blackbook2 3

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Agenda

- Analytic Modernization
- Linked Data and Semantic Web
- What is Blackbook?
- Blackbook 2.x - Current Capabilities
- Blackbook 3.x - Future Capabilities
- Timeline
- Technology Transfer
- Blackbook wiki
- Q&A

Linked Data

- The term Linked Data refers to a set of best practices for publishing and connecting structured data on the Web

- Key technologies that support Linked Data are:

    - URIs (a generic means to identify entities or concepts in the world)
    - HTTP (a simple yet universal mechanism for retrieving resources, or descriptions of resources)
    - RDF (a generic graph-based data model with which to structure and link data that describes things in the world)
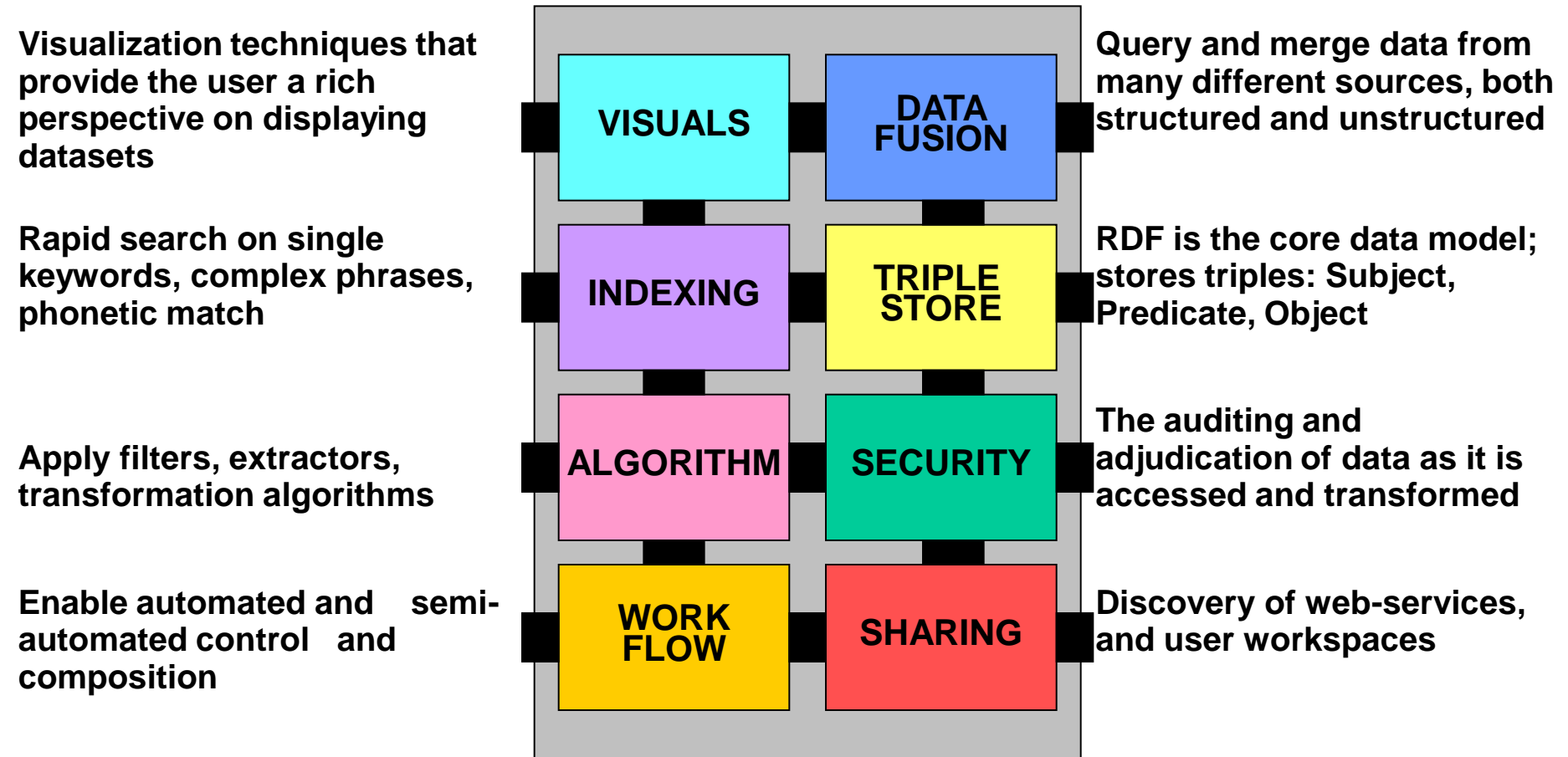
Semantic Web

- The Semantic Web is made up of Linked Data; i.e. the Semantic Web is the whole, while Linked Data is the parts
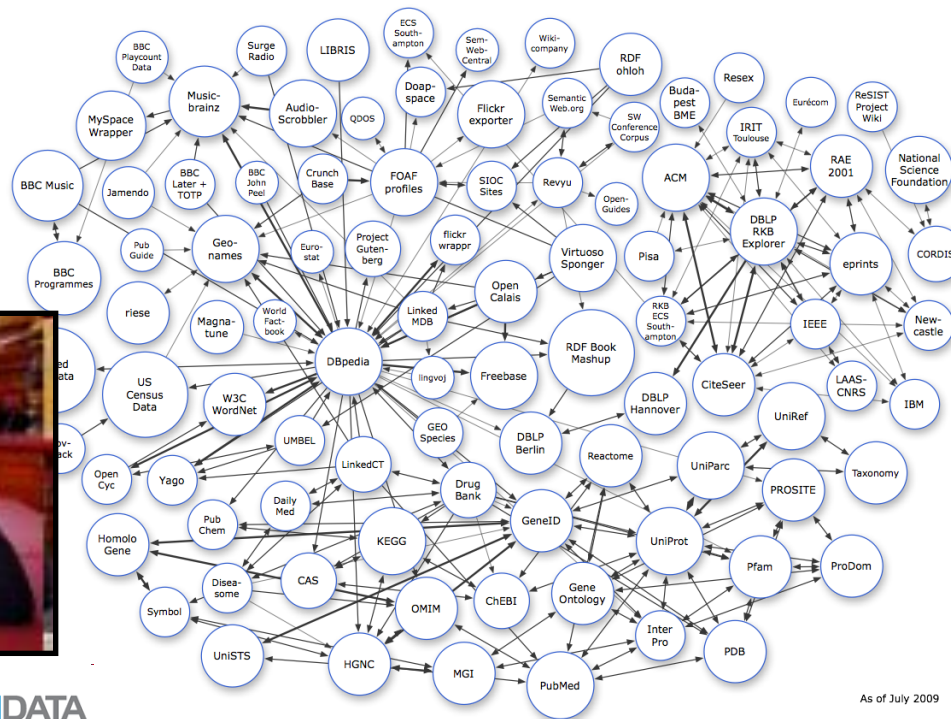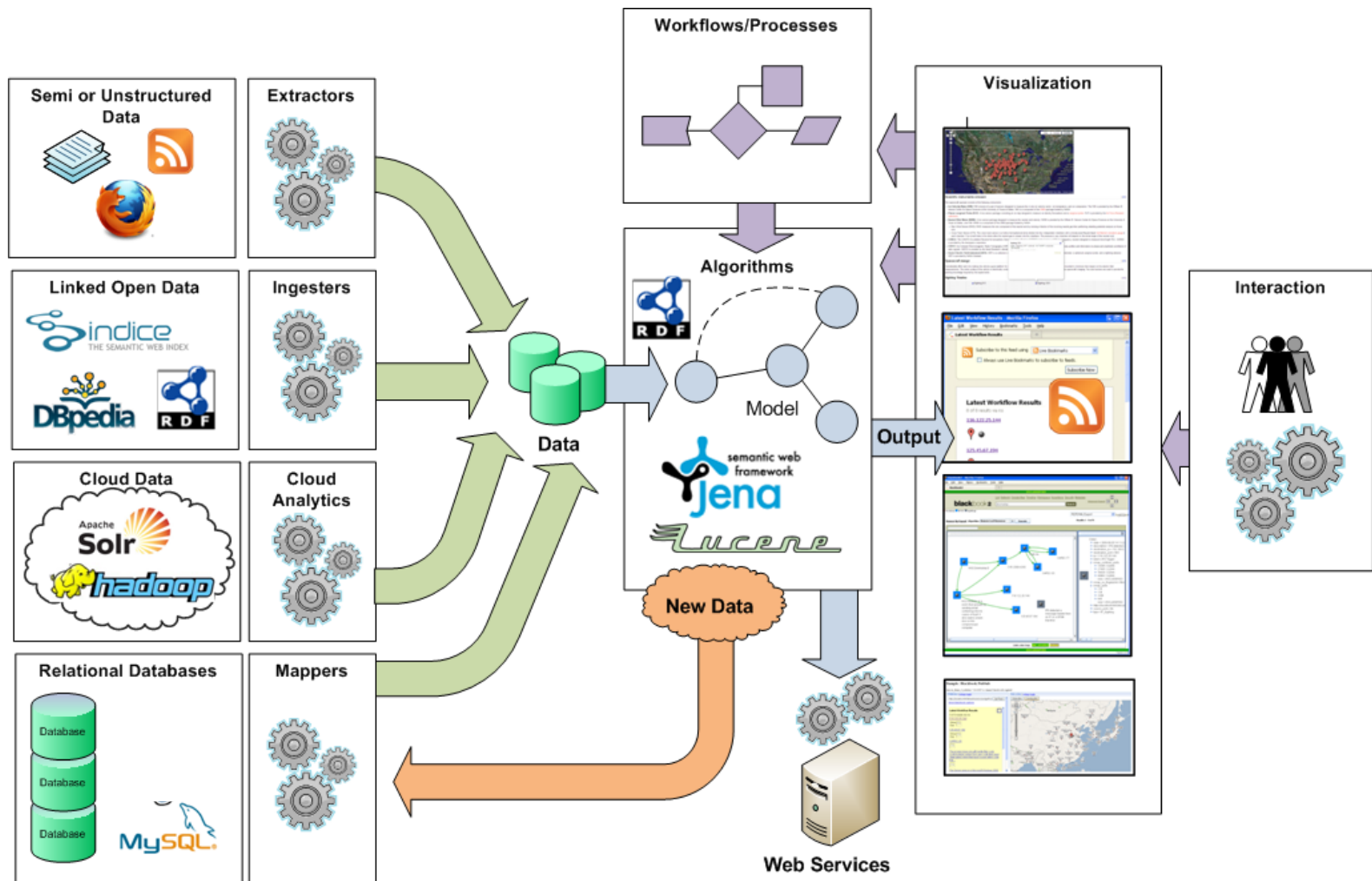
What is Blackbook?

