



UPI Implementation

MLSLISTINGS

Speakers Introduction

Olga Ermolin | Director of Engineering at MLSListings

Hands on manager, leading a mid-size team of exceptional engineers in building products and services for the real estate industry. Prior to leading the team, Olga has been working with all things data at MLSListings for many years.



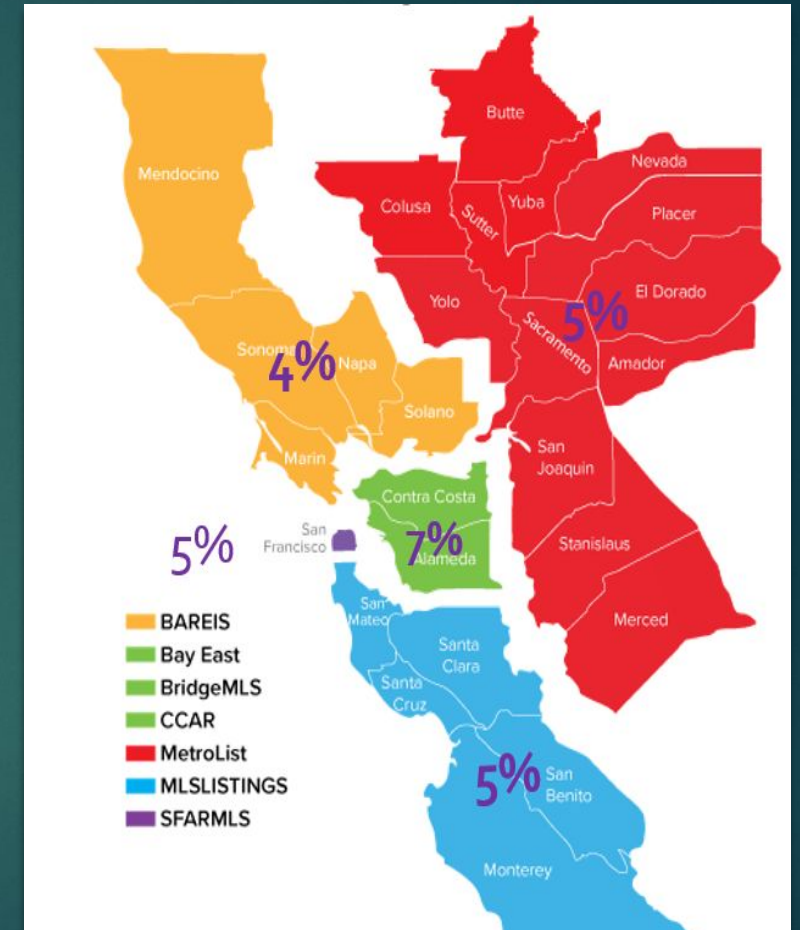
Joel Allison | Sr. Data Engineer at MLSListings

Joel Allison is a software engineer and database programmer. After working in the CRM industry early in his career, he joined MLSListings in 2005 and served as Director of Engineering from 2010 to 2011. Joel returned to MLSListings in 2019 as a developer in the Data Services team.



Overview

- ▶ 500 + MLSs in the country
- ▶ 7 just in San Francisco Bay Area
- ▶ Overlapping borders, to maximize exposure agents enter listings into multiple systems
- ▶ Total number of listings across all MLSs that we data share with :
 - ▶ 12,391,286 (coming from all data shares, 200K+ agents)
 - ▶ Duplicates Since 2010 – 113,797
 - ▶ 5 listing were entered 7 times ,
 - ▶ 160 → 6x, 608 → 5x, 4535 → 4x
- ▶ CRMLS, TheMLS – other data shares





