Content Intelligence and Smart Applications

Innovative Query, Inc.

Greg Bardwell, Founder & CEO
Phone: +1-301-910-2199
Email: gregb@innovativequery.com

www.innovativequery.com
Introduction

- What we Do
- IQeXplore Platform Overview
- Case 1: Quote My Source
- Case 2:
Content Intelligence & Smart Applications

- At the highest level Content Intelligence is the ability to generate insights to improve business outcomes with content.
- Content Intelligence enables proactively serving up needed information. That is a powerful statement, "proactively serving up needed information." This drives:
  - Improved search, discovery and collaboration
  - Pushing the right information to the right users to do their job
  - Improved information and content publishing
  - Mashups of and with content for new classes of BI and publishing applications
  - Unlocking information for actionable insights
IQeXplore: Marketecture

**Internet Public Sources**
- Text
- Linked Data
- RDBMS Data

**Intranet Customer Data**
- Text

**Crawler/Robot**
- EDS

**Upload API**
- Semantic Analysis (NLP Toolkit)
- Knowledge Base

**Applications**
- Widgets
- API

**Full Text for Search, Content Management**
- Extracted: Entities, Facts, Events, Profiles, Timeline
- Semantic Triple Store

- Search, Clustering, Text & Content Analysis, Navigation Methods & Semantic Web Endpoints (SPARQL)
Semantic Ontology/ NLP Processing

- Person A
- Company A
- Person B
- Person C: Known Threat
- Organization

Relationships:
- Does Business With
- Met With
- eMailed
- Owned By

Event or Fact:
- Entity
- Entity
End-to-End Process

Capture Wrappers
- Search Engines
- Databases
- Email & Desktop
- Connectors
  - Localizes Search
  - Translates Results
  - Filters Input / Output
  - Applies Ontologies
  - Stores Configurations

Entity Extraction
- Statistical lexicon
- Rules-based methods
- Modular component
- Custom/Optimized

Knowledge Base
- Entities & Facts
- Relationships
- Open Standards
- Extensible

Semantic Tools
- Ontology & Models
- SDK/API
- Filtering
- Collaboration
- Scenario Analysis

Applications
- Dashboard & Reports
- Visualizations
- Relationship Trees
- Document Viewer
- Geographic Displays
- Temporal Filters

Learning & User Models

IQeXplore

Dec 15, 2010
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The Whole Picture for Data

- Business Intelligence
- Data Warehouse
- ETL
- Structured Data in Tables

Unstructured Data/Text (80% of all information)

Search
- RDF Store (XML)
- Entity Extraction
- NLP, Metadata, & Ontology

Semantic Applications
- Semantic Discovery
- API

IQeXplore

Other Applications

Cross-Domain

Enterprise Content Mgt (ECM)
Case 1: Semantic BI for Blogging

Marketing Company

**Challenge**
- Utilize data obtained from news, social media, and internal sources
- Optimize and personalize search
- Work with open sources
- Respond quickly to chatter

**Solution**
- NLP and Semantic index for unstructured sources
- Custom scoring/alerts for results
- Authoring tools to expedite content creation and analysis tasks

**Results**
- Save time on analysis of content
- More complete intel from text sources
- Quicker and more precise responses to social media
- Better and faster content creation
Case 2: Augmented Governance

- Supporting UCDMO in Augmented Governance Lab to enable cross domain audits
  - Paradigm shift from defined architectures to defined data/metadata relationships
  - Neither centralization nor normalization is required
  - Web-scale approach to leveraging ROA-based approaches for linked audit data analysis
- Au-G connects atomic audit data with graph based dynamic schemas
- Data and metadata (including audit data) are managed in compliance with EO 13526
Zero Day Event Detection

- **PROCESS WEB LOGS** – Ontology Driven processing on cross-domain message traffic

- **CONTEXT** – Identify suspicious relationships & events from multiple sources

- **MATCH TO THREAT ONTOLOGIES** – Use semantic web reasoner to match multi-source patterns to Ontology

- ** ALERTS** – If match with Ontology match to threat database and send alert

- **ANALYST** – Pull the original sources of the relationships & events that match the threat patterns
TECH BACKUP SLIDES
In stage 1, documents are semantically analyzed using natural language processing for entities, facts and events and their relationships. All the document attributes are captured and all the metadata possible is extracted. Entities, events and facts are extracted based upon contextual analysis, not just keyword searching and they are categorized and relevancy values are assigned to them based upon context.
Semantic relationships simply relate one entity to another. The examples below include Greg is CEO of Innovative Query, Inc. (IQI), Greg is a knowledge expert and IQI does business with the DoD.
From One Document

- Entities Extracted
  - 38 Categories Out of Box
- Facts & Events Discovered
  - 50 Categories Out of Box
IQeXplore uses these relationships to generate knowledge maps – connecting one relationship to another to another and so on. It matches entities and relationships and can connect them and display them in various visual graphs and diagrams.
Multiple Documents Yields Huge Fact Trees
Facts & Relationships

- UNUSABLE! Normally.

- Except with IQeXplore
Stage 3: Exploring

Rules & Filters to Link Data Documents, Triples

IQeXplore has many tools for exploring and filtering to help you turn complex knowledge relationship webs into useful knowledge maps.