- Provides a graph analytic processing platform for Semantic Web

- Based on semantic web technologies
  -RDF, OWL, SPARQL, JENA
  -Vocabulary agnostic

- Relies on open standards and "best-of-breed" open source technologies
  -Lucene, JAAS, D2RQ, Hadoop/Map Reduce

- Leverage cloud computing technologies
  -Hadoop/Map Reduce, HBase, Solr

- Plug-and-Play, loosely–coupled architecture
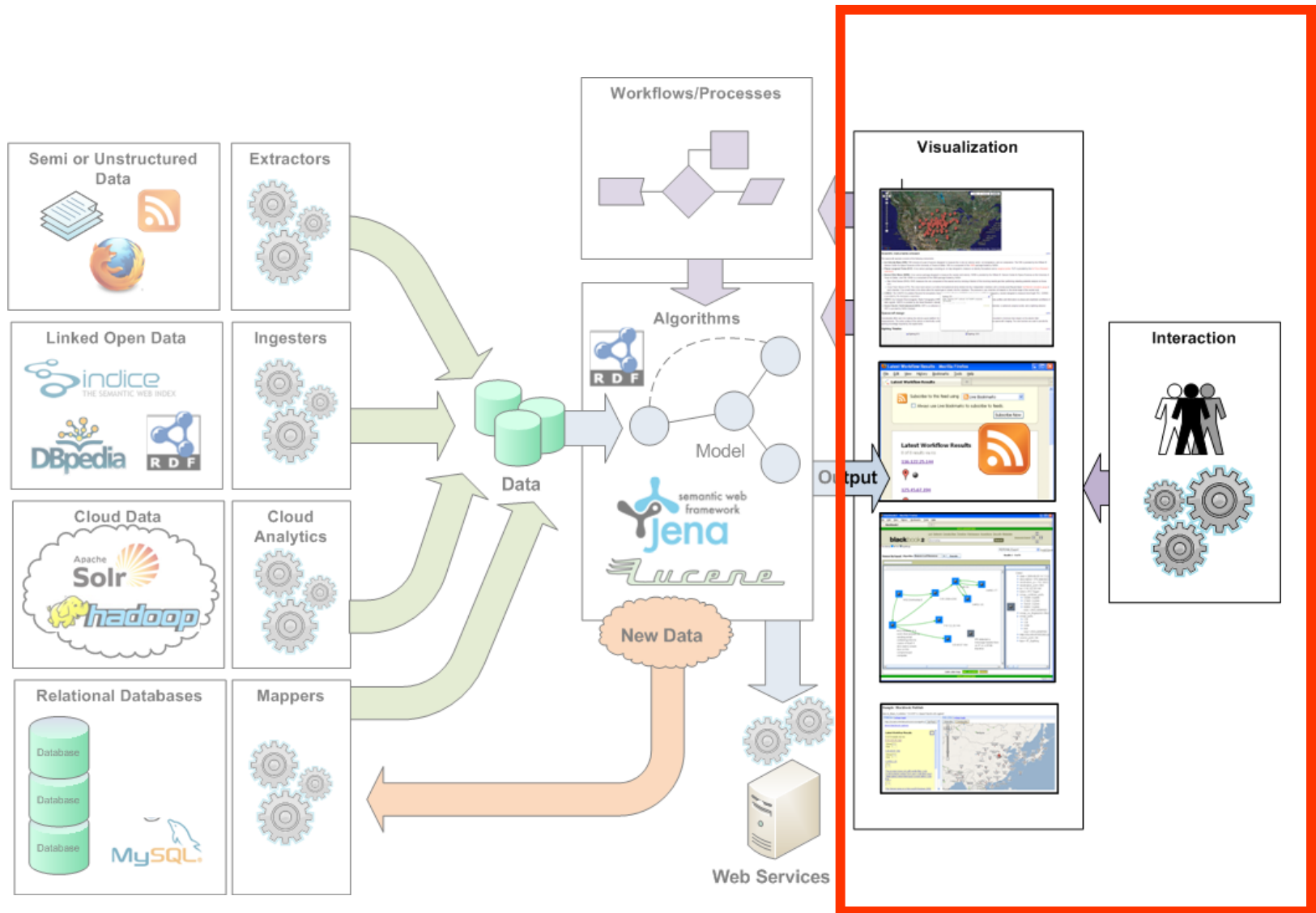- SOAP & REST interfaces, SPARQL & Linked Data endpoints
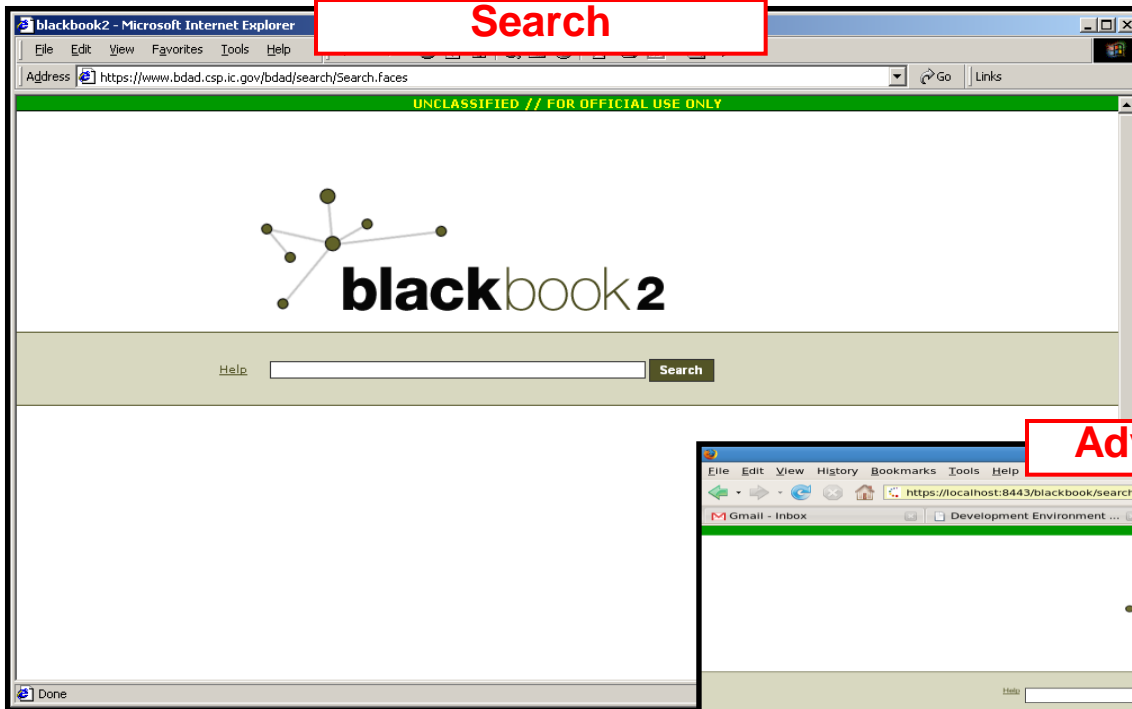- Blackbook can run in secure environments

