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Occasional Papers

Local Search: Time for a Tune-up?

About TeleMapics and this report

Our Company

TeleMapics is a consulting practice focused on:

- Geographic Information (GI) and its uses, including Location Based Services, Local Search, Mapping, Publishing, and GIS (Geographic Information Systems).
- Product Development in technology organizations
- Management Consulting
- Due Diligence and Expert Services related to practices listed above

Our Report

First, a note on our use of terms. When we use “Local Search”, we are referring to the Local Search industry. When we use the term “local search”, we are referring to the local search process and associated software functionalities.

The press clippings indicate that the Local Search market will “rock”. At exhibitions, customers are in short supply, but the vendors in attendance are telling each other how good it’s going to be when the market hits its stride. Undoubtedly! Yet when the market will prosper remains unclear. In the report that follows, TeleMapics, examines the industry, defines its core services and variants, reviews aspects of the service that do not work well and provides observations on what needs to improve before Local Search is ready for “prime time”.

We believe that our report on Local Search will be most useful for financial analysts and others who are interested in the future promise of this industry. In some sense, the report is a primer covering issues, opportunities and impediments that are known to the providers who offer local search services. The report reflects our bias that Local Search remains in its infancy. Today local search systems reflect the youthful enthusiasm of an industry that has not quite reached consensus on its goals and objectives.

The players in the industry are separated into tiers of importance based on total revenues, number of users, traffic volume, ads served, and listings served, but today’s rankings may have little to do with tomorrow’s success. The significant distinctions prompting the future rankings of the players may have more to do with their basic understanding of how to improve local search results, than with the current trend of adding flashy features. We believe that many companies providing local search capabilities need to refocus their efforts on meeting the needs of end users and by doing so, satisfying the objectives of their advertising customers.

Next, the factual details in this report are derived from sources in the public domain and nothing contained herein is based on confidential or proprietary information that may have been included in any of our client reports. For that reason, occasionally, (hopefully not more often) you may want to criticize the report for a lack of completeness. On the other hand, our clients would have to kill us if we told you all of our conclusions, so we apologize in advance. We hope that these modest “lapses” are acceptable, especially since the availability of this document is based on one of the most popular keywords in Internet search – of course, that word is “free”.

Some readers may complain that we are biased against certain providers of local search services. We can only tell you that this is untrue. Most of the companies whose search results we describe are among the most reliable providers of useful local search results. The real problem is that many of the

methods and much of the data used to generate results of local search queries are not robust enough for useful interaction. You will find more discussion on the “fitness for use” issue in our paper.

Providers of local search are constantly tuning their search algorithms and it is likely that if you try to duplicate the searches mentioned in the report, you will not see the same results returned. We can only assure that the results we describe were the actual results returned when we queried the local search products.

The copyright notice on this whitepaper is intended to provide copyright protection for the document in general. We are not claiming copyright protection for materials referenced in the text that belong to third parties.

Finally, nope – no executive summary. If you want to know our prognosis for Local Search, you need to read the report.

Thanks for downloading the report. If you have questions, comments or criticisms, please relay them to us at reports@telemapics.com If you are interested in more detail about our company, visit www.telemapics.com.

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1. Introduction

We believe that local search is a technology that will lead to significant changes in how consumers search for information on buying opportunities and how advertisers choose to connect with consumers. Local search helps consumers to find goods and services of interest to them. The search results provide business listings classified by distance or other user preferences. The business listings include contact information and navigations aids to help the user “find” these businesses. Local search offers tools and techniques to enhance searching directories of business listings that were not available to the generations who grew up using the Yellow Pages. Local search, now that’s the future. Well, Isn’t it?

Every time we discover a new article on local search, we read that buyers and sellers are heading for the exits, abandoning Yellow Pages and local newspapers in light of the benefits of online search. The same articles often contain survey information indicating that a geographically based form of online search, called “local search”¹, will soon become the preferred form of local advertising. In addition, most articles mention the prediction that advertisers will spend gazillions of dollars to leverage these apparently ubiquitous advertising opportunities. Whether cause or effect, numerous players interested in monetizing the local search markets are touting new technologies, alternative business models and unique strategies to achieve market dominance.

On a seemingly daily basis, established and emerging players in Local Search issue press releases publicizing new or renamed services designed to enhance the attractiveness and functionality of local search products. Microsoft, Google, Yahoo and others publicize their existing and yet-to-be released systems to put their competitors on notice that they intend to be major players in a game designed to take the local advertising market away from Yellow Page, newspaper and magazine publishers. The lure of Local Search has become so promising that Interchange Corporation bought the URL Local.com for \$700,000, presumably to enhance the brand and marketability of their local search product.

Many companies are rushing to add bells and whistles to their existing ensemble of tools for conducting local search. Available features include: maps, routes, aerial and satellite image overlays, oblique photographs (allowing you to see the details of buildings) and storefront panoramic photographs indicating the location and identity of the stores as you would see them on a drive- or walk-by. It is clear that there is a significant “wow” factor to most of these

¹ In the paper that follows, we use “Local Search” when we are referring to the Local Search market and players in that market. We use “local search” when we describe the local search functionality or the processes comprising it.

embellishments, although it is less clear that these types of features (e.g. aerial, oblique and satellite Imagery) provide a sustainable competitive advantage for any of the companies involved.

Recent reports suggest that more people are using search engines and using them more frequently than ever before. In addition, publishers of search industry metrics have indicated that an increasing number of searches are now conducted using “location qualifiers”. Common sense tells us that the game must be getting interesting if it is attracting capital spending, traffic and media attention. Perhaps it is time to look a little closer at the performance of the Local Search industry and what we can expect of it in the future.

While considering the future of Local Search, TeleMapics had to confront the issue that the news about this industry, over the last few years, has always presented the same headline - “Market Success for Local Search Just Around the Corner”. Faced with this prediction on the one hand and the slow development of the market on the other, we decided to conduct a search of our own to learn what issues might be impeding the success of Local Search.

Defining Local Search as a segment of the online search marketplace

We define local search as: the use of online services to discover the specific location of products, services or businesses, in a geographic area, based on identifying businesses that meet the thematic and location criteria provided by a user. Most often, the user stipulates a business category, a type of service, or a particular business name that they would like to locate within a specified geography, as shown in the example below. In essence, these systems allow users to find “something, somewhere”.




Local search occurs in two forms: geocoded and geotargeted. The distinctions between the forms are significant, and we discuss them below.

Geocoded Search of Business Directories

The vast majority of local search websites provide business-directory services. They use location information to search databases of business listings (e.g. those provided by infoUSA or Acxiom) in a manner that mimics the use of print yellow pages in content and intent, but surpass them in terms of spatial coverage, functionality and flexibility.

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Address, City & State, or ZIP
 Make this my default Yahoo! location

MY LOCAL

[Laguna Niguel City Guide](#) > [Food & Dining](#) > [Restaurants](#) > Chinese


Local Results for chinese food in Laguna Niguel, CA Results 1 - 10 out of 144 total results ([About this page](#))

Refine Results:

Show results within:

15 miles

of the center of Laguna Niguel



view larger map

Category:

[Chinese Restaurants](#) (124)
[Restaurants](#) (124)
[Catering Services](#) (12)
[Southeast Asian Restaurants](#) (9)
[Carry Out & Take Out](#) (7)
[Thai Restaurants](#) (6)

▶ show all 39 Categories

Rating: (rating key)

SPONSOR RESULTS

- [Panda Express LA: Chinese Food](#) Panda Express in Southern CA. Gourmet **Chinese food**. Eat in or out. Wokked fresh. Hot, fast and yummy.
[pandaexpress.reachlocal.com](#) | [Local Info](#)
- [Chinese Food Recipes](#) Easy to make **Chinese food** recipes from better homes and gardens.
[recipes.bhg.com](#)

NEW! Organize your neighborhood by easily saving anything into a collection.
[See collections of other Yahoo! Local users](#) or [Learn More](#)

Sorted by: **Top Results** | [Distance](#) | [Name](#) | [Rating](#) [Save to My Web](#) [Printable Version](#)

1. [China Moon](#)

(949) 249-6868 30001 Town Center Dr, Laguna Niguel, CA 0.56 mi

[Map](#) | [Directions](#) | [Send to Phone](#)

...the best **chinese food** anywhere lots of awards We used to live...took use nearly 5 yrs... [more](#)

See all: [Restaurants](#) - [Chinese Restaurants](#)
[www.chinamoonrestaurant.com/](#)

★★★★★ (2)

Rate it:

☆☆☆☆☆

[Save to Collection](#)
2. [Ocean Ranch Panda Express](#)

(949) 496-8096 32411 St. Of The Golden Lantern, #5r, Laguna Niguel, CA 0.50 mi

[Map](#) | [Directions](#) | [Send to Phone](#)

...Panda Express : **Chinese Food**, Wok-Cooked and Served Fast [Skip Intro] Panda Express... [more on web site](#)

See all: [Restaurants](#) - [Chinese Restaurants](#) - [Catering Services](#)
[www.pandaexpress.com/](#)

Be the first to rate!

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An example of the type of service provided by Local Search.

Business directory-based local search systems convert the geographic location identified in the search query into spatial coordinates (e.g. latitude, longitude) using a process known as geocoding. The spatial coordinates (geocodes) are then used to define the center of the area in which the search for relevant business listings will occur. In the illustration provided above, the query will generate a process that searches for businesses in Aliso Viejo, CA, which can be related to the descriptor "fish tacos". The geographic coordinates represent a point that is the center of a polygon defined by the borders of Aliso Viejo. The size of the search area around the spatial coordinates is usually limited in extent by the user or the system. In some cases, service providers allow users to set distance limits on searches to reflect how far the user is willing to travel. In other cases, service providers limit the distance of the search from the central point to avoid prolonged database searches that have little likelihood of increasing the usefulness of the results.

You can often (but not always) identify a local search site by its use of a two-box search in which the first box is used to delimit a search category or a business name, while the second box is used to specify a geographic area to be searched for an occurrence of the target in the first box (e.g. as used by Yahoo Local and Windows Live Local). Another variation of this scheme (shown below) includes the entire search string and geographic address in one line, as promoted by Google Local and others.



Geotargeted Search

A second, “stealth” form of local search loosely applies the “concept” of geotargeting to search queries entered into general Internet-based search engines such as those provided by Yahoo!, Google, MSN, or Ask (i.e. not the “local” form of these services but the parent service itself). This alternative approach to spatial search is based on token matching. Geographic names in the query are extracted and disambiguated (e.g., the place name is associated with a spatial hierarchy of places – Laguna Hills → 92653 → Orange County → California). Once identified, the locational component of the query is used to search an Internet index for related thematic and place name related records, as well as to select geographically and topically relevant advertisements to be combined with the results. Although this form of geotargeted search does provide some of the benefits of spatial indexing, it does not provide the accuracy of position provided by geocoding.

All major search engines use some form of Natural Language Processing in an attempt to extract meaning from search queries, but most search engines lack a robust, spatial thesaurus or geographical database to make sense of the place names or spatial components of the search phrase. Although generic search engines can tell that Lincoln, CA is not the same construct as Lincoln, NE, they have difficulty associating either location with geography (i.e. the search algorithm does not contain data that can be used to spatially position geographic constructs). In the example above, results returned for “Aliso Viejo” are based on matching text links that contain “Aliso + Viejo” or some combination of the terms used in the search. In other words, the search is not geographic and the system is not looking for the place Aliso Viejo but the occurrence of the words “Aliso” + “Viejo” without the benefits of spatial indexing. In addition, most general Internet search engines develop their results by matching input tokens against an index describing terms found in pages appearing on the Internet, but do not search business directories to find matches. Internet “search” companies appear to be gaining interest in the use of geotargeted search to enhance the spatial relevance of search. In addition, the ability to geotarget a query is becoming

significant to those search companies placing pay-per-click advertising on their search results pages. These search providers may be able to enhance their search revenue if they can use geotargeting to produce query results and associated advertisements that are spatially relevant. A number of the companies are testing methods for adding a “geographic” sensibility to their search product, and it seems likely that they will do so using enhanced geographic gazetteers.

One may reasonably ask, “Why don’t search providers use their own local search services instead of trying to decipher spatial cues in a more complex, high traffic and computationally demanding environment?” We suspect many users are reluctant to use local search products, believing that the standard search engine can provide the information of interest. Second, it is likely that geotargeting is an advertising driven functionality, rather than customer requested feature. Advertisers are turning to the Internet for a variety of campaigns ranging from brand lifting to sales penetration. Major advertisers would like to perform these tasks on a geotargeted basis using the most accepted form of Internet search, just as they are currently able to specify the geographic targeting of their advertisements in television, radio, Yellow Pages, and newspaper advertising campaigns.

Google has taken the intermediate step of including local search results when an Internet search includes a geographic component that can be easily linked to a local search query. In more complex searches, Google simply searches for the location cue within an Internet index (see the examples below).

The screenshot shows a Google search interface. The search bar contains the text "Chinese food in Aliso Viejo, CA". Below the search bar, the results are displayed. A callout box with a yellow background and black border points to the local search results. The callout text reads: "Local search listings embedded in general Internet search results".

