

Metamorphic Features and the Future of Search

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Abstract

Session Title: The Power of Where and When: Spatio-Temporal Analytics of Big Data

Date: Wed, 6/29

Time: 10:15am-11:30AM

Room: 24B

15~20 minute presentation slot during this session

What if your team needed different perspectives of a Feature? What if a Feature "changed" at different points in time (in geometry, relationships, location, attributes, etc.), and your operations needed to react accordingly? What if you needed to keep track of all changes to know exactly what intelligence your team had to make that decision X minutes, hours, days, or weeks ago...Now, how do you equip someone to search that data effectively?

Watch how we are using ESRI to make this magic happen.

REFERENCE SLIDE – WILL NOT BE SHOWN

Customer Problem

Geospatially-focused Government Agency

Ideal World:

- Analysts use an integrated platform to provide real-time insights and activity-based geospatial intelligence for mission planning

(Reality) Actual State:

- Data silos and disparate systems reflect different truths
- Lack of support for real-time data, historical and timeline tracking
- Inability to manage relationships between structured geospatial content ↔ unstructured data



Use Case Requirements



- Need an integrated view to portray a *single feature with multiple truths* (e.g. *geospatial representations, attributes*)
 - E.g. lighthouse looks like a point to a pilot, but a polygon to a mariner



- Need to manage *relationships* between features



- Need to *track temporal / evolving nature* of features without loss of provenance



- Must be able to *manage structured and unstructured source data*



- Have to conduct *full-text search* across all content



Demo

Placeography



Application Architecture

The Stack

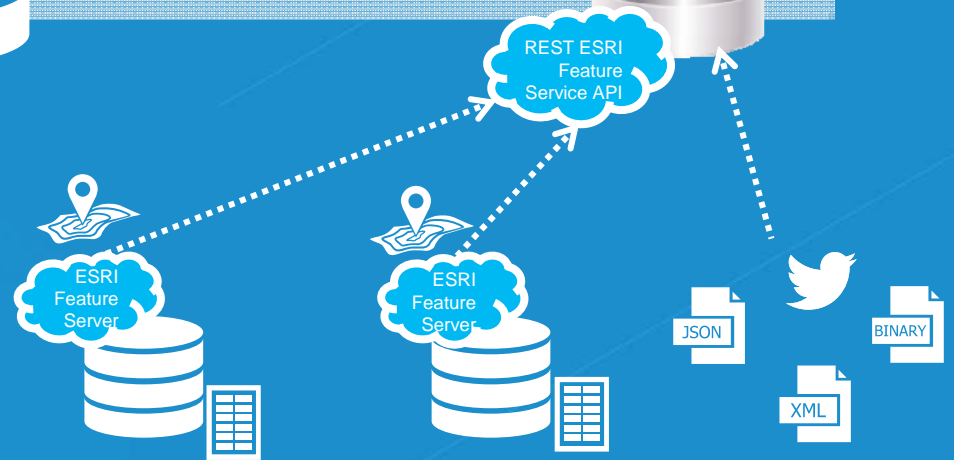
USER
INTERFACE



DATABASE



MarkLogic NoSQL
Database



Model Framework: Object (or Entity) Services

Manage Objects, Not Features

<i>Traditional Model:</i> Feature	<i>Enhanced Model:</i> Object*	
"1-dimensional view"	"multi-dimensional view"	→ <i>Holistic view of data</i>
Structured Data (tables)	Unstructured, Semi-structured, and Structured Data (tables, text, social media feeds, etc.)	→ <i>Integrated content platform</i>
Tabular Relationships	Semantic Relationships	→ <i>Schema-free relationship model</i>
Snapshot, point-in-time	Timeline, version-tracking (temporal)	→ <i>Provenance and history preservation</i>
Row-level / column-level security	Element Level Security (i.e. cell-level security)	→ <i>Fine-grained, role-based security</i>
Limited Search	Full-text search (+ geospatial + semantics)	→ <i>Search engine usability</i>
Relational Database Management System (RDBMS)	NoSQL Database Management System (MarkLogic)	

Flexible, integrated platform for "metamorphic features"

**The 'object' terminology is used heavily in the intelligence space. In other domains, an 'object' may be referred to as an 'entity'.*



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Thank you!

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