Core Components

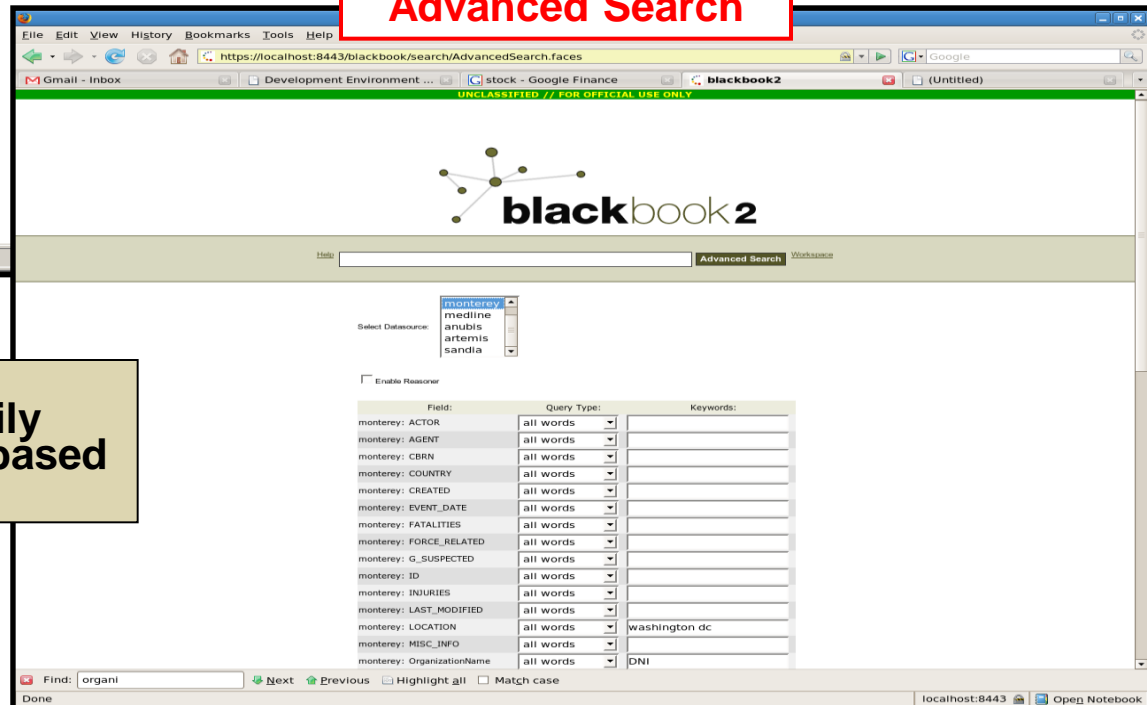Visualization techniques that provide the user a rich perspective on displaying datasets

Rapid search on single keywords, complex phrases, phonetic match

Apply filters, extractors, transformation algorithms

Enable automated and semi-automated control and composition

VISUALS

DATA FUSION

INDEXING

TRIPLE STORE

ALGORITHM

SECURITY

WORK FLOW

SHARING

Query and merge data from many different sources, both structured and unstructured

RDF is the core data model; stores triples: Subject, Predicate, Object

The auditing and adjudication of data as it is accessed and transformed

Discovery of web-services, and user workspaces

Current Capabilities

Presentation Tier

User Interface

Search

Advanced Search

A front-end "Google-like" user interface allows analysts to easily perform keyword and attribute based searches.
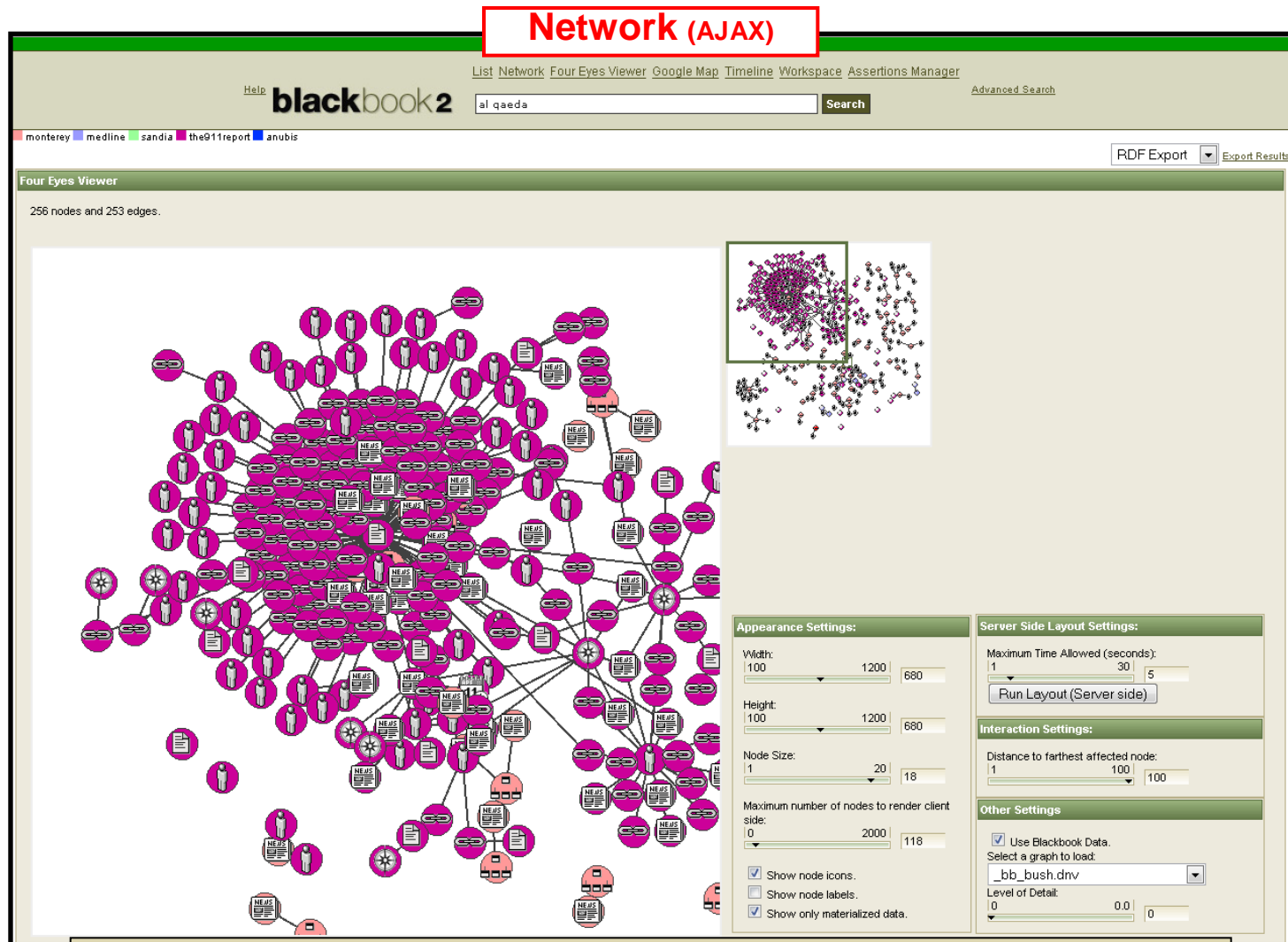
User Interface

"Google-like" Results
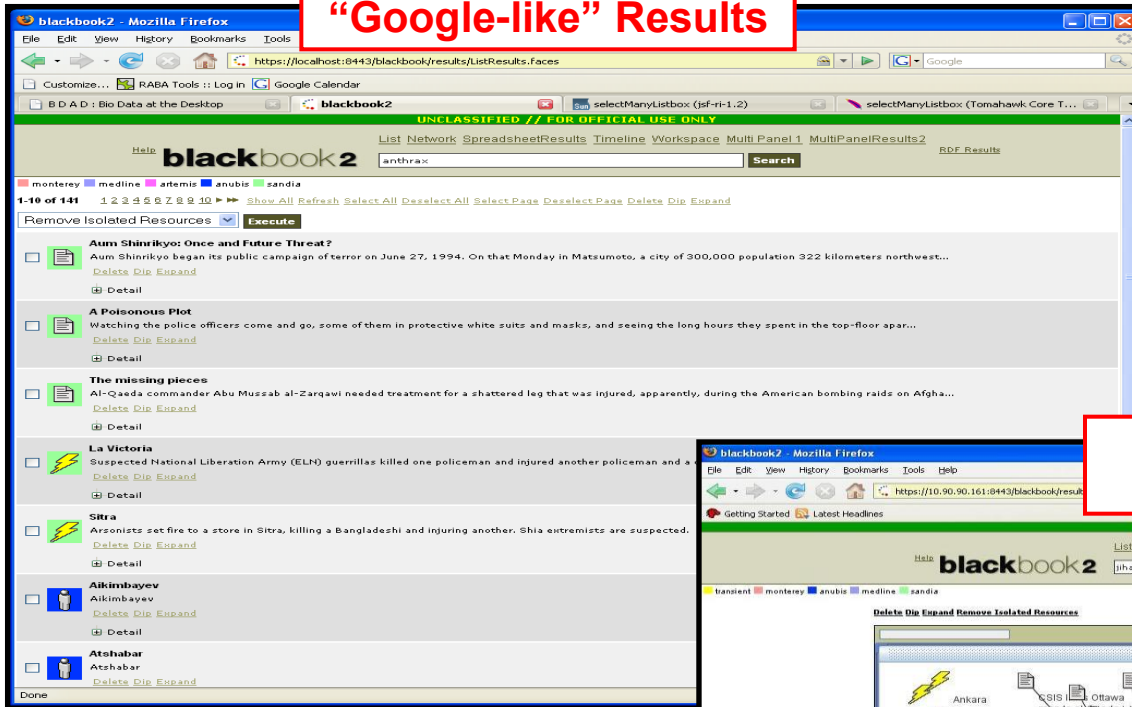
Network
(Java Applet)

