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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
60/971,175	09/10/2007		100	0861004PR		

CONFIRMATION NO. 2031

FILING RECEIPT

30743
WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA20190

Date Mailed: 09/21/2007

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Theodore S. Rappaport, Austin, TX;

Power of Attorney:
Michael Whitham--32635

If Required, Foreign Filing License Granted: 09/20/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US60/971,175**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Public Clearinghouse System, Method, and Process for Locating Antennas and Equipment for Carriers and End Users

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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Doc Code:

PROVISIONAL APPLICATION FOR PATENT COVER SHEET - Page 1 of 2

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

Express Mail Label No. _____

INVENTOR(S)

Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Theodore S.	**Rappaport**	**Austin, Texas**

☐ *Additional inventors are being named on* _____ *separately numbered sheets attached hereto*

TITLE OF THE INVENTION (500 characters max)

PUBLIC CLEARINGHOUSE SYSTEM, METHOD, AND PROCESS FOR LOCATING ANTENNAS AND EQUIPMENT FOR CARRIERS AND END USERS

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

☒ The address corresponding to Customer **30743**

OR

☐ Firm or					
Address					
City		State		ZIP	
Country		Telephone		Emai	

ENCLOSED APPLICATION PARTS *(check all that apply)*

☒ Application Data Sheet. See 37 CFR 1.76

☒ Specification *Number of Pages* **22**

☒ Drawing(s) *Number of Sheets* **6**

Total # of sheets **6** = Application Size Fee **$0.00**

☐ CD(s), Number of CDs _____

☐ Other (specify) _____

Fees Due: Filing Fee of $200 ($100 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR

METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ Applicant claims small entity status. See 37 CFR 1.27.

☐ A check or money order is enclosed to cover the filing fee and application size fee (if applicable).

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge the filing fee and application size fee (if applicable) or credit any overpayment to Account Number: **50-2041**. A duplicative copy of this form is enclosed for fee processing.

$100.00

TOTAL FEE AMOUNT ($)

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PROVISIONAL APPLICATION COVER SHEET

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

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

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SIGNATURE		Date	**September 10, 2007**
TYPED or PRINTED NAME	**Michael E. Whitham**	REGISTRATION NO. *(if appropriate)*	**32,635**
TELEPHONE	**703-787-9400**	Docket Number:	**0861004PR**

Public clearinghouse system, method, and process for locating antennas and equipment for carriers and end users

Abstract:

A computerized technique for telecommunications carriers to find, evaluate and select locations for equipment through direct access to end users, while providing citizens the opportunity to offer the use of their dwelling to carriers. Invention further provides a computerized mechanism for creating an inventory and a market for available properties and facilitates negotiations and agreements between end users and carriers. The clearinghouse capabilities may be replicated and transported, reformatted, re-branded, or franchised for specific customer groups, industry segments, or localized populations.

Present state of the art:

Many companies own or lease towers, and have expertise in the positioning (sighting), leasing, designing and/or building towers and other equipment that are used in telecommunications. American Tower, Crown Castle, InnerWireless and America Connect, are examples of companies that own, lease, use, or construct towers or distributed antenna systems in and around towers or buildings to enable wireless communications services to be distributed by various users, either their own company or their customers, such as AT&T Wireless, Vodaphone, Sprint, or public or private radio system operators. These companies have proprietary techniques and their own staff, which is generally quite large and includes lawyers, engineers, sales people, and accountants, to implement business models that allow them to conduct some or all of the following businesses: charge rent for towers and or antenna systems, charge for tower/antenna maintenance or tower location services, provide engineering or physical plant maintenance for towers, or antennas, and other associated equipment, install equipment, provide wireless service for telecom carriers, argue zoning ordinances and request variances for tower or equipment installations, and other related products and services pertaining to towers, antennas, and wireless infrastructure in general, in order to maintain and grow a business.

The aforementioned companies often use maps and population projections, along with topographical or geographical features, and radio frequency (RF) software simulators, in order to determine where to place towers or antennas for effective coverage of a service region, how high the tower should be, where a distributed antenna system (DAS) should be placed, what types of antennas are best suited for a particular need, and other technical, esthetic, physical, or economic details regarding how towers and or antennas will effectively support radio communications through its coverage regions and through its building database and tower database. An example of maps, databases, engineering services, and other prior art works, including many by the inventor, are given below. These firms also generally use lawyers to review and assess zoning ordinances involved with the erection of towers or equipment.

See published reports of these public companies, such as American Tower, Spectrasite, which later merged with American Tower (AMT), Crown Castle International, from 2004-2007. See also press releases and webpages regarding America Connect, and the sale and acquisition of Galaxy Engineering by American Tower, and InCode selling to Verasign, the growth of InnerWireless, and some patents created by the present inventor when he was the principal officer of Wireless Valley Communications, Inc. (Wireless Valley Communications, Inc. was sold to Motorola in 2005). See specifically US patents 6,317,599; 6,442,507; 6,493,679; 6,499,006; 6,625,454; 6,721,769; 6,850,946; 6,876,951; 6,971,063; 6,973,622; 7,019,753; 7,035,642; 7,055,107; 7,085,697; 7,096,160; 7,096,173; 7,155,228; 7,164,883; 7,171,208; 7,243,054; and 7,246,045. The aforementioned companies, their products, and the patents deal with very technical issues, and focus strictly on specific technical solutions or business solutions that must be engineered for specific applications in the telecommunications business. These solutions are not in any way aimed at, or directly useable by, ordinary customers or ordinary landowners, homeowners, farmers, church parishioners, public service organizations, local governments, or building tenants who are generally not at all familiar with the technical details of telecommunications engineering, radio frequency planning, zoning restrictions, neighborhood covenants, or network management and operations.

Clearly, utility companies, such as power utility and television cable companies, also have a need for accessing, designing, acquiring, or leasing towers, and using towers, light poles, rooftops, and other structures for supporting and routing wiring in the provisioning of their services. These carriers also have a need of being able to access the location of towers and other equipment, such as utility boxes and cabling, for maintenance purposes, and need to be able to access the physical locations of their equipment and cabling runs, for the purpose of installing or modifying, or upgrading equipment associated with its distribution of services.

Tower companies may lease or sell access to their towers, often with complicated lease arrangements, and at times may also sell their towers in undesirable or less useful locations. Typically, these less desirable sites are sold on an individual ad-hoc basis, requiring a written cash offer. Sometimes, technical hobbyists, such as amateur (Ham) radio operators, may be able to purchase such tower sites for hobby use (**See end of this document - Google: Tower sites; ham tower sites),** for $20,000, a large sum of money, comparatively speaking, in the amateur radio hobby and for most hobbyists in general.

Ebay has pioneered the field of auctioning of goods between people directly over the internet, and the Ebay website allows people to auction off items through the internet without having to deal with a large staff or complicated legal agreements. Meanwhile, Web 2.0 companies, such as MySpace, Itaggit, eHarmony, and Facebook allow people with similar interests to meet on line, and allow the exchange of information between people, often resulting in bartering or sharing of knowledge or information. Google has become one of the most trusted sources of information on the web, because of its powerful searching capability to find postings on many topics. The public is able to access items quickly, efficiently, and at no cost to them.

All of these previously mentioned websites allow people to easily and directly interact, without a lot of overhead or hassle. However, up to this point in time, complicated technical transactions, such as the specification or leasing of towers, or the specification of location or suitability of towers for telecommunications companies, does not occur on today's websites, due to many reasons, including: 1) the tower industry and telecom equipment industry is a specialized industry requiring technical knowledge in the areas of mechanical design, electrical design, tower ordinances and zoning laws, and also antenna design and radio propagation; 2) the use of commercial communications towers today are relegated to wireless carriers, such as cellphone companies, wireless internet service providers, public and private radio carriers, and other businesses or enterprises that work in a business-to-business manner to build out its networks, and these business have heretofore only engaged in business with ordinary citizens when signing them up as end users, and billing them, typically on a monthly or pay-as-you go basis; and 3) the telecommunications industry, because of its cost structure and technical complexity, among other things, has not heretofore relied upon individual citizens or end user customers to actively assist or participate in the delivery or provisioning of its services.

Today, customers of internet or telephone service are generally viewed by the carrier as passive subscribers, paying a monthly bill to the telecom provider but not actively participating in the engineering or business improvement of the telecom provider's service. Today, telecommunication customers generally have no ability to readily participate in the improvement of services or the quality of their provider, or to actively play a useful role in the distribution of the telecom company's capabilities, except through the action of calling customer service to complain about their personal service experience. Today's telecom customer is virtually powerless to readily participate in the improvement of delivery of service of a commercial telecommunication company's product, and is thus shut out from benefiting, financially, from any such improvement that that individual customer might otherwise be able to offer. While there may be special cases, where "someone knows someone at the telephone company who has a problem", by and large, telecom companies have no way to readily scale or access the interests of individual customers who have a willingness and interest to help improve their own telecom experience, while also helping the carrier.

Other industries which involve carrier services also suffer from this problem, not just the telecom industry. The public good is not served as efficiently as it might be if the individual customer were otherwise given the opportunity or forum to express its interest and ability to support the carrier's needs, and where the carrier could exploit such customer interest for the betterment of its business. Were such an opportunity provided, the customers of the carrier could benefit from better service, lower price for service, and could receive benefits from the carrier for being a "helping" or "value added" customer, etc. while the carrier would be able to use the "helping" customer to improve its service or better utilize its resources, better locate its infrastructure, and most likely improve its capital expenditures. In the specific case of a telecom carrier, more effective, reliable and cost effective provisioning and placement of network gear, antennas, bandwidth allocation, over its geographic region, more effective equipment or tower locations, etc.

could result from awareness and access to end users who were in a position to help the carrier.