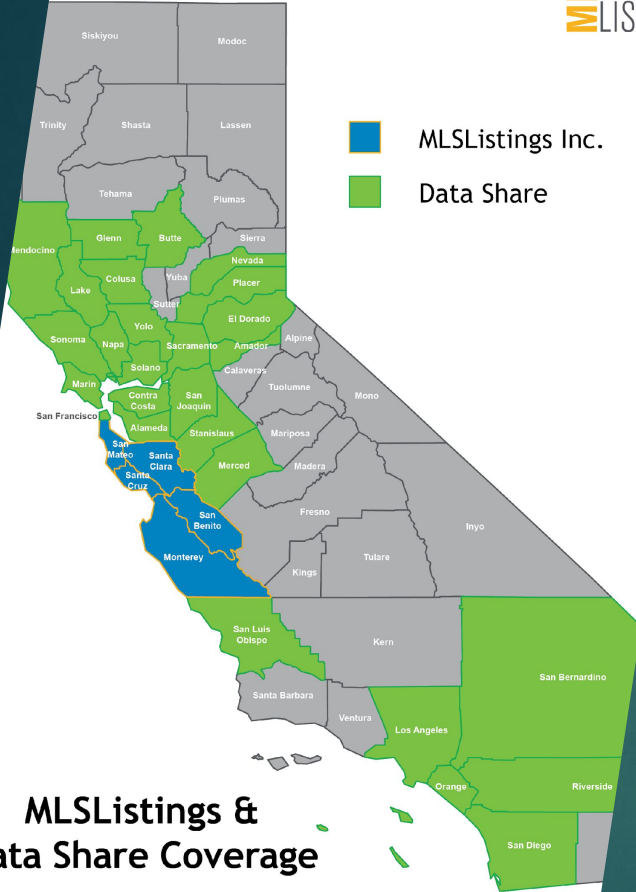
Wouldn't it be nice?

- ▶ Wouldn't it be nice if there were no duplicate listings and accurate market stats?
- ▶ Wouldn't it be nice if an agent had a complete view of property history regardless where it was sold?
- ▶ Wouldn't it be nice to simply have clean, complete, reusable property data?
- ▶ Wouldn't it be nice to enrich MLS dataset with data related to the sale of the property (appraisals, liens, loans, offers, permits)?

Why Standards ?



-  MLSListings Inc.
-  Data Share

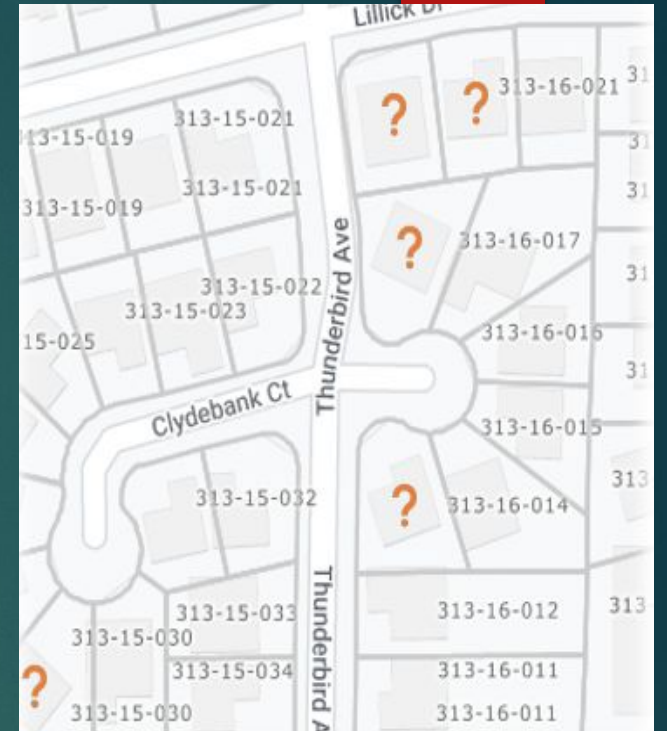


- ▶ Proprietary PMID (Property Master ID) to tie listing history (no well-defined APN or addresses, no de-duping)
- ▶ PMID does not correlate with outside sources
- ▶ Cannot use it for Data Share
- ▶ Decided to follow RESO standard for Data Share
- ▶ The Universal Property Identifier (UPI) is a *unique, ubiquitous* and *decentralized* reference ID, useful for correlating property information in disparate systems.

