

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

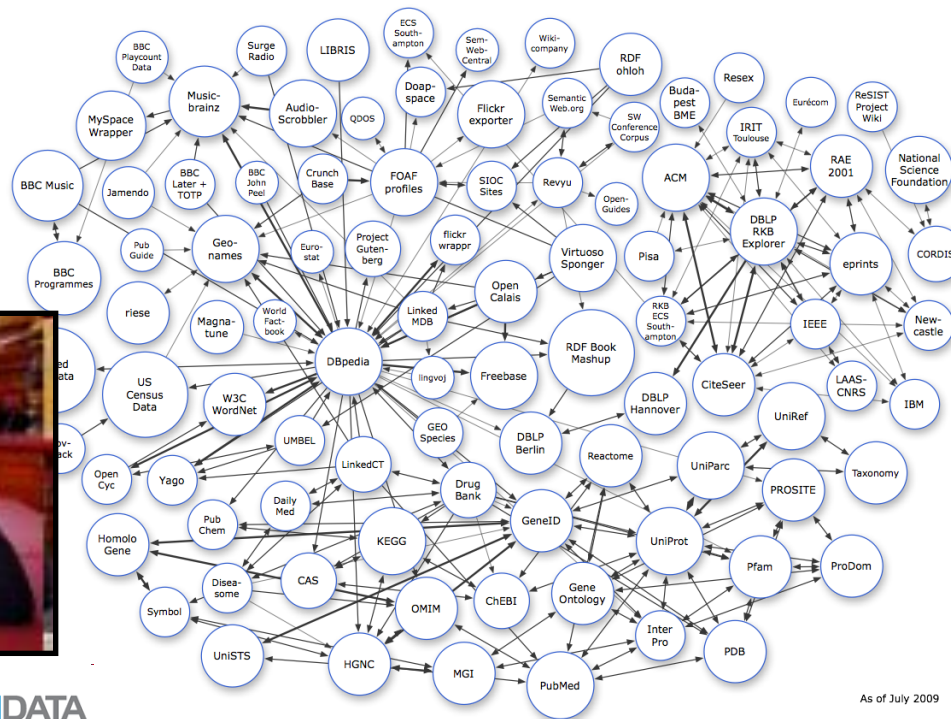
- The term Linked Data refers to a set of best practices for publishing and connecting structured data on the Web



- 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)
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Semantic Web

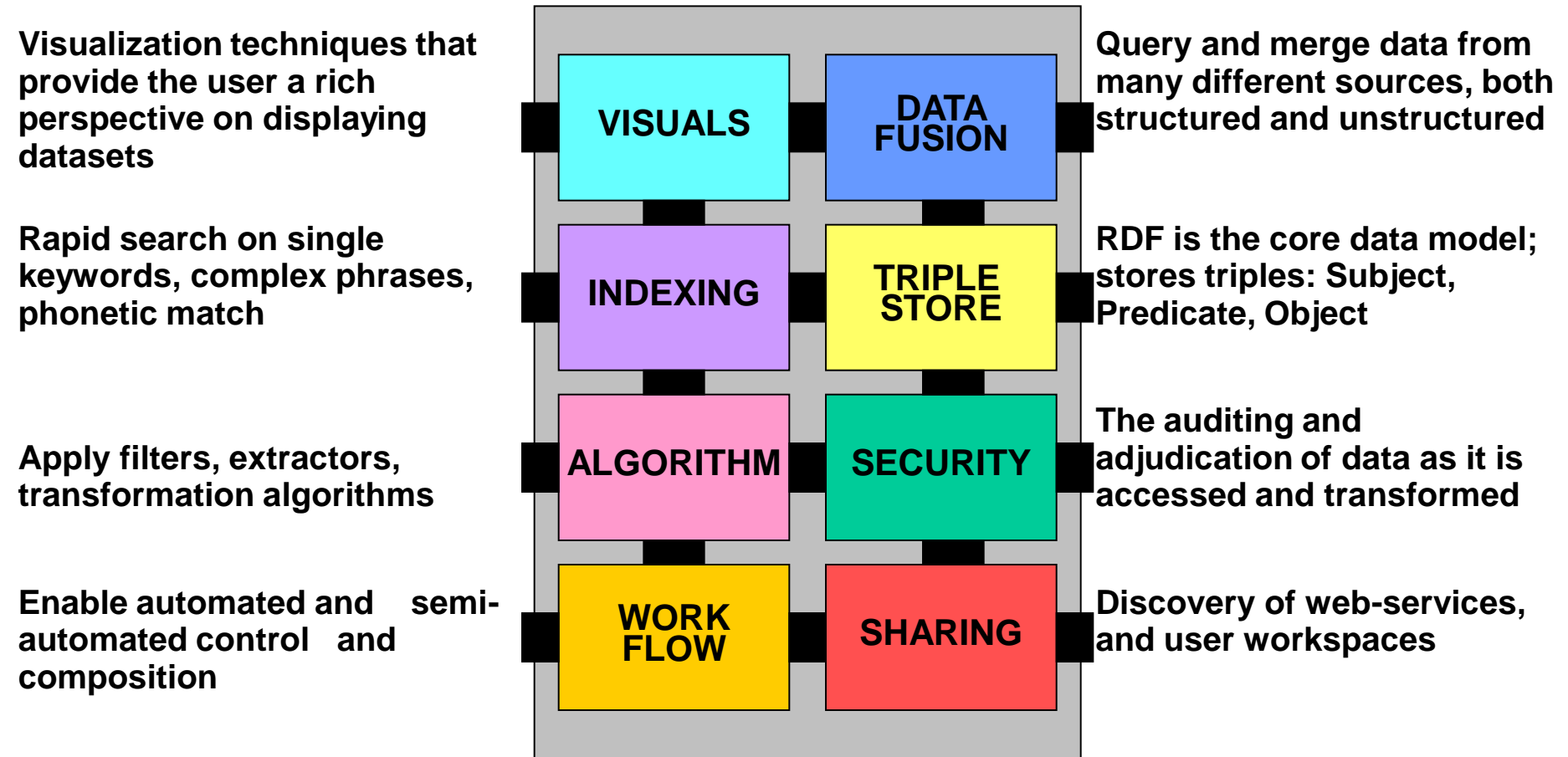
- The Semantic Web is made up of Linked Data; i.e. the Semantic Web is the whole, while Linked Data is the parts