Different ways to view the same information. "Network", for example, displays entities of different types and their relationships to other entities.
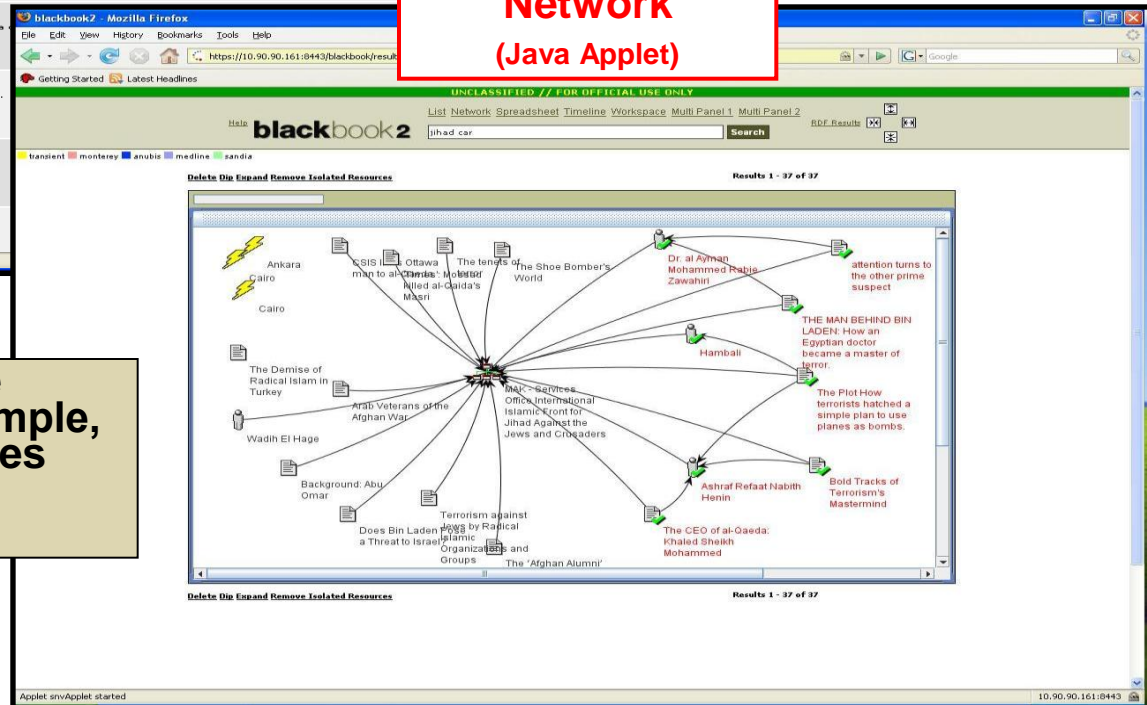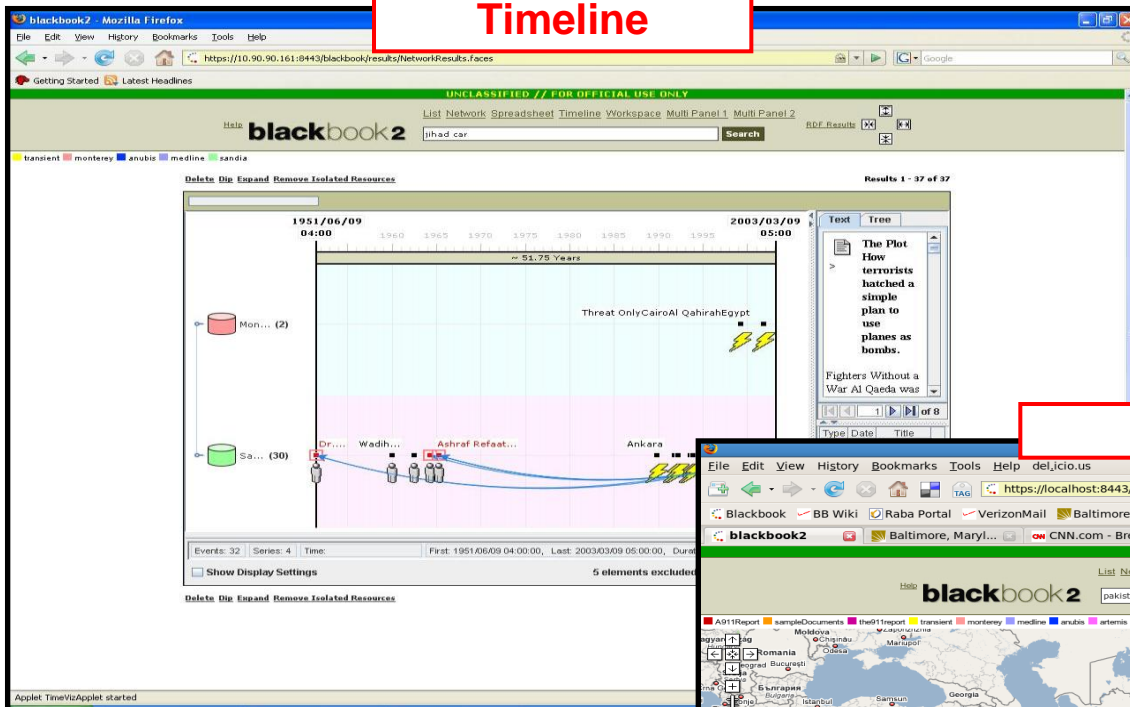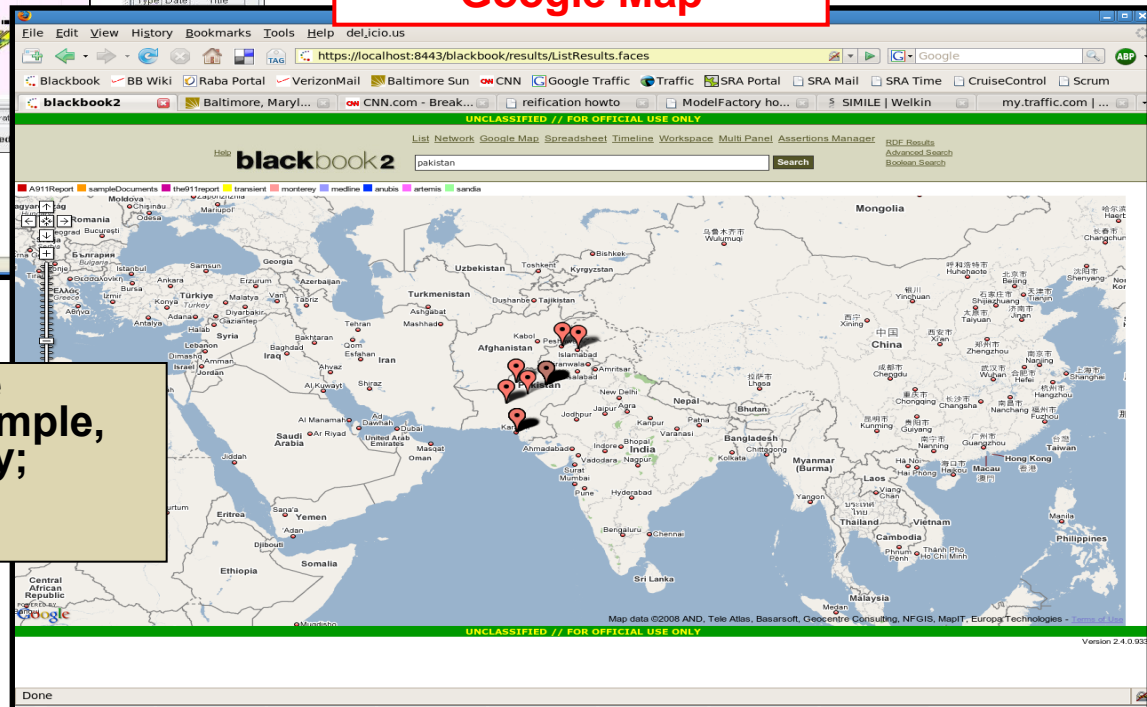
User Interface