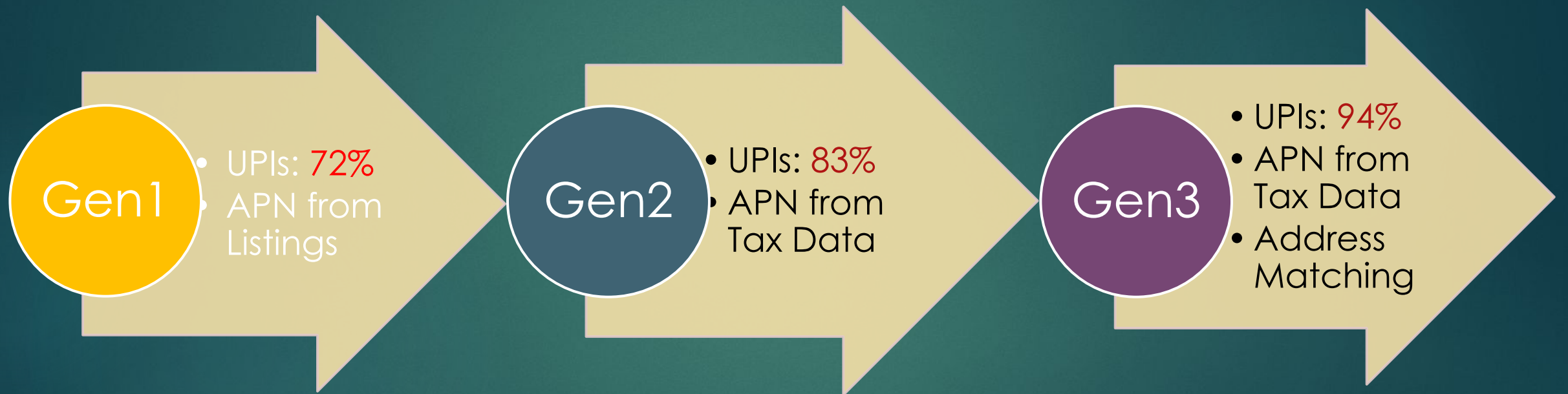
Implementation Overview

Example Universal Property Identifier (UPI)

- ▶ US-04015-N-R-11022331-N
- ▶ UPI Requires Reliable Parcel Number Data
- ▶ Assigning a UPI to a Listing Requires Data Matching
 - ▶ Relaxed parcel number and address matching
 - ▶ Exact matching is a luxury, not a necessity
- ▶ Measuring Success
 - ▶ **Confidence Score** – measures the quality of a parcel number match
 - ▶ **Accuracy Score** – measures the quality of UPI assignments to listings
- ▶ **Synthetic UPI** - Failure Is An Option



Iterative Approach



- ▶ More details on each iteration in the UPI Work group meeting on Thursday

UPI Metrics - How Did We Do?

