Content Intelligence and Smart Applications

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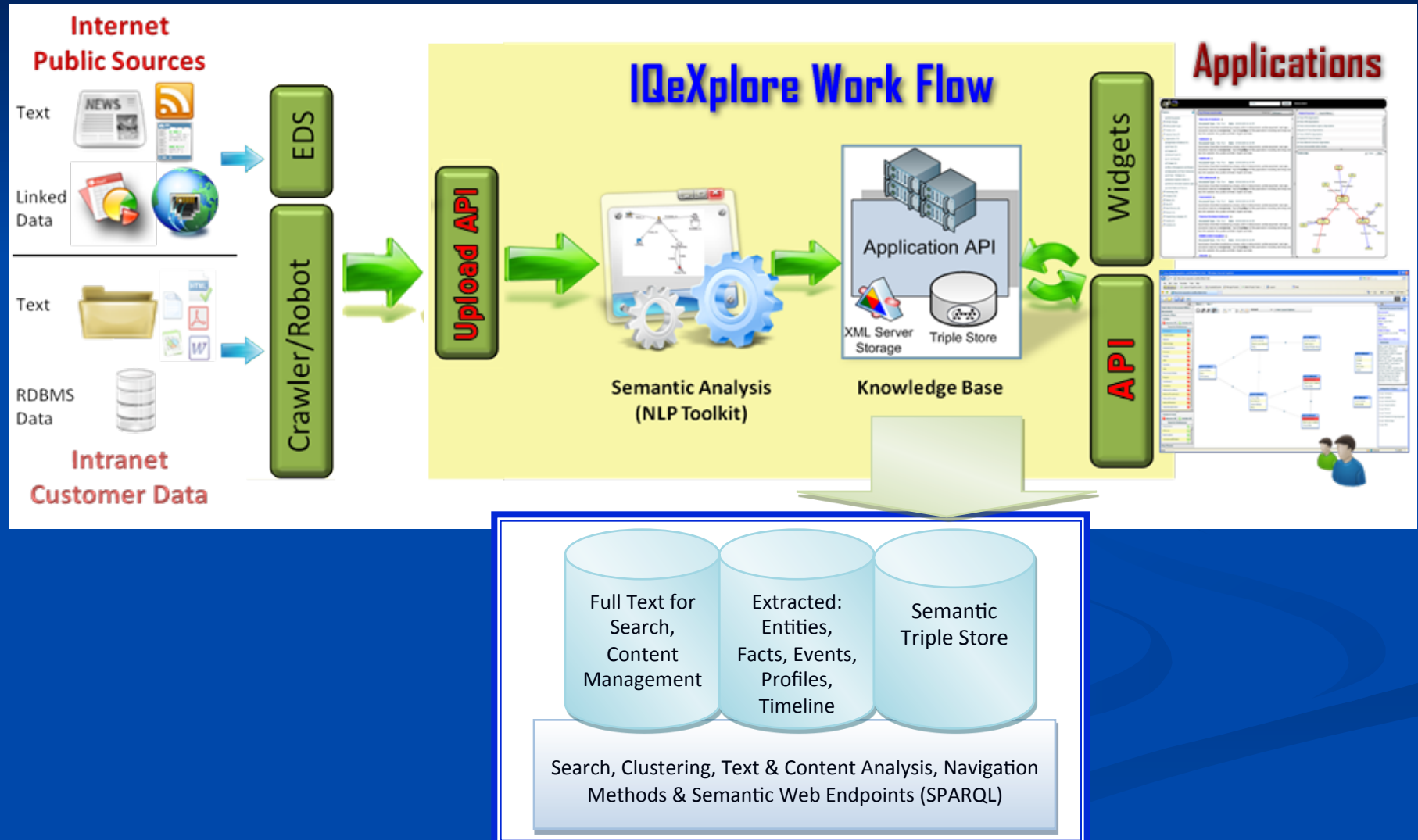
Introduction

