

# From Propensity to Sell and Price Predictions to Cognitive Recommendations using Real Estate standard Ontology

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## **SPEAKERS**



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<u>in</u>

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#### Insights we are on a path to generate

- Recommend When to sell a home
- Recommend Who to work with to buy/sell my home
- Owner's Propensity to Sell
- Best home to buy local market or any target market
- Predict a home price
- Recommend Best Investments

#### **Challenges that we frequently stumble upon:**

- Semantically inconsistent data
- Partially specified data
- Integration of disparate information domains
- Natural language with incomplete sentences

#### We introduced RESO maturity model @ Spring 2016 RESO

One dimension was around Big Data/Insight Retrieval/Delivery Maturity

Structured
Queries & EDI

- Queries tied to the data structures
- Rigid data exchange protocols

B2B Integration
Web Services

- Discoverable Web Services
- Well suited for service to service integration
- Heavy-weight SOAP/XML with flexibility – strongly typed w/ document attachments

Use Case driven APIs

- RESTful APIs with JSON or XML payload
- APIs purpose-built for various use cases – search, lookup, detail, etc.

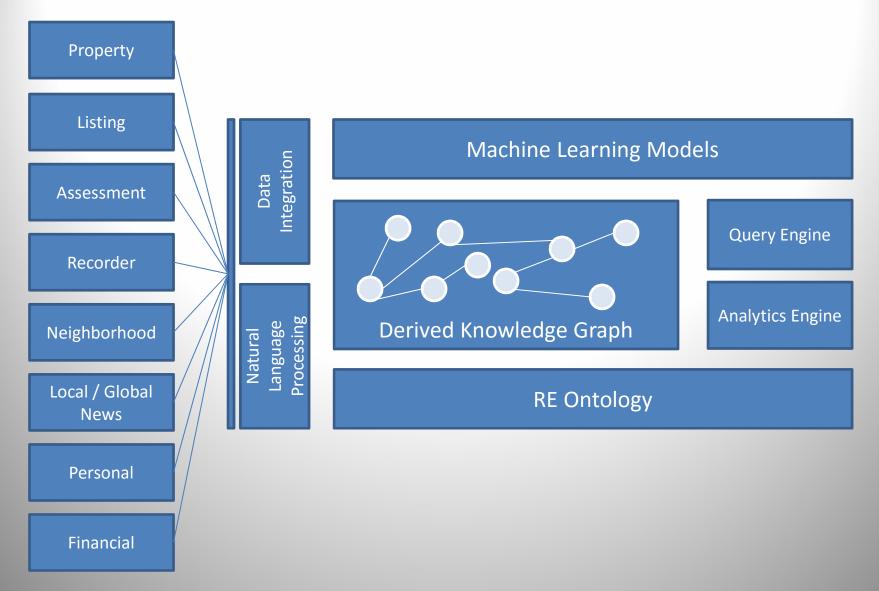
Ontology-based APIs

- RESTful or SOAP APIs based on a shared ontology
- Generic API with generalized querying
- Leverages the ontology to understand and respond to a request