Currently, companies such as Tropos Netwtorks, and the MotoMesh and Canopy products (by Motorola), and many other companies, as well, are offering wireless telecom gear that can offer communications network connectivity, where network traffic is sent wirelessly through several nodes of a network over a geographic area such as a city. This was explained at the 2006 AWA Conference, Oct 2006, by reference incorporated herein. Many WISPs today are deploying hub and spoke networks using line of sight radios at 900MHz, 2.4 GHz, and 5 GHz in various unlicensed (and sometimes licensed) bands. Many WISPs today struggle with finding suitable towers or rooftop locations, or struggle gaining access to water tower locations, often hindered by zoning ordinances, lack of public understanding, or knowledge of why and how they could easily place their equipment to serve customers. Even though many rural residents would love to have wireless service, it is difficult for many WISPs to deploy broadband networks with limited capital, and the difficulty with dealing with town ordinances, neighborhood covenants, and other restrictions, regulations, or bureaucracy involved for gaining permission to use or erect towers and other infrastructure deployments.

Even in today's implementation of Mesh or WiFi Networks, the deployments of such systems rely on a particular municipality (muni-wifi customer) to have its own tower infrastructure (for example, city lamp poles, or water towers or police towers near city hall, etc.) in order to build the system. Boingo Wireless is aggregating WiFi hotspots around the world, and they are constantly searching for venues where they can install WiFi or partner with existing WiFi network operators in public venues. WiMax networks are in the very early stages of growth, with companies such as Clearwire, Digital Bridge, Nextwave, and Alvarion beginning to deploy networks or provide equipment for broadband wireless " last mile" capabilities for fixed, portable, and mobile customers. The WiFi and WiMax standards, such as IEEE 802.11a/b/g/n, IEEE 802.16a,d,e, IEEE 802.20, 3GPP, 3GPP2, and the ECMA and IEEE 802.15 family of standards are hereby incorporated by reference. Cellular 3G/4G, WiMax, LMDS, RFID and other wireless technologies and interface protocols are certainly likely to become more popular throughout the world as wireless networks proliferate, and are considered to be included by reference here. For example, it is virtually certain that cable companies, satellite companies, web companies such as Google and EBay (through Skype), and even other utilities, such as power companies, shall become involved with telecommunications distribution services. As Moore's Law allows semiconductor technology to become faster and more power efficient at higher frequencies, and as battery power sources become more efficient (including the use of solar cells at fixed stations, and fuel cells or kinetic energy sources on mobiles), telecommunications will be more and more based on wireless techniques, because the traffic bandwidths at the higher frequencies, as related to the carrier frequency, becomes so much larger that today's practice. Such emerging wireless communications technologies and protocols will allow computer to computer connectivity, computer to human connectivity, and human to human connectivity unlike ever before, at higher throughput speeds than today. It is likely that in the future Internet-protocol based wireless connectivity will exist for fixed, portable, and mobile users in

licensed or unlicensed spectrum, for voice, data, text, images, music, and multimedia traffic.

Unfortunately, ordinary citizens are not being used efficiently, if at all, by telecom carriers today for the provisioning of such cellular, mesh, LMDS, RFID,cellular, line of sight, WiFi networks, WiMax networks or other wireless and wired networks, since there presently does not exist any community host – there presently does not exist any "convener" or "trading firm" or "melting pot" where a dialogue that allows individual citizens or businesses of a community to offer the use of their homes, land, building structures, outbuildings, billboards, churches, water towers, towers, trees, light poles, barns to eager telecom service providers. That is, there is no dialogue currently available that allows citizens or businesses (end users) to inform their telecommunication providers of their individual capabilities, and furthermore, there does not exist a forum where such telecom carrier can publicly solicit the help of citizens to aid in the carrier's goal of improving its network capabilities, coverage, capacity, more effective capital expenditures, expansion, or provisioning of services. An important emerging trend is that as frequencies go higher, and as digital signal processing techniques such as MIMO improve, the physical size of antennas will decrease, meaning that the future tower structures and physical size of antennas needed for telecom's wireless communications links will shrink. Thus, towers of the future will not need to be today's large, bulky and ugly cellular or line-of-sight microwave variety, but will be much more lightweight, less obtrusive (e.g. skinnier), and more convenient, less expensive, and readily available for use on rooftops, billboard, church towers, or home TV or ham towers.

In the power industry, over the past decade, power companies have begun to encourage individual customers to become active and involved participants and supporters of the power utility. Many municipalities allow individual customers to "give back" or "sell back" power to their power utility, as a means of incentivizing individual customers to cut back on power consumption or to invest in alternate forms of energy generation (such as wind, solar, or geothermal power generation at their home). The individual customer can actually make money by selling power back to the power utility, and the power utility company is able to serve other customers with the energy not utilized by the engaged "helper" customer who is more energy efficient customer. However, unlike the more complex delivery means in the telecommunications industry, all power companies are such that any power delivered to an individual's home is done through conductive wiring. That is to say, wires are connected to/from the power grid to each customer's home, and a "helping" customer simply must couple its own power generation plant (e.g. a solar or wind energy power source) to the wiring that leads directly to the power company, and this connection is made either by the end user herself or through the assistance of a technician provided by or on behalf of the power company.

The telecommunications industry is very different, technologically speaking, from the power industry, since wireless telecommunications is being used more and more in the telecommunications grid, particularly for the last few miles of connectivity between a telecommunications company and an ordinary rural customer, and routing circuitry and nodes and servers are required more and more in both wired and wireless networks that

are evolving to the Internet Protocol (IP). In fact, wireless communications is being deployed faster than wired DSL or cable to provide broadband (defined as greater than 200 kbps in one direction) connections in homes and businesses in the USA in mid 2007, according to a recent FCC report. This trend is certain to remain in other countries throughout the world, and most particularly in countries such as China, India, and other emerging nations that have a strong need to be connected on the world's telecom grid, e.g. the world wide web. Because of the necessity of towers or antennas, and associated network equipment, to be situated at particularly good radio locations that are specific to each telecom company and their customer's specific locations, and given each carrier's need is specific to their own network's specific design criteria and history of evolution, and because of the radio propagation aspects and geographical impact associated with wireless transmissions, it has been heretofore impossible for telecom companies to engage in direct communication with a large customer base, in order to energize and engage its customer base to help its product and service delivery. In other words, the power company can much more easily tell its customers to buy solar panel systems, and how to hook up a coupling mechanism that lets the customers sell back power, because of the orderly, wired connections that are made in the power grid to every single home. Without exception, power companies have conducting wires, often times buried or carried on utility poles, that enter each end user's home. This makes it easy for power companies to have an orderly adoption of end user savings methods. The customer easily knows where the power line comes into their home.

Today, however, it is extremely difficult, and in fact impossible, for a telecommunications company to tell a wide customer base that it needs a specific tower located at a particular latitude and longitude, that complies with neighborhood covenants, town ordinances, and yet has a tower height that permits RF propagation with a signal strength (say of -70 dBm), and a particular front to back ratio (say of 20 dB) in order to cover a particular neighborhood that is just out of reach of its existing tower. It simply has not been done in the history of the telecommunications industry, and there is clearly an unmet need that could allow both customers and telecom providers to benefit if such a clearinghouse existed. Today, carriers view it as a potential harmful revelation if they admitted where it has service problems, possibly allowing competitors to seize opportunities where the carrier is known to be having poor quality or coverage problems.

It is the complexity of tower height, tower engineering and installation, antenna design and radio propagation fundamentals, and town ordinances and restrictions in neighborhoods, combined with the desired secretive nature of a network operator's coverage and quality issues, that has led precisely to the current state of affairs, where specific companies serve as tower owners or brokers, and where specific, specialized companies provide for the telecom carrier detailed technical or electrical services, such as antenna engineering or propagation design, or access to building structures or towers, at higher costs than what telecom companies would likely pay if they otherwise could deal directly with their end customers in a non-confusing and trusted way. Not only wireless infrastructure is affected, but there are surely instances where a carrier would like to install power conditioning, wired infrastructure, or backup equipment or gear in a particular location, and if the carrier could locate such devices or infrastructure on a

particular customer's premise, it would likely be of great value to the carrier, particularly if the end user was trustworthy, had expressed an interest and willingness to help the carrier, and gained some consideration (e.g. free internet or help with her power bill).

A promising development that points to the eventual "democratization" of the carrier infrastructure world, where all end users have an opportunity to participate and assist in the operations of the carrier, with benefit to the carrier, is the willingness of end user customers to have satellite TV services, such as Echostar or Direct TV, bolted onto their homes or place in their yards. These new satellite services require that a technician come directly to the end user's home, and in a matter of just one to two hours, the technician installs a satellite dish and receiver on the roof, yard, or telephone pole or tree of the end-user's property, often having to drill holes through the exterior of the home, or through a wiring cabinet to bring the cable into the end users home, all the while hammering/bolting hardware to the exterior or roof of the home. Customers are willing to allow equipment to be installed at their premises, as shown by the satellite TV industry, and its very rapid growth in just a few years. While satellite dish antennas serve the individual homeowner, the satellite system is a receive-only system and the equipment installed at the homeowner does not allow the satellite provider to improve the delivery of its content to neighboring houses or neighborhoods. But this early indicator shows how citizens are now willing to have alien telecom equipment installed on their own premises, and to allow a technician to climb around on the roof, yard, and drill holes in the house, if it provides some benefit to them (e.g. gives them the ability to watch satellite TV). Note that satellite antennas being installed today by Echostar and DirecTV are relatively small and unobtrusive.