- **What we Do**

- **IQeXplore Platform Overview**

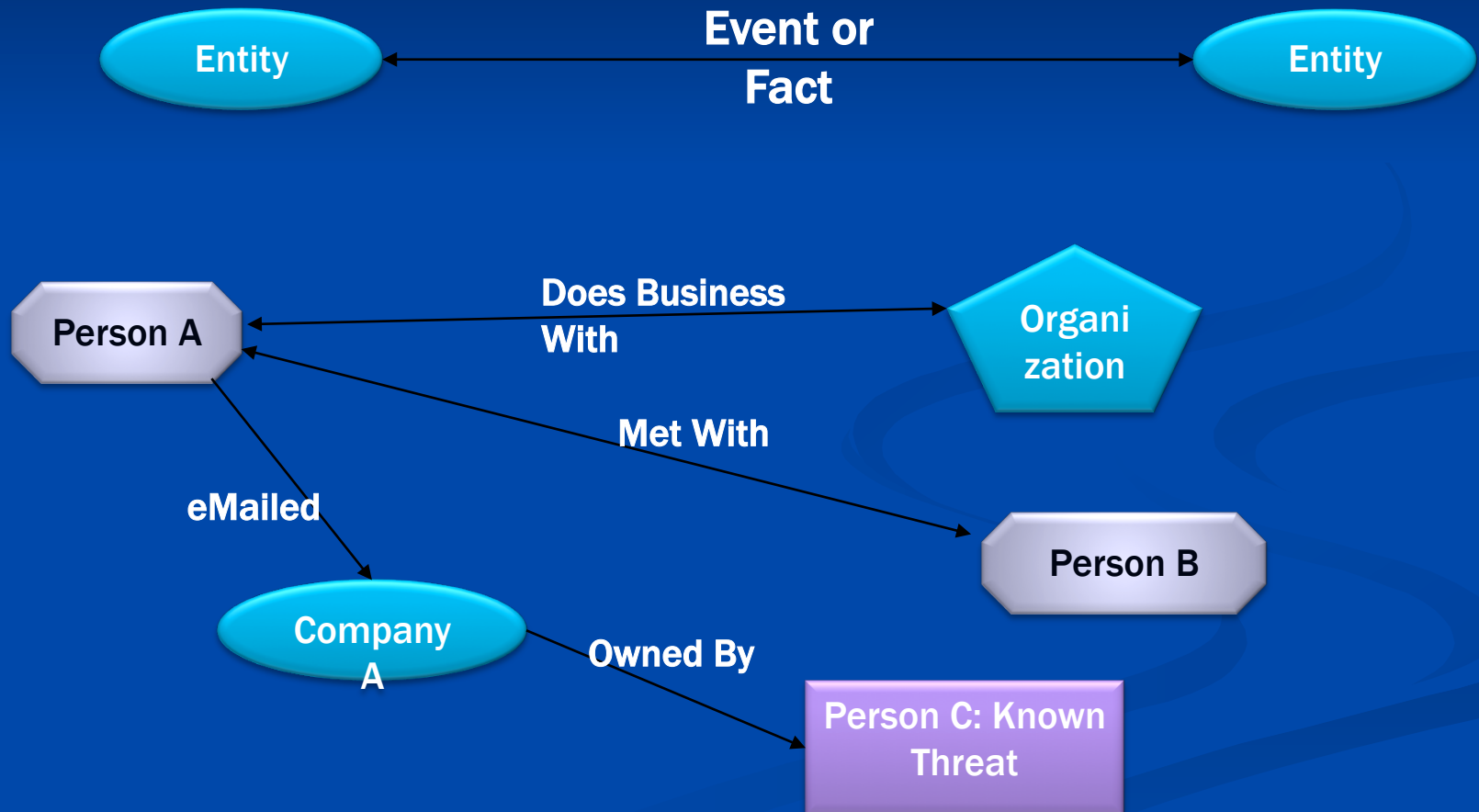- **Case 1: Quote My Source**

- **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