An AJAX-based network visualization, called "WiGi", optimizes client-server processing for large graphs. Planned to be released as early as Blackbook v3.0 (Nov 2009)

User Interface

Timeline

Google Map

Different ways to view the same information. "Timeline", for example, displays entities chronologically; "Google Map" displays entities geospatially.
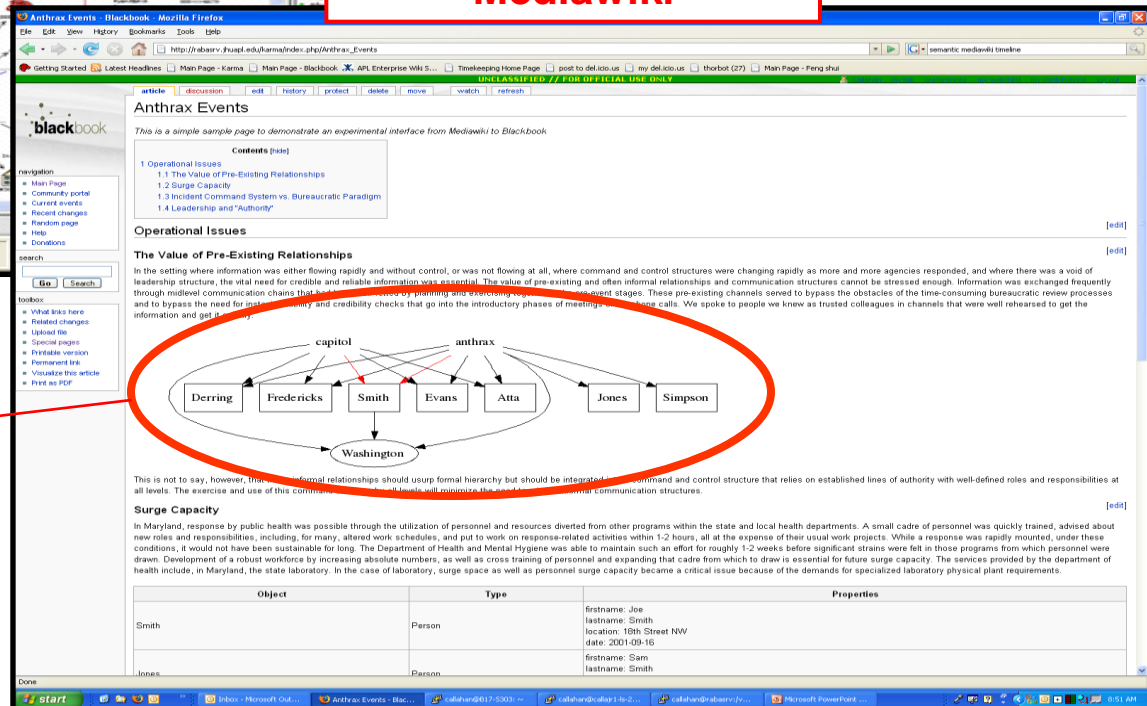
User Interface

Ozone: Blackbook Widget

Similar to Google gadgets, Blackbook provides analysts with widgets compatible with the Ozone (an iGoogle-like) framework.
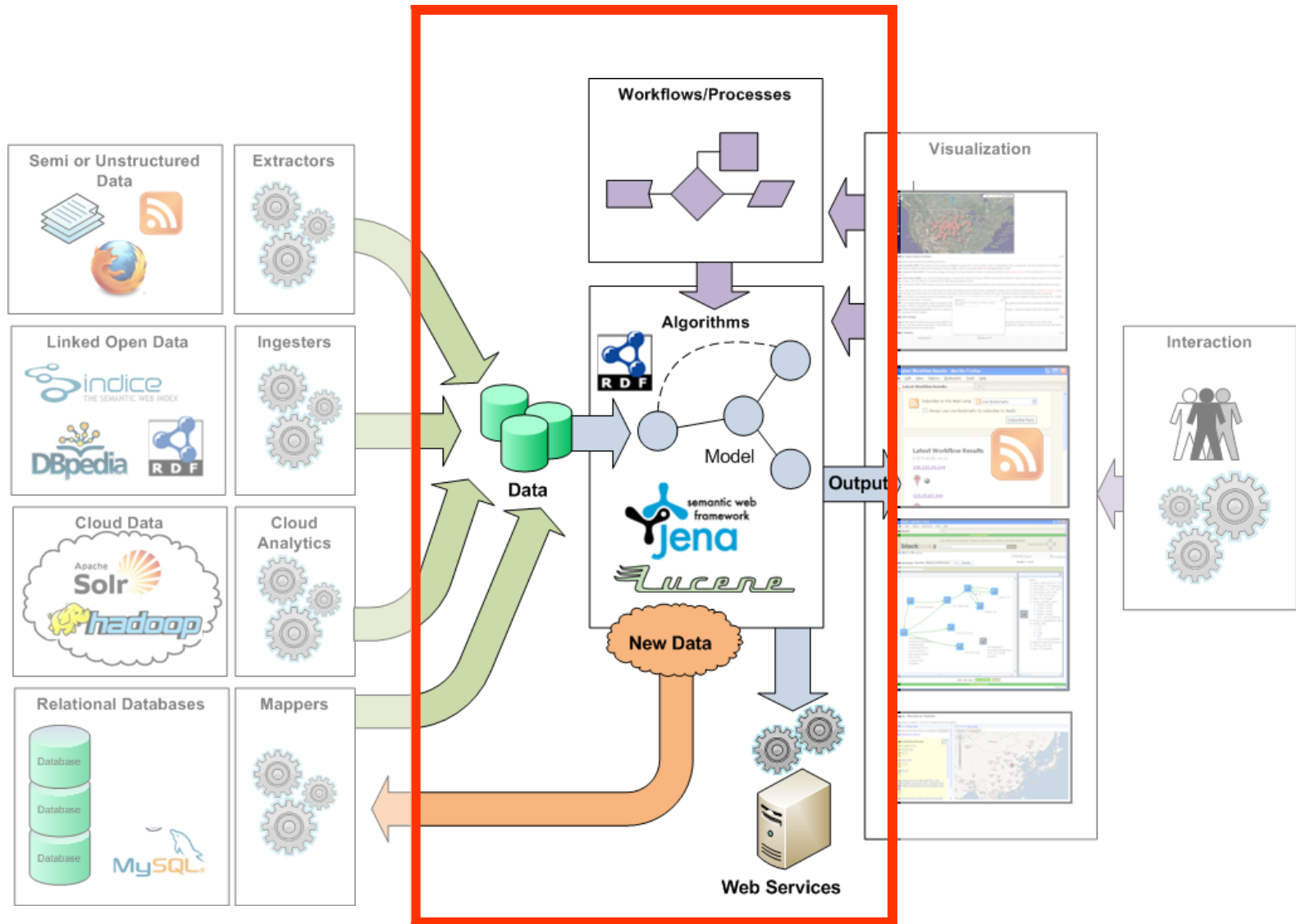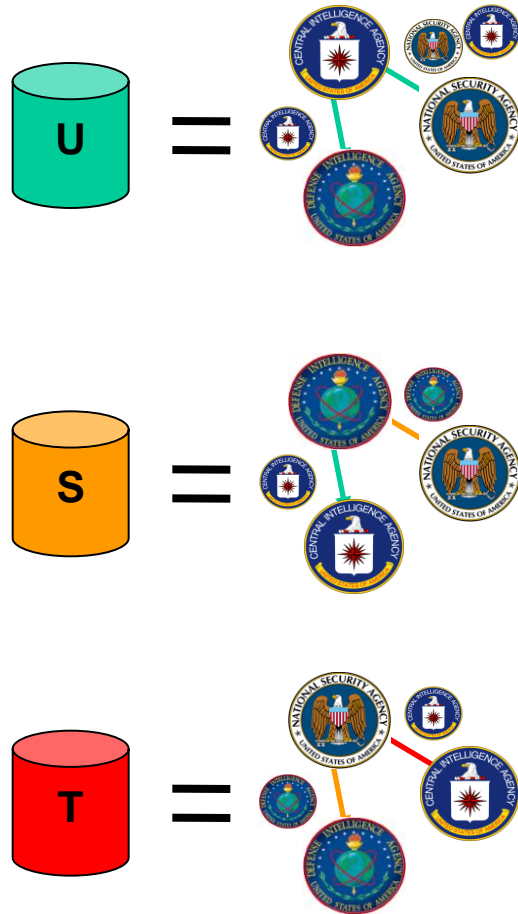
User Interface
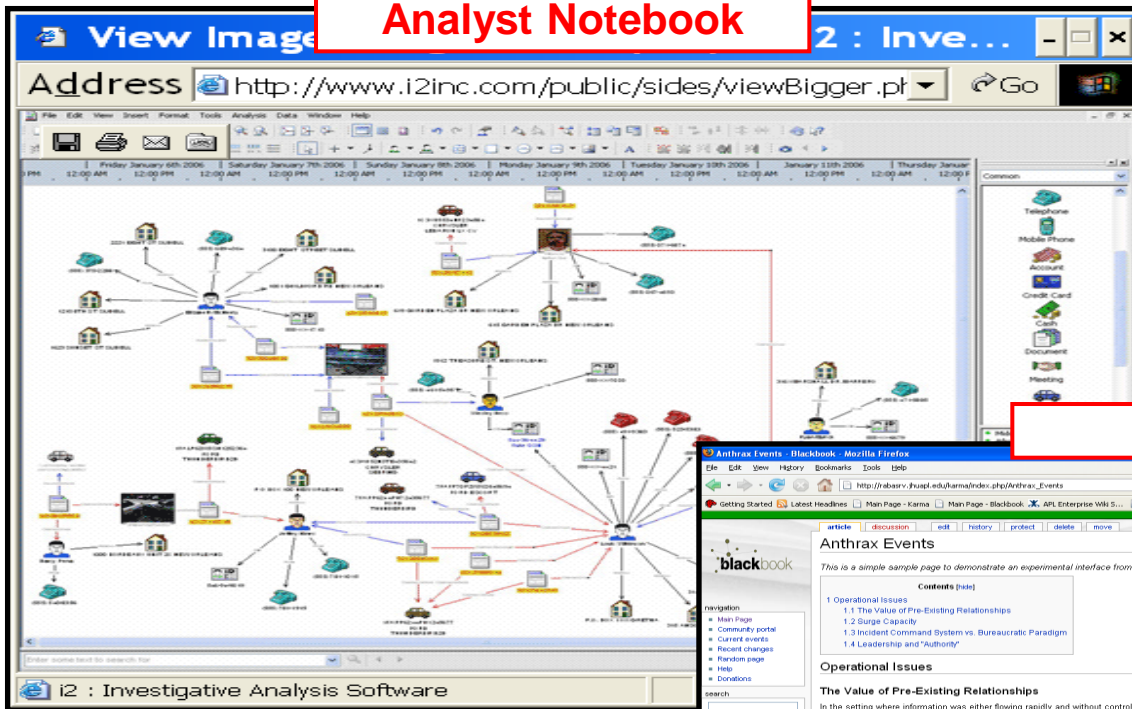
Mediawiki