Today, customers do not have, and never before have had, a way of receiving perks or bartered value, in addition to improved service from carriers, in exchange for giving carriers the right to install and operate the carrier's special equipment on its own property. However, if the carrier was able to communicate and take inventory of each end user's capabilities, the carrier could derive extreme value in its business and technical operations beyond just servicing the end user, in exchange for the end user's willingness to allow the carrier access to its dwelling and property for the carrier's overall benefit.

Today, thousands of small, medium, and large telecom companies, such as wireless cable companies, wireless Internet service providers (WISPs), and mainstream wireless carriers throughout the world such as those companies mentioned above are deploying wireless broadband networks, using an inventory of towers and or building structures where they have access, to deliver last-mile services, but with no ability to enlist or solicit the interests of ordinary citizens or hobbyists who, if they were aware of the opportunity, might jump at the chance to offer assistance to carriers. Today, the telecommunications industry is unable to solicit the help directly from its customer base, or from the citizenry at large, because of the previously mentioned technical difficulties and trust issues involved with tower and equipment site selection, and the sheer lack of ability to communicate the needs and wants and capabilities of the service provider, and the needs and wants and capabilities of the end customer, in an easy, clear, and orderly manner. There has not been, to date, a trusted source that carriers can rely upon to broker

communications directly between end users and the carrier, itself. That is, there has not been, to date, such a "convener" for the telecommunications industry that would allow carriers to tap the interest of its end user customers to aid it in the rapid expansion, or improvement of quality and capabilities of telecommunication services, particular broadband, multimedia, WiFi, WiMax, RFID or sensor based mass- communication networks, and at lower design, operating, and ongoing cost levels.

Summary of Invention

This patent now discloses an invention that will dramatically reduce the costs of antenna, equipment, or tower site acquisition, dramatically improve the ability for carriers to deploy wireless networks from a cost, efficiency, and quality standpoint, and provides previously unavailable, non-obvious, and unknown methods, systems, processes, and business models for carrier networks to be augmented or built from scratch more efficiently through the aid, assistance, and participation of end users. In addition to the opt-in assistance offered by end users, the invention also contemplates the public at large being able to contribute to the knowledge base that may be exploited by both carriers and end users, since the invention contemplates that ordinances, laws, zoning regulations, and graphical data such as plat maps, topographical contours of land, and radio coverage zones be made available through the clearinghouse.

Furthermore, this patent describes a new kind of business that can exploit the inventorying and clearinghouse information provided by end users, carriers, and the public, in a form such that it may be franchised or distributed in a private label or Original Equipment Manufacturing manner, and where the systems and methods described herein may be offered as a trusted service by carriers, non-profits, for-profit companies, and the like, either across specific customer types, or within specific geographic localities.

This invention applies to any telecommunication system, no matter what the distance is between users of the network, whether it is wired or wireless, or what the transmitter-receiver separation distance is of wireless components, or what the technology, modulation, access method, etc. may be. That is, this patent is not limited to wireless, optical, cellular, WiMax, Mesh, WiFi, RFID, LMDS, cable, or satellite, and not limited to fixed, mobile, or portable operation by users , as it is intended to be used in its broadest form, as would be understood by one skilled in the art in deploying, designing, operating, or using such a network that has end users, and where infrastructure is needed and must be located, at physical locations, for carrying out communications, either wired or wireless communications. Thus, this invention may serve the needs of indoor/enterprise networks within public or private buildings, as well as micro or macrocell coverage ranges, as well as county, country, or worldwide networks.

Furthermore, this invention could be extended beyond telecommunications, and may be applied to any carrier-based service, where subscribers pay for an on-going service over a period of several days, months, or years, and where participation of the end users, and

direct interaction between the carrier and the users could improve the efficiency, quality, business operations, or technical operations of the carrier over its serving areas.

This invention offers:

A way for carriers to become aware of its customer's ability to help them provision their network with better quality, less capital expenditures, and more cooperation from its customers.

Automated Voice, touchtone, web, handwritten, or human to human interaction for a carrier or clearinghouse company to determine end user's inventory, interest, needs, etc.

A way for end user customers of telecommunications services to make its telecom carrier, or even their potential competitors to its telecom carrier, aware of his or her ability and/or interest to help carriers with their distribution of telecommunications services through the use of their own premises.

A business method that allows a 3rd party entity (A person or a corporation, say a website company, for example) to offer inventory and polling services to carriers and the carrier's customers (end users), as well as to the public.

A business method that allows a carrier to inform, educate, and solict inputs from its customers regarding its customers interest or ability to help the carrier with expansion, alteration, or improvement of the carrier's network.

A business method that allows a company, such as a publisher, a Web 2.0 company, a carrier, or a trusted web portal, to offer an e-magazine, a printed magazine, a newsletter, and/or an internet blog, where each may include an inventorying service between a carrier and its customer base of end users, such that end users are able to provide the carrier an inventory of their assets that may be used to help the carrier.

A business method that allows a company, such as a publisher, a Web 2.0 company, a carrier, or a trusted web portal, to offer an e-magazine, a printed magazine, a newsletter, or an internet blog, where each may include a bartering system and method between a carrier and its customer base, for the bartering of installation or redeployment of equipment at the end user's dwelling in exchange for compensation of some type from the carrier.

A business method that allows a company, such as a publisher, a Web 2.0 company, a carrier, or a trusted web portal, to offer an e-magazine, a printed magazine, a newsletter, or an internet blog, where each may include a registration system and method between a carrier and its customer base, whereby end user customers may register to express interest and ability to support equipment at their dwelling with one or more carriers.

A business method that allows a company, such as a publisher, a Web 2.0 company, or a trusted web portal, to offer an e-magazine, a printed magazine, a newsletter, an internet blog, where each may include a system and method that allows a carrier to execute an agreement regarding the installation or modification of telecommunications equipment at the dwelling owned or occupied by end users in its customer base.

A business method that permits carriers to connect directly with its end user customers in order to aid the carrier in determining how and where new or existing telecommunications assets may be deployed at its end user customer's land, home, buildings, towers, structures, or property.

A business method that allows a company, such as a publisher, a Web 2.0 company, a carrier, or a trusted web portal, to offer one or more of an inventorying, registration, agreement execution, and bartering service, system, or method to specific types of land owners in order to aggregate the assets available to form a database.

A computerized system that serves at least two types of customers: end users or carriers, with password protection and opt-in capabilities where the end users may chose to have their availability/interest in supporting carrier needs shared among more than one carrier.

A computerized system that provides the entry of customer interests, customer data, and provides access to legal documents such as town ordinances, town zoning rules, neighborhood covenants, and contracts or sample contracts or agreements between telecom carriers and end users for allowing end users to aid the carriers under mutually agreeable terms.

A computerized system that allows end users or carriers or a third party to add legal documents such as town ordinances, town zoning rules, neighborhood covenants, state or local laws, and contracts or sample contracts or agreements between telecom carriers and end users.

A computerized system such as described in the preceding three paragraphs, where a graphical information system (GIS), such as (but not limited to) Google Earth, MapInfo, USGS, may be further included to aid either carriers or end users for determining radio coverage footprints or

A computerized system such as described in the preceding paragraph, where radio propagation prediction algorithms may be run using the GIS and equipment models in order to determine coverage regions, obstacles due to terrain or buildings, and viable locations for towers, antennas, repeaters, nodes, and end user premise equipment.

A computer system that is built upon a database of customer needs, and may also include carrier needs, that allows the rapid sorting and pinpointing of available locations for a carrier to build, lease, or use a Dwelling or existing location for improvement of services.

A computer system that allows end users to learn about telecom laws, ordinances, opportunities, and technical details so that they are more knowledgeable and interested in assisting telecom carriers in the provisioning of telecom networks.

A computerized system that allows end users to rank their happiness or satisfaction with their carrier after entering into a relationship through the "convener", and where carriers may also rank their happiness with their end users, too.

A computer system that includes a database of locations of end users who are willing to assist with the provisioning of telecom services at their premises, combined with RF coverage details that enable the determination of promising locations of towers or structures (either existing or to be built), combined with legal records such as covenants, town ordinances, combined with plat maps or zoning boundaries, so that a telecom carrier or end user can quickly and easily see what is viable for provisioning of telecom services. In fact, one embodiment of the invention allows for the computerized system and method to automatically determine the best locations

A computer system that allows for an educational or newsworthy web publication or paper publication to be created rapidly from content stored on a computer, where such web publication or paper publication may be private labeled or customized specifically for a particular carrier, neighborhood, locality, or group of people or entities/customers.

A Detailed Description of the Invention

The invention will be better understood by considering the following diagrams:

Figure 1 is a block diagram of the clearinghouse computer, including applications that run on the computer system.

Figure 2 illustrates an embodiment of how the database of the clearinghouse system is organized

Figure 3 illustrates an example form that is completed by an end user or carrier user

Figure 4 illustrates a flow diagram of how the clearinghouse determines matches between the end user interests, the carrier's infrastructure requirements, and local ordinances that apply, and how the clearinghouse notifies the carrier. This also can assume an automated process, that may have carrier involvement/intercession if required by the carrier, to notify end users that they may be of assistance to the carrier's needs, and the terms and conditions available to the end user.
Figure 5 is a schematic diagram illustrating interaction of the various parties over a network.
Figure 6 is a block diagram of a clearinghouse computer similar to Figure 1

Before describing the invention, here are some useful definitions that we incorporate throughout this patent.