The search results include:

- Local results for chinese food near Aliso Viejo, CA**
 - [Jade Palace II Chinese Cuisine](#) - 2.8 miles SE - 26921 Aliso Creek Rd # E, Aliso Viejo, 92656 - (949) 360-7666
 - [Sunshine Food Co.](#) - 1.1 miles NE - 24401 Ridge Route Dr # B102, Laguna Hills, 92653 - (949) 457-9430
 - [Chinese Express](#) - 2.0 miles E - 24155 Laguna Hills Mall # 237D, Laguna Hills, 92653 - (949) 472-0323
- Aliso Viejo Restaurants - Chowbaby.com**
 - Jade Palace II Chinese Cuisine. (949) 360-7666. 26921 Aliso Crk Ste E Aliso Viejo, CA 92656. Info Map It E-Mail a Friend ...
 - www.chowbaby.com/restaurants/orange%20county/Aliso%20Viejo - 82k - [Cached](#) - [Similar pages](#)
- Aliso Viejo restaurants & bars**
 - Bars & Lounges. Sports Tavern 27822 Aliso Creek Rd, Aliso Viejo 92656 949-362-5919.
 - Chinese. review Jade Palace II 26921 Aliso Creek Dr. #E, Aliso Viejo ...
 - www.letseatoc.com/aliso.htm - 12k - [Cached](#) - [Similar pages](#)
- United States/CA/Aliso Viejo**
 - Dessert / Ice Cream 22912 Pacific Park Dr (Aliso Viejo Pkwy) ... Panda Panda (0 reviews) 949 362 2888 Chinese, Fast Food 26841 Aliso Creek Rd (Enterprise) ...
 - chefmoz.org/United_States/CA/Aliso_Viejo/ - 22k - [Cached](#) - [Similar pages](#)
- @LA Aliso Viejo California (CA) Dining/Food in Orange County**
 - @LA Aliso Viejo California (CA) Dining/Food in Orange County. ... Jade Palace, also Aliso Viejo - Chinese on page dining/oc.htm - Dining/Restaurants in ...
 - www.at-la.com/cities/Aliso_Viejo/dining.htm - 28k - [Cached](#) - [Similar pages](#)

On the right side of the search results, there is a section for "Sponsored Links" with the heading "Aliso Viejo Restaurants" and a sub-heading "Directory Listing Of Restaurants In Your Area! Search By Category/Name". Below this is the website "www.AreaGuides.net".

The search above includes local search listings in the result. The more complicated search below defaulted to Internet search.



Maxillofacial reconstruction in Aliso Viejo, CA

Search

[Advanced Search](#)
[Preferences](#)

Search for
**Maxillofacial
 reconstruction
 in Aliso Viejo,
 CA:**

[Images](#)
[Maps](#)
[News](#)
[Groups](#)
[Books](#)
[more >](#)

Results 1 - 10

[Dentistry Aliso Viejo, California \(CA\) Porcelain Veneers, Crowns ...](#)

His distinguished reputation is heightened by his precision in improving teeth in as little as a few hours. Distance from **Aliso Viejo, CA**: 52 miles / 84 km ...
www.locateadoc.com/directory.cfm/1/CA/Aliso%20Viejo - 43k - [Cached](#) - [Similar pages](#)

[Dentistry California \(CA\) \(Dentists in California\)](#)

Dentistry California (CA) - Select a City ... **Aliso Viejo** · El Cerrito · Manhattan Beach · San Anselmo · Alpine · El Dorado Hills · Manteca · San Bernardino ...
www.locateadoc.com/directory.cfm/procedures/1764/CA/Sherman%20Oaks - 119k - [Cached](#) - [Similar pages](#)
[\[More results from www.locateadoc.com \]](#)

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File Format: PDF/Adobe Acrobat - [View as HTML](#)

Contact : Silvia Kraneiss **Aliso Viejo, CA** 92656 - USA ... **Reconstruction** for aesthetic enhancement and **reconstruction** of facial and body contours. ...
www.imcasweb.com/media/exposants2006.pdf - [Similar pages](#)

Sponsored Links

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Everything you need to know:
 Treatments, symptoms, facts, help
www.EverydayHealth.com

[Maxillofacial Surgery LA](#)

Top surgeon seen on CBS treats
 mouth, teeth, jaw & face problems
www.MarckKernerMD.com
 Los Angeles, CA

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Your independent guide to
 dental **reconstruction**.
dental-guided.com

For our purposes, we classify geocoded and geotargeted search as segments of an advertising market seeking to capitalize on spatial targeting to sell goods and services. In this paper, we call the market Local Search, and note that, in this paper, our major focus is the market segment using business directories and geocoding software. We will, however, devote attention to geotargeted search.

There are a number of emerging strategies being tested in the Local Search market, and using tags to describe industry segments may be a dangerous approach. However, in order to discuss the industry, we have taken a crack at naming some of the emerging segments. A taxonomy of Local Search is provided in Table 1.

Table 1. The forms of Local Search

Search Name	Search Description	Examples
Local Search (baseline)	Discovery of local products and services based on search of business directories. Geocoding is used to match spatial locations. Results may include website links or other Internet search options. (Services are national in terms of market coverage).	AOL Local, Ask Local (formerly Ask Jeeves Local) Go2, Google Local. Super Pages.com, Swithboard.com, Yahoo Local
General Internet Search used to find local products/services	Local search operating within a regular Web search engine, such as those operated by Google, MSN or Yahoo, that may be optimized for geographic keywords.	Ask (formerly Ask Jeeves)Google, MSN, Yahoo,
Hybrid Local Search	Local Search (baseline) paired with a web-crawler or spider to augment/update information about businesses within local search areas. Results may be augmented/corrected by information gathered through web crawling. ²	Local.com, Windows Live Local
Community Search	Non-comprehensive (product / service is spatially restricted) local advertising service. Achieve incremental spatial coverage by opening new sites to serve specific locales.	Craigslist, Kijiji
Referred Search	Non-comprehensive local search that is based on referrals/rating of local business and service providers/	Judy's Book, Angie's List
Other Search Verticals (with local component)	Brand finders and other search alternatives that focus on specific branded products or services and their spatial availability.	Wal-Mart, Sears, Best Buy, Contractors.com LookSmart

² Several services use web crawlers to find web site URLs and link them with existing business directory listings. These two companies appear to be attempting to use the information in web listings to validate the information in business directories.

2. The Local Search Market Appears Poised for Growth

1. Search is ascendant.

Last year, 207,000,000 people in the U.S. were connected to the Internet (an increase of 3%). Nielsen reported that the total number of Internet searches by U.S. users in January 2006 increased to over 5.5 million, a rise of over 39% from the previous year (Table 2). In addition, it appears that the major players have increased their dominance in the industry (Tables 3 and 4).

Table 2. Growth in Total Searches 2005-2006

Searches in January 2005	Searches in January 2006	Percent Change
4,085,880	5,699,528	39

Source: Nielsen/NetRatings/MegaView Search, March 2006

By the end of 2005, Google increased its market share while Yahoo and MSN declined slightly. Overall, each of these lead players in search saw double-digit growth in the use of their search services.

Table 3. Top Search Engines Market Share 2005–2006.

Search Engine	April 05 Search Share	April 06 Search Share	Percent Change
Google Search	47%	50%	3
Yahoo Search	22%	22%	0
MSN Search	12%	11%	-1

Source: Nielsen/NetRatings/MegaView Search, May 2006

Table 4 Search Growth among Top 3 Search Providers – April 2005–2006.

Search Engine	April 05 Searches (000)	April 06 Searches (000)	Year over year growth
Google Search	1,986,795	2,655,649	34%
Yahoo Search	919,894	1,169,109	27%
MSN Search	515,926	571,080	10%

Source: Nielsen/NetRatings/MegaView Search, May 2006

LOCAL SEARCH

In November 2005, the PEW Internet and American Life Project noted that more people were using the Internet to search for geographical locations by using “local qualifiers” such as ZIP codes, addresses or telephone numbers (see Table 5). In addition, the authors of the Pew Project noted that “pure” Local Search sites received many of these searches with geographic qualifiers (See Table 6).

Table 5. General Search for Local Information at Leading Internet Search Sites – August 2005

Provider	Number of Local Searches	% of Local Searches
Total Internet Search	447,829,790	100
Google (various sites)	195,790,534	43.7
Yahoo (various sites)	126,243,837	28.2
MSN –Microsoft (various sites)	61,548,868	13.7
Time Warner Network	33,556,682	7.5
Ask Jeeves	24,717,632	5.5
InfoSpace Network	4,188,728	0.9
Lycos, Inc.	1,373,255	0.3

From Pew/Internet and American Life Project Data Memo by Lee Rainie “Search Engine use November 2005”. Source of data comScore Media Metrix qSearch data, August 2005.

Table 6. Leading Local Search Sites – August 2005

Provider	Local Search Queries – Top Sites	% Local Search Queries
Total Internet	231,678,352	100.0
Yahoo! Sites	63,924,135	27.6
Verizon	59,137,830	25.5
Google Sites	26,949,585	11.6
YellowPages.com	17,851,651	7.7
Time Warner Network	17,535,894	7.6
InfoSpace Network	16,172,698	7.0
DexOnline.com	11,526,004	5.0
SBC Communications	5,614,062	2.4
CitySearch	5,496,559	2.4
Yell Limited	3,706,374	1.6
Bellsouth	3,167,013	1.4
Ask Jeeves	361,266	0.2

From Pew/Internet and American Life Project Data Memo by Lee Rainie “Search Engine use November 2005”. Source of data comScore Media Metrix qSearch data, August 2005. “Local” searches refer to searches at directory sites that include multiple qualifiers such as address or type of business.

2. Online local search offers low cost, relevant advertising dynamics and an audit trail

Local search provides an advertising venue that is user directed, where the queries are geographically and topically based. This allows the presentation of advertisements and marketing materials that may be spatially and temporally relevant to the sales conversion process. One of the many reasons that local search is attracting new advertising customers is that it offers relatively precise targeting capabilities, at one of the lowest costs per lead offered by any advertising medium (\$0.29 according to Piper Jaffray & Company).

Advertisers are interested in the ability to measure results of their advertising expenditures. Every click in a local search campaign can be tracked and, depending on the reporting structure used, related to purchase conversions or marketing exposure. Although there can be limitations and confounding issues (e.g. click fraud) that cloud click stream analysis, the audit trail for Local Search advertising provides more specific and reliable measurements of advertising success than most

other media. From a buyer's perspective, click stream analysis of Local Search advertising makes it easier to understand the spatial aspects of media buys.

3. Growth of Small to Medium Businesses

Although the cost and audit variables mentioned above appeal to all advertisers, they are especially enticing to small and medium sized enterprises (SMEs) with limited advertising budgets. Many SMEs that traditionally rely on print media, such as newspapers, specialty journals and Yellow Pages, are experimenting with online advertising and have shown significant interest in spatially targeted search. These SMEs are likely to investigate Local Search advertising as augmentation to or substitution for their expenditures on Yellow Pages and other local print based channels. There are an estimated 5.7 million businesses in the United States with employees and another 17.6 million sole proprietorships, mainly providing services at the community level. We believe that these businesses are primed to become advertisers in the Local Search industry.

4. Decline of traditional advertising media.

Newspapers' share of the classified advertising market (both print based and online) has continued to decline over the last five years as the result of market erosion by "pure play" online competitors (Source: Newspaper Association of America Report by McKinsey and Company, 2005). In addition, newspapers are declining as the preferred method of delivering news, especially in younger demographics.

In the Yellow Page arena, fragmentation of the market due to increased competition between publishers has diluted the effectiveness of Yellow Page advertising. In the past, there was one dominant Yellow Page book and one carrier controlled each service area. Today, the competition between carriers, alternative carriers and yellow page publishers has provided business owners with more advertising opportunities than they can support. In turn, consumers receive a proliferation of Yellow Page directories that inadequately cover the local area and take up too much storage. In addition, traffic has declined for print publishers as the public has learned that it is easier and generally quicker to research a buying opportunity online than searching print media for similar but less detailed information.

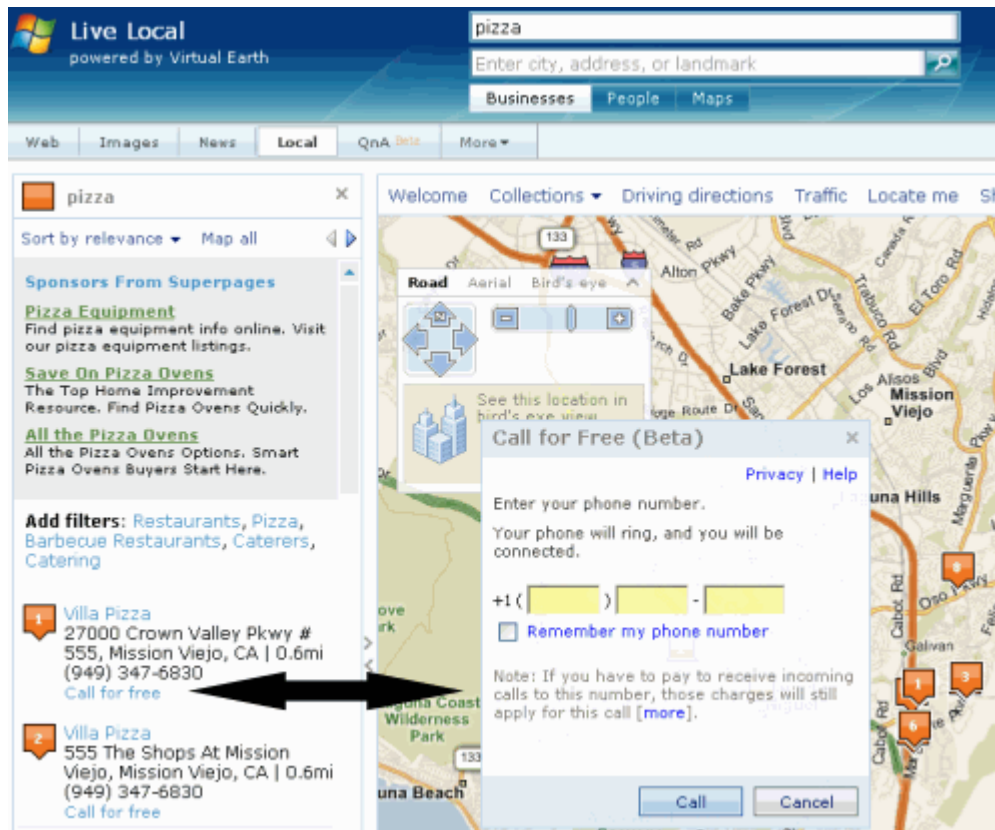
Finally, the opportunity presented by online advertising has resulted in "price destruction" for print-based advertising services due, in part, to the low cost of acquiring and closing leads online. At the same time, infrastructure costs for printing are increasing (e.g. paper, ink, labor, technology and distribution). In order to compensate for increased production costs and decreased advertising

revenues, traditional “local” publishers must find a way to cut costs or pass cost increases on to their customers. In a time of decreasing newspaper subscriptions and decreasing use of Yellow Page directories, there appears to be a unique opportunity for online advertising to take the lead and become the dominant form of local advertising.