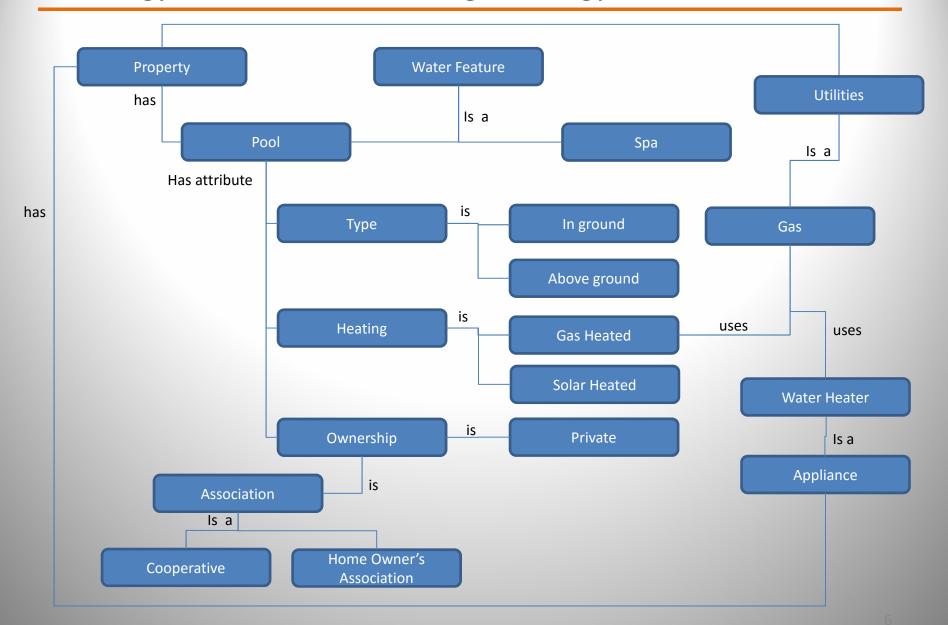
Contextual & Intentional NLP Dialog

- Natural language request and response
- Use context to understand user's intent and respond with relevant and actionable information

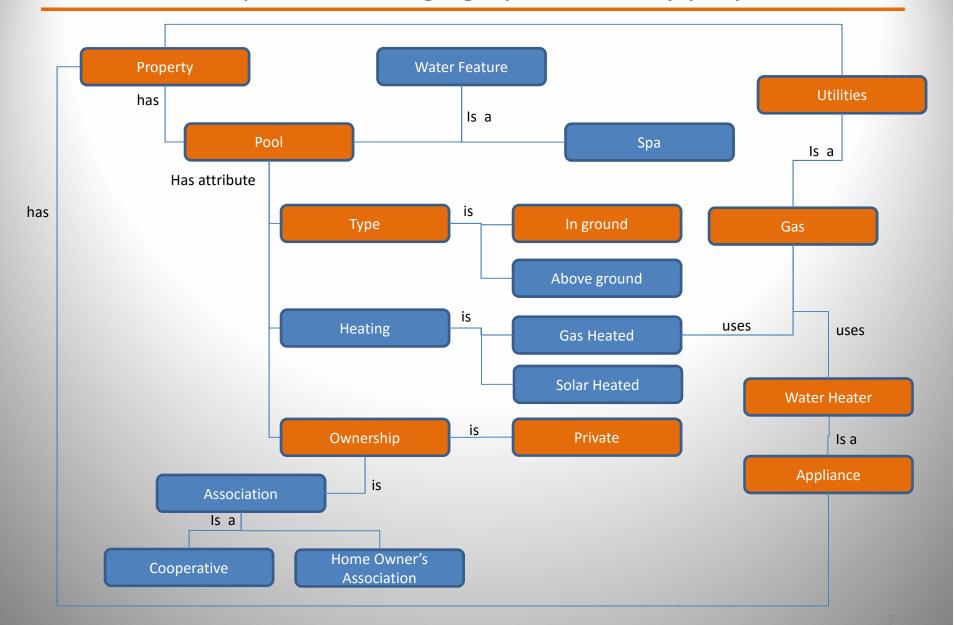
#### Our Solution Approach – Evolve Metadata to Ontology



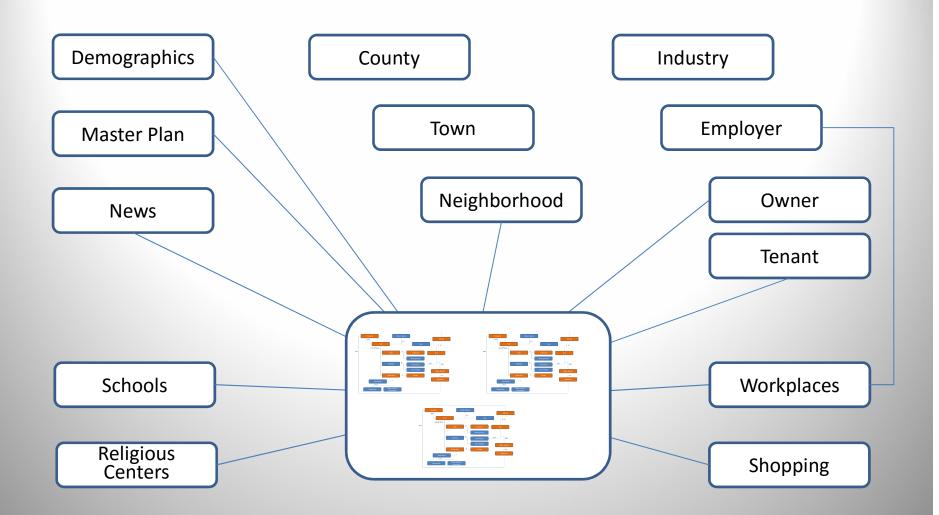
## Ontology Zoom-in: Self-Evolving Ontology