Blackbook is developing a framework called "Aqueduct", allowing interoperability between ozone widgets and wikis.
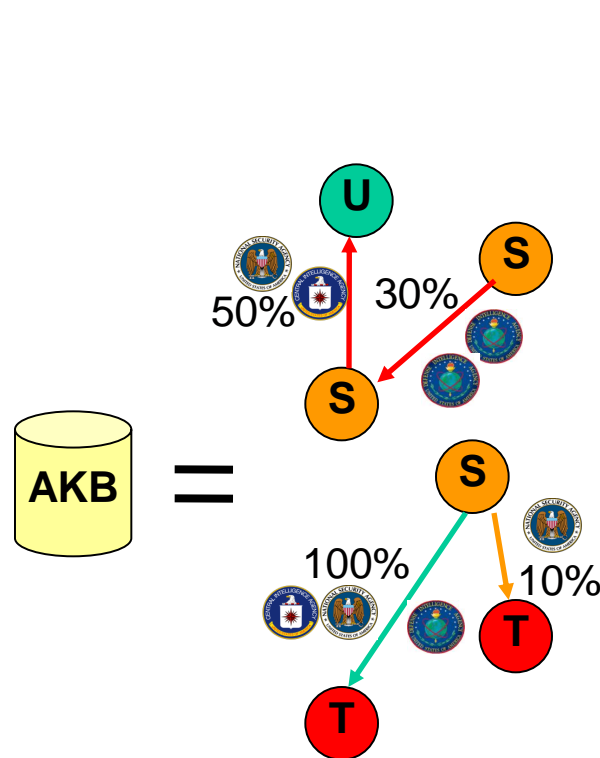
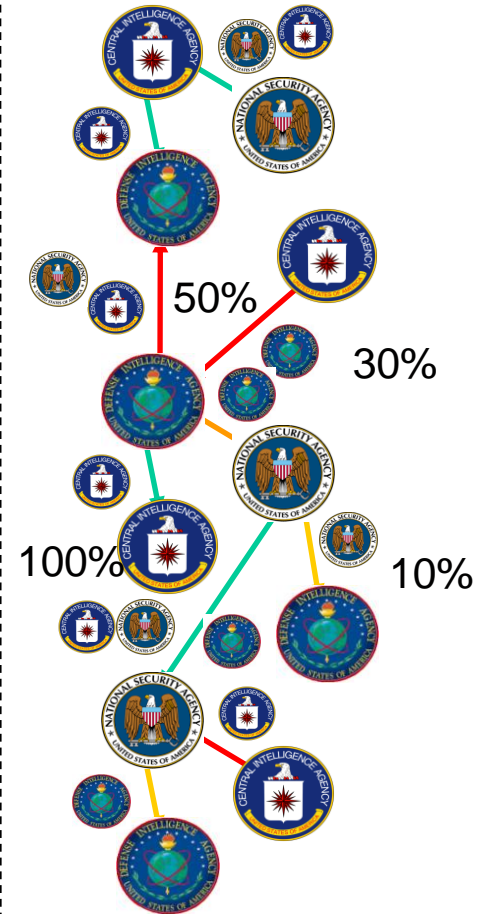# Middle Tier

Security, Confidence, Affiliation

Original Datasource
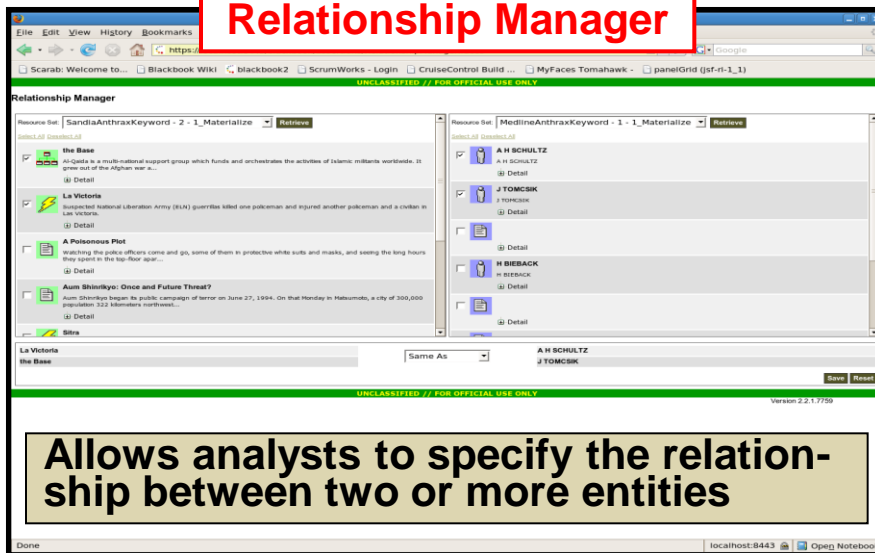
Analyst Knowledge Base

Composite Knowledge

Blackbook uses reification for classification markings, confidence values, and affiliation. Original datasources are read-only, AKB's are read-write.
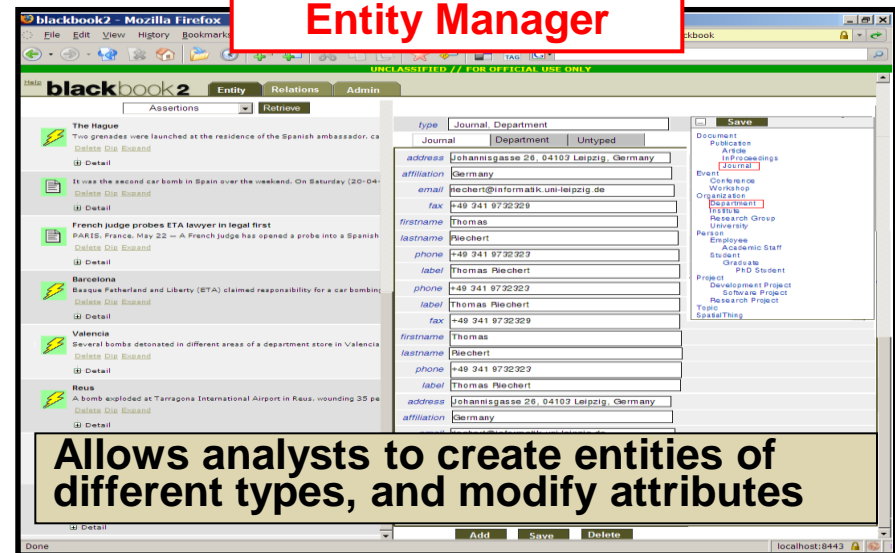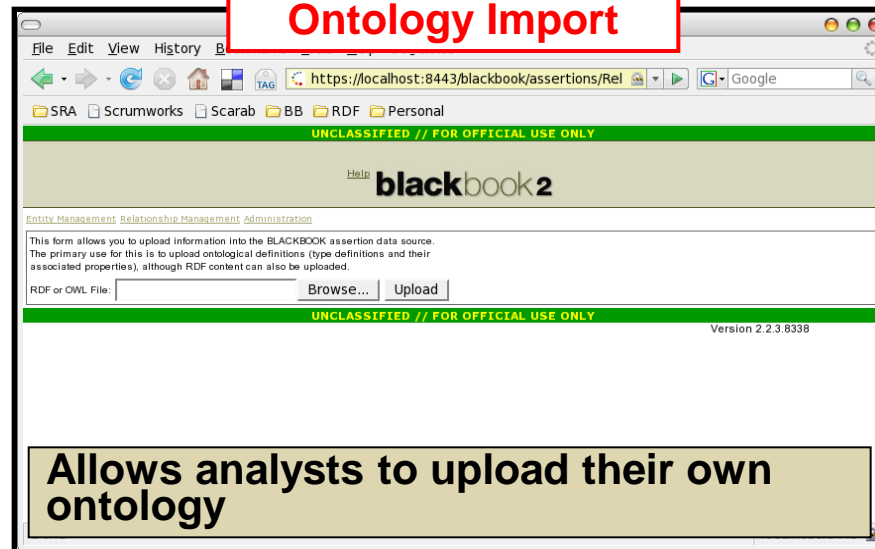
User Interface

