ADDRESSING THE NATION

With a variety of addressing systems already competing for our attention, do we really need another? Karissa Paddie believes we do, and explains why

Andersphoto / Shutterstock

It's time to admit what any developer who's had the distinct displeasure of programming location-based applications already knows: addressing, as done currently in the UK, is broken. A bold claim to be sure, but evidence mounts: consider a few of the many edge cases that would thwart a developer's best efforts — lack of standardisation due to abbreviations such as "Rd" for "Road" or "St" for "Street", street names that recur in neighboring cities or the same city, buildings having multiple numbers due to subunits.

The lack of addressing standardisation becomes clear when discussing commercial points-of-interest (POIs). If a friend asks you to meet at a public park, a shopping centre, or a sporting event, neither a POI name nor an address would be sufficient: additional location coordinates would need to be provided (hence the popular expression, "pin your location"). In addressing, what looks like a uniform system from afar actually dissolves under pressure.

Severe consequences

In the greater GIS community, this dissolution has severe consequences. Lack of uniformity in addressing means that geospatial analysts, developers, and data scientists working with two or more datasets spend hours data wrangling to merge, de-duplicate, and perform entity resolution.

While some individuals and organisations attempt to tackle the problem

What the UK requires is a location identifier that's truly free and universal. Background image Louis Reed

outright with a mixture of fuzzy matching, manual review, and prayer, others have resorted to developing proprietary identifiers of their own to pre-empt future problems. These identifiers are used internally within the organisation, and nowhere else. And thus, the problem of multiple, inconsistent identifiers only proliferates. The lack of an easy, unified location encoding system means countless hours and pounds are ultimately wasted on data conflation rather than driving data insights.

To solve the problem, what the UK requires is a location identifier that's truly free and universal. Placekey, the new standard identifier already used by over 1,000 organizations and 8,000 academics — and which launches in the UK in May— is that identifier.

What is it and how does it work?

Placekey is an interesting re-think of the problem of non-uniformity in addressing. Instead of defining locations according to coordinates, Placekey defines them according to context.

By design, Placekeys are nine-to-fifteen digit strings made up of a "Where Part" and an optional "What Part", in a What@Where structure. The optional "What Part" encodes for addresses and points-of-interest, while the "Where Part" encodes the geographical coordinates of a place into three three-character sequences, using Uber's open-source H3 hierarchical hex-grid system. In this "Where Part" encoding, the leftmost sequence indicates a large region, the middle sequence indicates a slightly smaller region, and the rightmost sequence indicates the smallest region.

This innovative structure combines geographical location with address and POI information in a truly free and universally accessible way. The string itself is generated by Placekey's freely-accessible API, which is capable of generating identifiers for virtually every place in the world.

Placekeys can be generated from inputs as diverse as addresses, Points of Interest names, or even simple latitude and longitude coordinates. Today, Placekeys are available in the United Kingdom, the United States, Canada, and the Netherlands, and they continue to rapidly expand globally.

Launched in late 2020, Placekey is already used by over 1,000 global industry leaders, including Esri, CARTO, Experian, Nielsen, Dun & Bradstreet, and SafeGraph. By design, Placekeys make it easy for individuals and businesses to combine and share data across datasets and organisations, saving countless hours in data processing, and enabling significant data insights.

Classic data hygiene problems such as address and POI matching, address normalisation, deduplication, and entity resolution vanish when using Placekey's universal location identifier. Aside from their core function, Placekeys also enable new avenues of data analysis due to their structure.

For example, while current address formats don't signal anything about their relationship to one another by name, Placekey's unique format allows one to approximate the distance between two locations by reading the "Where Part" left to right and noting the characters they have in common.

Comparing Placekey to existing identifiers

When considering a new universal location identifier, it's natural to wonder, "How is this better than existing solutions?" Indeed, many well-adopted identifiers already exist in the UK to solve addressing problems. But they have their drawbacks. We will review some of the more popular here.

Royal Mail Postcode: As detailed above, traditional addressing formats generate problems in any instance of non-standardisation. For example, consider

Placekey's What@Where structure

any instance of "Road", or "Street" versus "Rd" or "St", or a missing subunit address when referring to a shopping center. These differences in two or more datasets are understandable by a human being, but not a computer, which creates challenges for merging datasets and sharing across organisations. In addition, postcodes fail to account for non-deliverable addresses, a key problem in rural areas.

What3Words (W3W): W3W is a web-based location service dividing the Earth into three meter square parcels, then assigning a unique three-word identifier to each. While W3W allows users to easily remember and share locations, because identifiers are randomly assigned, they lack consistency and order. Unlike Placekey, the W3W structure for representing a place bears no relationship to nearby places, making it less ideal for machine-to-machine communication. W3W is also neither free nor open, which will be a barrier to universal adoption.

Geohash: Geohashing is a geocoding method that encodes latitude and longitude into a string of numbers and letters that denote an area on a map. While this approach is ideally suited for two-dimensional geolocation, it fails to account for a third dimension — in an apartment building, for example, multiple units are arranged across multiple vertical stories — and provides zero context about the people and places that occupy space.

Unique Property Reference Number (UPRN): UPRNs are geocodes — unique alpha-numeric identifiers — for every spatial address in the United Kingdom. Unlike Placekeys, UPRNs do not contain encoding for Points of Interest, and their structure itself does not reveal anything about their coordinates or proximity to other locations.

Open Location Code (OLC): Originally developed by Google, OLC is an Open Source geocoding system that uses identifiers called "plus codes," alpha-numeric codes derived from latitude and longitude, and designed to function like street addresses and replace them. Plus codes share many of the upsides of geohashing, and enjoy widespread adoption. But because plus codes are derived from latitude and longitude, they ultimately can denote only geographic coordinates and are unable to define the discrete places that occupy those coordinates, or distinguish between them.

The future means identifying places

It's become clear: while the various systems explained above are excellent at defining spaces at varying levels of resolution, ultimately what the UK needs is a universal encoding system that defines places. As the first true universal places identifier, containing both information about Where a place is and What is located there,

Placekey allows users across the UK to convert all varying forms of addresses to a single string that can unify any number of disparate datasets. The time and cost savings, in addition to its ease of use, will have unprecedented benefits in data analysis.

Today, Placekey finds uses in fields as diverse as telecommunications, urban planning, public health, civic engagement, retail analysis, and more.

Consider just a few of the many success stories:
• Property tech using Placekey to more accurately map rental properties, saving time and cost with better match rates than existing solutions.
• A European developer using Placekey when building a vacation app to deal with problems arising from inconsistent addressing in a particular country.
• Consumer identity resolution companies using Placekey to anonymize personally identifiable information (PII) and decrease customer onboarding times.
• Data warehousing companies like Snowflake using Placekey to instantly analyze and enrich location data with any other live data set imaginable.
• Governments using Placekey to build open data projects around government loan usage, public health data, and more.

The benefits of adopting the Placekey identifier are manifold, and truly address a national need.

More from the Placekey community of some 8000 geospatial experts, developers, and journalists at Placekey.io/community.

Karissa Paddie is Vice President, Corporate Strategy at SafeGraph in San Francisco, California, USA (https://www.safegraph.com/), a Founding Partner of the Placekey Initiative