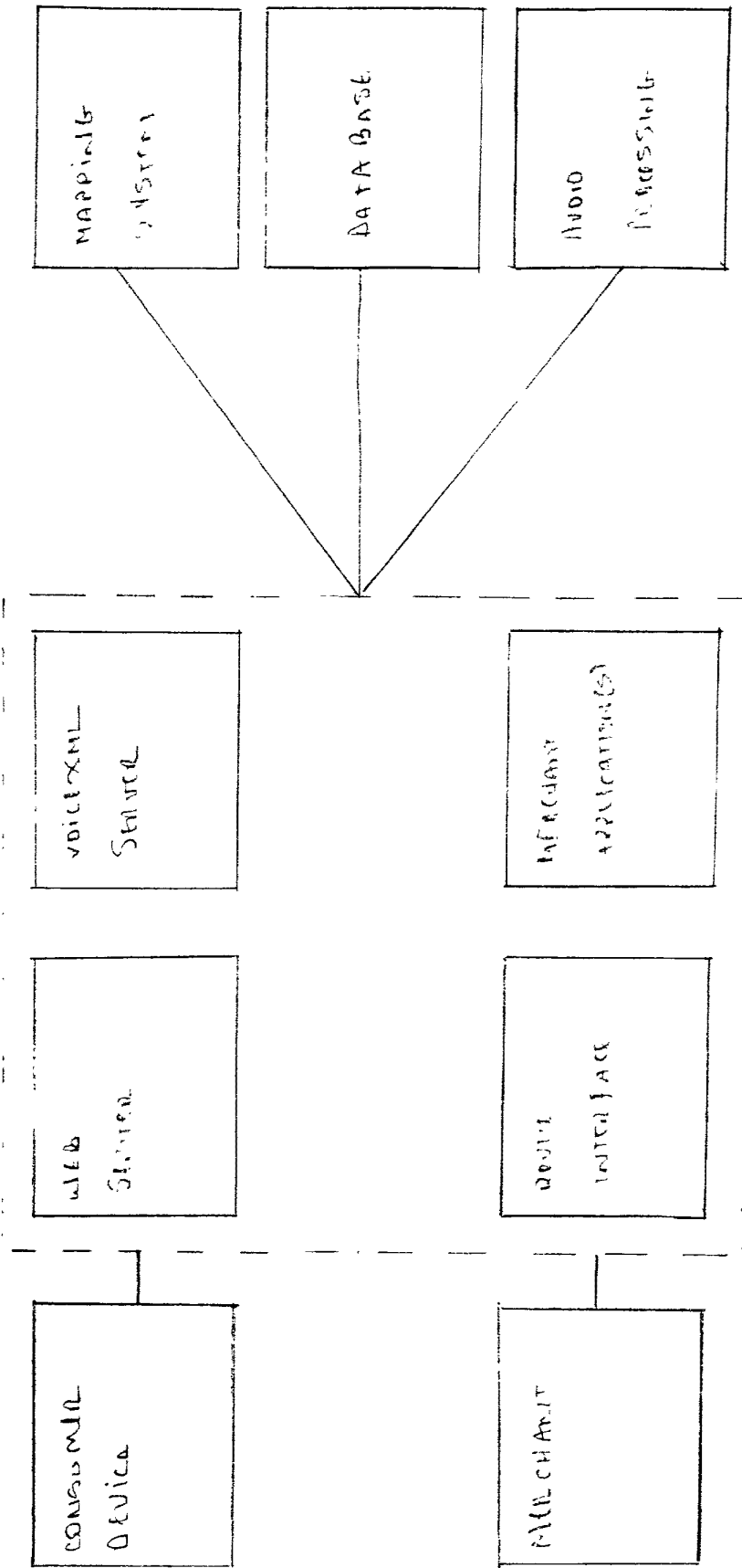


FIGURE 1

Figure 2 Creating a Private Service (NeuJournal)

NeuTrac | Help | Log Out |

neutraco
the business of wireless...

My NeuTrac
Services
Messages
Preferences
YOU ARE VIEWING

Show all services

Business
Coupon
Merchants
City Regional
People
Entertainment
Lifestyle
News
Sports
Travel
Weather
Games
System
Journal

Private Service

HOME > Business > Private Service Creation

Private Service Creation

Service Category
Business
Service Name
starbucks2
Marketing Group

Select a list of buddies to grant read/write access to your service

SpecialGroup-FriendsPool
Work Buddies

Select a default Hot Key for rapid access to your service. Users can override this value in their own preference settings.