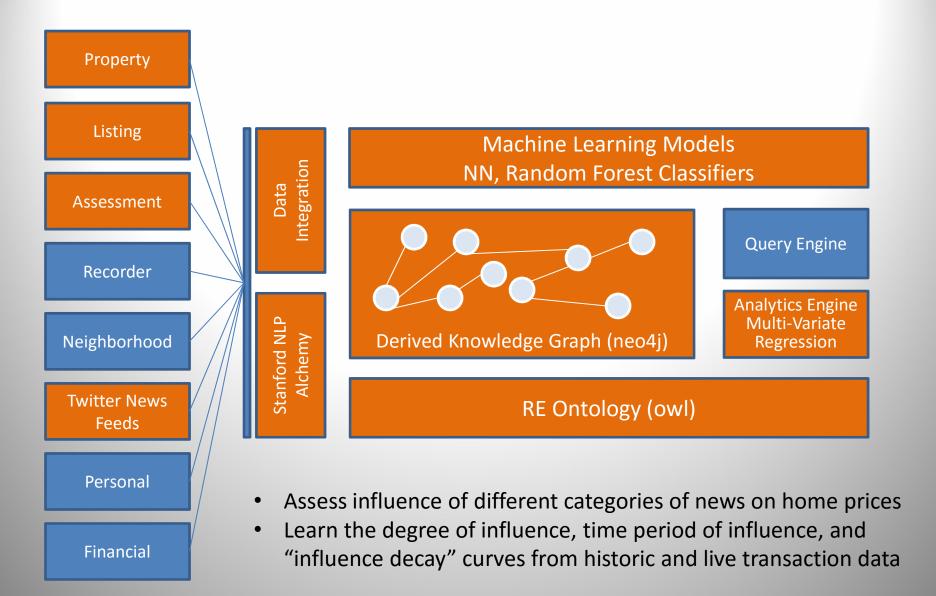
## Generate complex knowledge graphs for many properties



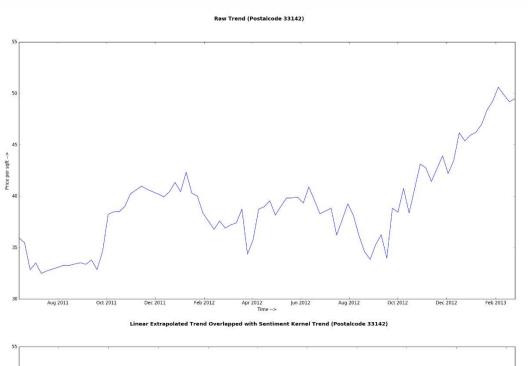
## Generate complex knowledge graphs for all information



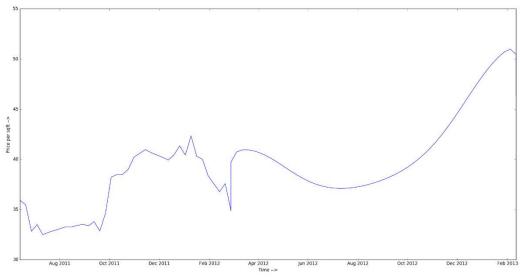
#### Example: Price prediction based on Twitter News Feeds



# Price prediction back testing results look promising



Raw Price Trend Data for 33142 – Miami, FL



Predicted Price Trend for 33142 – Miami, FL

# **DISCUSSION & QUESTIONS**

# Thank You

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