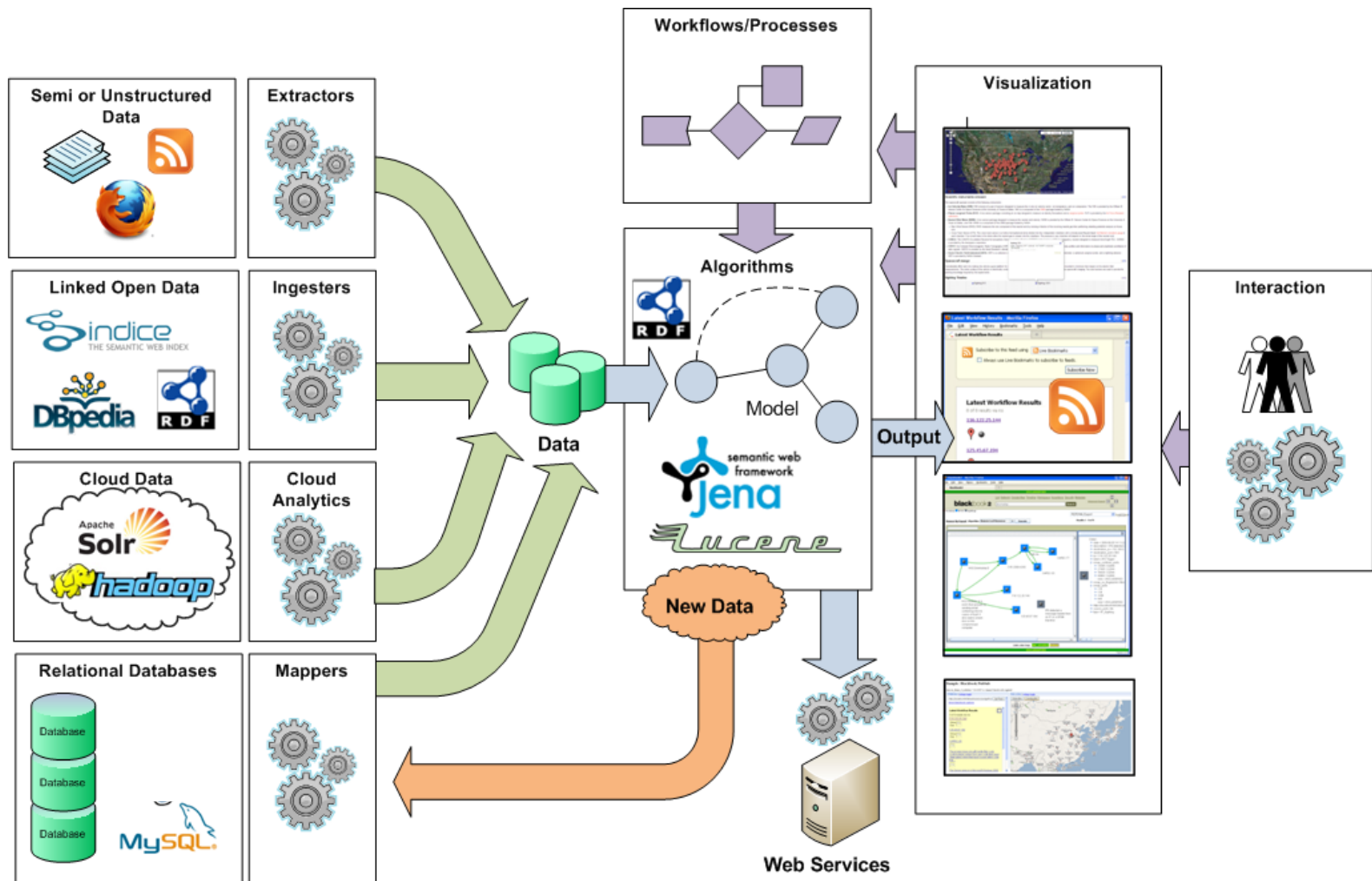
What is Blackbook?