Completeness

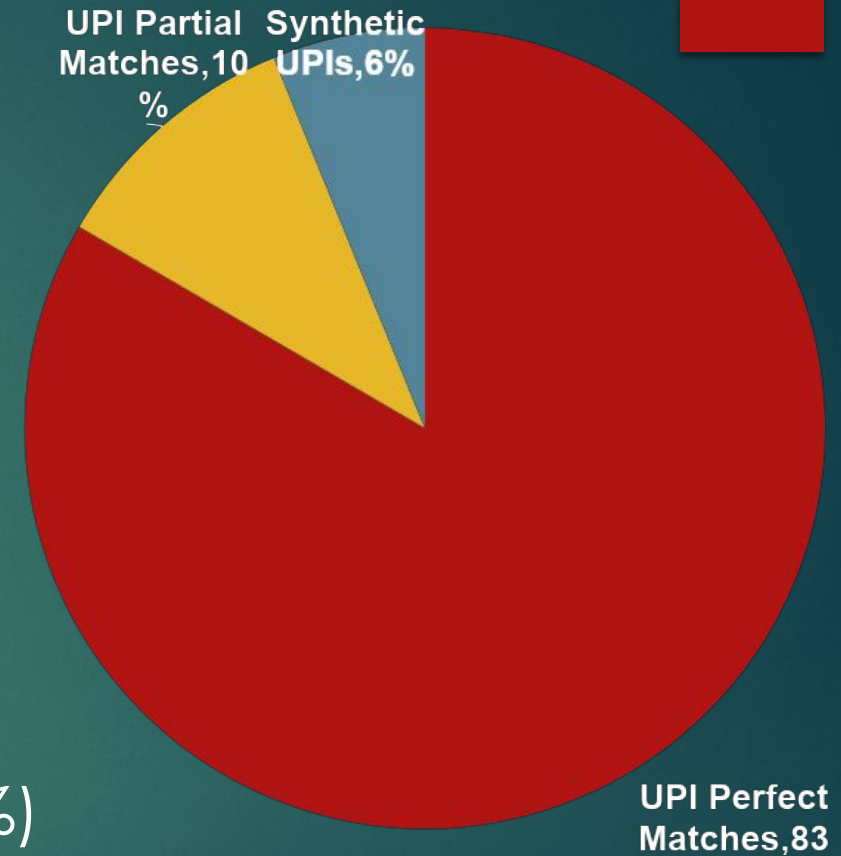
- ▶ Total Listings: 8,941,150
- ▶ UPIs Assigned: 8,390,160
- ▶ UPI Coverage: 94%

UPI Accuracy

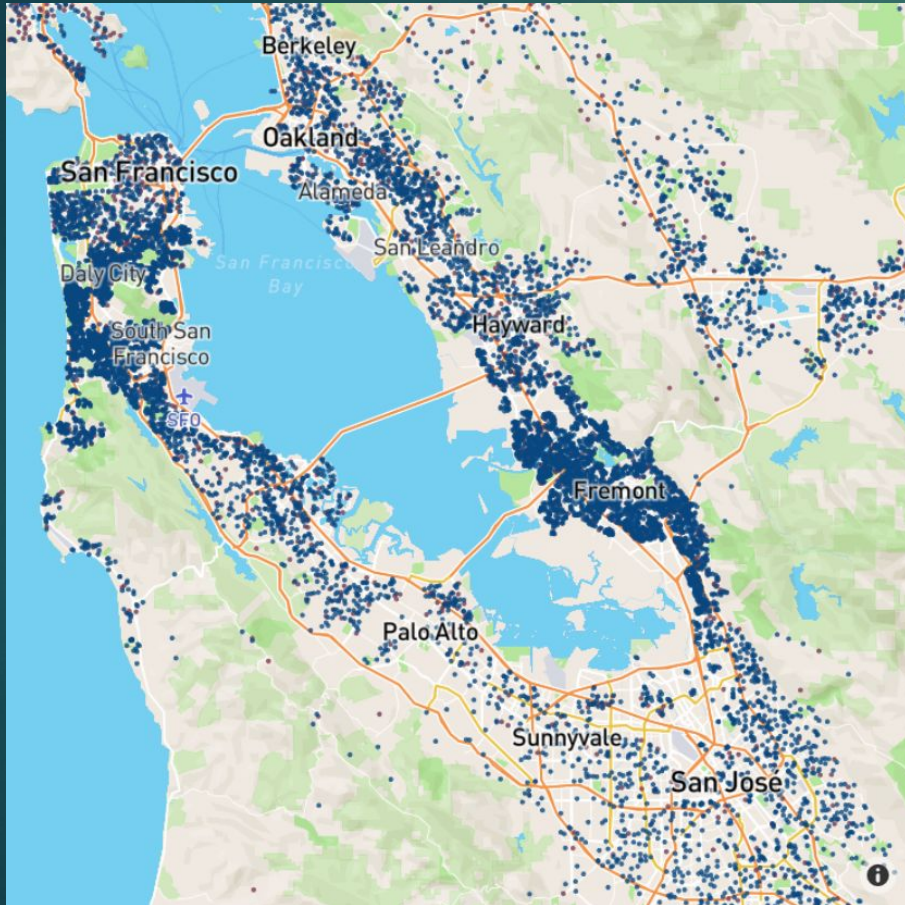
- ▶ UPI Perfect Matches: 7,455,958 (83%)
- ▶ UPI Partial Matches: 934,202 (11%)
 - ▶ Parcel Number Accuracy: 7,811,301 (87%)
 - ▶ Address Accuracy: 8,008,255 (89%)

