MapInfo

Spatially Enhancing Business Data with Geocoding Solutions

A MapInfo White Paper

Contents

Overview

- **Use geography to uncover hidden relationships among business data**

Using geography and maps to illustrate geographic relationships among business data is important for businesses that want to maximize the hidden potential of their data. Mapping and spatial analysis reveals the trends, patterns and opportunities that otherwise are lost when sifting through huge databases of information. In order to take advantage of the power of mapping and spatial analysis, data must first be enhanced through geocoding.

Geocoding is the process of assigning latitude and longitude coordinates to data. Most business data contains a geographic component such as an address or a ZIP Code®, and a geocoder simply codifies that component to allow spatial analysis or visual display of the information on a map.

- **Street address-level geocoding meets the spatial enhancement needs of most businesses**

Geocoders, like most business software solutions, come in various formats—each with numerous capabilities and differing levels of effectiveness. Some are stand-alone solutions that allow businesses to geocode large database files, while others come included in mapping packages and are ideal for the individual analyst working with local data. Most businesses that want to exploit the spatial attributes of their business data will find that street-address level geocoding meets their needs. Others may need to geocode to less specific levels, such as state boundaries, county boundaries or ZIP Code centroid. All geocoders, regardless of how they are packaged, allow users to exploit the spatial component of their data, so organizations that are considering a geocoding investment must evaluate what type of geocoding approach best fits their infrastructure and which geocoding features address their business needs.

Three Approaches to Address Geocoding

When considering the implementation of a geocoding solution, a business must choose a geocoder that allows them to leverage the way they already do business rather than one that requires them to adapt to new processes. This paper presents three distinct geocoding approaches. A business can choose to implement one or all of the following geocoding methods, which are differentiated by whether the geocoding engine is provided via a server or resides on the desktop, as determined by specific spatial enhancement needs.
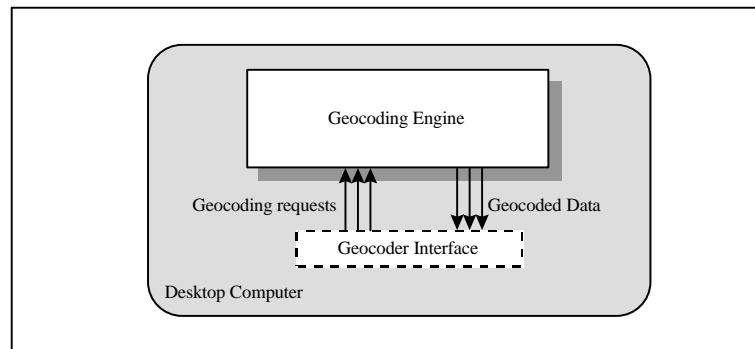
Geocoding on the Desktop

- **Geocoders can come included in end-user mapping applications or can be implemented as stand-alone solutions**

Traditional desktop mapping applications, such as market analysis or site selection applications, rely on an end-user geocoding scenario—whether it is bundled into the application or a stand-alone solution—where all work is done on the individual computer. Users determine which data is to be geocoded by choosing the desired data table, and the geocoder assigns latitude and longitude coordinates to those records for placement on a map in the mapping application. The user stores the geocoded table on the desktop for future reference and use.

Geocoders that are included in mapping packages often require that data be translated into a specific format before it is geocoded, but the process can be unwieldy for organizations that rely on prior investments in large databases. A stand-alone solution is more practical for businesses that want to geocode large volumes of data. Businesses that want to geocode their pre-existing databases should consider a stand-alone geocoding package that features open database connectivity (ODBC), so users can easily geocode large volumes of pre-existing data without first having to translate their data into another format.

Users of this type of geocoding approach can geocode data in batch mode for quick processing or in interactive mode to leverage the user's localized knowledge of a specific geographic area. When operating interactively, the geocoder requests the user's input for hard-to-match addresses in order to increase the *hit rate*—the chance that the records are matched to the correct geographic areas on a map.

In the stand-alone geocoding scenario, all work is done on the individual computer, where all software, data and geocoded records are stored.

Client/Server Geocoding

In the client/server geocoding approach, the geocoding work is done by a server, rather than the standalone geocoder or mapping application on the desktop. Requests of the server are made via a "thin client", such as an OCX (embedded object), Active X application, or any application created in an integrated development environment. This approach allows geocoding to be distributed to several users throughout an organization without having to purchase or program a geocoding or mapping application for each user. Geocoding is an adjunct function to the application with which the user is actually working—the primary client application is programmed to access the geocoding function when it recognizes a geographic component (i.e., an address).

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