5. National accounts looking for local exposure

Companies with nationally recognized brands are exploring the concept of “just in time” advertising in an attempt to bring their products to a consumer’s attention at or near the time of a purchase. Since Local Search possesses both a local geographic and topical component, it is being tested by national brands to determine its efficacy for their purposes. Some national companies are testing advertising on Local Search networks as a method for creating brand lift and brand building on a geographically targeted basis, although their major interest is in determining the reliability of local search for enhancing profitability.

6. Click-To- Call increases the effectiveness of online advertising



The advent of Click-To-Call (CTC), a technology that connects the online searcher with an online advertiser over a voice connection, decreases the “frictional distance” between local search and closing a sale. Rather than writing down the contact number and calling later, the Click-To-Call functionality connects the buyer and seller, possibly at the penultimate moment leading to a sale. While there are different approaches to making this technology work, there is little question that adding this feature will provide the Local Search industry with another advantage over traditional methods of advertising. Further, many SMEs do not have web sites and need Web-based alternatives, such as CTC, to advantage their businesses through online advertising. Many industry analysts feel that Click-To-Call is a solution that will appeal to many segments of the SME market.

1. In July of 2006, Windows Live Local became the first of the “Big Three” to integrate Click-To-Call in their Local Search listings. “Call for free” the Microsoft implementation of the concept, requests the user’s phone number, after which the system connects the two parties. In addition, the interface includes functionality that allows the system to store the telephone number (if the user opts for this convenience) for use the next time the client wants to call a merchant listed by the service.

3. What is the Status of the Local Search Market?

The revenue-generating scenarios for players in the Local Search market are clear. If users are attracted to local search sites, then businesses providing services relevant to the user queries should be willing to pay to advertise on pages that return results for the search. The local search company generates revenue from advertisements through Pay-Per-Click, Pay-For-Placement, or both. In addition, the local search provider may opt to be a distributor for other larger networks (e.g. Yahoo/Overture, Google Local, MSN Local) and generate revenue as an affiliate of these programs, or to create an affiliate program that supplies advertisements to its own and other networks. Next, the local search provider may link with other specialized search verticals (e.g. home repair) to enhance distribution and attempt to become a one-stop source for local shopping.

Local Search providers use the techniques of Search Engine Optimization and Marketing (SEO/SEM) to enhance the potential distribution of their results and increase their revenue-generating potential. In many cases, this practice can lead to premier positions on Search Engine Results Pages (SERP) in general Internet search. For example, using Google (www.google.com – not Google Local) to search for “Towing Irvine CA” resulted in the top five listings being links to Local Search sites such as Magic Yellow, Switchboard and Super Pages, not to companies in

Irvine, CA that provided towing services. In addition, many Local Search companies provide SEO services to improve the search positions of client sites in their ad-serving networks in the belief that increased traffic will result in increased ad clicks at these “distributor” sites and increased revenues for the distribution network owner.

Revenues from local advertising and local search are forecast for significant growth over the next five years. Advertising growth is understandable: U.S. Bancorp Piper Jaffray predicts a 38% growth rate in online advertising will generate revenues of \$7 billion in 2007. The Kelsey Group and ConStat, Inc. issued a press release in March 2005 indicating that 70 percent of households used the Internet to hunt for local merchants and stores—up from 60 percent in October 2003. In 2006, the Kelsey Group predicted that global local search revenues would increase to \$13 billion in 2010. The picture for search certainly looks bright.

It is difficult to determine whether significant profits are currently being generated by local search firms. Surrogate evidence, such as the number of local search firms that have flopped or disadvantageously merged and the devalued stock prices of companies exclusively positioned in the local search niche, suggests that the industry outlook is not quite as bright as forecast in the press, but that may be changing. In third-quarter 2006, it is clear that local search has caught the publics’ attention, and most service providers in this segment are reporting increased traffic. The “local” versions of Yahoo, Google and MSN appear to be attracting the lion’s share of the traffic, but several second-tier players have significantly expanded their traffic since the beginning of the year (e.g., Local.com has captured the 79th ranking in U.S. website traffic [according to comScore] and is attracting more than 10 million unique visitors per month) .

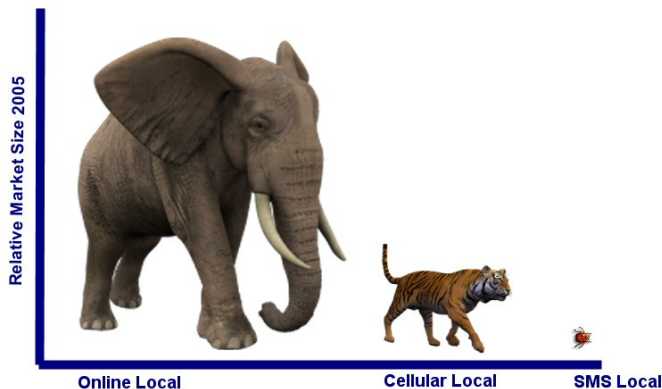
Our belief is that Local Search will continue to take market share away from newspapers, Yellow Page publishers and other print-based directory style advertising. According to the Newspaper Association of America’s Website, newspapers held 57% of the classified advertising market in 2001 but only 52% of that market in 2004, a loss of 5 points in a market where each share point was reported to be worth \$300 million. If Internet search companies implement geo-targeting and other improvements to spatial search such as Pay-Per-Call and SEO/SEM, it is likely that online advertisers will be advantaged by increasing their spending on Local Search advertising.

In the battle for Local Search revenues, it remains unclear how disruptive community classified ad sites (such as Craigslist) and referral-based local search sites (such as Judy’s book) will be to the global providers of Internet search (Google, Yahoo!, MSN and AOL) or to other providers of Local Search. We consider, Craigslist, Judy’s book and similar sites to be local publishers whose independence and perceived closeness to local communities may attract loyal, local users and

desirable advertising accounts. It is possible that these community publishers will pursue associations with Local Search publishers in a way that will allow them to retain their independence but capitalize on their community support.

It is obvious that the Local Search market has taken longer to develop than forecast. At the end of 2005, Local Search user adoption had not kept pace with the forecasts. Conversely, the first few months of 2006 witnessed tremendous growth in the search markets, as search and its local variations now represent over 50% of Internet activity. Perhaps the growth spurt, reiteratively forecast for Local Search over the years, has actually begun.

It is interesting to note that while the success of local search services offered over cellular networks seems both logical and compelling, this submarket simply has not performed as expected. Even companies that have attempted to avoid the infrastructure complexities that plague the cellular market for local search by moving local search onto an SMS platform (short message system) have not achieved significant results. For the near future, local search will continue to find its major potential for success in the wired, online marketplace.



The Local Search market today is focused online. Cellular local and SMS local are not yet significant forces

4. What Factors Might Impede the Success of the Local Search Market?

In order to answer this question, we need to examine the service goals for the vendors providing local search services. We believe the general goals and related strategies for the Local Search industry to be as follows:

Defining the Service Goals

The service goals for companies involved in the Local Search marketplace are reasonably well known, but provide complexities not obvious at first glance.

1. The local search solution provided must be relevant to the user's query, available when the customer needs it, and optimized for the device used to access the service.

- a. The relevancy of the results (both the returned search results and the accompanying contextual advertisements) should match the thematic and geographical intent of the query posed by users of these systems.
- b. Access to the search mechanism needs to be ubiquitous and available when a buying opportunity requires localized targeting.
- c. It appears that searchers prefer to use one provider for all local search including search and move to other providers only when:
 - i. A better service is available for the device being used and there is no penalty for switching from one service to another. (Penalties result from a variety of conditions including learning curves, registration, or monetary consequences.)
 - ii. The service provider does not offer a search product that works on the preferred search device (this is a common problem that limits the adoption of some local search services on various models of cellular phones).

2. The listings available in the database of local businesses must be viable and able to satisfy the need that generated the search.

- a. If the vendors listed in the results of a local search cannot provide the service requested or do not have the specific product requested, searchers may blame the local search provider as much as they blame the vendor.
 - i. While national services offering local search capabilities may stumble with this issue because of limitations related to non-comprehensive data, it is likely that truly local providers of classified advertising, such as Craigslist, could have the local resources to perform well on this task.
- b. "Brand Finder" sites are a logical outgrowth of this service goal.

3. Advertisements positioned on the search page should be relevant to the search.

- b. Advertisements are normally positioned in prime page property known as “hotspots” (e.g. on the right margin or at the top of the page) and are often the first information seen by the user. If these paid placements (payment for position or payment based on keyword bidding) are not relevant to the search, it is unlikely they will be clicked and both users and advertisers will begin to explore other services that might provide information that is more relevant.

4. The service must be straightforward and easy to use.

- a. The Human Factors of local search use is a complex information-processing environment. The user interface must be natural and allow quick identification and spatial targeting of the product or service being sought
 - i. Capturing the location cue (the location of the user), should be automatic if the device is capable of determining position, or connected to a network access point that can provide an accurate position. If not, the service should utilize cookies containing the favorite locations of individual users. Failing this, the service must provide concise but effective methods for entering locations (the user’s position, the target’s position or both, depending of the functionality of the system).

5. There are at least two use-cases that impact the design and functionality of all local search applications

- a. **Use-Case 1: Outbound local search.** In this situation, the customer is willing and able to move to the location that can provide the goods or services being sought. Outbound search is further dichotomized by:
 - i. **Nearcasting** - Online searching for potential target locations surrounding the user’s current position.
 - ii. **Farcasting** - Online searching for locations in areas that the user will visit at a future time (e.g. searching for a restaurant in San Diego while driving there from Los Angeles or searching for a location near your home while you are at work).
 - iii. Some local search applications provide search results that include detailed spatial information, such as storefront address, distance to target from present location, routes, maps, aerial/satellite images, etc. Detailed spatial information may help the “Outbound local search” customer “find” (i.e. locate, drive-to, or otherwise identify) a business or

service that supplies the product or service they need. Consequently, sites providing detailed spatial information may be preferred by these customers and used by them to differentiate (preference rank) search providers.

- iv. The probability of a successful search whether the user is Nearcasting or Farcasting is further complicated by the technology used to access the local search service. For example, bandwidth considerations have an influence on what information should be transmitted to the user to allow rapid solution of the search problem. “Sniffers” that identify devices, and the browsers being used, are commonly integrated with local search platform software to match presentation format to the display capabilities of devices and browsers.
- b. **Use-Case 2: Inbound local search** In this use-case, the customer is searching for a service provider who must travel to the customer’s location to render the service.
- i. Local search applications that provide results accompanied by detailed spatial information (distance to shop, routes, maps and other images) may not be of interest to this customer class. Searchers for inbound services may prefer listing detail that includes emergency numbers, hours of service and range of services provided (i.e., information that answers the question “Can this company actually solve my problem?”). In most cases, the inbound local search user is more concerned about capability of the business and the availability of the solution for the problem than with the location of or path to the service provider’s business.
- c. There is no practical way to distinguish between the use cases when using current local search services. It is our opinion that this mismatch between information needs and information presentation is one of the important gates that switches people between local search service providers and may keep some searchers using the Yellow Pages rather than online search.
- i. Remediating the problem could involve redesigning the local search interface to give the user the opportunity to select the type of search they need to solve the problem that caused them to use a local search service.
 - ii. It is more likely that this problem will be resolved through the use of enhanced advertisements that would allow the service vendor to represent the zones they serve and detail the types of services they provide. Current advertising formats used in Local Search do not provide service vendors enough space to advertise critical business details.

It is TeleMapics' belief that many of the growth problems in the Local Search are related to the industry's inability to provide local search platforms that provide workable solutions to the queries posed by users. In general, the industry today does not appear able to meet service goals described above that are necessary to satisfy users.

5. Problems with Local Search – Finding the Right Things in the Right Place

The most common problem users experience with local search is finding a business or service in the target area specified that actually meets the intent of their search.

The local search process consists of a series of actions and reactions. The user of a Local Search service enters a query hoping to find details on the spatial availability of a relevant product or service. The local search system accepts the query, parses it and returns a response. The response is usually displayed within an environment of contextual advertisements that are selected for relevancy in respect to the thematic and spatial aspects of the user's query.

To initiate a successful search, the user needs to come up with terms that clearly define a search target, indicate the preferred location of the target and successfully input this information. Next, the search engine acts on the input, attempting to disambiguate terms and categorize them (e.g. using term matches, construct matches, Natural Language Processing, etc.) to identify probable topical targets and a relevant geographic response within the neighborhood specified in a user request. If the results are relevant, the user may be satisfied. If the results are off-target (either in a topical or locational sense) the user must recast the search parameters or try an alternative service.

It is our experience, based on testing the major local search engines, that the most common limitation is unsatisfactory responses to search queries. When the information returned was not satisfactory, the error components usually ranked in this order:

- 1) The results were thematically irrelevant (e.g., the business listings were for products or services other than those the user requested.),
- 2) The results were spatially incomplete (e.g., merchants or service providers known to exist within the search area were not included in the listings),

3) The listings were otherwise flawed (e.g., the product or service was not available from the stores/services represented as solutions to the search, the listings contained erroneous contact information or the stores/service providers were too distant).

4) Distance metrics, if provided, were misleading

What are the major causes of search failure?

Error 1 - Misclassification of the input terms defining search

From a practical standpoint, determining the meaning of the search queries submitted by users is a difficult task. Defining the “item” or “service” of interest to the user can only be based on analyzing the selection of keywords or phrases that the searcher chose to define the search target.

Communications specialists are fond of saying, “Common words do not have meaning, only people do, and sometimes they don’t either” and search is certainly a situation where this disconnect causes significant problems. Extracting the meaning embedded in written communication is a difficult task in any situation and may increase in difficulty when a keyboard is used for input. In addition, the categorization of a user’s input by software systems can and often does, suffer from the impreciseness of the query and difficulties related to the machine processing of natural language.

Local search software converts the input keywords or phrases describing the topic of interest into tokens that are used to search for matching tokens in a database of business listings. Parsers interact with lexicons and grammars in an attempt to derive the linguistic concepts contained in the user’s query. The key to successfully converting the parsed input into “useful” information is a “thesaurus”, which is used to identify potential matches for the input terms. Unfortunately, converting the input into a likely translation of what the user meant, so that it can be matched with tables in the search engine database, is a difficult and speculative task. Inadequate comparison tables (“thesauri” lacking depth, breadth or both) are one of the principle reasons for search failure. Companies whose local search platform *usually* provides relevant search results have developed software capable of optimizing the extraction of definitive terms from relatively ambiguous contextual clues in order to identify the constructs contained in the search query.