- 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
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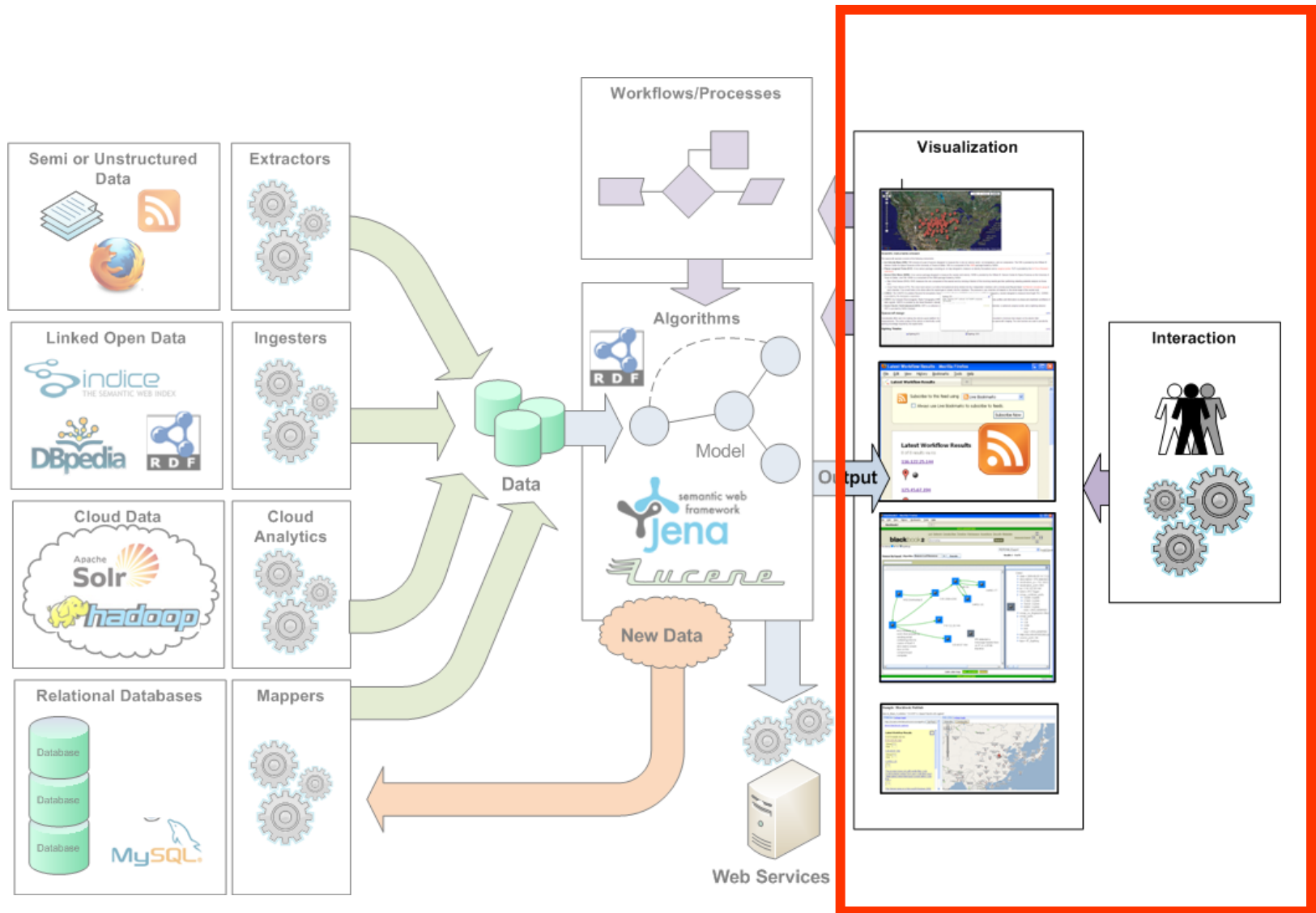
Core Components