Synthetic UPIs

- ▶ 550,990 (6%)



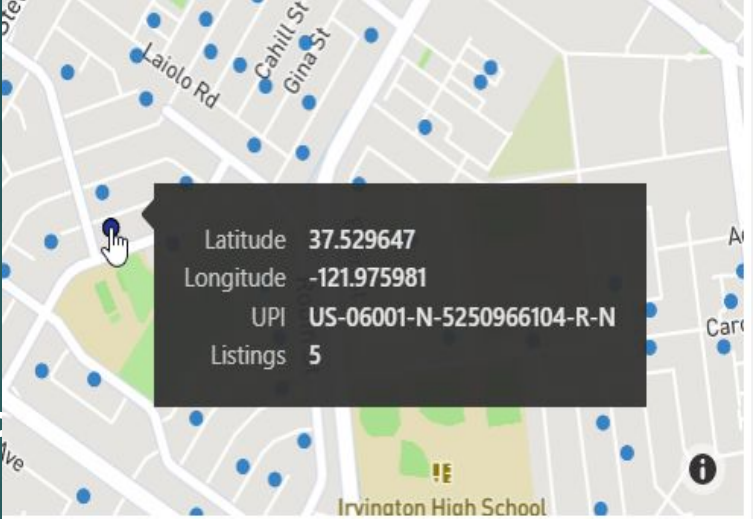
Business Use Cases Addressed



- Listing De-duplication/De-Triplication ✓
- Connecting History for listings of the same property sold in different MLSs ✓
seeing the forest and the trees..
- De-duping within the History ✓

What's Next ?

- ▶ Standardize and preserve property info
 - ▶ Geography: latitude and longitude
 - ▶ APN
 - ▶ Disclosures from previous listings on this property by UPI
- ▶ Extend UPI coverage to 2.35M (21%) nonresidential listings
- ▶ Integrating with other data sources based on UPI
 - ▶ Off MLS sales, CRS
 - ▶ Visualizing sales history, building heat maps
 - ▶ External to MLS data (financial, permits, offers, showings, etc. **CALL ME!!**)
- ▶ ULI & UOI - tune in R&D workgroup



A map showing a residential area with streets like Laiolo Rd, Cahill St, and Gina St. A blue pin is placed on a property, and a dark popup box displays the following information:

- Latitude: 37.529647
- Longitude: -121.975981
- UPI: US-06001-N-5250966104-R-N
- Listings: 5

Below the map is a table of listings for this property:

ListingID	Year	Duplicate	City	Zip
BE40418915	2009	No	Fremont	94538
BE40602798	2013	No	Fremont	94538
BE40735070	2016	No	Fremont	94538
ML81579423	2016	Yes	Fremont	94538
BE40958906	2021	No	Fremont	94538



Thank you!

FOR MORE DETAILS ON IMPLEMENTATION JOIN UPI WORK GROUP SESSION

FOR MORE DETAILS ON ULI/UOI JOIN R&D WORK GROUP SESSION