1. One way to limit the ambiguity of the local search process is to step the user through a decision tree to eliminate erroneous associations (i.e. illogical inferences, logical but inappropriate inferences, etc.). For example, if you search for “restaurants” near a location using www.go2.com the result will be a page of restaurant types and a request asking you to sharpen the search by selecting the restaurant category of interest. If you run the same search

on Google Local, the service simply provides a list of restaurants for the geographic area queried and lets the user look for relevant cuisine.

- a. Most local search companies appear to have decided that requiring the users to participate in the categorization process is an unnecessary burden for the user and simply provide a rank ordered list of businesses belonging to the class requested.
- b. Perhaps showing their heritage, the local search sites run by or associated with Yellow Page Companies retain or require active categorization of input searches.
- c. Tree-like search structures (those that require stepwise categorization) may be valuable to those connecting to local search services using low bandwidth connections. It is likely that this approach can be used to limit the length of response lists, since the user can prune related but irrelevant branches from the search structure.
- d. Also, when the user searches using a small form factor device featuring a limited key pad, such as a cell phone, it is often desirable to provide users with category choices. These choices may facilitate the; search by reducing the number of keystrokes required to navigate the search interface.

In some cases, the relationship between businesses and search categories is augmented by linking them in a table that interrelates potential search term queries with additional information (usually some form of meta-data) about the business types. It is generally the case, that the associations between categories of businesses and topical searches are generated offline, based on the use of tuned algorithms that improve the speed and accuracy of the matching process. Today, most local search providers do not search indexes of the Internet created by spidering to augment their search of businesses listings, but the use of this functionality to augment business listings is beginning to interest the industry's major players.

Error 2. - Mismatches between the constructs extracted from the input string and the business listings database.

A second source of error lies in the attempted matching of the *concepts identified* in the user's query with the same or similar constructs in the service provider's database of business listings.

1. In order to link the user request to the appropriate category of business or service, most local search providers use a classification system that categorizes their database of business

listings into relevant taxonomies comprised of searchable categories. One goal in creating these classification systems is to categorize business listings in a manner that reflects how users conceptually identify these businesses.

2. When people search the print Yellow Pages, they are forced to search based on the categorizations of businesses used by the YP publisher. During online search, the process is turned on its head since users take the first categorization step by indicating, "I'm looking for this type of business or service." In response, the local search provider has to find a potential match for this request from the pre-categorized listings in their business listings database.
3. Most business listings databases used by local search providers are pre-categorized by the vendors who created them based on commonly used schemes, such as the Standard Industrial Classification codes (SIC), the North America Industry Classification System codes (NAICS), Yellow Page headings or other schema (e.g. doctors, lawyers, etc.). Online Local Search providers often choose to refine these taxonomies or to create an entirely new classification system based on criteria they feel are relevant to local search. The validity of these classifications is an important factor in determining the authority and integrity of local search platforms. In some cases, the interactions between the local search provider's Natural Language Processing software and the taxonomies representing types of businesses may create results that confuse searchers by confounding search terms.
 - a) Although the business listings databases used by many of the Local Search providers are often supplied by the same source, the businesses listings are often further classified by the local search companies, and this action may obscure or complicate interpretation of search results. For example, Google and go2.com include the restaurant chain Chili's in the result list when searched for "Mexican food restaurants" in a specific location. It is unlikely that most patrons of Chili's would consider it to be a chain of "Mexican food restaurants". Conversely, Local.com (Interchange Corporation) and Yahoo did not categorize Chili's as a Mexican food restaurant, but did include including Chili's in their listings for the general category restaurant. To muddy the water further, Google and Yahoo also returned Chili's in a search for "Southwestern food restaurants".
 - i. We understand the user looking for Chili's could just enter Chili's and a ZIP code as an origin for their search. The problem we are addressing is that the user often has no reference for understanding why unusual or seemingly irrelevant listings are included in the list of responses to their query. Once the user begins to doubt the integrity of search responses, it is usually not long until they seek another provider.

4. If the construct derived from the user's input cannot be directly matched to categorizations of business or service type included in the service provider's database, then a probabilistic best-fit match is set using lower probability targets, or a message is sent indicating that there were no results to the query. Some services provide hints for disambiguation (e.g. "Did you mean...?") to help resolve the categorization problem. Unfortunately, it is clearly the case that significant mismatches in the local search process result from problems in matching the business category included in the query with the taxonomy used to represent business types.

Error 3. - Data quality issues related the business listings databases

Primitive data driven errors in the business listings database can be broken into two categories. First, there are omissions errors in which the data may not include existing businesses that provide the goods or services requested located within the desired spatial target. Next, the data for businesses in the listings database may be *erroneous*, including errors of identifying geographic location (errors involving some aspect of the address) and incorrect business name/contact information /content (description of the business or its services). Data quality tends to be worse for industries with short business cycles (e.g., independent restaurants, small businesses, independent retailers, etc.) and of higher quality for more stable market segments (e.g., financial, food retailers, and large businesses).

Although all database providers cite the outstanding quality of their listings, the problem of data listing inaccuracy is an obvious and acknowledged difficulty for the Local Search industry. Data driven limitations combined with the problems associated with parsing the user's input and matching it to the classifications in the business listings database often interact to produce unsatisfactory results during local search.

1. Some examples of problems generated by the three errors discussed so far

To illustrate the problems described above, we conducted a local search to find a place to buy a "cup of cocoa" near our offices. The terms we used for the search are shown in the leftmost column of table 7. I am sure that others will point out that we could have sharpened the search terms in some manner, but these are the terms we entered without attempting to bias the situation and were words that came to mind when we decided to look for a place to have a cup of hot chocolate. Further, we believe that the example reflects how regular folks attack search – although most would have given up long before we threw in the towel.

LOCAL SEARCH

Hot chocolate is commonly available at Starbucks, Gloria Jeans, Dietrich's Coffee and a variety of independent restaurants and coffee shops in the Laguna Hills area. There are approximately 30 locations known to us where the public can buy a cup of cocoa within 3 miles of Laguna Hills, CA.

All results in table 7 were for the search terms shown. All searches used the location qualifier "Laguna Hills, CA." Searches were considered successful if they contained the any of the thematic terms used in the search, even though this would not have satisfied most searchers. We arbitrarily report only the first three listings for each query (trust us, the results did not improve with an increased number of responses).

Table 7. Searching for the elusive cup of hot chocolate in Laguna Hills, CA

Search Term	Best Results	Second Place	Third Place	Fourth Place
	Local.com	Google Local	Yahoo Local	YELLOWPAGES.COM
“cocoa”	3/3 (Local coffee shops serving cocoa – all within 1 mile.)	0/3 (The results were for 3 candy stores but the listings for these stores did not mention “cocoa”.)	1/3 (The only match was a food futures company that was involved with cocoa futures.)	0/3 (The intermediate results offered the choice of a category labeled “chocolate & cocoa” but the category results did not include a location that mentioned the word “cocoa” or served “cocoa”.)
“hot cocoa”	3/3 (same as above.)	1/3 (The listing that included cocoa does not serve beverages to the public.)	2/3 (Both more than 15 miles away – not in Laguna Hills. One was a hotel providing in-room cocoa, while the other was a company selling “beverage baskets” that included a bag of cocoa.)	0/3 (Same comment as above.)
“hot cocoa drink”	3/3 (same as above.)	3/3 (2 Of 3 more than 5.5 miles away.)	0/3	0/3 (Same comment as above.)
“hot chocolate”	3/3 (same as above.)	0/3	1/3 (Over 10 miles away.)	0/3 (Same comment as above.)
“hot chocolate drink”	3/3 (Curiously, not the same three shops provided in the query above. In addition, the shops in this category were all further away.)	2/3 (Second of two hits was a recipe for hot chocolate drink.)	3/3 (Closest 17 miles furthest 44 miles. None were located in Laguna Hills or nearby communities.)	0/3 (Same comment as above.)
“cup of cocoa”	3/3 (Not the same places provided in above query and only one of three matched the locations returned in the “hot chocolate” query.)	1/3 (The only correct response was a business 8 Miles away.)	0/3 (Response to query was “Sorry, no cup of cocoa found in or nearby Laguna Hills.”)	0/3 (Same comment as above.)

The results to our search for a “cup of cocoa” certainly do not provide a ringing endorsement of the utility of local search. What conclusions follow from these mismatches?

- a. As noted previously, the type of business or services that *the user is searching for* must be extracted from the cues provided by the user and then matched against the *categories* of business listings before the search for targets in a specific area is initiated. Since shops that vend hot chocolate, cocoa or whatever you may want to call this “warm, cocoa-derived beverage” are not in short supply in the area that was searched, we can hypothesize that the search engines may not have been able to parse the input into categories that matched targets in their internal business listings databases.
- b. Another potential reason for the unsatisfactory results is that that the business listing databases may not have included information on shops that served cocoa.
- c. A final issue is that the databases used may have been out of date and did not contain businesses that now exist in the area searched.
- d. Regardless of the causes of the errors, in most cases, the search results would not have been acceptable to a user who wanted to make a purchase or an advertiser wanting positive exposure.

Are Search Results Really That Bad?

No, often they are quite reliable, but when they miss, well, sometimes the results are bizarre.

Examine the case below



During a “local search” for **Fish Tacos** the ZIP Code 92653, one provider’s results were presented in 14 categories, including 9 listings in a category labeled “Tropical Fish”. Although we have not heard of any tropical fish shops serving fish tacos, it could be the start of hot, new California-based trend! Each of the 14 categories of potential results could be individually selected for further interrogation, if the user felt that any of the categories might provide information on the search target. The categories that were offered as relevant to a search for **fish tacos** were as follows: **Fish & Seafood-Retail (4 listings)**, **Fish & Seafood-Wholesale (3)**, **Fishing (1)** , **Fishing Bait (1)**, **Fishing Guides (1)**, **Fishing Parties (4)**, **Fishing Tackle-Dealers (4)**, **Fishing Tackle-Wholesale & Manufacturers (1)**, **Fishing-Charters & Parties (1)**, **Hunting & Fishing (1)**, **Hunting & Fishing Preserves (1)**, **Hunting & Fishing-Clubs (1)**, **Restaurants-Seafood (1)**, **Tropical Fish (9)** .

In the fish taco example above, the terms we entered should have been parsed into tokens representing fish and tacos. In the example identified, it appears that the term “fish” was assigned a heavier weight than “tacos” or, perhaps, the term “tacos” was discarded. Based on the categories included in the listings, it appears likely that the terms were not parsed for meaning using compositional semantics (fish + tacos = food, meal, restaurant type, Mexican food, cuisine), which would have eliminated most, if not all, of the illogical association.

Error 4 - Data vendors induced data quality issues

We believe that the quality of business listing information is a major, industry wide problem. Although most data providers claim they are doing a reasonable job of updating, we feel that the claimed comprehensiveness of updates does not bear up under detailed inspection. Unfortunately, the business listings providers are caught in a difficult financial bind. The public has no history of paying for information they get free in the Yellow Pages. The local search firms have been successful because they have been able to steal business from traditional sources, based on price destruction. In essence, today the razor thin margins of Local Search publishing financial models do not allow online publishers to pay more for better data. The bottom line appears to be that there is no obvious incentive for data providers to create high quality directory databases.

All providers of local search services license data from national directories of business listings. Many of these directory providers create their data primarily by recompiling the information contained in Yellow Page (YP) or White Page (WP) print directories. The time delay produces data aging and results in directories with a variety of errors. Common errors include the obvious absence of new businesses, erroneous listings for those that have failed, and lack of new contact information for businesses that have relocated.

1. The print directory process looks like this: marketing/ sales cycle, transmission of copy, compilation, checking of copy, editorial, approval cycle, prepress (even if electronic files are generated), printing, warehousing and distribution). Only after the YP books are distributed is there an opportunity for producers of national business directories to recompile them as part of a national business listings database. The time span from the beginning of the compilation process until the availability of the data to the users of local search business directories works against these products being “current”.

Ask™ .com Business or service Location (city or zip)

Local

[Taleo Mexican Grill](#) Sponsored Results
 Taleo is Orange County's spot for authentic mexican food & atmosphere!
 3309 Michelson Dr

Laguna Niguel, CA listings for "fish tacos"
 Related Categories: [All](#) | [Food & Dining \(3\)](#)

Search: [1mi](#) | [5mi](#) | [10mi](#) | [30mi](#) Sort By: [Relevance](#) | [Distance*](#) | [Ratings](#)

<p>1 Baja Fish Tacos (000) 000-0000 3242 B-5 Crown Valley Pkwy. Laguna Niguel, CA 92679 Food & Dining Map · Directions</p>	<p>← 1.8 mi</p>	<p>8.5 out of 10</p>
<p>2 Baja Fish Tacos 9495870920 23020 Lake Forest Dr Ste 130 Laguna Hills, CA 92653 Food & Dining Map · Directions · Website</p>	<p>7.4 mi</p>	<p>7.2 out of 10</p>
<p>3 Baja Fish Tacos 9494951537 30242 Crown Valley Pkwy Ste B5 Laguna Niguel, CA 92677 Food & Dining Map · Directions</p>	<p>← 0.5 mi</p>	

*Distance is measured from the city center or zip code to the business street location

Business or service Location (city or zip)

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Location 3 in the image above is the correct entry for the restaurant referenced as both locations 1 and 3. You might have noticed that location 1 has a unique telephone number. As you can see, location 1 was geocoded and positioned on the map, even though Baja Fish Taco does not have a restaurant at this location. We suspect that this mistake reflects an erroneous listing supplied by the data provider, which was not caught during data validation. To add insult to injury, the location that does not exist has a popularity rating.

Even the business listings providers who claim to research their business listings data directly, experience data aging due to the challenge of providing comprehensive coverage over large, densely populated geographic areas. For example, those Internet local search sites that are business units of companies owning YP publishers, normally, are provided access to the company's newest YP data late in the book publishing production cycle. In addition, the YP directory providers are, most commonly, regional in scope. Each publisher focuses on particular market segments that are the most lucrative advertisers in their geography. Many business directory publishers create their products based on a variety of regional YP products and these

directories often reflect the regional biases in advertising sales, leading to the creation of national directories that feature uneven reporting of businesses across industry segments.