Dwelling or **Premises**: any property, building, outbuilding, structure, tower, vegetation, or land, or any thing on or in or over or under the property occupied or controlled by the end user for which the end user may allocate rights of use to others. The definition of "dwelling" may also include one or more rooftops, silos, billboards, trees, church steeples, poles, towers, ledges, parts of a building, outbuildings, lookouts, extensions to buildings, or signs.

Carrier: Any company that offers services to an end user on a regular basis over time. The term "carrier" is intended to be given its broadest possible meaning, as it is meant to describe companies that offer to end users services such as telecommunications, connectivity, entertainment (such as movies, cable, multimedia, music, on all possible media and all possible delivery mechanisms), AC power for the home, mail delivery/retrieval, archiving or storage, inventorying, cleaning, yard maintenance, water delivery, laundry service, and the like.

End user: Any person or entity that pays for ongoing service from a carrier. An end user may also include those people or entities which are not yet subscribing to the service offered by a carrier, but who have interest in participating and possibly contributing assets or capabilities to a carrier, either from their own personal interest or edification, or because they hope to gain some benefit or remuneration of some kind at some point. An end user may be a person, but also may be an entity or an enterprise, such as a church, and apartment building complex, a co-op of people, a shopping mall, a car dealership or chain of car dealerships, or a business, either stand-alone or spread out on a campus or throughout the world, for example.

Computer: May be a single computer or a group of computers, which may include associated circuitry and components, such banks of memory (storage), back up gear, displays, human and machine interfaces of various kinds, parallel computers, distributed computers, distributed or single connections to the internet, distributed or single displays or editing/viewing capabilities, one or more web servers, mail servers, and multipurpose servers and routers, or any coupling of computerize components that allow for one or more of: telephonic answering, touch tone interpretation, voice recognition, handwriting recognition, facial or fingerprint recognition, stylus recognition or typed data entry (either directly from a keyboard, via telephone or internet connection, from a phone, over wired or wireless or optical connection), text recognition, file transfers, data transfers, file caching, file storage or entry or manipulation, running of software, hosting of applications, running of applications made up of computer programs from one or many sources, where components and software are coupled or combined as known to one skilled in the art. The term "Computer" is to be construed in its broadest interpretation, as the invention may clearly be practiced at a single location, distributed across a country, a city, or used worldwide with a network of computers and backup storage located throughout different continents, as it is contemplated to host at least one website, and to enable connections of the website with and between end users and carriers.

Many techniques are known in the art for computers to be able to interact with and assimilate data from people. Consider some examples of telephonic and touch tone phone

inputs that are provided by humans and are processed by a computer. as taught by the patents of Ronald L. Katz which are hereby incorporated by reference. Furthermore, voice recognition systems, and voice over IP (VoIP) calls to a computer are well understood today, and it is further recognized that end users of telecom services, and people throughout the world in general, may access a computer in many different ways using the worldwide web. For example, web interfaces are used in programs for personal computers, and personal computers may be connected via any form of internet connection to a computer that hosts a website. Websites may also be accessed by cellphones, PDAs, tablet computers, such as those made by Motion Computing with handwriting and fingerprint recognition, and many other devices.

Companies such as the tower holding companies (such as Crown Castle, American Tower, etc.) have proprietary techniques and in-house experts regarding dealmaking terms, leases on towers, and RF engineering for tower citing and placement, and these companies do not allow consumers or the public to volunteer to help carriers with their own personal assets on premises, nor do they provide a clearinghouse function that goes direct to consumers or which can be made available to the public or either/both end users and carriers. Furthermore, these companies do not allow their knowledge to be shared or repackaged, rebranded, or put in OEM format to target particular end user market segments or specific geographic locations. The aforementioned patents, companies, processes and procedures do not contemplate or make obvious in any way the invention disclosed herein.

Mobiledea and its extension, CellReception.com, were started by Allen Tasi. These are firms or websites that use the FCC database of tower locations, and plot the approximate coverage for customers to see using Google Maps. These websites also allow customers to share comments on cellphone reception. Consumer-based websites and companies such as Mobiledia.com and CellReception.com provide revenues for the website owner by allowing for advertising by companies such as Radio Shack and various cellphone vendors, and the sites provide for public comments regarding cell reception, individual cellphones, cellular and wireless issues, but they do not serve in a clearinghouse capacity as contemplated by this invention. Clearly the aforementioned websites do not allow customers or the public to offer their own assets for the deployment of telecom services, nor do they shed light on antenna regulations, zoning ordinances, RF planning (suitable for specifying new or inventoried tower sites), or neighborhood restrictions. Theses type of websites furthermore offer no forum to exchange or add public domain documents pertaining to town ordinances or covenants for neighborhoods in specific zip codes, which would be of great value to end users, the public, and carriers wishing to serve that particular area. Zip codes are a popular sorting technique for parcel delivery services that are scheduling using the world wide web for companies such as FedEx, DHL, and UPS. These websites also do not allow a carrier to discretely determine which of its customers, or potential customers, might have some land, tower site, rooftop, or building that he would be willing to allow the carrier to use for buildout of its network.

Using Google Maps or a GIS package, such as the USGS, or commercial programs such as those made by EDX Engineering, Wireless Valley Communications (now owned by

Motorola), Comsearch, Celplan, etc., are well known in the art. In schools across the world, students are learning how to interact with Google Maps and other GIS applications, even when they have no or little regard for wireless theory, telecom regulations, the needs of the telecom industry, or RF propagation. For example, at the Massachusetts Institute of Technology (MIT) in Spring 2007, a computer science course on pervasive human-centric and mobile computing (MIT 6.883 taught by Larry Rudolph) had students using Google Maps to create circular contours of hypothetical tower locations, without regard for tower zoning ordinances or RF coverage or equipment installation guidelines, and with no contemplation of the invention disclosed herein. The user's manuals for these products, and the course notes and links to information which are posted on the worldwide web for the Spring 2007 Class of 6.883 at MIT are hereby incorporated by reference. It should be evident that none of these contemplate or make obvious the invention disclosed herein.

See:
http://people.csail.mit.edu/rudolph/Teaching/home883.html

http://people.csail.mit.edu/rudolph/Teaching/ps1.pdf

Websites which allow for posted materials, updated materials, and graphical and text interactions, even podcasts or videos, are well known in the art, as demonstrated by Google, Inc.'s wide range of web portals, as well as those by eBay, YouTube, Yahoo, and the like. All of these websites and product companies described above use a "computer" as contemplated here. Furthermore, automatic document generators are also well known and are in regular use today, where content can be bundled and packaged into web form, electronic media form, or print form, to have a homogenous look and feel, based on content that is stored in file formats such as files in .XML, .HTML, .BMP, .TIG, .GIF, .PDF and other formats known now or in the future, and through use of JavaScript programming language, and rcross-platform techniques such as AJAX (Asynchronous Java Script and XML), which allows web applications to seem much more responsive by not interfering with normal web page loading.

To launch a commercial website, many companies provide tools and capabilities that make it viable. For example, InetU or Rackspace provide Managed Web Hosting, where they provide a computerized system that a customer (the website company) can use and access through a log in to edit, remove, add, or reorganize content in the form of webpages, downloads, documents, and a wide range of other viewable or useable multimedia forms that may be accessed by the public, or by password protected classes of users who may or may not pay a subscription for access to the website. Also, the website company may chose to simply do hosted services. In order to generate revenue, PayPal offers software and servicers that enables a hosted site to exploit the PayPal developer network to create webpage(s) that allows a website company to securely collect monies from the browsing public, accepting all major credit cards and PayPal currency through web transactions. To maintain databases that contain important information, a website company will use SQL or SQLServer, or Postgress as a backend database system to store

myriads of data records, for rapid access by the applications running on the computer, and other known document management techniques are used for archiving and retrieving documents, and for accessing applications over the web such as Google Earth, USGS, or county or local city/county plat maps, ordinances, or board meeting notes that are often available on line.

Figure 1. Clearinghouse System

Figure 1 shows the Clearinghouse system. On the left portion of the figure, we show the various types of users of the system. Note that Carriers, End user customers, and public users each may have access to the clearinghouse via a wide range of interfaces, including web, phone (using cellphone or wired phone or VoIP phone), email, or through automated voice recognition or digital recorders (that may recognize speech, handwriting, fingerprinting, etc). The owner or operator or proprietor (and any employees or subcontractors) of the clearinghouse may also access the clearinghouse by these interfaces, as well, and may have one or more additional proprietary interfaces to the system (not shown).

The carriers and end user customers may or may not be regular subscribers to the clearinghouse. A preferred embodiment is for the clearinghouse to have revenue-generating subscribers, where the carriers and end user customers sign up for access, preferably using credit card (although written check or wire transfer or debit card may also be accepted by the clearinghouse) for monthly or annual billing. The sign up and password management**, and credit card billing is handled by the credit card sign up application (shown on right portion of figure). By signing up as a subscriber, for example over a year period, carriers have continual access to the clearinghouse during that time, and some of the features that they would enjoy are: automatically notified when new end-users offer dwellings for use, either by email or by on-screen notification when they log on or through a messaging feature. Furthermore, the selection/optimizer application will run periodically (on an hourly/daily/weekly basis) based on inputs by the carrier that are stored in the clearinghouse. The clearinghouse will automatically check the carriers' needs with the end-user offers (which are stored and processed using the End User record application and the sorting and parsing application) .**

Alternatively, depending on the business model, the clearinghouse may be implemented without a subscriber model, where carriers and end users access the clearinghouse for no charge. In either case, the carriers or end users may simply be given unique ID's or clearinghouse names (their unique ID may be their email address, or a customer–specified log in name), and in any case, these customers are provided passwords (that may either be specified by them, or issued by the clearinghouse) that allows the end users and carrier customers to the clearinghouse. The various access permissions allowed to each class of user of the clearinghouse is managed by the "access to web" manager application.