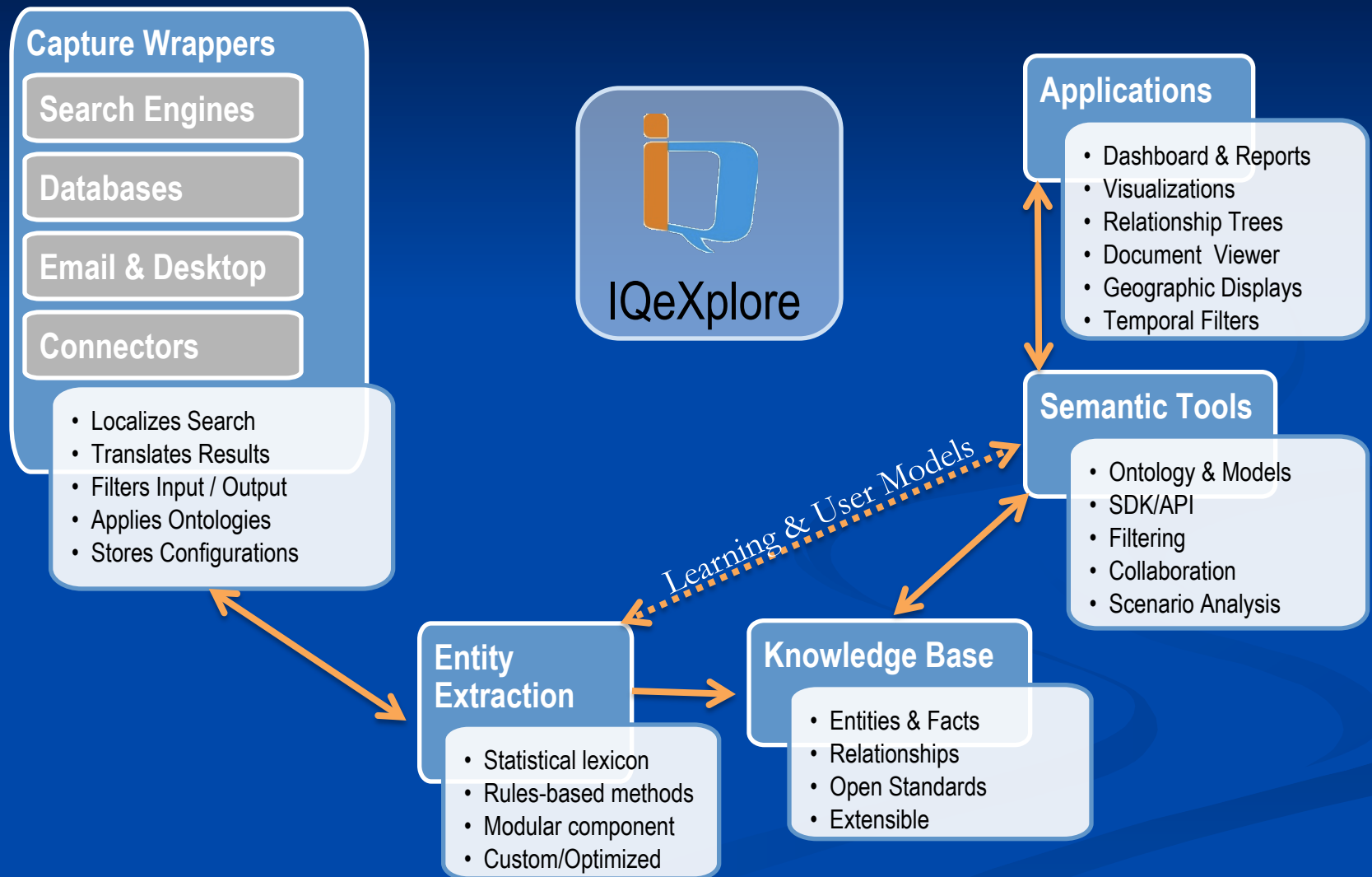   - Unlocking information for actionable insights
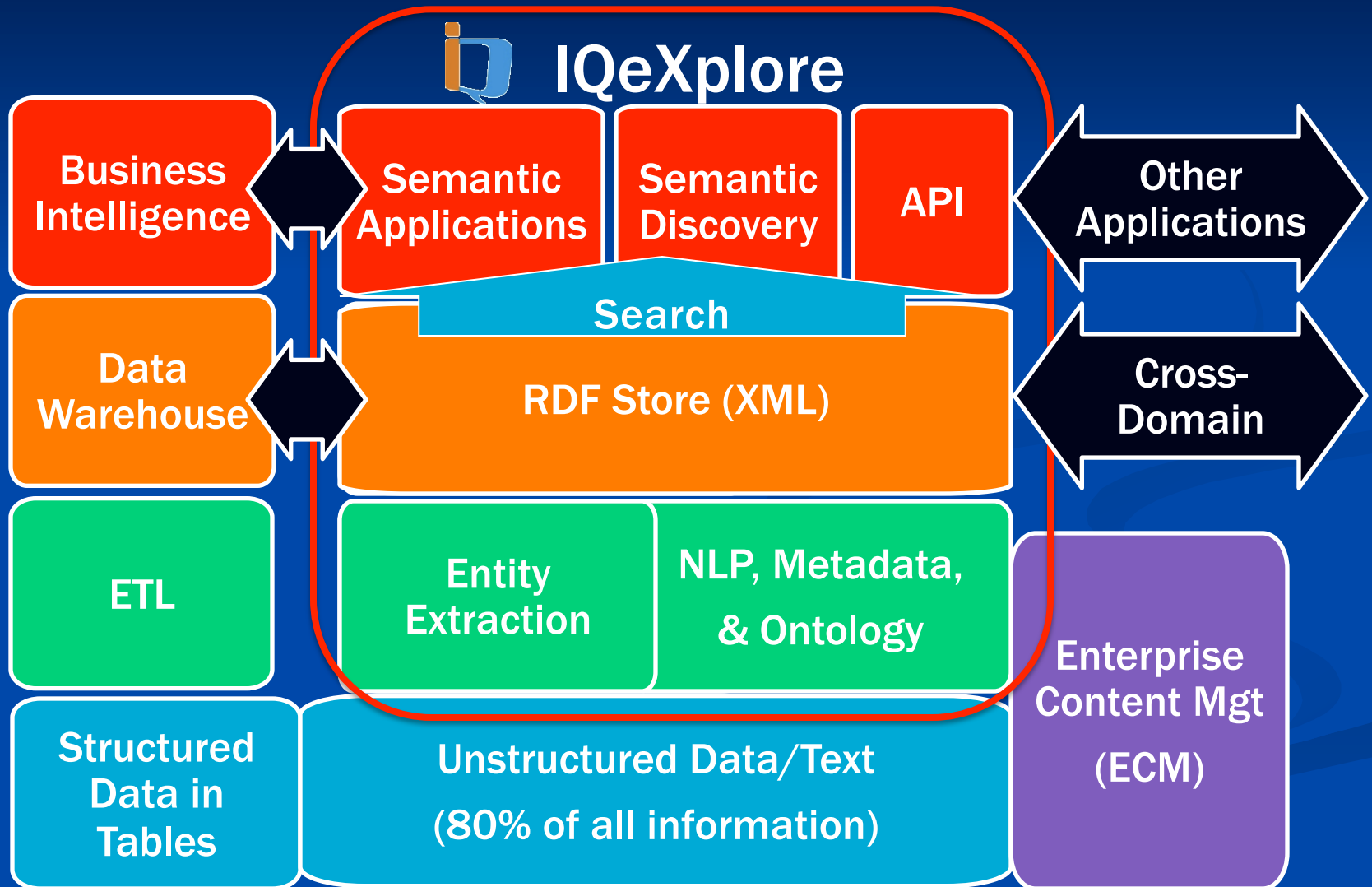
IQeXplore: Marketecture