We do not question the claim that most data integrators spend some additional time validating business information by using call centers to contact individual storefront owners, but we believe that the magnitude of the update and verification tasks precludes comprehensive data cleaning or validation. Finally, many vendors focus on updating specific categories of data (use-categories that they believe change more rapidly than others do) and refresh these categories more frequently than others. Consequently, data quality and currentness are uneven across the databases they provide.

It is likely that future deals extending the trend in mergers of Baby Bell organizations could result in the creation of a truly national telephone carrier blessed with quality national YP assets. If so, the owners of this data may have an opportunity to take the lead in online local search.

Error 5. Solution provider data quality Issues

Data handling practices used by the local search service providers also influence the currentness of data. Business listings data are imported, usually quality checked and then compiled into a “live” or run-time database format that allows integration with other data and services (mapping, geocoding, advertising related information, etc). Integrating the fifteen to twenty million business listings normally included in a database of U.S. businesses is a complex process. When the quality has been assured, the database has to be pushed to the live site at the company’s network operating center (NOC) and retested. It is our belief that the local search offering of many companies are months behind their information vendors scheduled data deliveries of business listing databases.

Some local search vendors have tried to create on-line registries of commercial business information, in an attempt to provide high quality local data, but the efforts have been unsuccessful. The notion driving these types of registries is that the business owner/service provider should be the party interested in supplying up-to-date, comprehensive information about their business and the party responsible for managing their business listing in online directories.

While on-line business registries are a logical and intellectually compelling concept, most local search services have lacked the distribution power to make registering a necessity comparable to being listed in the print Yellow Pages. As a result, the potential advantages of registering for the service have not played out in the marketplace.

1. Recently, Yahoo began offering a free “Local Basic Listing” that allows a business owner the opportunity to appear in the Yahoo Local directory for free or to purchase a “Local Enhanced” listing from \$9.95 a month. The important issue here is that Yahoo is providing the merchant the direct opportunity to establish the facts of their business, correct any errors or omissions for free, while providing Yahoo the opportunity to improve its local search database and develop a marketing relationship with owners of SMEs.

Error 6. Address related issues

Address related issues influence the quality of spatial search results in a surprising variety of ways.

Postal address can be used to “find” a location by “inspection”, either by navigating along a street until you find the location that is tied to the address or by comparing an address to a map coded with the location of addresses or address ranges. However, a postal address does not have extensible location finding value. By itself, an address only indicates that there is a location identified by a specific number within a range of numbers used to designate buildings on a particular, named street within a specific geographic area. The address does not reveal positional information about the location of the street on which it occurs. Further, a postal address does not provide other georeferencing cues (e.g. the distance or direction between itself and other streets that might be in the same area) unless it is associated with additional information. In other words, it is difficult to derive meaningful spatial metrics only by using postal addresses. Instead, calculation of positions relative to other locations must be accomplished through the use of a geographical referencing system and the application of concepts of topology.

1. The postal addresses included in business directory databases are commonly associated with a latitude/longitude coordinate pair in a process known as geocoding. The determination of the spatial locations of businesses represented in directory databases are generated by translating their postal address into latitude/longitude coordinates. Not all attempts at geocoding are successful. When the process fails, the address is assigned a less precise location match (e.g. an address that cannot be geocoded to the block level may default to the geographic coordinates of the centroid representing the ZIP code within which it occurs). Lower positional resolution can lead to incomplete, unexpected or “fuzzy” search results.
 - a) The geocode (coordinates) of a business along a block face is most often a linear interpolation based on the address range occurring on its side of the street. For example: if the lowest address on the even side of the street was 20, the highest address on the street 100, and the address of interest is 60, the location would be interpolated to be 50% of the distance between the lowest and highest address. The location would be assigned a lat/lon

coordinate pair that reflected a position halfway between the coordinate pairs representing each end of the block face.

- i. This method-induced error results in an approximation of where the business is located along the block face. It is possible, although rare, to actually assign a location to a business by using a GPS receiver to precisely determine the coordinates of the business. These types of errors help to explain why A9's use of storefront photography to help find the location of a business was so appealing to many users (although it did not generate significant traffic).
 - ii. Group 1 Software, claims to have solved the "fuzzy address" problem using additional processing involving analyses of carrier routes, parcel maps and imagery to more precisely locate addresses. A press release from Group 1 claims, "The GeoStan™ Point-Level Option can locate millions of addresses at the building or parcel center point". Group 1's clients include TeleAtlas, and Microsoft.
 - iii. The U.S. Census announced, in August of 2007, that it intends to record the GPS coordinates of every residence in the United States for the 2010 Census. It is unclear whether the Bureau will have the budget to capture these data. In a controversial move, the Census Bureau has indicated it will not make these data public, although the public will fund their collection effort. These data would dramatically augment the spatial reliability of local search.
- b) In rural areas, geocoding methods can produce significant errors due to the nature of the address form (e.g. RFD) and the size of the unit used to position the address.
 - c) In other cases, the address range information for specific blocks in map databases may be flawed or reversed, resulting in the business appearing on the wrong side of a street or at an incorrect position along the street.
2. Another source of address-related error, especially in systems that allow users to set default locations, is that the address may be malformed (i.e., include incorrect street name spelling, addresses outside of existing address ranges for the street, improper or incomplete ZIP code, or lack of directionals). Malformed addresses may be difficult to match against map database addresses if the input address is not standardized as part of the search process.
 - a) Standardization massages address information into common address formats, matches input names with known city and street names or corrects them, inserts directionals and complete ZIP codes in an attempt to qualify the address and match

it with known postal service standards. Doing so helps match the address with the database listings in relevant geographical areas.

3. An additional source of error is that addresses are geocoded based on postal addresses that occur within administrative units whose boundaries and names are approved by government agencies. There are, of course, large numbers of unincorporated places, neighborhoods, shopping areas, and various districts, whose names are commonly used to define locations, but the names are not officially recognized (or used in postal addresses) due to their lack of jurisdictional significance. People who initiate local searches using unofficial names to define locations are likely to be disappointed in the results. Only services that use a geographic thesaurus containing the spatial linkages between named places and their alternate names are likely to produce search results relevant to the area of interest.
4. Systems that allow the user to enter a preferred address as the search center return listings based on the radial (or flight) distance between that address and the location of the business returned in the search results. If you create a route between the base location and the target, you will notice that the route distance rarely matches the “distance away” metric provided in the listing.

Yahoo

1. [Baja Fish Tacos](#) 
 (949) 495-1537 30242 Crown Valley Pkwy # B5, Laguna Niguel, CA 0.44 mi
[Map](#) | [Directions](#) | [Send to Phone](#) ★★★★★ (3)
Rate it:
☆☆☆☆☆
 ...compare to **Taco** Bell or Rubio's, but what the heck this place is perfect for lunch or... [more](#) [Save to Collection](#)
 See all: [Fast Food](#) - [Restaurants](#) - [Seafood Restaurants](#) - [Mexican Restaurants](#)
www.bajafishtacos.us/

Google Local

 [Baja Fish Tacos](#)
 30242 Crown Valley Pkwy # B5, Laguna Niguel, CA
 (949) 495-1537 - [1 review](#) 0.5 mi W

Local.com

[Baja Fish Tacos](#) 1.4 Mi
 (949) 495-1537 30242 Crown Valley Pkwy Ste B5 - Laguna Niguel, CA 92677
dine, dining, dining out, eat, eat out, eateries, eateries, eatery, eating, eating establishment, food, food and d.
[Map & Directions](#) • [Review This Business](#)

Windows Live Local

 [Baja Fish Tacos](#)
 30242 Crown Valley Pkwy # B5, Laguna Niguel, CA | 2.5mi
 (949) 495-1537
[Call for free](#)

In this example, we show the results of another search for Fish Tacos in Laguna Niguel, CA. Although Laguna Niguel was used as the spatial qualifier, each service appears to have calculated a different spatial definition of its center. The result is that the distances to the same restaurant vary by vendor. In some cases, the distance variation is significant.

5. The results of local searches also provide evidence that arguments about geography still exist. In most local searches, a distance measure accompanies the listings and many local search providers allow the user to rank the results based on distance. Doing so raises issues surrounding the measurements of spatial form and centrality. These complexities are reflected in the search results for the same location compared across local search systems. We graphically portray this problem in the image above where we show the distance metric for the same restaurant in Laguna Niguel, CA across four local search vendors. Yahoo Local and Google Local appear to have measured the distance to the restaurant from the centroid of a polygon representing Laguna Niguel, or from the centroid of a ZIP code representing Laguna Niguel. Windows Live Local seems to have measured the distance from the location of the Town Hall in Laguna Niguel to the restaurant. The distance provided by Local.com is more curious, but appears to reflect an error in their geocoder or map base, since the location of the restaurant is incorrect on their map. Although it is unlikely that users will compare local search results for distance variations, the problem is that the method of calculating the distances may

not be a useful way of sorting search results, at least in respect to users' reliance on these distances as indicators of closeness.

Error 7. Map data issues

Most local search systems provide a specific map of, or a route to the location of, business included in local search results. In some cases, although rare, the software used to geocode the address of a business listing and the mapping or routing package that displays the location of the business do not use the same map base. A common result of using different geographical databases in the processing of business data is that the location of the business, as shown on the map, is incorrect.

Major map database suppliers (Navteq and TeleAtlas) constantly update their database with new information. Local or regional database updates are released on a quarterly basis, but the content of the entire databases is commonly not uniform in terms of the quality or date of the revision. The uniformity issue is not a criticism of the companies involved, merely a reflection of the difficult task of maintaining comprehensive national database coverages at a uniformly high level of data currentness and accuracy.)

1. Updates often feature country updates or, in the case of large countries, releases cover large sections (regions) of the country. Since not all countries or all regions within a country are updated at the same time, variations in data age are a common problem.
2. When updates to map data are available, service providers should consider re-geocoding their business listings (either in whole or in part depending on the update) as part of their effort to improve the accuracy of search, positional display on maps, and the validity of routing. Recompiling the databases (both map and listing databases) and quality testing them takes considerable time. We believe it is common that local search companies' updates of their compiled map databases lag behind the data releases of their map suppliers and business listings suppliers. This leads to the potential for mismatches between business listings data and map data.

Error 8 - Geotargeting Limitations

Many searches that include spatial identifiers occur during general Internet search, rather than being the exclusive purview of local search. The listings and advertisements that result during Internet Search often are not relevant to the geographical cues included in the query. The reasons for these unsatisfactory results involve several factors.

1. As mentioned previously, geotargeting involves extracting geographic place names from the user query and attempting to match these tokens with geographies represented in an index of the Internet. Matches may be incorrect or too fuzzy a match to produce spatially relevant results because the match utilizes place names and not geographical coordinates to represent the location.
2. “Keyword geography” is the definition of spatial areas by the use of the place names commonly used to describe locations. We believe that many of the current geotargeting implementations are immature, although all major players are thought to be working on remedying this problem. The solution to this problem requires geotargeting to identify both spatial locations and spatial hierarchies. Geotargeting can be used to disambiguate place names from similar place names occurring in different geographic locales.
 - a. Providing for the use of place names to describe locations such as neighborhoods or other areas not distinguished by authoritative boundaries is a complex issue. Currently this problem is being approached from the application of geographic thesauri, which is a place name dictionary that includes spatial and hierarchical relationships between places. To some degree, this work might be assisted by the current focus of geographers, who are studying the issues surrounding interoperability in the face of diverse geospatial semantics.

Gazetteer Standard Report
Alexandria Digital Library


Reports: [Standard Report](#) | [Standard XML](#) |

Feature Name:
Display name:
 Laguna Hills - Orange County - California - United States
Geographic name:
 Laguna Hills

Feature Class:
 populated places *from ADL Feature Type Thesaurus*
 PPL *from GNIS Feature Classes*

Spatial Reference:
Bounding Coordinates:
 Long: -117.7119 Lat: 33.6125
 Long: -117.7119 Lat: 33.6125

Footprints:



[Transfer To Map](#)
[Center Map](#)

Geometry Type: Point
 Long: -117.7119 Lat: 33.6125

Identification Code: adlgaz-1-6403600-61

Reference Codes:
 GNIS Feature ID Number: 1667917

Related Information:
Related Entity:
part of: [Orange County, California \(FIPS 06059\)](#)
Related Entity:
part of: [San Juan Capistrano CA topographic map \(33117-E6\)](#)
Related Entity:
part of: [Cleveland National Forest](#)

Example of a gazetteer response for the query Laguna Hills. Results supplied by the Alexandria Digital Library, Gazetteer Server Client

- b. Software extraction of the meaning of geographic cues in search queries is complicated, although companies like MetaCarta have made significant strides in developing systems that can perform this function. It is less clear that software such as MetaCarta's can be implemented and not degrade search throughput, although MetaCarta claims high performance capabilities.
3. In order to create relevant geotargeting for advertising (i.e., to serve spatially relevant ads), the advertiser must be able to specify the geographic areas of interest when buying inventory for a spatially targeted campaign. Most methods provided to define geographic areas are primitive and, if available at all, provide targeting only at gross levels such as Standard Metropolitan Areas. In addition, the current key-word bidding concept behind Internet Pay-Per-Click

advertising systems makes it difficult for advertising buyers to target geographical areas, although Google and Microsoft now provide their advertisers improved, but modest, geotargeting capabilities. The inability to target desired geographical areas during search and the difficulty of designing spatial advertising campaigns using keyword bidding, often interact to produce spatial mismatches leading to the placement of irrelevant advertisements.

- a) In practice, search engine software must be able to recognize the query tokens that have a geographic component and attempt to match them with the relevant, spatially tagged advertising inventory. It is our opinion that a large number of mismatches occur at this stage of the process. We believe that the majority of geotargeted advertising inventory is tagged at a grosser level of spatial resolution than the geographic cue provided in the search (e.g. a buyer might be able to geo-tag the Los Angeles area, but the searcher may be looking for a smaller unit such as Santa Monica or Vernon). The search engine may not be able to match the spatial component of the advertisement with the geographic cue in the query unless the search engine has an index of the relevant geographic entities that can be spatially associated with the geotag.
4. Another goal for geotargeting involves determining the location of the user irrespective of the spatial aspects of the query, since the user may be a potential buyer of the brand holder's products, even if the products are unrelated to the present query. If the user's location can be determined through the search query or other information, then geotargeted advertisements placed on search response pages may become an interesting way to reach customers.
 - a) The actual geographic location of users of Internet Search is most often unknown or imprecise (although patents held by Digital Envoy, Quova and the NSA may provide improved resolution). Users, generally, are not asked to provide their location when using a search engine. Even if the users have a membership with the service provider that allows use of the address in search, confidentiality rules, if not public concern, make it unlikely that any spatial components contained in the user's profile could be used for geotargeting. Even when IP sniffing is used, the IP address provides the location of the servers used to connect with the Internet and most ISP's have a policy of not providing the IP of individuals, unless compelled to by the authorities. Companies working to improve user localization technology range from those interested in search to others who are interested in digital rights management and licensing.