0

Service Description
International Marketing Team

Create Service

☐ New Service
☒ Subscribed
☐ Not Subscribed
☒ Private Service
☐ Pay Service

seattletimes.com

Done
Internet

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Buddy Lists

Lists of favorite friends, associates etc. are maintain and significant business logic is applied to access control, types, tracking, and many other system behaviors.

Buddy lists are used to define collaboration groups for user created NeuJournals.

Figure 3 Buddy Lists Main Setup Page.

neuTrac the business of wireless...

My NeuTrac Services Messages Preferences YOU ARE VIEWING

Buddy Lists

Friends

Buddy lists are the way of organizing your interactions. You build a "Buddy List" and then add the selected list in your current Buddy list or Selected the "New List" button to create a new list.

My Buddy Lists

Buddy Lists Friends in Lists

New List

Guyen
Amy
Kevin
Jay
Elena

By Association: Associates

Edit/Create List

Edit Buddy list New List

Create a new list

Delete List

Delete Selected list Delete List

Manage List

Manage your current list Pool List

When you are done editing your page hit the "Done" button to return you to the preferences page.

Done

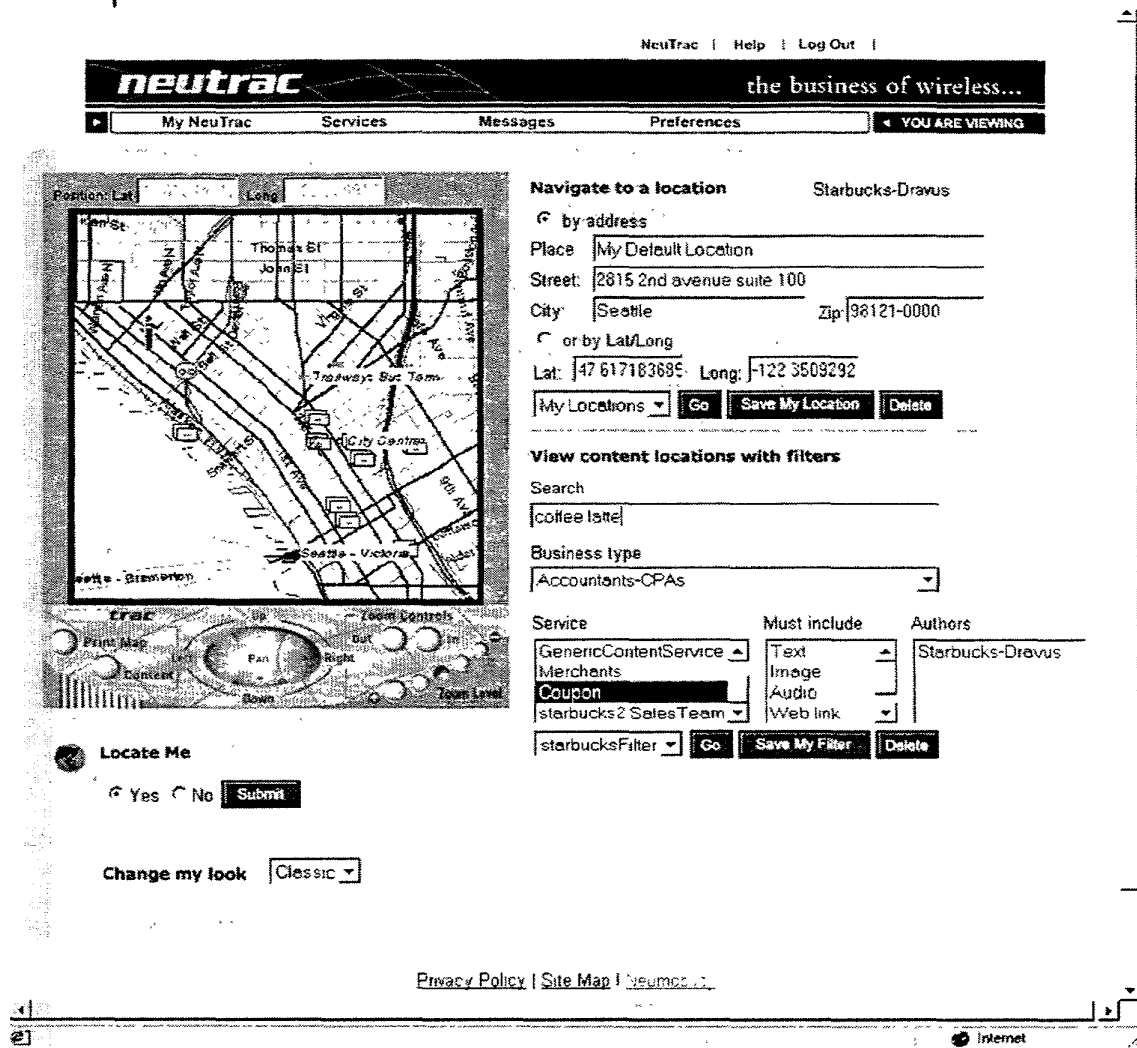
Copyright 2001 NeuTrac. All rights reserved.