Current Capabilities

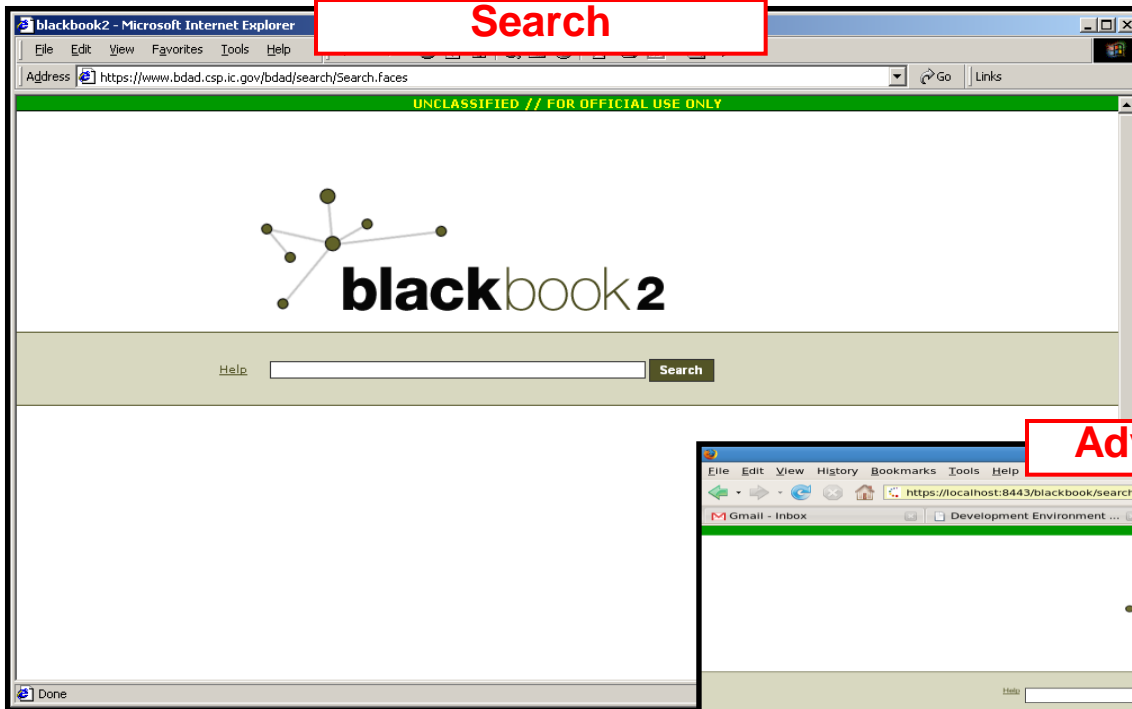


Presentation Tier

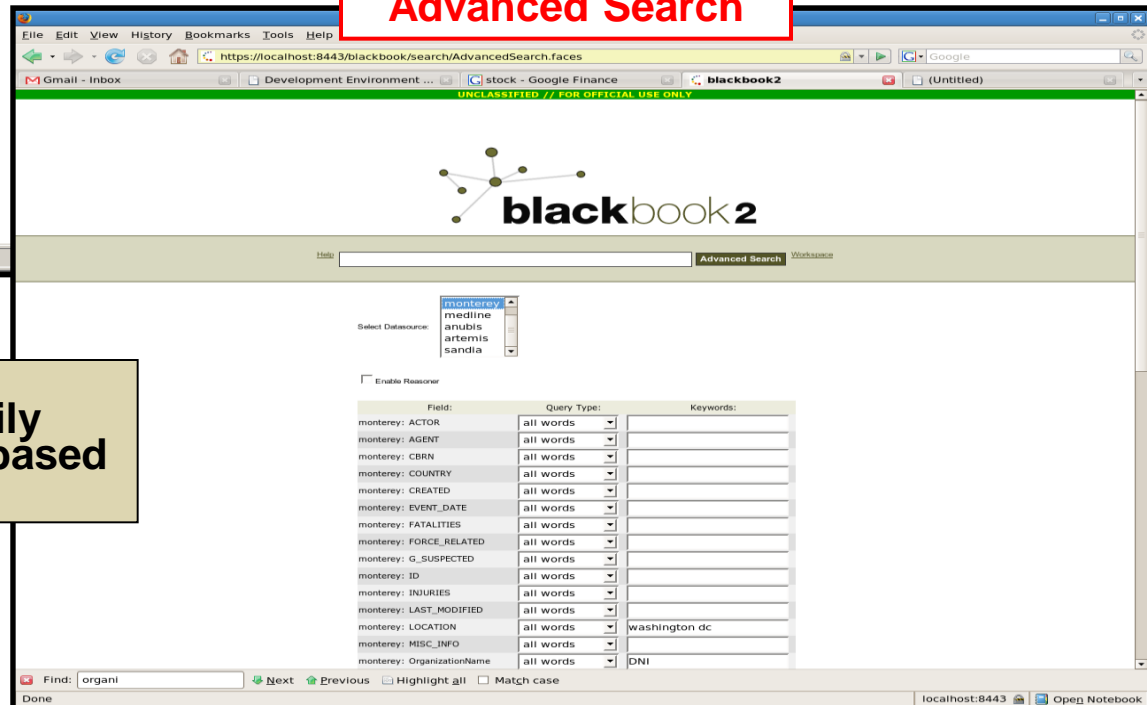


User Interface

Search