Semantic Ontology/ NLP Processing

End-to-End Process

Capture Wrappers

Search Engines

Databases

Email & Desktop

Connectors

- Localizes Search
- Translates Results
- Filters Input / Output
- Applies Ontologies
- Stores Configurations

IQeXplore

Applications

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

Semantic Tools

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

Learning & User Models

Entity Extraction

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

Knowledge Base

- Entities & Facts
- Relationships
- Open Standards
- Extensible

The Whole Picture for Data

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**
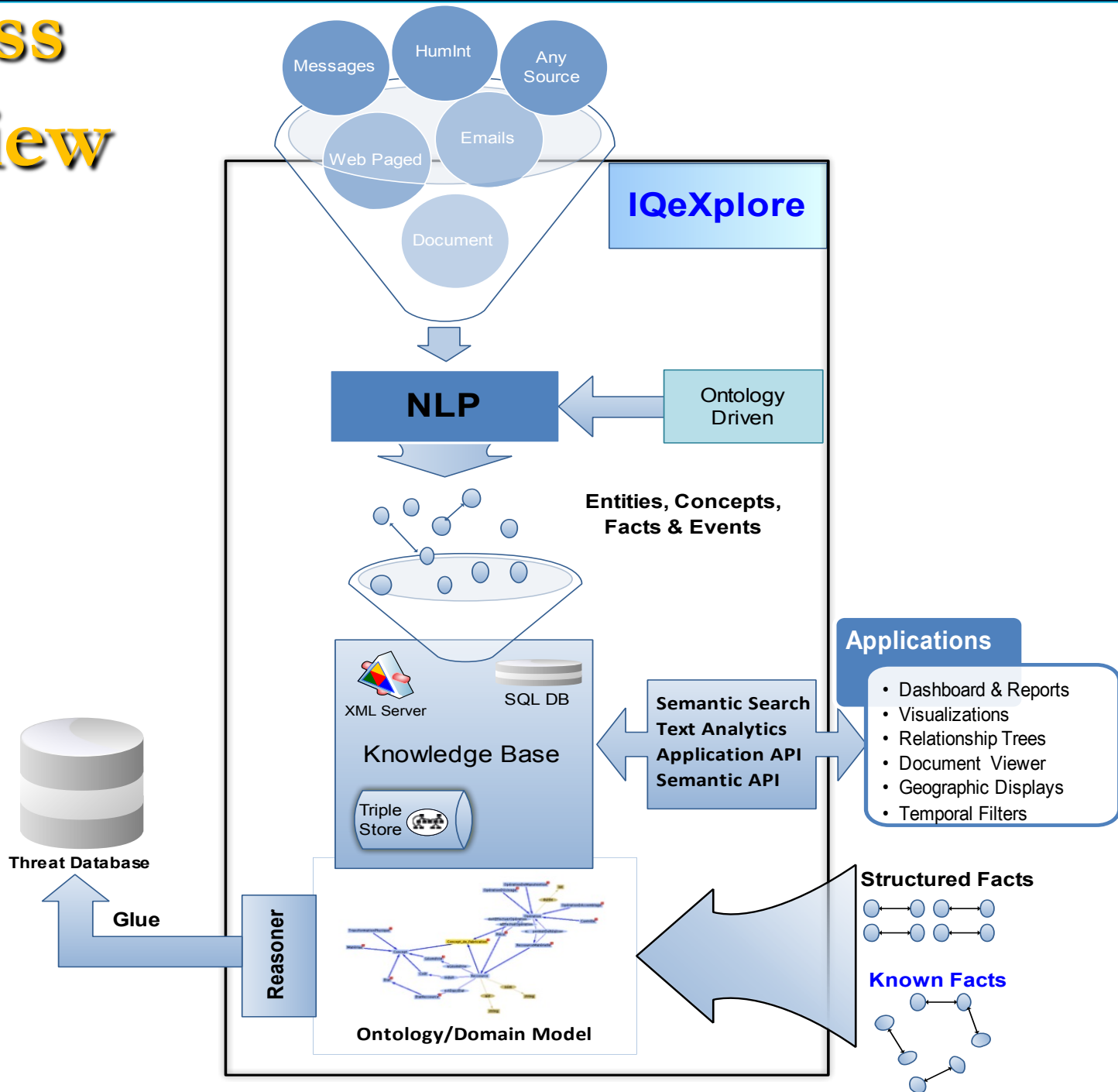
Case 2:
Augmented Governance