6. Infrastructure Limitations Impeding the Success of Local Search

Four "infrastructure" issues may impede the industry from reaching its goal of providing an effective platform for the users of local search services. Current infrastructure limitations are more problematic for the success of mobile local search than for wired versions of local search.

1. Speed of Access Limitations (broadband/narrowband/cellular data networks)

1. According to the Pew Internet American Life Project 84 million Americans had access to broadband at home in March of 2006. The percentage of users having "high speed" access at home is 42%, a significant increase over the 30% recorded for 2005. Over half the users with "high speed" access at home were connected by DSL and approximately 41% via cable modems. Over 92% of Internet users have used a search engine and 84% of the user base has searched for a map or a route connecting places. Although the majority of Local Search services are bulking-up on maps and remotely sensed imagery (aerial, oblique aerial and satellite imagery), narrowband customers may prefer less fully featured but more bandwidth efficient services.
 - a. Even feature limited local search solutions may require more download time than users want to expend interrogating the results of queries. Recursive, tree-structured search, which is commonly encountered in directory-based local search, can cause time-consuming interactions, especially when coupled with low bandwidth devices.

Broadband market penetration and availability must increase for enhanced, wire line local search to gain users.

2. Local search provided over cellular networks does not operate fast enough for most users. In addition, most cellular networks provide uneven coverage and variable connection speeds within coverage areas.
 - a. Although most wireless carriers require local search providers' to meet stringent delivery requirements that are stipulated in Service Level Agreements, it is difficult to determine the location of the weakest link in a cellular network. Often, gateway negotiations and other issues related to connectivity protocols (e.g. handshakes, security, and negotiating the "walled Internet garden" provided by most cellular carriers) add latencies that reduce the throughput of local search response delivered over cellular devices.

- i. The “walled garden” concept refers to network providers’ attempts to surround their cellular users with network provided services (such as T-mobile’s T-Zones or Verizon’s VZW Mobile Web). Service providers that do not have a preferred relationship with a carrier will not have their service listed in the preinstalled “menu” provided on cellular phones available through the network’s carrier. Consequently, people who might prefer an “unlisted” service must key in the URL using the phone’s keypad: an effort that may be rejected by many users. .
- b. High-speed 3G and 3.5g cellular networks (1xEV-DO, 1xEV-DV, HSDPA, etc.) help resolve network related speed issues in cellular-based local search applications. Unfortunately, consumer interest in these technologies has been limited, due to the cost of these services (both the data subscription and the phones) and the availability of the service. In 2006, the expense of using these systems decreased slightly while available high-speed coverage areas increased significantly. Until “true” 3G networks (or alternatives such as FLASH-OFDM) are widely available and adopted by users, local search services provided over cellular networks will compare unfavorably to the services provided by PC-based platforms.
- c. Short Message System (SMS) local search platforms that use a search query including a ZIP code as the spatial identifier (e.g. “pizza 92653”) may increase in popularity in 2007 and beyond. The bandwidth requirements for SMS systems are modest and throughput is within acceptable limits, although it remains to be seen whether SMS-ZIP Code based search has the ability to satisfy customers beyond the haptically talented text messagers.
 - i. ZIP Code based searches are based on computing the centroid of the geographic area containing all addresses having a common ZIP. In fact, ZIP codes define postal delivery areas, although the USPS does not issue ZIP Code maps or define ZIP code polygons. ZIP Code maps and boundaries have been created by commercial firms and government agencies that use ZIP Code data for applications other than simple mail delivery. Vagaries in the geometry of ZIP code polygons can generate ambiguous search results depending on the size and shape of a ZIP Code area, the locations of population centers within the ZIP code and an individual’s location within this zone.
 - a) For example, if a user is located at the southern end of a tall, narrow ZIP code region and enters the area’s ZIP during a local search, the results will return businesses in locations surrounding the centroid but potentially distant from the user’s location. The user can ameliorate the artifacting problem by entering spatially relevant ZIP Codes, but to do so the user would need to know the location of neighborhoods in terms of ZIP codes. Unfortunately, people are often unfamiliar with the ZIP codes of geographic

areas other than work or home, but the SMS approach can be quite useful. See SMS Local by Interchange Corporation or Google Local for examples of this type of service.

2. Speed of Search Response Limitations

Most providers of local search utilize robust platforms distributed across multiple NOC's (Network Operating Centers) and support redundant, high capacity network connections in an attempt to provide acceptable service levels. Although users may confuse the speed of the provider's response with the network speed of access, the lack of a speedy query response from the local search provider is rare except, perhaps, in the case of using cellular wireless networks. Of course, as shown in the illustration below, there are exceptions to the general rules governing availability.

The screenshot shows the Ask.com search interface. At the top, there is a search bar with the text "cup of cocoa" and a location dropdown menu set to "Aliso Viejo". Below the search bar, there are two buttons: "Search Local" and "Search the Web". A red banner with the word "Local" in white text is displayed below the search bar. Below the banner, a message reads: "We are currently experiencing an unusually large amount of Local searches. Please try your search again." Below the message, there is a second search bar with the same text "cup of cocoa" and "Aliso Viejo". Below the second search bar, there are two buttons: "Search Local" and "Search the Web". At the bottom of the page, there is a "Saved/Recent Locations" dropdown menu and a "NAVTEO ON BOARD" logo.

The common factor slowing speed of response in local search applications is that maps and other geographic images are often fused (merged on the fly) into the bit stream of applications containing the search results. The fusing can increase transaction latency and contribute to inadequate response time. Data fusion may produce contention that will slow a system but rarely will it result in a system failure. In other cases, the complexity of these interactions can result in software glitches masquerading as system unavailability.

3. Form Factor Limitations

The form factor issue for Local Search involves differences in the usability of search platforms across devices. It serves to differentiate the types of services preferred by desktops/laptop customers from those required by cell phone/PDA customers. Map focused search, such as presented by Google and MSN, appears to be gaining popularity, even though these services provide graphic displays that are relatively inefficient in terms of visual search and information processing.

1. Current search applications are predominately list based, providing output in tabular/pick list form, can penalize users of small format display devices.
 - a. Many services intended for cellular wireless devices are ports of applications designed for desktop usage. Ample thought, however, has not been given to how users interact with information provided on cellular phones or other small format devices.
2. Maps, images and other enhanced search features find their greatest value when viewed on a standard monitor or a laptop screen. More research is needed on the display of alternative forms of information presentation (e.g. such as providing stick maps (a connected graph), or cross-street directories as substitutes for fully featured maps), especially for small format displays.
3. It is likely that successful cell phone-based Local Search will need to combine both oral input and aural output with visual search (list processing) and haptic (touch) communication to create effective phone based local search applications.
4. A secondary consideration in form factor is that keyboard entry of search terms and delimiters (geographical, topical, etc.) is cumbersome on systems lacking full keyboards (or keyboards that are fully featured but difficult to use because of small size).
5. Providing applications in a format that enhances use and speeds local search remains a pressing need for the industry. Improving the Human Factors aspects of information display on small screens will be required to attract and retain those who prefer use cellular devices for local search. Many platforms supporting cellular-based local search are neither appropriately optimized nor designed for the variety of devices in their user populations.

4. Spatial Localization Cue Limitations

Spatial localization cues (i.e. information on the user's current spatial position) are provided with variable specificity across local search platforms.

1. Local search platforms can trap the IP address of the server conveying the query from the user. It also may be able to link this data with other location information to generate a rough approximation of the spatial location of the user's ISP and possibly the user. There appears to be considerable contention surrounding the ownership of these locations IP-based methodologies and potential legal issues may retard the use of IP addressing data for determining the location of users.

- a. In many cases, the position derived from the IP solution is inaccurate, as it is the location of the ISP's NOC rather than the location of the user. For example, all subscribers to AOL appear to originate in Vienna, Virginia, regardless of their true location.
2. In most local search queries, the location of the query is passed to the system through the user's entry of an address or ZIP Code as the origin for the proposed search.
 - a. Many services limit the variety location input types, accepting only specific addresses, official place names or ZIP codes. While address or ZIP Code entry is often convenient, it is common that users do not know the details of spatial boundaries distant from their home area. When the user does not know a specific address or ZIP code for the area of interest, allowing the use only of these limited descriptors to guide spatial search can produce disappointing results.
 - b. The use of surrogate information to define locations, such as: cross streets, directionals (5 miles south of Laguna Hills, CA on I-5), place names, neighborhood names, building names and vanity addresses (One Liberty Place), can help users to locate target areas. These alternative location identifiers should be used cautiously since decreases in the accuracy of position on the input side can produce a less accurate spatial search.
 - i. Adding surrogate position information certainly improves the functionality of local search, but adds significant complexity to determining the spatial location to which these surrogates refer. Matches for some of the common address surrogates can be created by massaging existing street level databases to produce cross street directories. Other functionalities may require additional data sources, such as geographic gazetteers (e.g. for the location of neighborhoods and the boundaries or centers of other "named" locations). In 2005, according to its press release, Yahoo acquired WhereOnEarth, a company specializing in the development of digital gazetteers to provide geographic data that would help identify places and other geographic identifiers mentioned in queries.
3. If the search user is a commercial Wi-Fi subscriber, the IP of the access point being used can provide a precise location for the search center (if the user opts to release the data and the Wi-Fi network provider makes it accessible to application providers). In an interesting reversal of this strategy, Skyhook Wireless is mapping the location of Wi-Fi hotspots to create a national network that can be used to identify the location of Wi-Fi users who have opted to use their service. Loki, a property of Skyhook Wireless, provides a toolbar featuring navigation and location services based on positioning through Wi-Fi addressing.

- a. The presence of Wi-Fi access points are autocorrelated with population density and, as a consequence, of little use in rural areas. For example, Skyhook's current offering suffers from sparse data collection and imprecise location services even in suburban areas. In May 2006, the company announced that it intended to increase its coverage from 45% of the U.S. population to 75% at the end of 2006 by increasing its efforts to map the locations of *private* and public access points.
4. Automatic input (AGPS/GPS/cell tower triangulation) of location is one of the most promising of the potential benefits of cellular-based local search applications, but use of this technique may lag the market due to issue of privacy and security. In addition, many telcos have been slow to offer Location Based Services (LBS), although they control the availability of the coordinates generated by cell phones. To date, the use of automatic localization has been limited by the slow uptake of GPS services offered by the carriers and the difficulty of demonstrating the value of these services to the consumer.
 - a. Widespread adoption of automatic input depends on whether the user knows how to opt-in and use the signal or has the perseverance required to use GPS on most portable, cellular devices.

5. Summary Infrastructure Limitations

Satisfaction with local search applications is optimized using large form factor, full keyboard devices operating on a broadband network. The ability to navigate the local search application and benefit from location-finding tools (maps, air/satellite images or store photographs) is best met by the use of a PC or a laptop. This is the sweet spot of today's search market, but its continued success depends on increases in the number of customers using broadband to access local search services.

The inadequacies of local search platforms intensify when experienced on small form factor devices and are compounded when a device is connected at low bandwidth. Higher data rate systems will help improve aspects of this use case, but more work on search interfaces, the effective presentation of results and enhanced search taxonomies are required to make these portable devices compelling for local search. Many industry players consider the cellular market to be the only the real growth market for local search. Bandwidth issues and clunky implementations of local search currently limit the growth of this market. Over time, hardware limitations will lessen and more people will use local search on a variety of devices, especially in mobile environments.

7. Markets and Futures

The overview of the industry provided in this paper sheds light on several areas that we believe will be the focus of attention during the next 12 to 18 months. We discuss our positions below. Before we start, we acknowledge that this is a wide-ranging discussion. We borrow concepts from the world of search engines in general, publishing, advertising and distribution to prognosticate on possible extensions of Local Search. In turn, we describe industry segments that while not mainstream Local Search, are close relatives. Our conclusions suggest a positive but changing future for Local Search.

1. The need for local search providers to expand their advertising base by up-selling enhanced ads and by improving listings definition.

Although the Internet continues to invade our lives and displace traditional media, it has exhibited weaknesses that appear to impede the success of many of its businesses. While Google continues to astound the financial markets with its success, it is unclear that this success reflects a significant contribution by its local search component. It occurs to us that search companies, though generating revenue through advertising aided by an automated approach to both sales and publishing, may be leaving significant money on the table. From our perspective, the industry's major growth opportunities in Local Search are: 1) expanding the advertising base through up-selling enhanced advertisements, and 2) improving listings definition to drive more traffic to local search sites.

1. Many businesses, especially small businesses, are reactive rather than proactive when buying advertising or updating and expanding business listings information. It is often the Yellow Page or newspaper salesperson who prompts an ad sale, and the need for local sales forces is a fact likely to remain true even in the Internet Age. Buying advertising on any of the major services is a passionless, complicated process that the advertiser must understand and measure if they hope to use online advertising to their advantage. While this type of advertising may be more effective, less expensive and more accountable than traditional media, it also requires more attention from people who believe they already have too much on their plates. Even so, it is likely that most businesses eventually will migrate to advertising on the Internet. The company or companies that can short circuit the current evolutionary transition will, we suspect, reap great rewards.