Relationship Manager

Allows analysts to specify the relation-ship between two or more entities

Entity Manager

Allows analysts to create entities of different types, and modify attributes

Ontology Import

Allows analysts to upload their own ontology

User Interface

Analysis Log Service

Client Applications generate ALEs as users interact with the various applications.

The ALEs are transmitted to the ALS.

The ALS stores the ALEs received from the client applications.

Services interested in using ALEs can query the ALS for ALEs.

Other services can consume the results of the user modeling services for their own purposes.

Data Tier
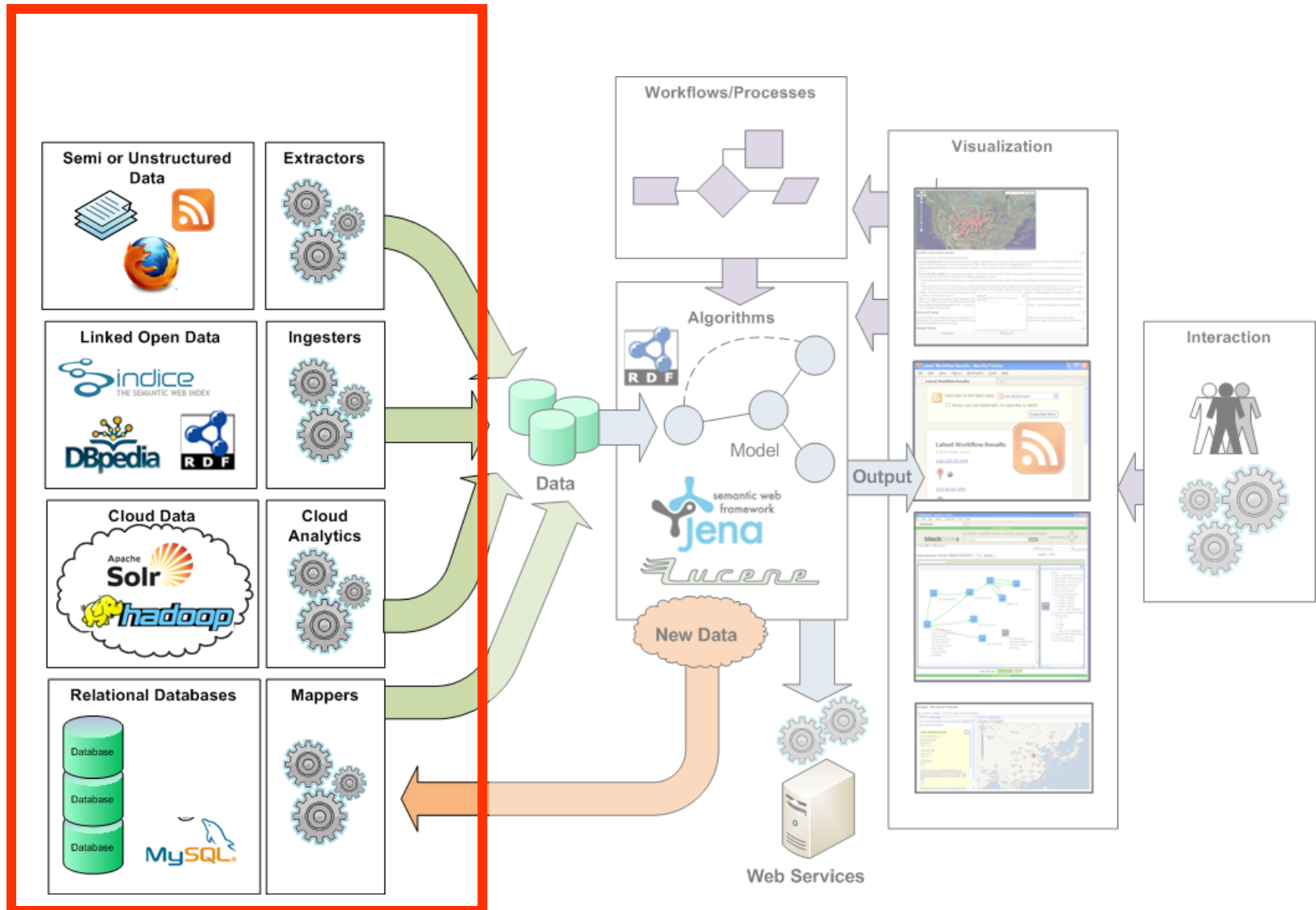
Data Integration Points
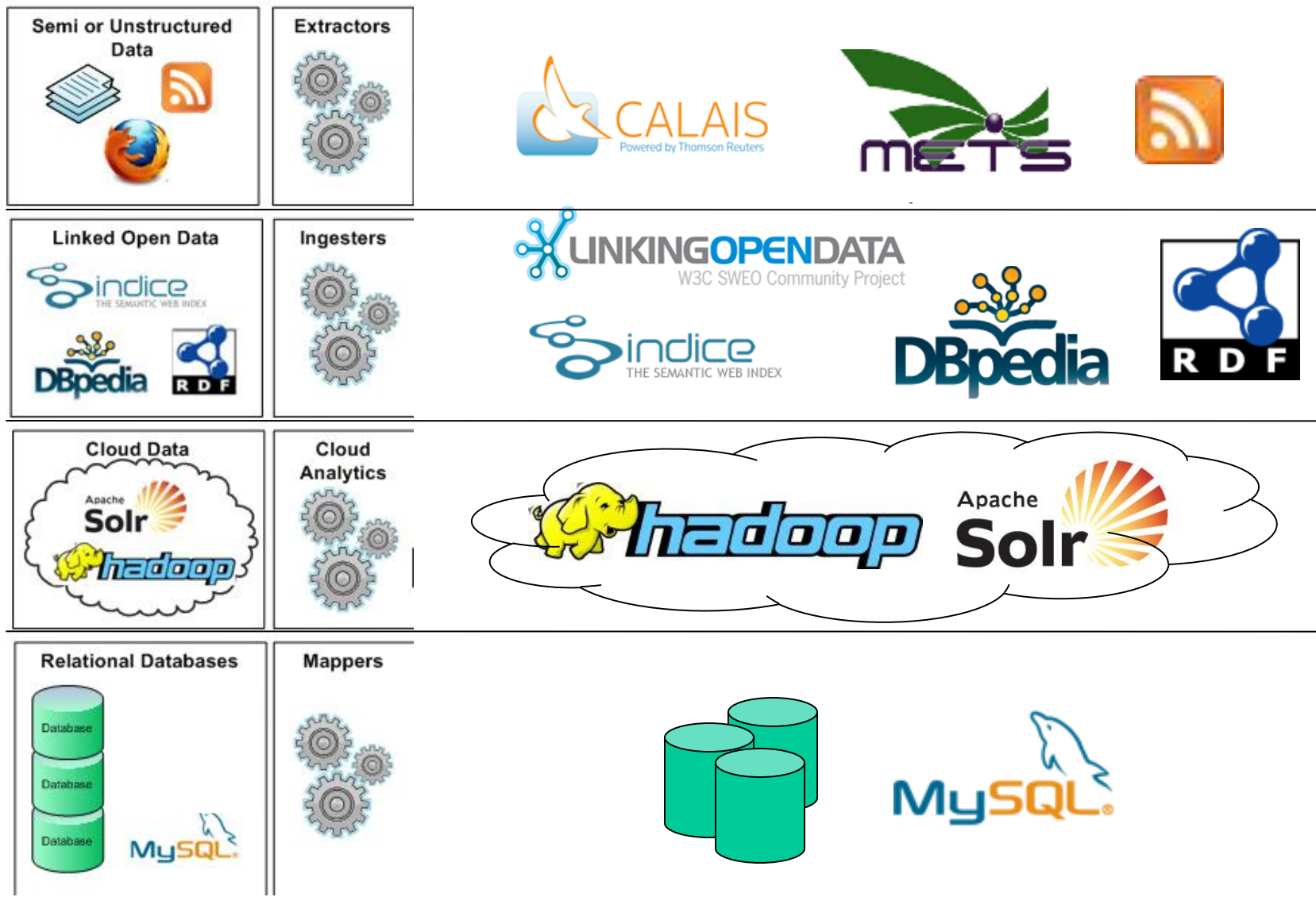
Future Capabilities