The clearinghouse allows its users to connect over the myriad of connections, such as phone, internet, email, etc. The clearinghouse is connected via the internet to allow dissemination of its content over the worldwide web, so that the public can gain access and view/use the information contained in the clearinghouse. The content of the clearinghouse is stored in a wide range of forms, such as databases that may be within the computer, databases that are located outside of the computer, in applications that may be run or managed by third parties.

Some of the information may be modified or viewed by different users. For example, carriers may view the records of all end users to help the carrier see what opportunities exist for it to locate its equipment, and the carriers could also use the clearinghouse to indicate its own desires, needs, interests, and problem areas where they have need to find locations for equipment. Other carriers, end-users, or the public users would not be privy to the carrier's specific desires or needs, but the carrier would be able to use these recordsCarneebreuipqes. End-users may use the clearinghouse to enter their data, expressing their interest (an offer) in having their dwelling used by carriers. Other end-users would not generally be allowed to see the offers of a particular end-user, but carriers would be allowed to see it. The storing, parsing, controlling, and organization of end-user records is one of the applications used by the clearinghouse (shown on right of diagram). The construction and creation of software applications to do this are well understood , and this could be internally developed by the clearinghouse staff, or developed using run using well known third party programs.

All users, including public users could use the clearinghouse to view various zoning/covenants affecting their own neighborhoods. Users can submit records, documents, plat maps, zoning ordinances, or provide web links thereto, by accessing the Clearinghous and using one of the applications dedicated for such locationing and mounting or linking of records in the clearninghouse. Thereby, all users of the clearninghouse can readily access, in an easy manner, key documents, zoning records, or other public ordinances surrounding telecom regulations in their specific location, neighborhood, country, or city, etc. Such records can be mounted in the Clearinghouse and sorted using either Zipcode, city, county, township, state, country name, whereby applications allow the documents to be retrieved and stored in a manner that makes them easily retrievable and accessible by users of the Clearinghouse. Note that some documents may be uploaded to the Clearinghouse by PDF or other well known document formats, or may simply be pointed to using URL addresses or other techniques known now or in the future. Services such as Google or eebcrawlers may also be used to provide the clearinghouse information, and in many instances a particular map or document might need to be categorized under a state or national as well as local category. The Clearinghouse computer could maintain its own storage facility, or rely on the web-based storage of other websites (although this latter approach may mean some data disappears or becomes incorrectly pointed to over time).

Carriers, end users and public users may access the clearinghouse with phone banks, web servers, telephone operators (either its own phone operators, or through a leased or rented

call center, or using a 3rd party provider for telephone answering services), automatic speech recognition devices (not shown), voice mail, or digital recorders to and email servers. Note that some or all of these may be used in an actual embodiment, and it is understood that other embodiments other than the one shown might be used, based on the cost to provide a more . It should be clear that not all applications would need to be installed or used at once, and one skilled in the art can envision different applications, or different approaches to organizing content, while keeping in the spirit and intent of the invention.

Given the aggregation capabilities of the Clearinghouse, advertisers, attempting to focus on various customer segments, can provide advertising to the various users of the Clearinghouse, either through email, the website display, through voice mail and video/multimedia services when users access the Clearinghouse, and through regular mail, based on the address records contained in the end user records and carrier records applications. Web advertising is an emerging business, and the clearinghouse would serve as a highly targeted and useful medium for advertising over many domains, given the new capability afforded by the present invention.

The Clearinghouse also supports forums and exchanges, where end users may communicate with one another, where caarriers and end users may communicate with each other, and where carriers may meet and communicate with each other. This may be provided using chat facilities, instant messaging, VoIP, or web posting, as well as other forms of peer-to-peer and peer-to-group hosting applications. The archives in this portion of the clearinghouse will help others in gaining knowledge and understanding of the clearinghouse and the needs of the telecommunication industry, carriers, and end users in general, thereby providing valuable insights for a growing customer base.

In addition to the forums, the clearinghouse serves as an educator, a trusted resource that provides content, links to important telecom rulings and happenings, and provides open content for the world to access. This education/content capability allows the Clearinghouse to also publish, either in print, email, or web, or podcast, or broadcast form, newsletters, information pieces, and promotional pieces that may advance the needs of particular carriers or segments of the telecom industry.

An important part of this invention is that the access to carriers and end-users allows the clearinghouse to be private labeled or OEMed by particular carriers, or by particular entities, such as the American Radio Relay League or JARL, which has many constituents who own towers or have interest in advancing telecom in general. By creating a private labeled web presence or print presence, the knowledge and content of the clearinghouse can be dispensed to particular groups of customers or end users, for the benefit of the industry or for the benefit of a particular carrier or industry segment. Thus, the knowledge contained by the clearinghouse may be sliced and diced, distributed in many ways in parallel. This perpetuates the growth of subscribers or users of the Clearinghouse, while serving an unmet need which would benefit many carriers or organizations, particualrly small and medium WISPs and other smaller telecom

companies that do not have the resources to promote their own technology or their own presence as effectively or efficiently as the present invention allows.

In addition to the abilities mentioned above, the computer provides the Clearinhouse with the ability to allow a carrier to exploit the end-user information in order to identify locations or dwellings where end users will allow it to install equipment or towers, etc. \NOTE: Someone has to program in the links to the county/city, this is a step in process, or we can use a CRAWLER application to get it readily, or we can allow the PUBLIC to install the link (and have the community validate its good – generally people in the same neighborhood will be interested in seeing if it's the right plat map, the right link, etc). We could have people rate the quality of the postings (one to 5 stars) and let everyone who uses the site have a screen name so they can be credited with finding and posting info/data, and get ranked by the community. We will need our own internal quality check, as well, and may need to staff for this service of populating the website with this content.

NOTE: We let carriers to have a look at all end user offerings without giving away what the carrier wants or needs. Carriers should put up their standard term agreements and have the ability to use the Clearinghouse to see readily if there will be local ordinance hassles, neighborhood hassles, limitations due to covenents . Letting the end users and the public post this information, on a zip code or neighborhood by neighborhood, county by county, township by township, sq mile by sq mile basis, is best, as these maps for the boundaries exist.

NOTE: Amateur Radio Relay League, (ARRL); Japan Amateur Radio League (JARL), Radio Society of Great Britain (RSGB) would have interest in possibly hosting or rebranding the clearinghouse to its own purposes, and would have interest in offering this clearinghouse service as revenue generating opportunity for its own society and as a service to its ham radio operator members, who often have towers and have already taken care of the zoning issues in their own neighborhoods. Amateur radio towers are often exempt from tower restrictions due to the common good and emergency preparedness that amateur (or "ham") operators provide to society. The lower profile of today's wireless telecom equipment, such as WiFi, WiMax, and much of the emerging broadband wireless infrastructure, does not require bulky cell towers, and can readily be installed on most ham radio towers today. The invention will allow carriers to immediately find these hams, so that the carriers may approach this community for potential tower sites. This helps quicken the deployment of wireless without the need to erect new towers or to go through extensive zoning hearings. Increasing the time to build out coverage or capacity is very valuable to a carrier, and thus the carrier would likely pay to have access to the clearinghouse.

Forms, on web or submitted by voice, email/ touch tone, data entry/handrwriting, etc.

Does user have:
Tower/

Places on roof/house/building for antenna mounting/equip mounting
Does end user have to be on site when telecom company comes?
Does end u ser have ;power available
Does end user want maintenance of tower/building?
Will user want cash rebate or free service?
Does owner own the land or rent

Is user aware of any zoning or limitations, neighborhood covenants that would prevent stuff going up, if so wher?

Tie tower or home ownershio; into database with fCC, with Town/country records of public land, with google maps

Provide feedback on web, voice/email regafding perks and benefits to end user given their responses, they may then edit before submitting again.

If good, provide an agreement, on line via email or via fax or by phone recofding, with human/computer katz method

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Google TOWER SITES

to **Tower Sites** Inc.
Welcome to **Tower Sites** Inc.! Antenna **Sites** for Communications. If your company needs antenna space, **Tower Sites** Inc. has many prime locations to fit your ...
www.**tower**site.com/ - 13k - Cached – Similar pages

Welcome to Fybush.com
WLW's Blaw-Knox **Tower**, Mason OH. Your source for broadcasting news and **tower** information in the northeastern U.S. and eastern Canada. Industry News ...
www.fybush.com/ - 6k - Cached - Similar pages

American **Tower** Home
American **Tower** Mexico strikes additional acquisition and build-to-suit agreements in Mexico for up to 1000 additional **tower sites**, strengthening our ...
www.american**tower**.com/atcweb/AboutUs/CompanyHistory.htm - 46k - Cached - Similar pages

Ten Unusual Cell **Tower Sites**
Thanks to local ordinances, a new game for long road trips could be "find the cell **tower**." See if you can pick these out.
images.businessweek.com/ss/06/08/**tower**/index_01.htm?campaign_id=rss_tech - 2k - Cached - Similar pages

Tower Maps - Wireless Co-location **Tower**, Rooftop and Billboard ...
A source for wireless antenna facility location data. **Tower**, rooftop and billboard **sites** for collocation lease throughout North America.
www.**tower**maps.com/ - 15k - Cached - Similar pages

Cell Phone Carriers - Cell Phone Service and **Tower** Search
Search for cell phone service, **tower** locations, and coverage nationwide.
www.cellreception.com/ - 27k - Cached - Similar pages