- a. Online ad buying procedures are labor intensive compared to telling the Yellow Pages salesperson when they are in your shop, what you want the ad to include. While online ad buying is not that complicated, it is too detailed and time consuming to be appealing to many SMEs. Yellow Page advertisers can buy an ad and gauge for themselves the amount of business it brings them. Managing online advertising requires buyers to check their bids to make sure they are matching the hurdle rate to qualify for publication, evaluate their page position, change their bids, add or subtract keywords and track the performance of these variations. While online advertising systems provide many advantages, they are not as convenient as buying a half-page color ad, or photo ad, for the Yellow Pages that will get your company noticed by searchers. Finally, we suspect that it is the rare business owner who understands that buying keywords is arbitraging metadata. The key descriptors in business listings, intended for online systems, act as metadata that help ensure distribution of the listings to important and relevant markets. Perhaps, online business advertisers need sales representatives who understand the nature of the new game and can translate these advantages to owners of SMEs.
- b. The limited copy formats available to advertisers using local search and the inability to customize them may be limiting advertising sales (e.g. Google's format of first ad line 25 characters, second line 35 characters, and third line 35 characters). Businesses use advertising to connect with potential customers and rely on advertising copy points to differentiate themselves from competitors in the marketplace. Branding, corporate communications goals and effective advertising design are often casualties of automated advertising systems.
 - i. Today's online business listings are missing a key piece of the YP story – the ability to post customizable ads to differentiate businesses from their competitors and to provide the kinds of information required by specific, qualified buyers. For instance, there is a competitive advantage to advertise 24-hour services with a specific contact number for emergency services, when you are a plumber and potential customers might need one.
 - ii. Yell.com (www.yelldirect.com) comes close to providing the missing essence - the ability to publish ads describing a service's ability to meet a specific set of customer needs. MerchantCircle (www.merchantcircle.com) has taken a different approach by providing venues that allow business owners to express the uniqueness of their business to the local community.
- c. The issues discussed above are interrelated and may require a sales force to resolve, at least over the next few years. It also occurs to us that the best sales force to handle these issues,

for the providers of local search, are those already involved in the print Yellow Page industry. During a discussion on the Yellow Page business, the CEO of a then major phone company stated, "The arrival of the Yellow Pages sales team in a town is like a swarm of locusts landing on a ripe crop. Sales associates are everywhere, in every business, buzzing around every marketing dollar and filled with enthusiasm while they do it." It is quite clear that sales teams with "feet on the street" have been at the heart of the financial success of Yellow Page publishing. Although the Yellow Pages business is declining, it appears reasonable that the adoption of some aspects of the Yellow Pages methodology and sales process might be of benefit to providers of local search services.

- d. So should we expect the acquisition of an YP player by a Local Search provider? Probably not. We think it unlikely that an online business would be interested in the print publishing world. It is unclear that acquisition of a Yellow Page publisher followed by the divestiture of its print publishing business would be a workable or financially attractive proposition. We believe that business strategy issues, the lack of comprehensive geographic listings coverage and business integration problems play against an acquisition.
- i. Since its inception, the Yellow Pages industry has been an inherently local publishing business, serving to provide advertising in discrete geographic markets. With the dissolution of "Ma Bell" (the original AT&T) in 1984, regional telephone carriers spawned regional Yellow Page companies. For obvious reasons, there was no demand for a national Yellow Pages type of product until the development of a distribution mechanism capable of aggregating and disseminating the volumes of data required. In essence, there was not a market for a national Yellow Pages directory until the Internet spawned local search.
 - a) During this same period, some of the telcos had become acquisitive and started consolidating assets that would allow the extension of their brands to new geographic markets. However, the regional nature of carrier coverage areas has not yet provided one company with sufficient proprietary data to create a national, online Yellow Pages service. In essence, existing YP providers operate in coverage areas that are discrete and cannot be used to provide comprehensive national coverage without relying on the same listings sources already in use by major players in Local Search.
 - b) Some have suggested that attempting to enhance the data quality of listings used for local search, while possible through acquisition, might not create a sustainable competitive advantage in the market. It appears there is no practical way to protect listings information through copyright (see the Feist decision - Feist Publications, Inc. v.

Rural Telephone Services Company, Inc. – 499 U.S. 340 (1991)
<http://www.bitlaw.com/source/cases/copyright/feist.html>).

- c) Perhaps more important than any other factor, online search providers have invested hundreds of millions of dollars in the creation of metadata, but have shown less interest in owning basic data.
- d) We feel it is likely that the Local Search industry will continue to develop relationships with companies having YP sales forces. For example, in March 2007 Google and Verizon SuperPages agreed on a partnership designed to expand the online reach of SuperPages and its customers by pushing their enhanced listing into the Google system. This gives Google the advantaged of importing quality listings that should help to expand its distribution and market share. In turn, SuperPages can provide expanded distribution to its advertisers. It would make sense for Google to clone this type of relationship by partnering with other YP publishers to provide enhanced listings allowing increased spatial coverage. We expect other players in the industry to conclude similar agreements, and we presume that one of them will attempt to partner with Yellow Book, a company that has 900 directories in 46 states, with a total distribution of over 100,000,000 books. Alternatively, perhaps an association with R.H. Donnelley is in the works?

2. The business listings databases used in local search are derived from print Yellow Page and white page directories that serve as the main source of information for companies providing national business listing directories. As noted previously in this whitepaper, these data are often out-of-date by the time they are incorporated in online databases. The need for improvement in business listings quality is clear. On the other hand, it is difficult to expect marked improvement in the accuracy and currentness of listings without significant investment aimed at enhancing the infrastructure of the companies providing listings databases. Given the current licensing fees paid for use of the listings data, it is hard to see an impetus for the needed investments.

In part, the underlying problem appears based a general lack of appreciation for the expense of creating accurate, robust listings data. Conversely, the Local Search industry may be betting that alternative collection techniques will spawn enhanced data.

- a. Local search providers need to develop better methods for updating, verifying and enhancing the content of listings, including convincing business owners to update listings, preferably online. Although most major local search sites provide no cost or low cost creation and

updating of online listings, most business owners are unaware of the services and seem unlikely to find out about them on their own. Further, it may be that business owners do not understand the need to update their business listing for each vendor offering these services, even though doing so would be in their best interests. Although several companies have attempted to become the “authority” for registering businesses online, these types of activities, to date, have failed to generate a significant number of registrations.

- b. Several players in Local Search are working on the development of methodologies to spider websites and compare that information with listings data to resolve inconsistencies. The most difficult issue with these efforts is that the discrepancies between a company’s business directory listing and information derived from the spidering the company’s website cannot be resolved without directly contacting the business.

2. Is there a market for regional or local - Local Search?

Will companies that are building a national franchise by replicating local advertising sites, such as Craigslist, prove to be serious contenders for advertisements that would normally go to the Big Three or the emerging, pure play Local Search companies such as local.com or TrueLocal? Would searchers be willing to use geographically specialized local search engines for a particular spatial region? Would these same users seek the geotargeting capabilities of a vertical/local service specializing in a specific category of search (e.g. household repair) in a specific Geography? Moreover, would these answers change if the “geocentric” service provided detailed, unique information on each establishment, as well as authoritative customer rankings of establishments?

These are difficult issues to analyze, and there are few direct comparisons that can be made with other industries, although a brief review of the dynamics of print map publishing may be relevant. In the print world, the past competition for distribution between local map publishers and a national publisher such as Rand McNally contains the essence of this issue. Local map publishers created local custom product based on local contacts that resulted from working with local governments and businesses to research local geography. With few exceptions, the local publisher had more up-to-date and relevant map content than national publishers. Conversely, the national publisher had uniform content and coverage on a national scope, could meet the needs of national advertisers and always had better reach and superior distribution than local publishers.

National retail chains that sold maps preferred not to deal with local publishers in each market they served. Instead, they worked with a national publisher/distributor who could supply map product in all markets. At first, national publishers distributed their own products to local units of national retailers.

Then the customers at the local outlets started asking for the local publisher's product, which, as the "authoritative" product, generated more sales and revenue for the store. The result of local preferences was that national publishers acquired local publishers to protect distribution. Of course, the cycle continued to regenerate and new local publishers replaced those who sold to the nationals, as the acquired companies appeared to become less responsive to the needs of the local market. (Although the map analogy runs thin, Google's recently announced relationship (August, 2006) with Val-Pak Direct Marketing related to coupon advertising is the Internet version of "Chamber of Commerce maps" that surrounded a town map with a series of coupons for use at stores run by "local" merchants.)

So, will independent local search engines pop-up in local markets to local acclaim? We think it is too early to tell but suspect that some successful variation of this story will occur. We suspect that distribution limitations will make it difficult to create economically viable independent local search in geographically constrained markets. In today's Internet, distribution remains important, but is slightly less important than in the "real world" where lack of distribution means your product cannot be found in the marketplace. In the Local Search market, it is the combination of distribution, brand, visibility and features that generate the traffic attracting advertisers.

Aside from the obvious comparison to Local Search, the map analogy above raises another interesting issue. In large part, the success of local map publishers was based on having feet on the ground in the form of local sales, marketing, research, and editorial teams. Some service providers are trying to develop the "local essence", without building a business specific local infrastructure. Will local searchers accept Local Knowledge provided by user reviews and articles clipped from local sources or is the audience for these services looking for an editorial touch, attitude and opinion? At this stage, it is hard to predict the outcome. In the online world, many travel sites with an established editorial vision have been replaced by ones that provide reviews of points of interest, hotels and restaurants by other travelers. Instead of relying on an established editorial opinion, travelers are using other travelers as surrogate "local" advisors. We are not confident that the same success in translation is possible in the Local Search market. As the Internet evolves to Web 2.0 and beyond, we expect that new models and new variations of old models will surface to further complicate what we thought we once knew.

We suspect that Local Search today, *in general*, does not seem a significant opportunity for thematic or spatial verticals, although there is certainly a market for local entertainment, restaurants and recreation services similar to those provided by Citysearch and Zagats. One of the main problems for the vertical local search markets is that many users of search engines (44%) use only one (Pew/Internet). While 48% claimed to have used two or more search engines, our own survey indicates that most users prefer one search engine (usually one of the Big Three) and rely on it and its sub-brands (local search) to conduct the majority of their searches.

3. Continued Development of Effective Search Interfaces, Device Specific Interfaces and Improved Search Results.

1. The Local Search Market is plagued with brands providing services that look hauntingly familiar. The local search interfaces are amazingly similar across different applications, maps bear striking design similarities and the Human Factors aspects of most displays are engineered in a manner that suggests a lack of understanding of the dynamics of visual search and information processing during map use. Some providers utilize map driven search to explicate lists of businesses, while others use list driven search to access businesses that can be displayed on maps. These differences in presentation, presumably, play to format preferences among users. Unfortunately, most local search products remind us of fraternal organizations that trumpet the benefits of membership, including secret handshakes (search shortcuts) that make using the products easier.

- a. From our perspective, most local search services are poorly organized, require excessive visual inspection to solve the momentary problem that attracted users to the service, and need to be redesigned to support the users' goals for the service.
- b. Some local search providers utilize product/services dictionaries that mimic the classification schemes used in many Yellow Pages publications. In turn, the user interface employed reflects the same tree-like search structure. For example, when using this type of system to find a place to eat, you may need to enter your address, a category to search (restaurant) and, in turn, the system may send a response that requires you to select a type of restaurant from a list of categories defining different types of cuisines. (One online service we reviewed provided forty categories of restaurant types to help the user to disambiguate the query – all before any listings were provided for review.) Once you have chosen a target category and a response string has been generated, you need to search the results of the category before you can decide if the listings are relevant to your search. If not, you must return to the root and choose another category (branch) that might contain the type of restaurant you had in mind. Search of this type of constraint is cumbersome when using a desktop. Curiously, this format can be more successful when these types of local search interfaces are displayed on cellular phones, or other small format devices where scrolling through long lists of responses is undesirable.

2. Local search providers need to allocate more effort to creating displays that are optimized for the classes of devices that may be employed to use these services. Users do not want to learn a new system for each device that they may use to initiate a search. Unfortunately, in today's market, it is

difficult to stay with one local search provider across the variety of devices that people use to connect to the Internet.

3. The problems with ineffective interfaces and inappropriate device specific presentations, though serious, pale in comparison to the significance of the industry's issues with the quality of search results. We dissected our "Cup of Cocoa" example earlier in the paper and spent considerable time detailing the flaws responsible for low quality results in local search, but we would like to leave you with a final challenge. On the next several pages are the results of a simple query for hotels in Aliso Viejo, California. What do you think – flawed yes, but are they "good enough"?