- 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
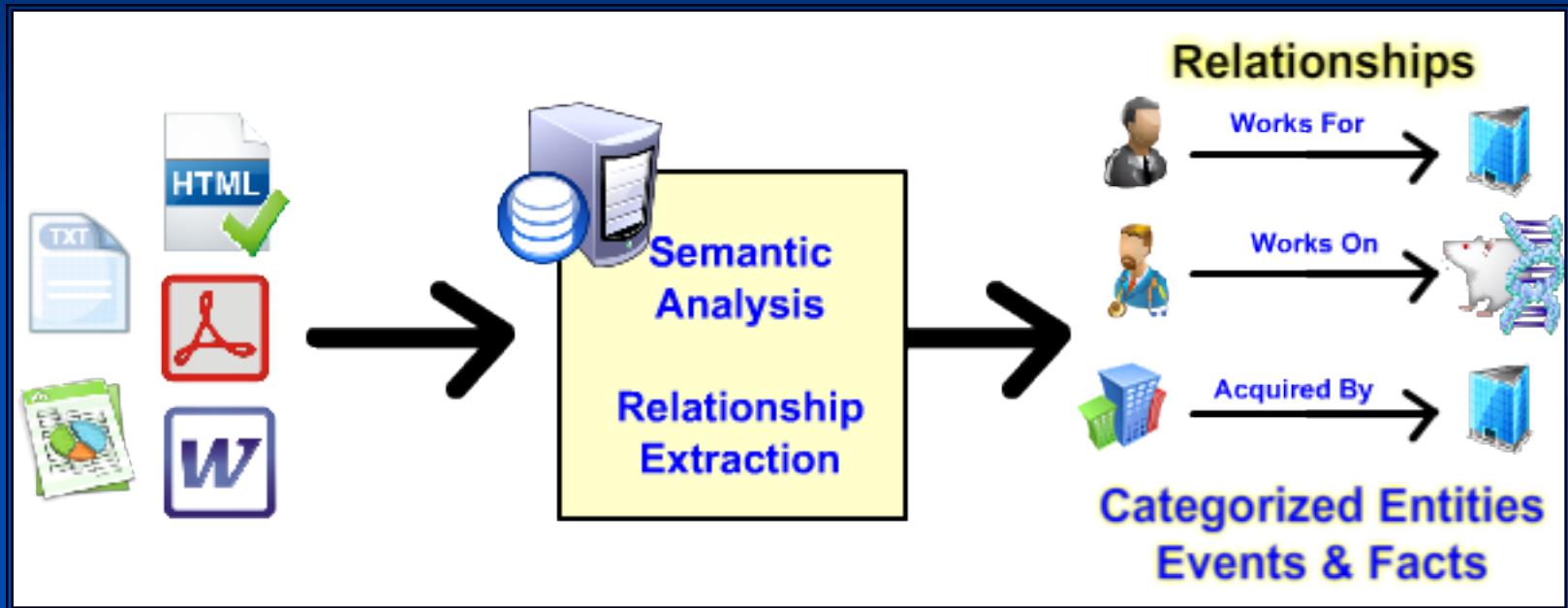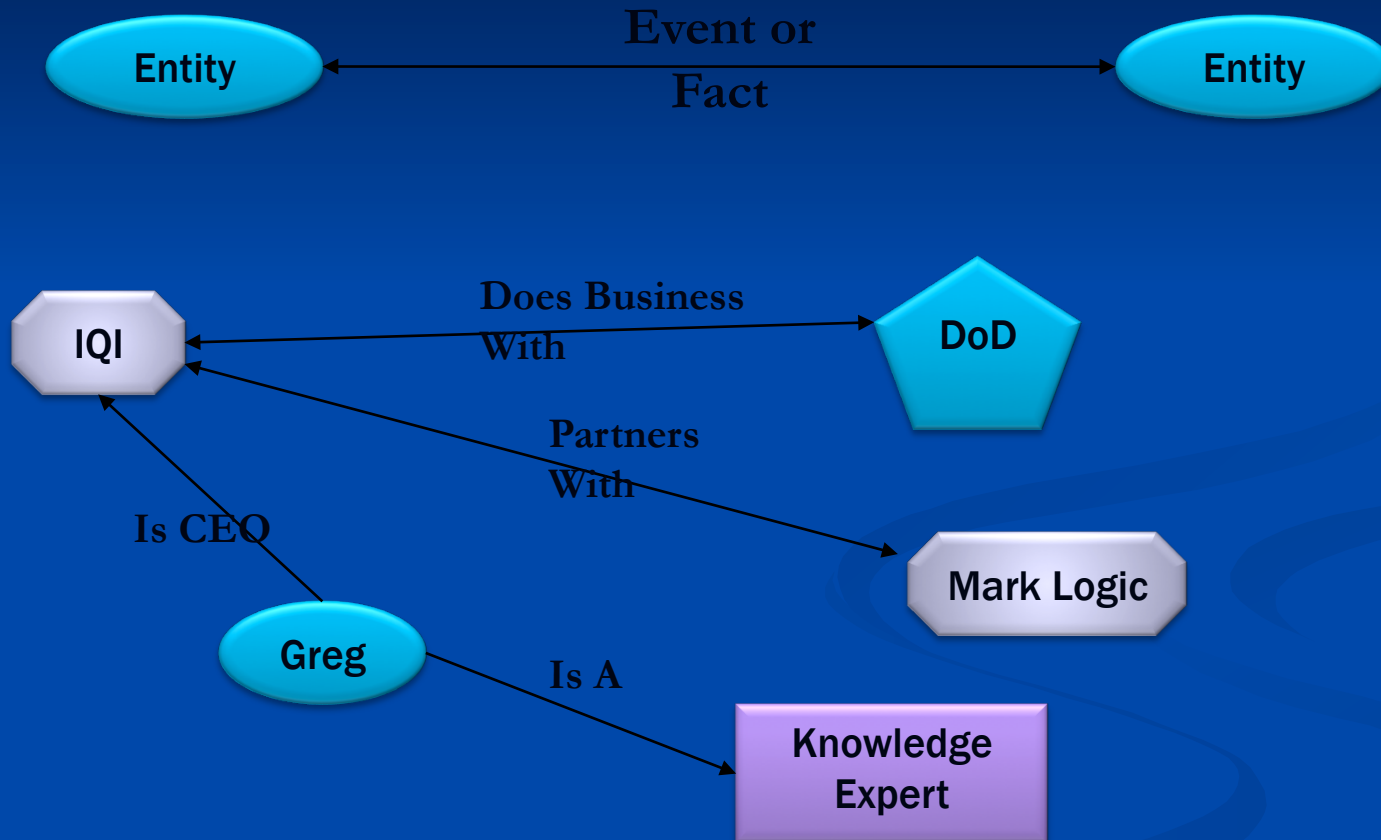
Process Overview