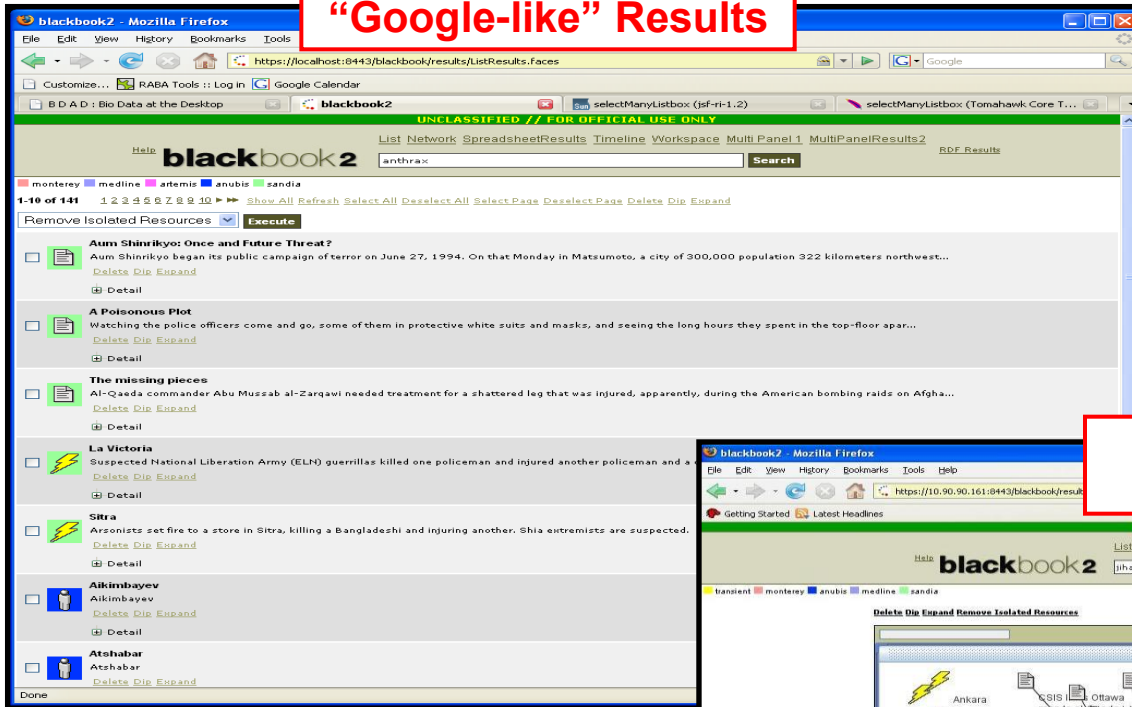
Advanced Search



A front-end “Google-like” user interface allows analysts to easily perform keyword and attribute based searches.