Tower sites
Here's a site some of the **tower** hunters might find interesting. The site of the week this week is something else: ...

forums.wirelessadvisor.com/cell-**tower**-hunting-club/13390-**tower-sites**.html - 29k - Cached - Similar pages

Digg - Slide Show: Ten Unusual Cell **Tower Sites**

Slide Show: Ten Unusual Cell **Tower Sites**. Thanks to local ordinances, a new game for long road trips could be "find the cell **tower**. ...

digg.com/tech_news/Slide_Show_Ten_Unusual_Cell_**Tower_Sites** - 46k - Cached - Similar pages

Tower of English ESL **Sites**

Links to specific efl/esl **sites** and other **sites** of interest for students and teachers of English. Student writings and projects. Homework assignment. ...

towerofenglish.com/esl**sites**.html - 29k - Cached - Similar pages

Links to **Tower** Clock **Sites** Worldwide

It's just an exercise in assembling **sites** from all over that feature **tower** clocks. If any links are broken, or if you know of one I've missed, let me know, ...

members.aol.com/donnl/tclinks.html - 3k - Cached - Similar pages

-Oriented Web **Sites**

Radio controlled model aviation oriented web **sites** index compiled by **Tower** Hobbies.

www.**tower**hobbies.com/rcwair.html - 40k - Cached - Similar pages

Tower bell **sites** in Central and South America

Tower bell **sites** in this area can be categorized according to the type of instrument. Each of the pages linked here presents a variety of indexes for one ...

www.gcna.org/data/CSA_area_ixs.html - 3k - Cached - Similar pages

More about carillons and other **tower** bells

This is the introduction to (or top page of) a very large collection of pages

www.gcna.org/data/Data_Top.html - 15k - Cached - Similar pages

[More results from www.gcna.org]

SSE Sells 220 Mobile **Tower Sites**

SSE Sells 220 Mobile **Tower Sites**. By Meenakshi Shanks. TMCnet Contributing Editor. One of the prime energy companies in UK, Scottish and Southern Energy ...

news.tmcnet.com/news/2007/08/09/2851352.htm - 127k - Cached - Similar pages

Digital Media Asia: News - SSE sells over 220 mobile **tower sites**

The transaction involves over 220 **tower sites** which mobile phone operators, the emergency services and local authorities use to provide mobile ...

www.digitalmediaasia.com/default.asp?ArticleID=26025 - 48k - Cached - Similar pages

SSE sells over 220 mobile **tower sites** to | SEO, Tech and Social ...

SSE sells over 220 mobile **tower sites** to the Wireless Infrastructure Company.

www.colesearchreports.com/2007/08/08/sse-sells-over-220-mobile-**tower-sites**-to/ - 14k - Cached - Similar pages

Copper Theft Deterrants - TESSCO.com

It serves as a key component to deter and document the unrelenting copper and raw material theft taking place at cell **tower sites** across the country. ...

www.tessco.com/yts/industry/products/infra/infrastructure/sitehardware/copper_theft.html - 15k - Cached - Similar pages

Communication Specialists Company of Wilmington, LLC ...

Jacksonville **Tower Sites**, Print · E-mail. Jacksonville **Tower Sites** JACKSONVILLE (Pony Farm Road Area) approx. 4 miles west of center of city ...

www.comspeco.com/cms/index.php?option=com_content&task=view&id=26&Itemid=56 - 17k - Cached - Similar pages

Communication Specialists Company of Wilmington, LLC - Wilmington ...

you are here: Home arrow **TOWER** RENTAL arrow Wilmington **Tower Sites** ... Coordinates (**Tower** 1): 34-12-35 N 77-56-53 W (NAD-27) AGL: 435' AMSL: 445' AAT: 434' ...

www.comspeco.com/cms/index.php?option=com_content&task=view&id=24&Itemid=54 - 18k -

Cached - Similar pages
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ARRLWeb: Surfin': **Sites** for Towers and **Tower Sites**
"If you have $20000-plus to burn, you might just want to check on the hundreds of complete hilltop surplus microwave **tower sites** that are for sale! ...
www.arrl.org/news/features/2002/09/14/1/ - 27k - Cached - Similar pages

Google HAM TOWER SITES

ARRLWeb: Surfin': **Sites** for Towers and **Tower Sites**
One **ham** just bought a whole site, building, **tower** and 60-kW generator for $20K!" Go to the American **Tower** Corp. Web site, click on the "**Tower Sites** For ...
www.arrl.org/news/features/2002/09/14/1/ - 27k - Cached - Similar pages

ARRLWeb: Surfin': Down on the Antenna Farm
It is full of tidbits of information regarding broadcast radio towers and **tower sites**, as well as broadcast radio history. In addition to reading stories ...
www.arrl.org/news/features/2005/08/26/1/ - 26k - Cached - Similar pages
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VE3FLF - Links to Antenna/**Tower Sites**
K3QK's **Tower** Talk and Legal Resources for **HAM** with Towers and those planning ... Singal **Tower** Communications Inc.- Antenna **sites** and **tower** space for lease ...
www.qsl.net/ve3flf/others.htm - 52k - Cached - Similar pages

Hill top **tower sites** for sale
One **ham** just bought the whole site, building, **tower** and 60K generator for $20k! ... Not all **sites** are listed for sale, even though they may be available. ...
www.amsat.org/amsat/archive/amsat-bb/200209/msg00231.html - 7k - Cached - Similar pages

HAM TOWER PHOTOS KT-34 A PHOTOS 4 ELEMENT BEAM PHOTOS **HAM** ANTENNA ...
Amateur Radio **Ham Tower** Pictures **Ham** Radio **Ham Tower** Pictures ... CNET Networks Links. Other **sites** in the CNET Networks family ...
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In album: Amateur Radio **Ham Tower** Pictures Ha... In Webshots channel: home & garden .... CNET Networks Links. Other **sites** in the CNET Networks family ...
home-and-garden.webshots.com/photo/2903932370057018041mpqaul - 52k - Cached - Similar pages
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Transmitter **Sites** from Hell ! RADIO STATIONS studio pictures AM ...
Transmitter **Sites** PICTURES OF RADIO STATIONS antenna world trade center ... FM Transmitter **sites** from hell,pirate,radio,fcc,shortwave FM,**ham**,FM **tower** ...
www.netfeed.com/~jhill/ - 23k - Cached - Similar pages

Amateur Radio **Ham Tower** Pictures **Ham** Radio **Ham Tower** Pictures ...
HAM TOWER PICTURES **HAM TOWER** PHOTOS KT-34 A PHOTOS 4 ELEMENT BEAM PHOTOS **HAM** .... CNET Networks Links. Other **sites** in the CNET Networks family ...
community.webshots.com/album/550312376dzMwkv - 93k - Cached - Similar pages

Ham Radio Home Page - QTH.COM by KA9FOX! Classified swap ads for ...
Ham Radio Club and Organization web **sites** hosted on QTH.COM ... Champion Radio: Professional **tower** supplies and specialty products for hams and industry ...
www.qth.com/ - 33k - Cached - Similar pages

Amateur Radio Club Links
AAT Communications, **Tower Sites**. Ace Communications, Radios. Advanced Battery

Systems, Batteries. Advanced Specialties, Dealer ...
tcarc.compcenter.com/links.html - 33k - Cached - Similar pages