Messages
HumInt
Any Source
Emails
Web Paged
Document

IQeXplore

NLP ← Ontology Driven

Entities, Concepts, Facts & Events

XML Server
SQL DB

Knowledge Base

Triple Store

Semantic Search
Text Analytics
Application API
Semantic API

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

Threat Database

Glue

Reasoner

Ontology/Domain Model

Structured Facts

Known Facts

TECH BACKUP SLIDES

Stage 1: Document Analysis

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.
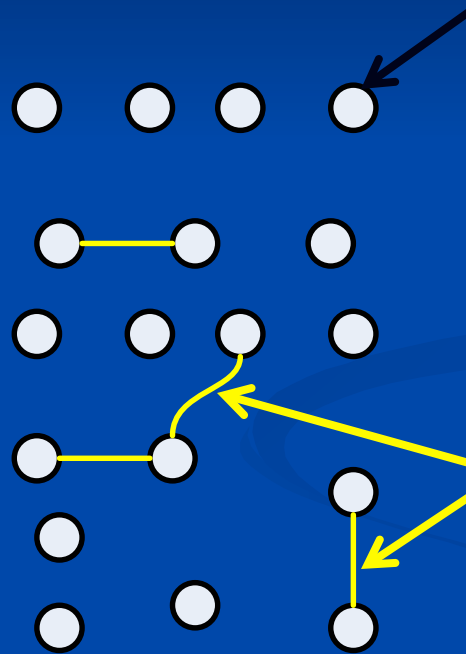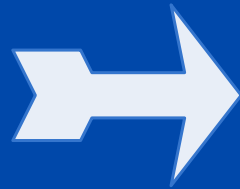
Semantic Relationships

Entity — **Event or Fact** → Entity

IQI — **Does Business With** → DoD

IQI — **Partners With** → Mark Logic

Greg — **Is CEO** → IQI

Greg — **Is A** → Knowledge Expert

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..
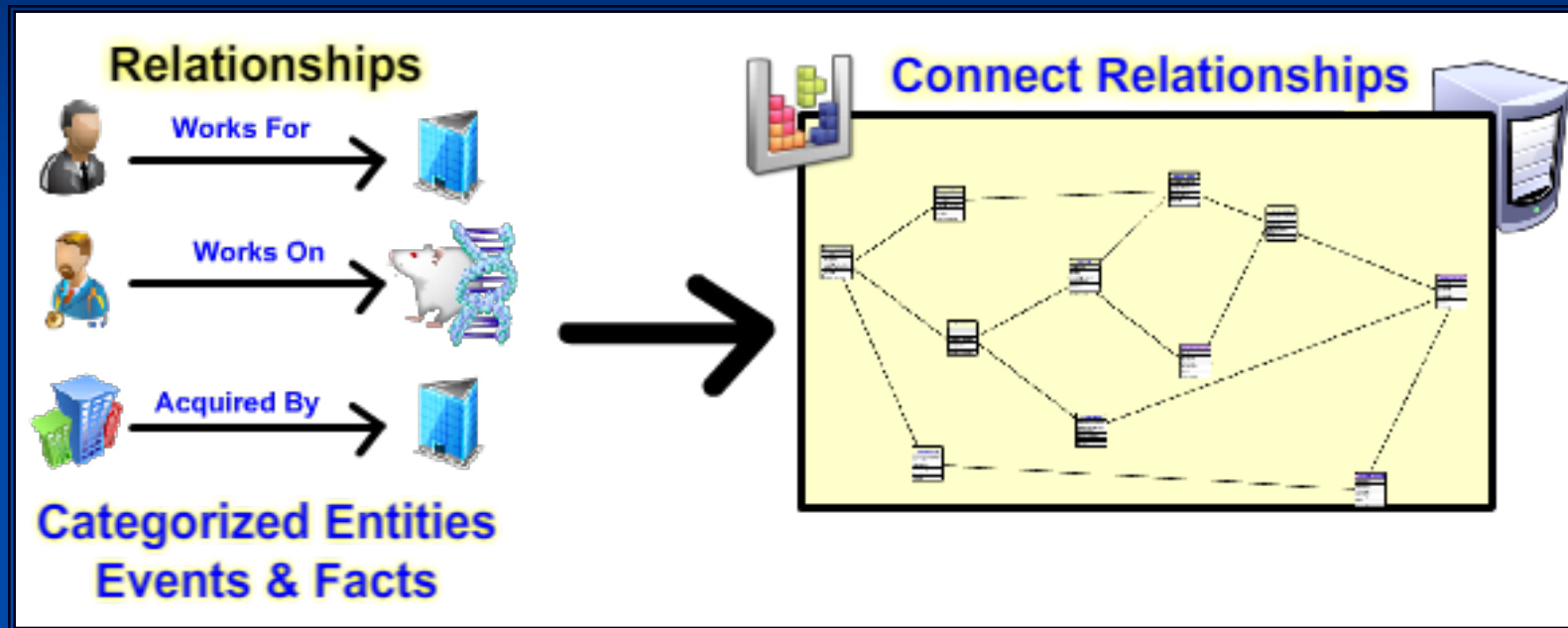
From One Document