LOCAL SEARCH

Live Local
powered by Virtual Earth

Web Images News **Local** QnA More

hotels
Enter city, address, or landmark
Businesses People Maps

Sort by relevance Map all

- 1 Cedar Creek
27321 La Paz Rd, Laguna Niguel, CA | 1.2mi
(949) 389-1800
Call for free
- 2 Doggie Bed & Biscuit
20401 Sun Valley Dr, Laguna Beach, CA | 2.0mi
(949) 494-0483
Call for free
- 3 Marriott Hotels
24552 Paseo De Valencia, Laguna Hills, CA | 2.9mi
(949) 581-6111
Call for free
- 4 Ayres Hotel
24341 El Toro Rd, Laguna Woods, CA | 2.9mi
(949) 588-0131
Call for free
- 5 Laguna Beach Colony Hotel
30801 Southcoast Hwy, Laguna Niguel, CA | 3.0mi
(949) 499-4554
Call for free
- 6 Hotel Furnishings Resources
27071 Cabot Rd, Laguna Hills, CA | 3.1mi
(949) 582-7663
Call for free
- 7 Suite Meals Inc
26062 Merit Cir, Laguna Hills, CA | 3.1mi
Business | Person | Web results

Welcome Collections Driving directions Traffic Locate me Share Print

Scratch pad
Unsaved collection
You must Sign in to save your collection
Share Map all Clear
Aliso Viejo, California, United States

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Maps

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Hotels in Aliso Viejo
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Search Maps

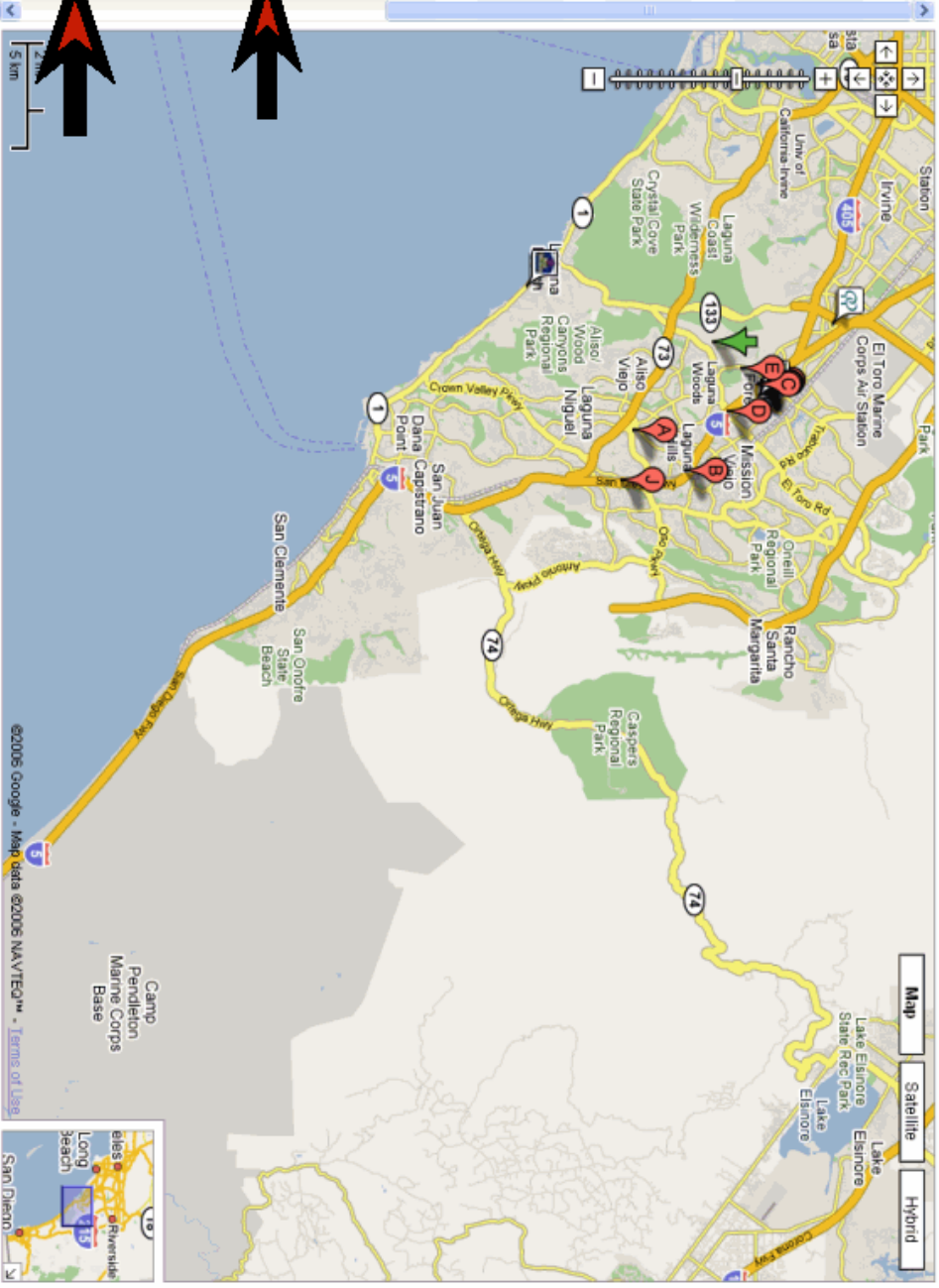
Print Email Link to this page

Map Satellite Hybrid

Sponsored Links
Best Western
Official Site - Low Rate Guaranteed
Book Online & Save at Best Western!
www.BestWestern.com
1600 S Coast Hwy, Laguna Beach, CA

Results 1-10 of about 294,000 for Hotels near Aliso Viejo, CA - Modify search
Categories: [Hotels & Motels](#), [Hotels & Motels Etc. Reservations](#)

- A** [Holiday Inn-Laguna Hills](#)
25205 La Paz Rd, Laguna Beach, CA
(949) 596-5000 - [6 reviews](#) - 3.5 mi SE
- B** [Holiday Inn Laguna Hills](#)
26205 La Paz Rd, Laguna Hills, CA
(949) 598-5000 - [31 reviews](#) - 3.8 mi E
- C** [Courtyard by Marriott Laguna Hills](#)
23175 Avenida De La Carlota, Laguna Hills, CA
(949) 969-5500 - [1 review](#) - 1.8 mi NE
- D** [Laguna Hills Lodge](#)
23992 Paseo De Valencia, Laguna Woods, CA
(949) 830-2550 - [8 reviews](#) - 2.1 mi E
- E** [Pacific Hills Banquet & Catering](#)
23951 Moulton Pkwy, Laguna Hills, CA
(949) 707-1707 - 1.1 mi NE
- F** [Comfort Inn Laguna Hills](#)
23061 Avenida De La Carlota, Laguna Hills, CA
(949) 969-0166 - [1 review](#) - 1.8 mi NE
- G** [Allaire Inc](#)
23046 Avenida De La Carlota, Laguna Hills, CA
(949) 598-5764 - 1.8 mi NE



hotels Aliso Viejo, CA Address, City & State, or ZIP

Save this my default Yahoo! location

Search

MY LOCAL

Local Results Aliso Viejo, City Page > Travel & Lodging > Hotels & Lodging > Hotels & Motels

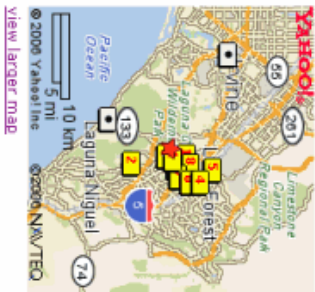
Results 1 - 10 out of 575 total results for hotels in Aliso Viejo, CA

Refine Results:

Show results within

15 miles

of the center of Aliso Viejo



- Category: Hotels & Motels (290) Other Lodging (270) Resorts (59) Bed & Breakfasts (27) Campgrounds (14) Casinos (9) Vacation Rentals (4) Hostels (3) Rating: (Catalina) User recommended (what's this?) 5 Stars (34) 4 Stars and above (87) 3 Stars and above (143) 2 Stars and above (169) 1 Star and above (185) Name:

- Support Village Inn-Avalon Catalina Island's Finest Family Owned, Smoke Free (310) 510-0314, Avalon, CA www.catalinacatalina.com Map | Directions | Send to Phone Sheraton Park Hotel 500 Guest Rooms with Private Balconies (714) 750-1811, 1855 S Harbor Blvd, Anaheim, CA www.sheratonparkanaheim.com Map | Directions | Send to Phone Country Club Inn Country club living at affordable prices! (714) 952-9388, 5311 Lincoln Ave, Cypress, CA Local Details Map | Directions | Send to Phone

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Sorted by: Top Results | Distance | Name | Rating | Time

Save to My Web | Printable Version



- Ayres Hotel at Laguna Woods (949) 588-0131 24341 El Toro Rd, Laguna Woods, CA 0.68 mi Map | Directions | Send to Phone ...Loved the bedding and the room. It is the first hotel that I have ever stayed at that the... more www.lwlagunawoods.com/ Save to Collection Rate it! (8) Be the first to rate!
- Pet Suites (949) 425-0700 19 Journey, Aliso Viejo, CA 2.67 mi Map | Directions | Send to Phone Resort See all: Dog Boarding - Cat Boarding www.petsuites.com/ Save to Collection Be the first to rate!
- Advance Shuttle (949) 833-3434 3 Golden Eagle Ct, Aliso Viejo, CA 0.50 mi Map | Directions | Send to Phone Save to Collection Be the first to rate!

4. Quality/popularity ratings

Several providers of local search have created “referral” systems that allow users to rank merchants, presumably based on the quality of their services. The ranking of the business is provided alongside the listing, allowing a heads-up for buyers who have not yet had experience with this business. While there is a market for sites such as Judy’s List and others, it is unlikely that Local Search providers, who desire to replace Yellow Page publishers, are going to continue to publish ratings whose main effect might be to depress advertising spending by its customers.

The popularity poll type of business evaluations can be manipulated too easily for most publishers to take the risk. For example, the Zagat Guide, a well-known restaurant rating publication, bases its rating on public opinion surveys. In Orange County, California, IN-N-OUT Burger, a local fast food chain that serves only hamburgers, received a food quality rating of 24/30 (very good/excellent), higher than most successful restaurants in the county, although Morton’s Steakhouse just managed to beat IN-N-OUT with a 25 rating for its food quality. Don’t get us wrong, we scarf IN-N-OUT with the rest of you, but the Zagat rating indicates that this is the best quality hamburger in Orange County, Los Angeles and, if the Zagat Guide is to be believed, all of Southern California. However, according to the ratings on Yahoo Local for burger joints in the Orange County town of Aliso Viejo – Denny’s whopped IN-N-OUT with five stars to four and Burger King received a four star rating.

Well, enough beating a dead horse – ratings systems are difficult to administer in a manner that produces fair and reasonable results. The critical issue is that these unverifiable ratings can be influenced by competitors, or anyone who for one reason or another might have a desire to influence the results. We think that advertisers will not be in favor of ratings systems and may retarget their advertising to distribution networks that do not provide ratings/rankings.

2. [Atlantis Cremation & Burials](#) 
 (949) 493-2273 32086 Camino Capistrano, San Juan Capistrano, CA 3.05 mi
[Map](#) | [Directions](#) | [Send to Phone](#)
- See all: [Funerals - Funeral Industry](#)
www.atlantiscremationsandburials.com/
- Be the first to rate!
 ☆☆☆☆☆
- [Save to Collection](#)
1. [Red M Alinsod, MD, FACOG, ACGE](#) 
 (949) 499-5311 31852 Coast Hwy Ste 200, Laguna Beach, CA 2.55 mi
[Map](#) | [Directions](#) | [Send to Phone](#)
 Urogynecology & Reconstructive Surgery Specialist
 See all: [Obstetrics-Gynecology](#)
www.urogyn.org/
- N/A

Examples of local search ratings in action. The examples are from different searches from the same provider. Can you imagine the potential legal proceedings if a user gave the cremation company an unsatisfactory rating? This is the stuff that made Jay Leno rich! Do you know anyone who would be interested in rating a cremation provider? Presumably, the local search provider realized that rating doctors might not be in their best interest, as they, apparently, do not allow users to rate doctors.

There has long been a difficult relationship between advertisers and freedom of expression, but advertisers generally win this battle or move their accounts to other networks. For example, in 2006, the Los Angeles Times lost its General Motors account when its automobile columnist, savagely panned what he felt was an uninspired new GM automobile platform. Advertising is a complicated world, and brand holders often protect retailers who sell their products, even if the vendor is less than a paragon of virtue. It may be that ratings will play out differently in Local Search, but we don't think so – and the examples seem to be trending in that direction.

5. Bid for my services

Many of today's shoppers go online to the manufacturer's website to gather information about a desirable product. If there is no rush, they may purchase the item online, but usually not from the manufacturer. Instead, they look for services that provide ratings and price comparisons for online retailers who have the product for sale. After a brief review, many buyers order the product from the most reputable, low-cost supplier. When the product need is immediate, or requires examination before purchase (say a plasma large screen), they again use the internet to find out who carries the brand and where they are located. It seems a small jump to expect that users will begin trying to find brick and mortar retailers who will offer the buyer their "best" price if the person commits to buying the product from their establishment. In turn, local search oriented services that brokers these "deals" apparently are in the works.

6. Cellular-based Local Search

One of the obvious strategies for major providers to strengthen their hold on the local search market is to develop a successful version of their local search platform for mobile users. The most elegant way to close the sale loop on the Local Search cycle is to have a cellular based service than can be used to consummate buying or service opportunities when people are on the move. The business objective of offering local search service is to provide an attractive and lucrative venue for advertising. Local Search (all search really) is a distribution business. Increased distribution may convert to higher advertising rates, better ad performance and happier advertisers, as well as pleased users. Lacking mobile distribution, the Local Search business is incomplete and unable to participate in m-commerce (buying a product when mobile and having it ready to be picked up).

WCRM (Wireless CRM) services that would allow affinity treatment of customers and the use of SMS to message them when the customer nears a buying opportunity that meets his or her provisioning profile. In addition, identifying the location of the mobile customer would allow the presentation of specials, discounts, coupons and promotions. All of these concepts are well known, but it appears that service providers have been unable to make money in this segment of distribution. The problems and prospects for this industry will be described in our Occasional Paper on the Wireless Local Search that will be published this winter.

7. Where is it/How do I get there/How to do I recognize it when I get there?

During the next year, we expect to see continued movement in attempts to add enhanced tools for spatial identification to Local Search services. In order to help close the loop and ensure that a transaction occurs with a real world business, Local Search services provide maps and routing to show the location of the business. In addition, various services are using improved geocoding, aerial photography in both oblique and vertical formats, street level, storefront photography and 3D rendering of buildings on route maps. We expect to see the emergence of videos of the “final mile” to the target and other innovative “finding” technologies during the next 12 months.

In addition, we expect most local search services to begin offering owners of business listings a more precise way to locate their businesses on the maps and images that are presented to help the potential customer find the merchants shop. Many businesses receive their mail at an address, such as a mall, that has no practical wayfinding function (e.g. 25692 Frontier Plaza, Unit c). In other cases, businesses are in multi-story buildings and without a description that is more specific, you have no idea, short of looking for the always-reliable building directory, which floor they occupy.

Allowing the owner of a listing to provide enhanced location information (e.g. “2nd floor near Macy’s”) makes good business sense and could dramatically improve the utility of many listings.

8. The Arms Race Among the Big Three (Google, Yahoo, MSN) continues.

Yes, the arms race will continue as all combatants rush to add features that they hope will distinguish their service from others. One set of beneficiaries of this posturing will be a host of specialty companies in geospatial (mapping, aerial photography , satellite imagery, and Photogrammetry), linguistics, business directory listings and related businesses (even YP) that can help provide an advantage (even a momentary one) over competitors. The advertisers will also benefit as improvements to geotargeting, ad buying, placement, positioning and breadth of display serve to improve the presentation of their products or services. The inability of the YP world to compete with this “feature offensive” will result in decreasing advertising sales and continue the migration of their customers to the online world.

Summary

Local Search is a dynamic industry facing a number of challenges as it develops into one of the preferred venues for local advertising. We believe that the industry is poised to surmount these obstacles in the next 18 to 24 months. Does the industry need a Tune Up? Yes, but even at its present speed it is a juggernaut.