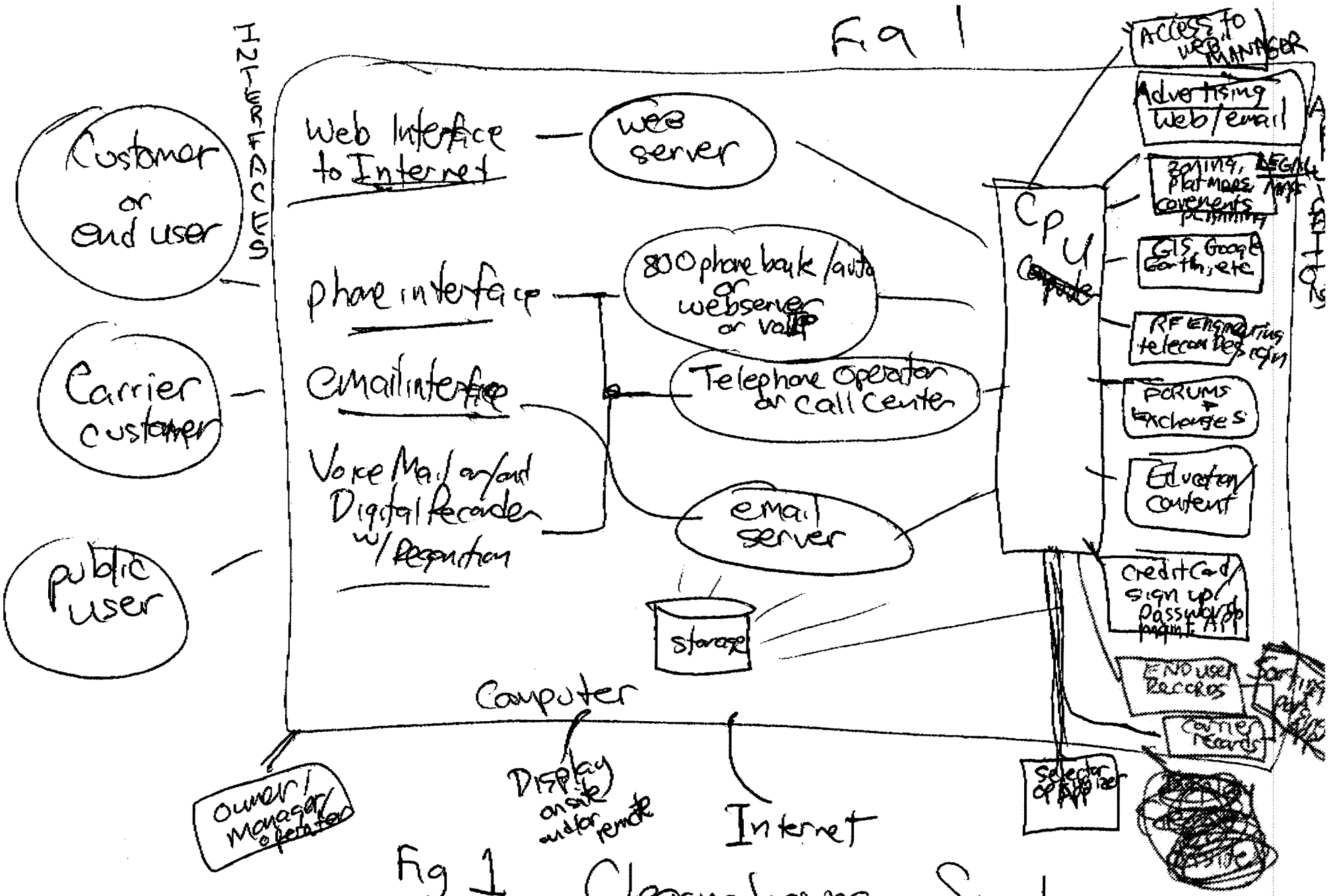
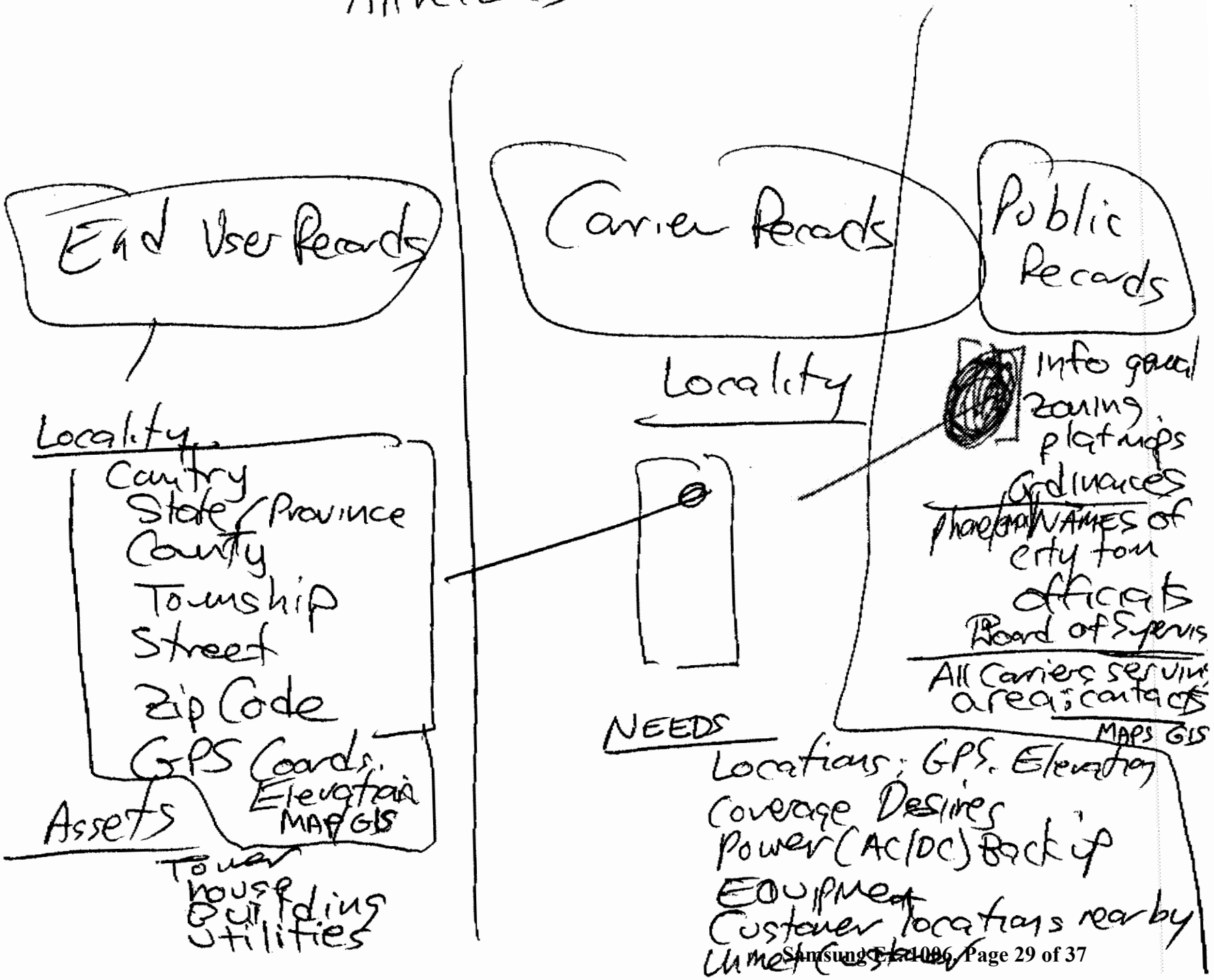


Fig 1. Clearinghouse System

Fig 2

All records



End User Form

Name
Address
Phone/email
Own or Rent?
property size
Identify plat map or similar locator _____
HAM RADIO OP? CALL _____

Your Interests:

I have a tower ☐
Rooftop ☐
outbuilding ☐
Church Steeple ☐
AC power ☐
Back up generator ☐

I would like:

Click on MAP

Free Internet ☐
Installed tower ☐
Installed generator ☐
monthly credit on some ☐
Nothing ☐

Fig 3

Carrier form
Phone/email
NAME
Address
Market _____
# of Customers Currently in Market _____

# of closed Customers in market _____

Enter GPS Coord of Current Equip

# of Sites
Site1 Lat _____ Long _____
Site2 Lat _____ Long _____
Site 3 _____ Long _____

Specify Needs

Click on MAP

☐ Towers
☐ AC
☐ AC back up
☐ Cable right of way
☐ Storage Barn
☐ Base Station

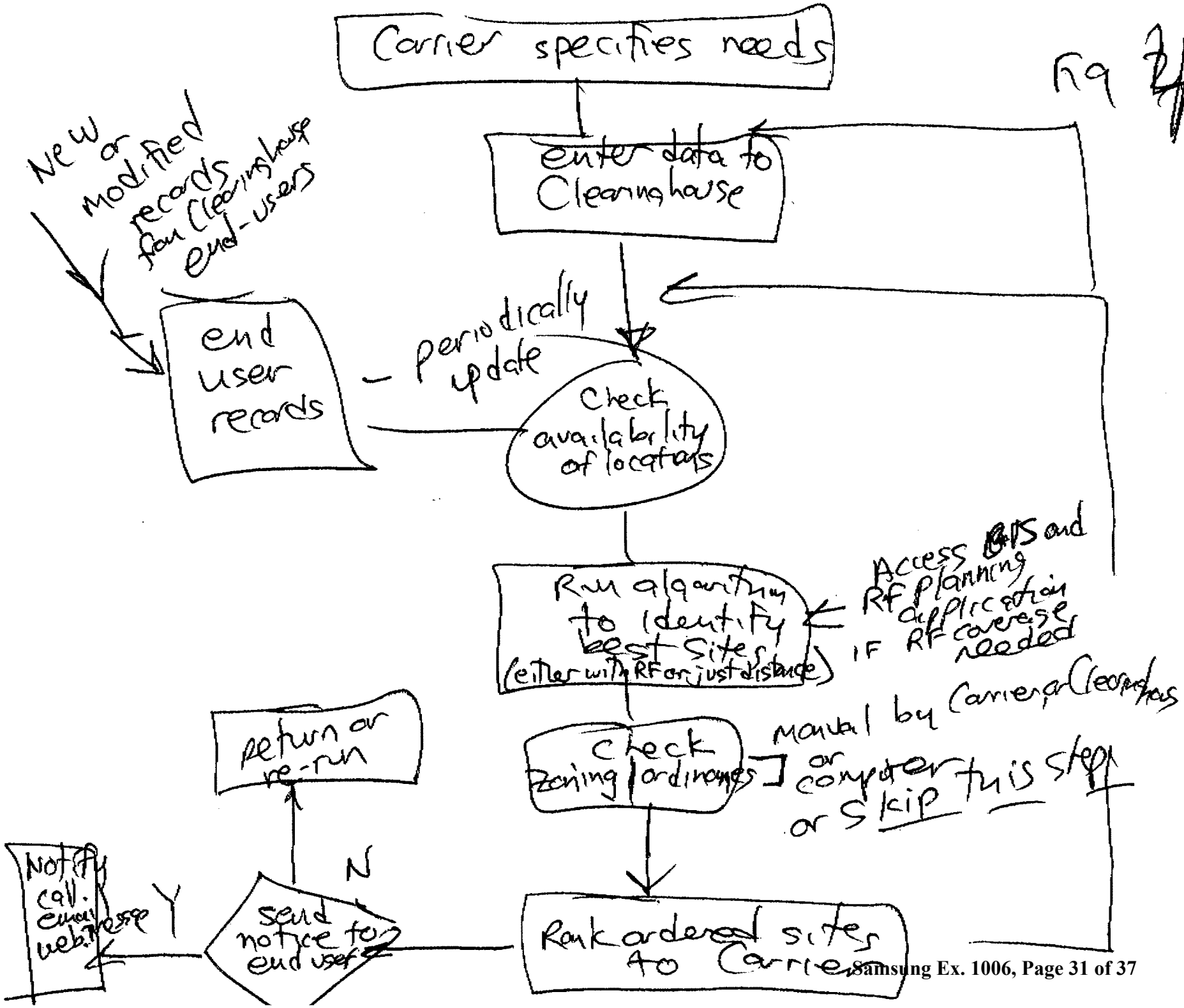

Carrier specifies needs
Fig 4
enter data to Clearinghouse
New or modified records from Clearinghouse end-users
end user records
periodically update
Check availability of locations
Run algorithm to identify best sites (either with RF or just distance)
Access GIS and RF planning application if RF coverage needed
Check zoning / ordinances
Manual by Carrier or Clearinghouse or computer or skip this step
Rank ordered sites to Carrier
send notice to end user
N
Y
return or re-run
Notify call. email web message