- ○ **Entities Extracted**
  - ○ **38 Categories Out of Box**

- ➢ **Facts & Events Discovered**
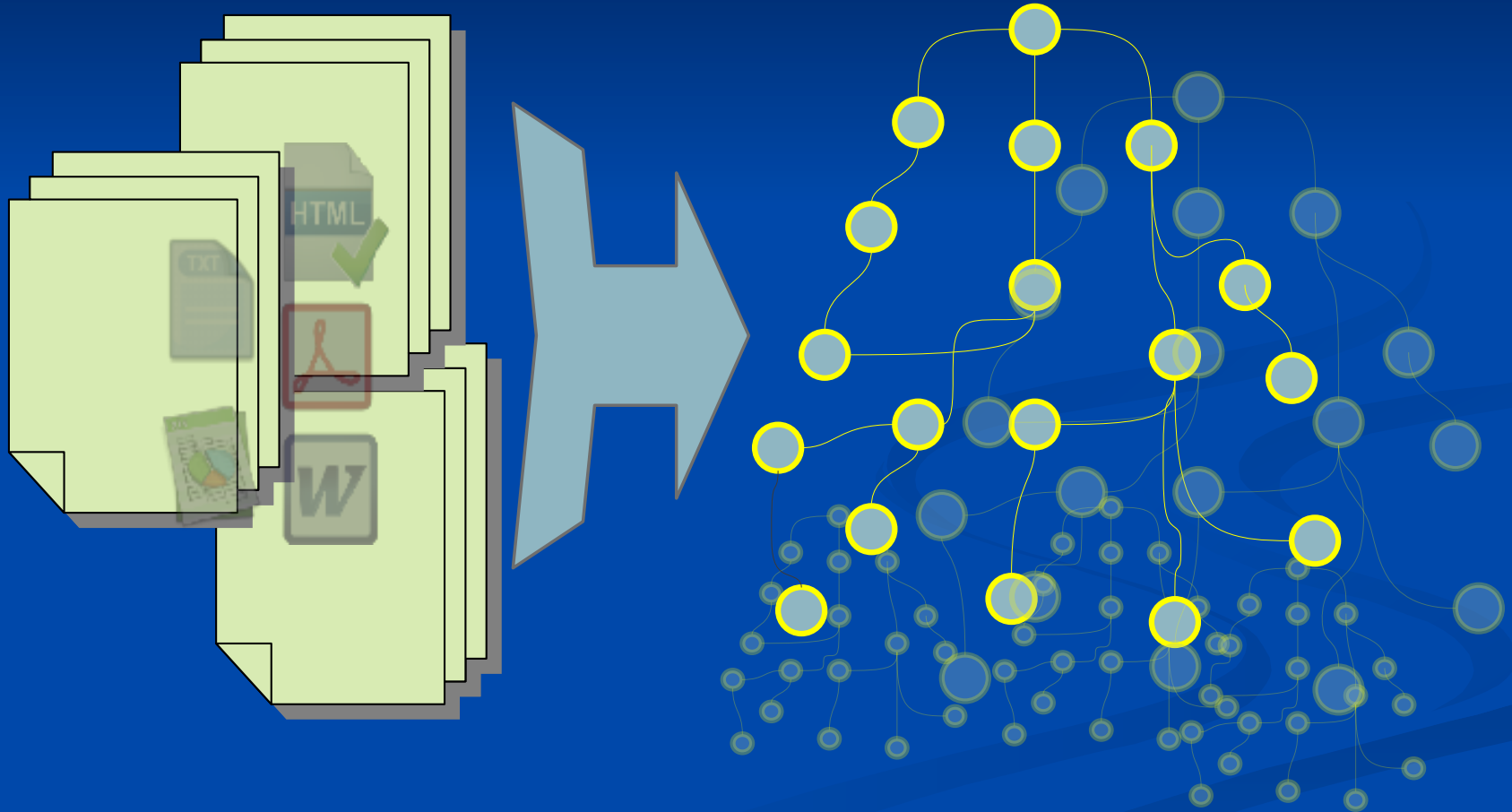 - ➢ **50 Categories Out of Box**