4) Supporting or Relevant Aspects

My Neutrac - Visualization/Search/Location/Filter Interface

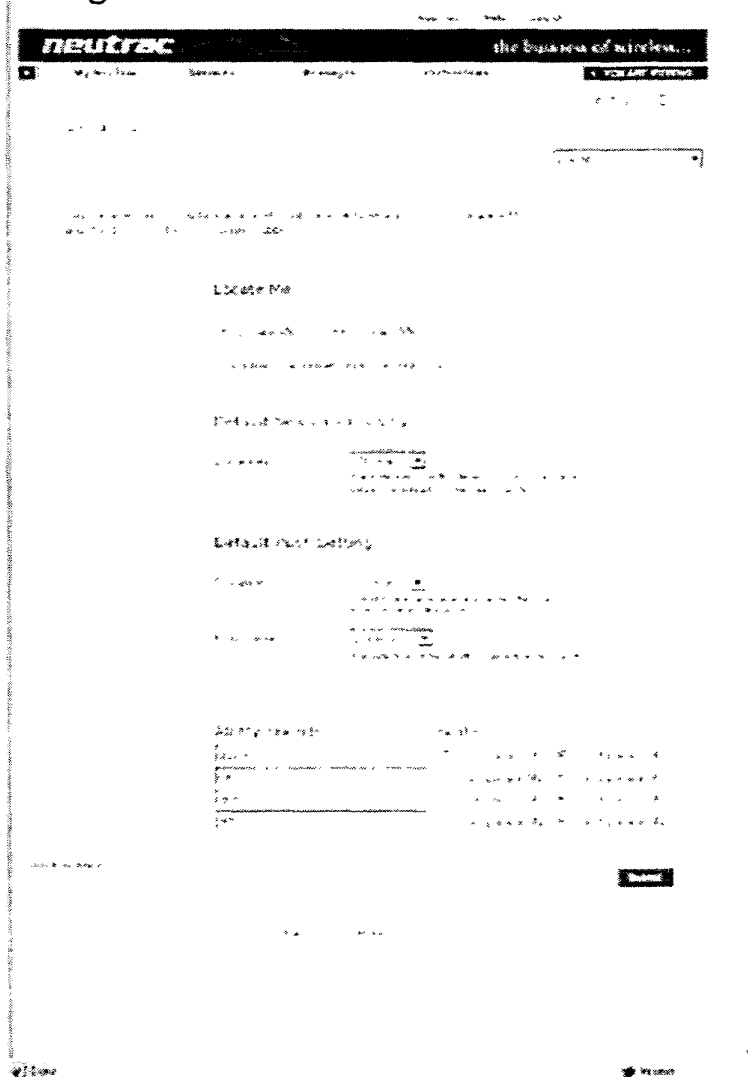
The following figure illustrates a web based user interface for interacting with various applications/services and content. Note that this also preps many things up to enrich the wireless/device experience. It provides for example an easy to use location bookmarking functional and filter creation tool.

Figure 4 My Neutrac Page



Locating and Location Behavior

Figure 5 Locating Web Page Capture



As illustrated above, notice the master locate me "kill switch" that totally disables for privacy purpose any automatic location of the user.

Note web interface to set up default search and push radius and the explicit control of exactly who in the system can "locate" you or not locate you. These preferences and most all preferences on the web are also carried over to the respective device interfaces such as WML/WAP, voice, etc...

Figure 6 Device Preferences

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Choosing these services

Users (or merchants) subscribe to applications (the term "services" is synonymous with "application"), and easily gain access to configuration, setup, and control of these through the service chooser interface.

Figure 7 Service Chooser/Preferences Interface