Fig 5

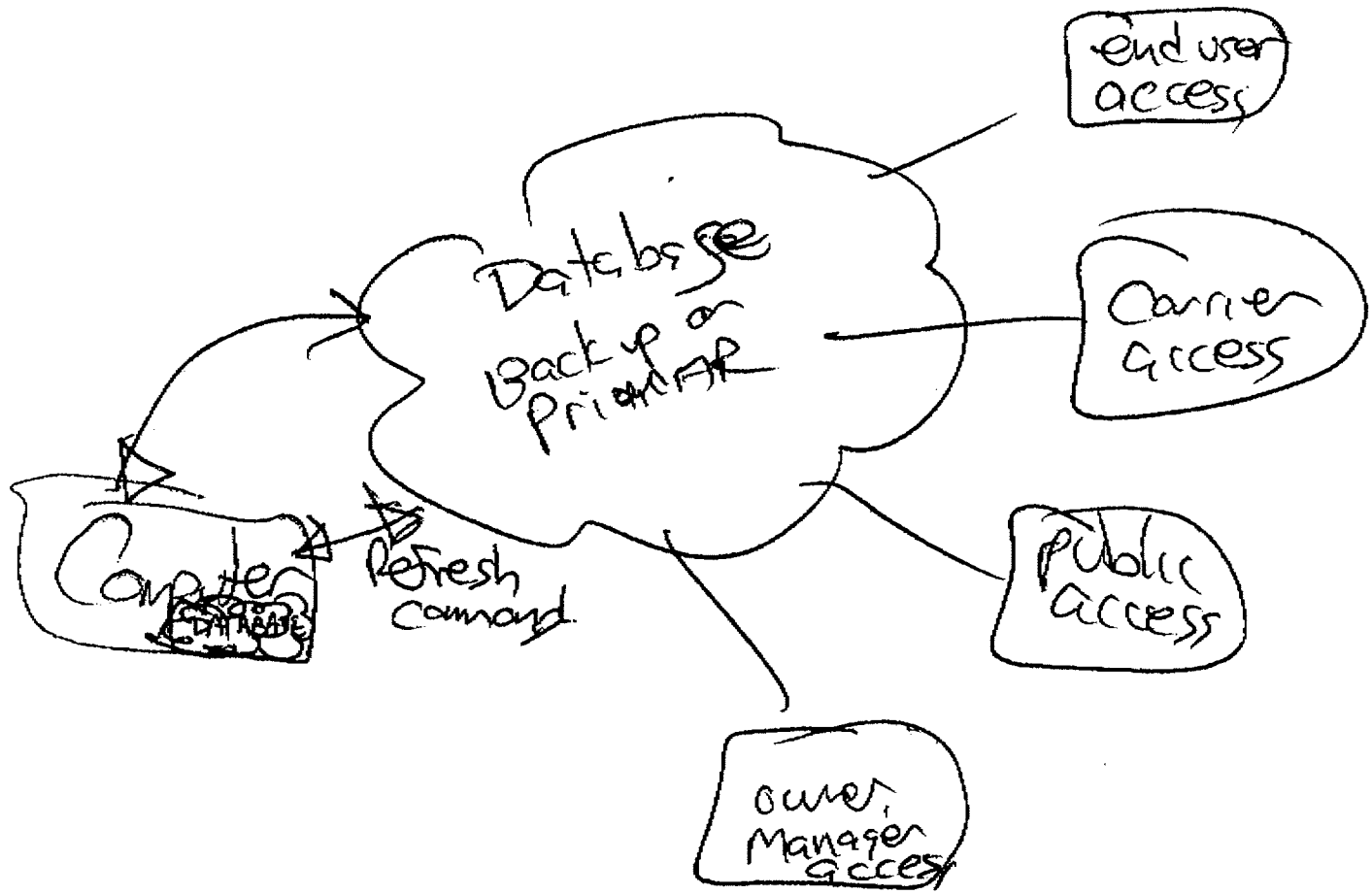
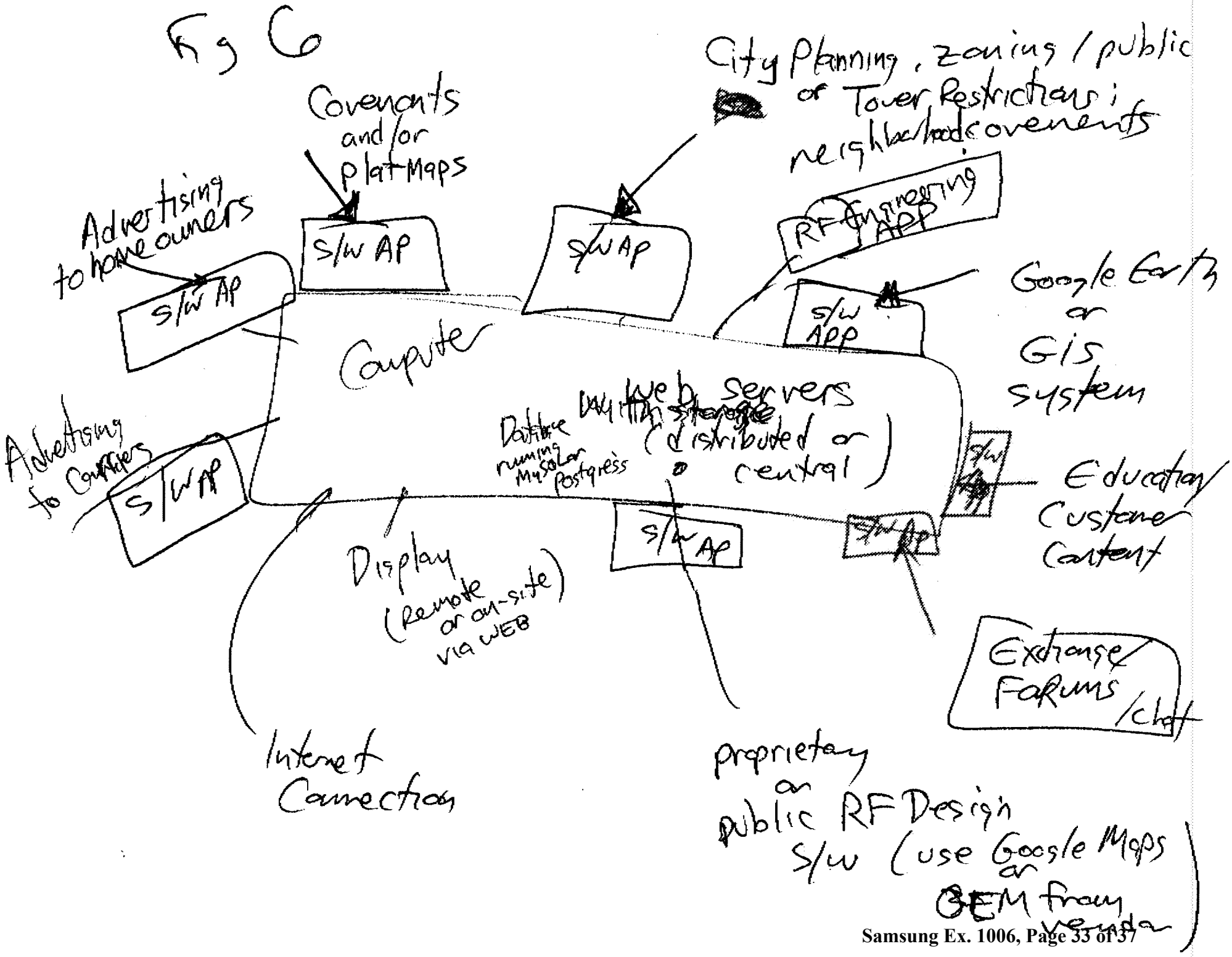

end user access
Database Backup or Primary
Carrier access
Computer
Refresh command
public access
owner, Manager access

Fig 6


City Planning, zoning / public or Tower Restrictions; neighborhood covenants
Covenants and/or plat Maps
Advertising to home owners
S/W AP
S/W AP
S/W AP
RF Engineering APP
S/W APP
Google Earth or GIS system
Computer
Web servers
Database running MySQL or Postgress
(distributed or central)
Advertising to Carriers
S/W AP
S/W
Education/ Customer Content
S/W AP
S/W AP
Display (Remote or on-site) via WEB
Exchange/ Forums/chat
Internet Connection
proprietary or public RF Design S/W (use Google Maps or GEM from vendor)

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Public Clearinghouse System, Method, and Process for Locating Antennas and Equipment for Carriers and End Users
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Filer:	Michael E. Whitham
Attorney Docket Number:	08610004PR

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First Named Inventor/Applicant Name:	Theodore S. Rappaport
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