Stage 2: Building Connections

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.
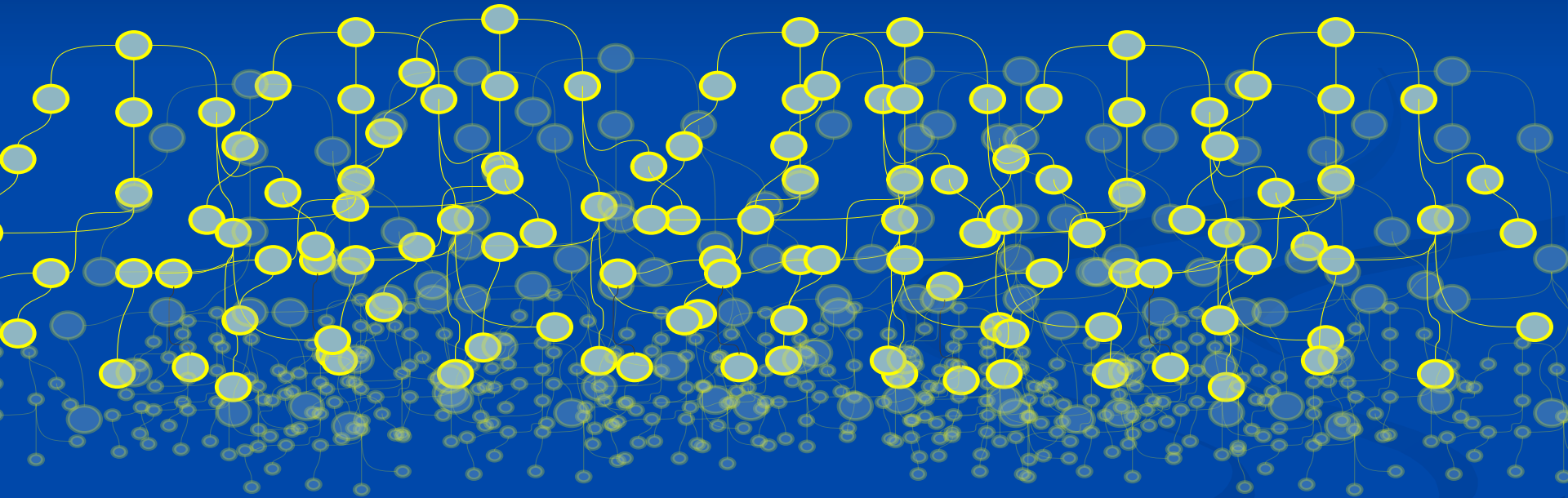
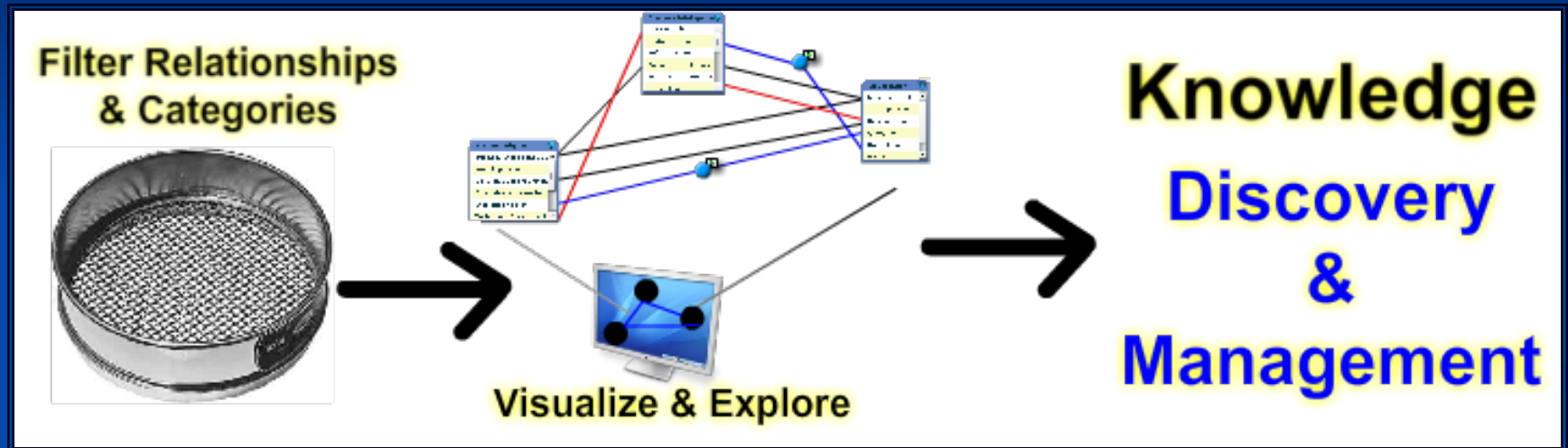# Multiple Documents Yields Huge Fact Trees

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.