User Interface

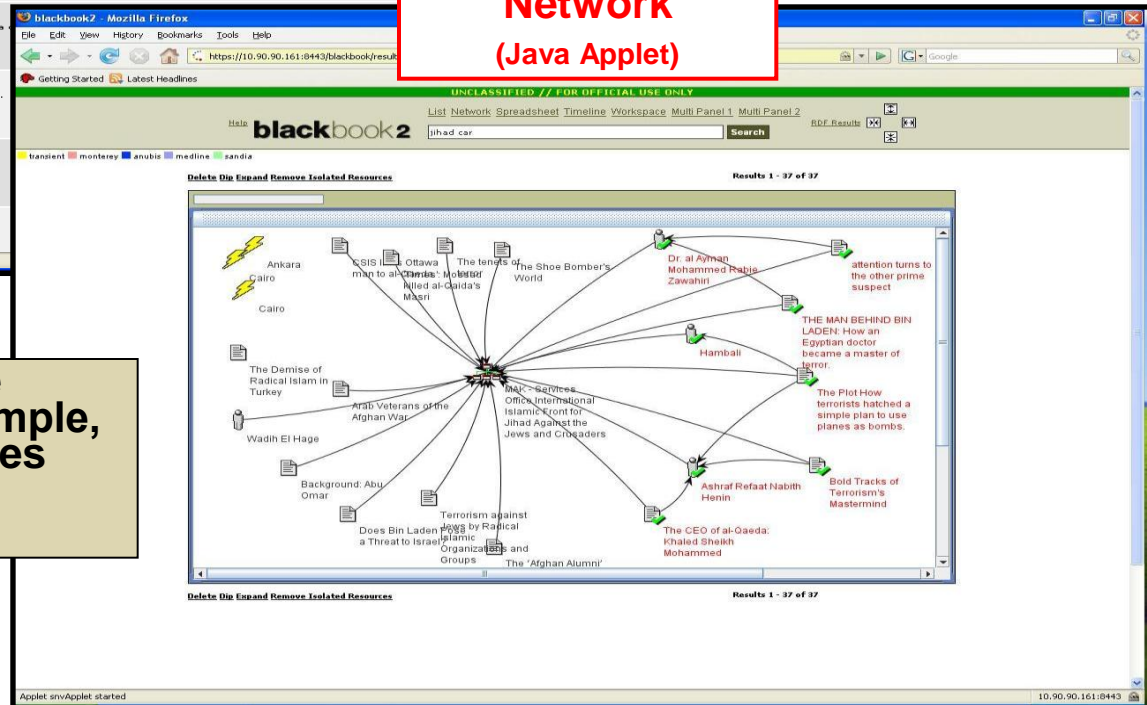
“Google-like” Results



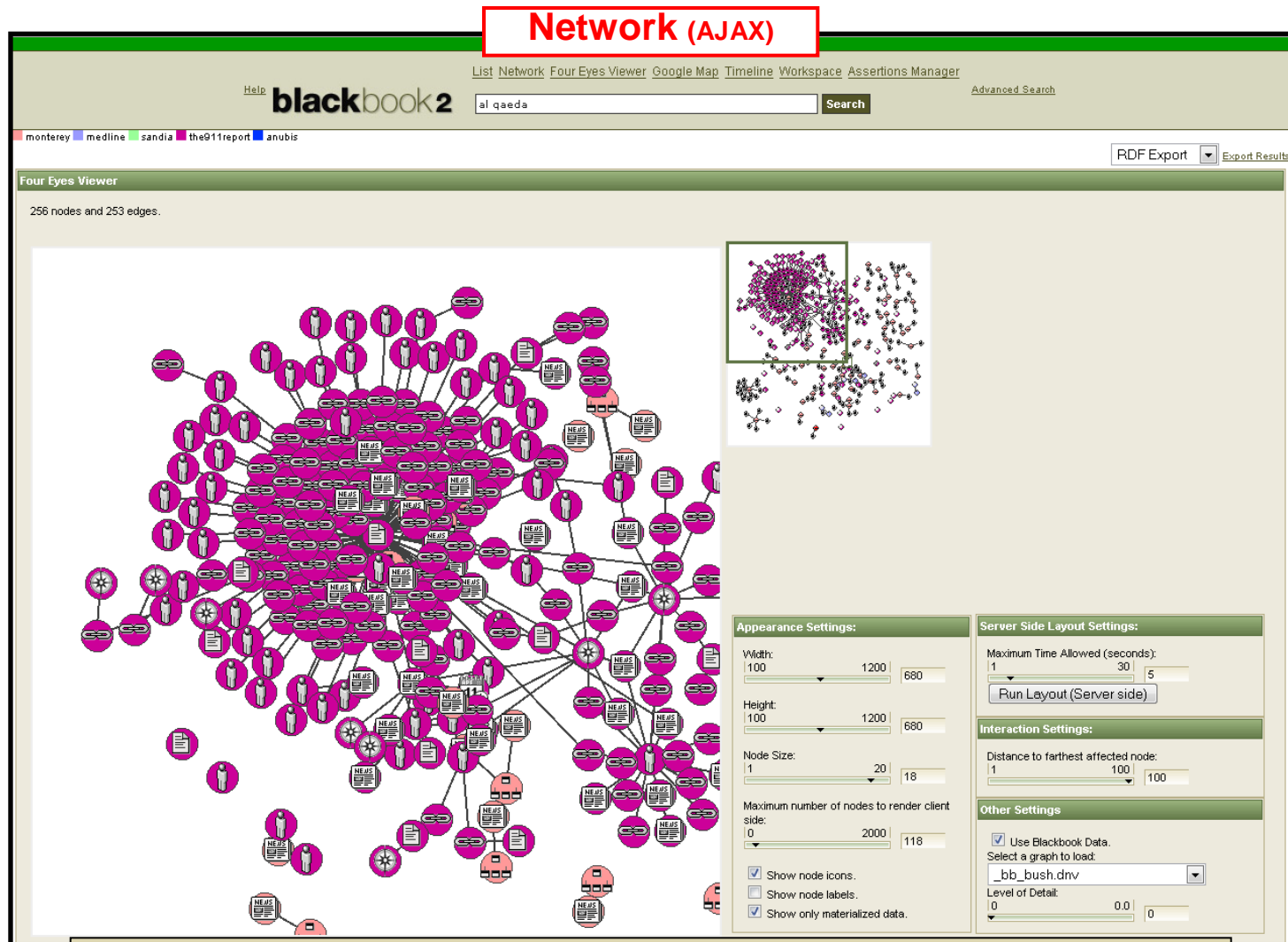
Network

(Java Applet)