- Blackbook v3.0
  - Transition to a loosely-coupled architecture
  - Improve scalability allowing handling of large graphs
  - Implement secure SPARQL and Linked Data endpoints
  - Replace Java Applets views with AJAX-based WiGi and Simile
  - Interface to an entity extraction service (METS, Open Calais)

Technology Transfer

- Knowledge Discovery and Dissemination (KDD) program
  - Led by Dr Art Becker

- Blackbook provides a common integration framework for technology transfer

"Self-Addressed – Stamped Envelope"

Research — **black**book**2** — **Government**
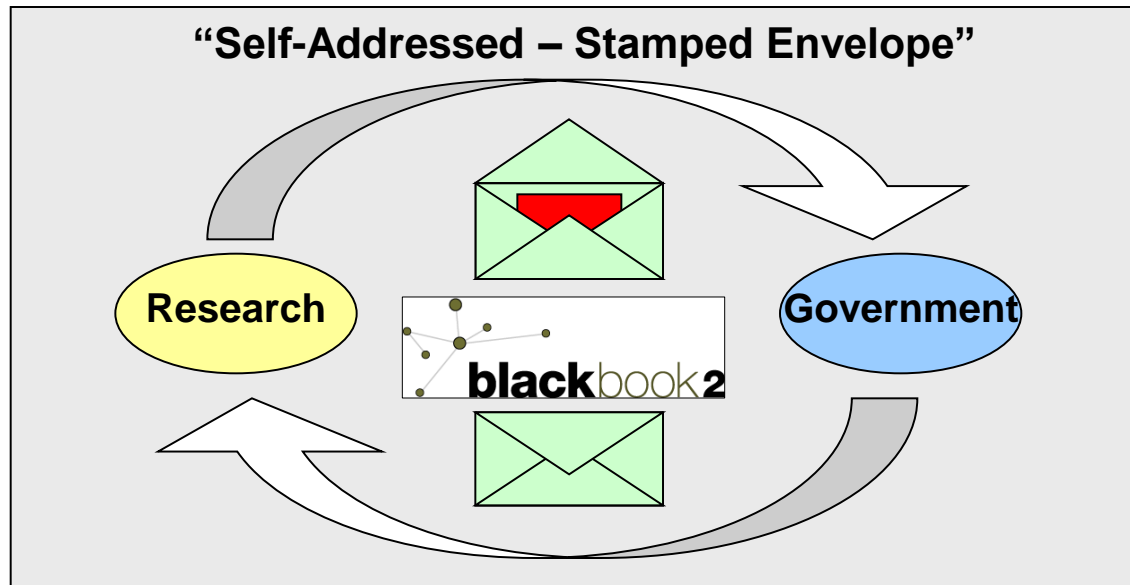
A research product (red), such as a new and improved algorithm or visualization, can easily be transferred from research to government using the Blackbook "envelope".

Blackbook Wiki
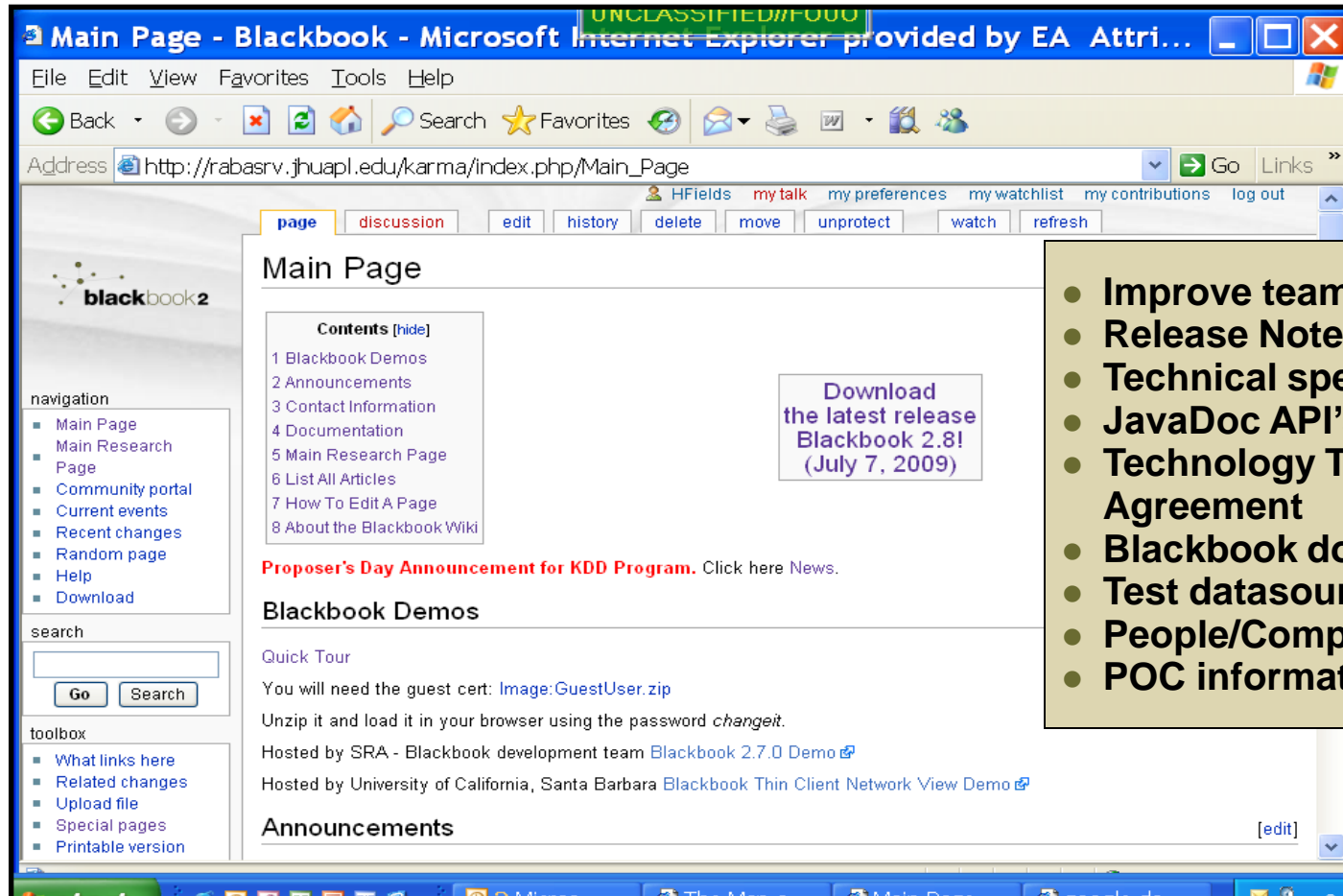
- **Improve team collaboration**
- **Release Notes**
- **Technical specs, documentation**
- **JavaDoc API's**
- **Technology Transfer Sharing Agreement**
- **Blackbook download access**
- **Test datasources**
- **People/Company list**
- **POC information**

Blackbook wiki can be accessed from the internet:

http://blackbook.jhuapl.edu

Process: Blackbook wiki account

Step 1:

Requester sends an email to the KDD Program Management Office (PMO), with the following information:

- First Name
- Last Name
- Affiliation (Company Name, Academic Institution, Government Agency)
- Work Phone
  - Unclassified email address

-KDD PMO email: dni-iarpa-baa-09-10@ugov.gov

Process: Blackbook wiki account

Step 2:

KDD PMO will verify that a valid Technology Transfer Sharing Agreement (TTSA) form is on file for ALL companies and academic institutions. A TTSA is not required for government agencies.

- Blackbook software is not open source licensed – yet!
- A TTSA protects government's intellectual property

If a TTSA is not on file, the KDD PMO will email a TTSA to the requester

If a TTSA is on file, then Step 5

Process: Blackbook wiki account

Step 3:

Requester has a company representative sign the TTSA

- The TTSA is an agreement between the Government and the requester's company or academic institution
- The TTSA is NOT an agreement between the Government and the requester as an individual

Requester emails a signed TTSA to the KDD PMO

Process: Blackbook wiki account

Step 4:

KDD PMO will sign the TTSA and will archive

KDD PMO will email a signed copy of the TTSA to the requester

Process: Blackbook wiki account

Step 5:

KDD PMO will create a Blackbook wiki account for the requestor, as an individual

He/she may download the Blackbook software

Thank You