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



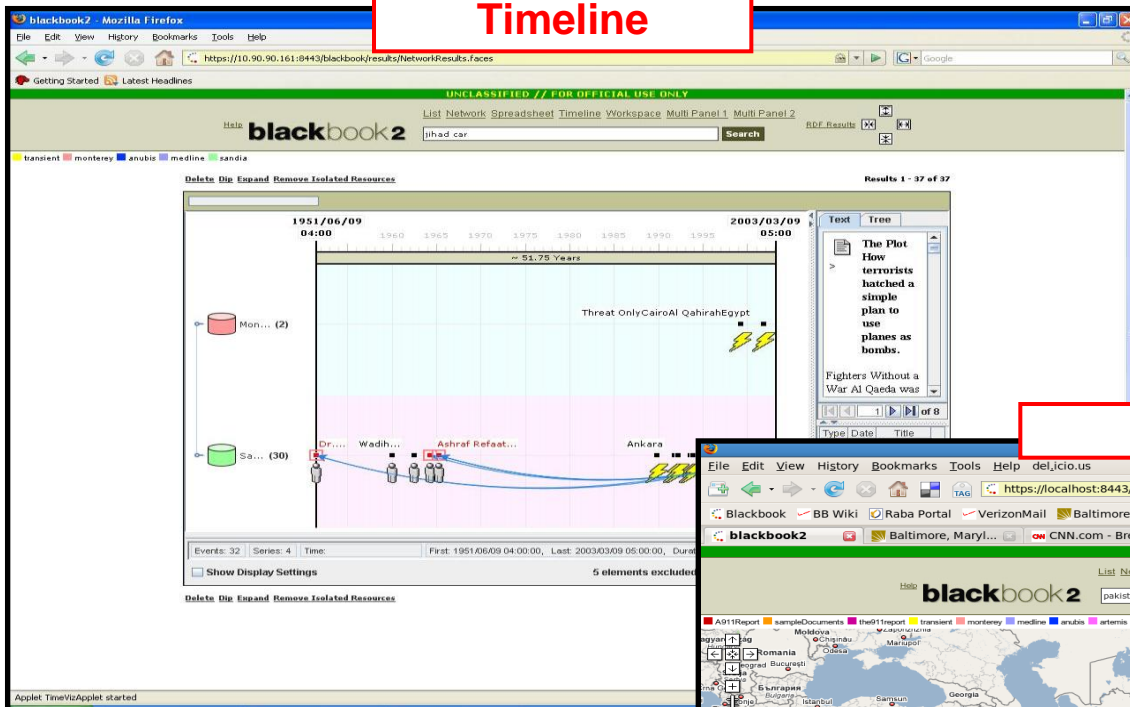
User Interface



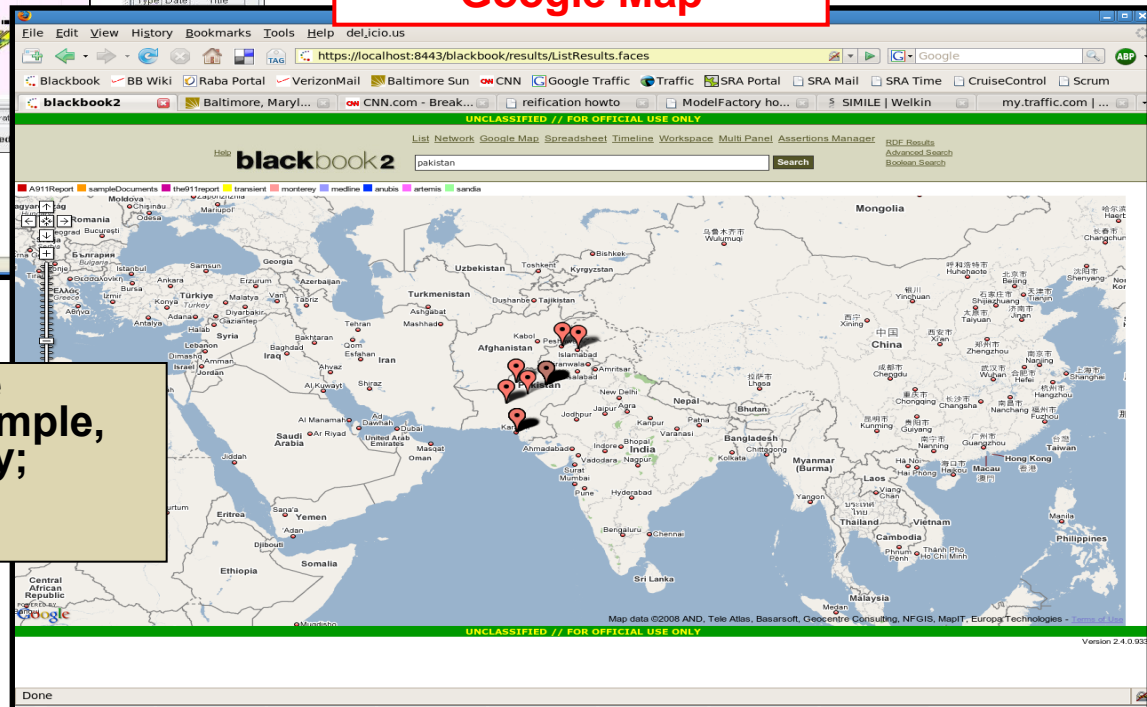
An AJAX-based network visualization, called “WiGi”, optimizes client-server processing for large graphs. Planned to be released as early as Blackbook v3.0 (Nov 2009)

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

The screenshot displays the iGoogle Developer sandbox interface. At the top, a red box highlights the title "Ozone: Blackbook Widget". The interface includes a standard browser window with a Google search bar and navigation links. Below the search bar, the "Welcome to the iGoogle Developer sandbox" message is visible. The main content area is divided into several sections:

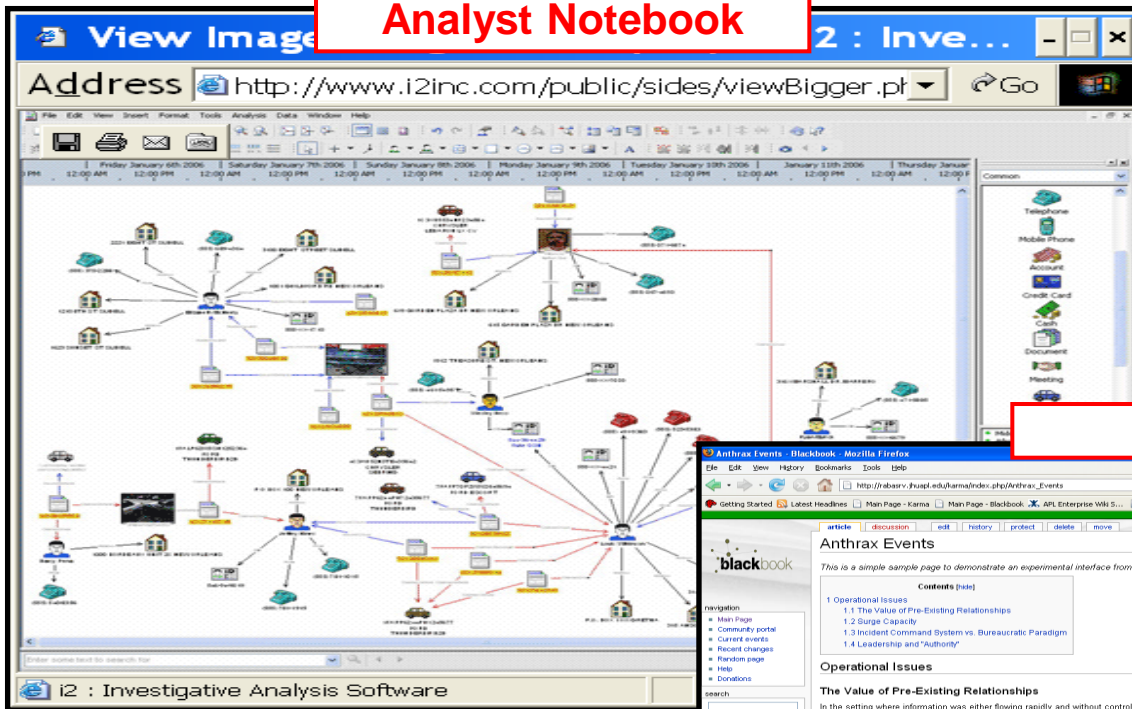
- Home:** A sidebar on the left with links to Weather, My Entities, Multiple SetPref..., and My Gadgets.
- My Entities:** A central widget with input fields for `rss_url` (http://blackbook2/rss/), `entity_list` (vessel1,vessel2,vessel3), `process_def` (1), and `base_wiki_url` (http://blackbook2/wiki). It includes "Save" and "Cancel" buttons.
- Weather:** Two weather widgets. The first for "Halethorpe, MD" shows a current temperature of 36°F and a 4-day forecast. The second for "Kill Devil Hills, NC" shows a current temperature of 37°F and a 4-day forecast.
- My Gadgets:** A section on the right with a list of gadgets (myAttention.xml, developer.xml, myEntities.xml) and checkboxes for "Inlined" and "Cached". It also includes a "Add a gadget:" field with the URL "http://".
- Multiple SetPref - Iframe:** A section at the bottom right with text: "Each page load should increment the value of each usepref." and "Reload page and make sure each usepref is incremented."

At the bottom of the interface, there are links for "Add a theme" and "Mobile - Advertising Programs - Business Solutions - Privacy Policy - Help - About Google".

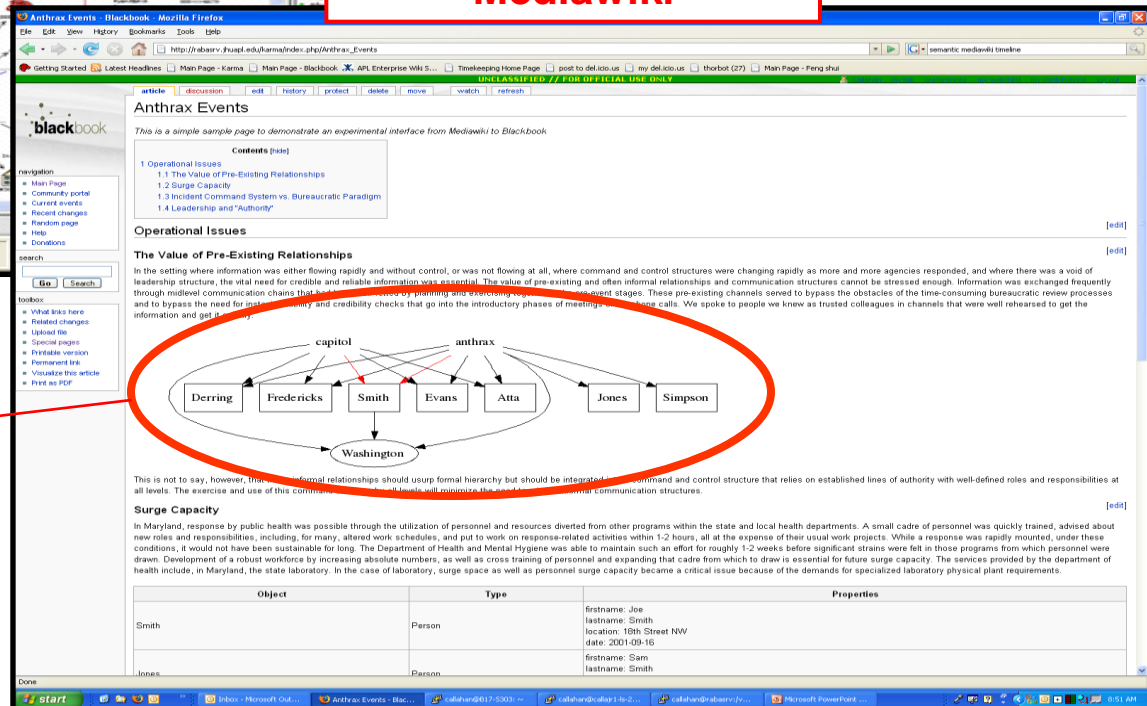
Similar to Google gadgets, Blackbook provides analysts with widgets compatible with the Ozone (an iGoogle-like) framework.

User Interface

Analyst Notebook

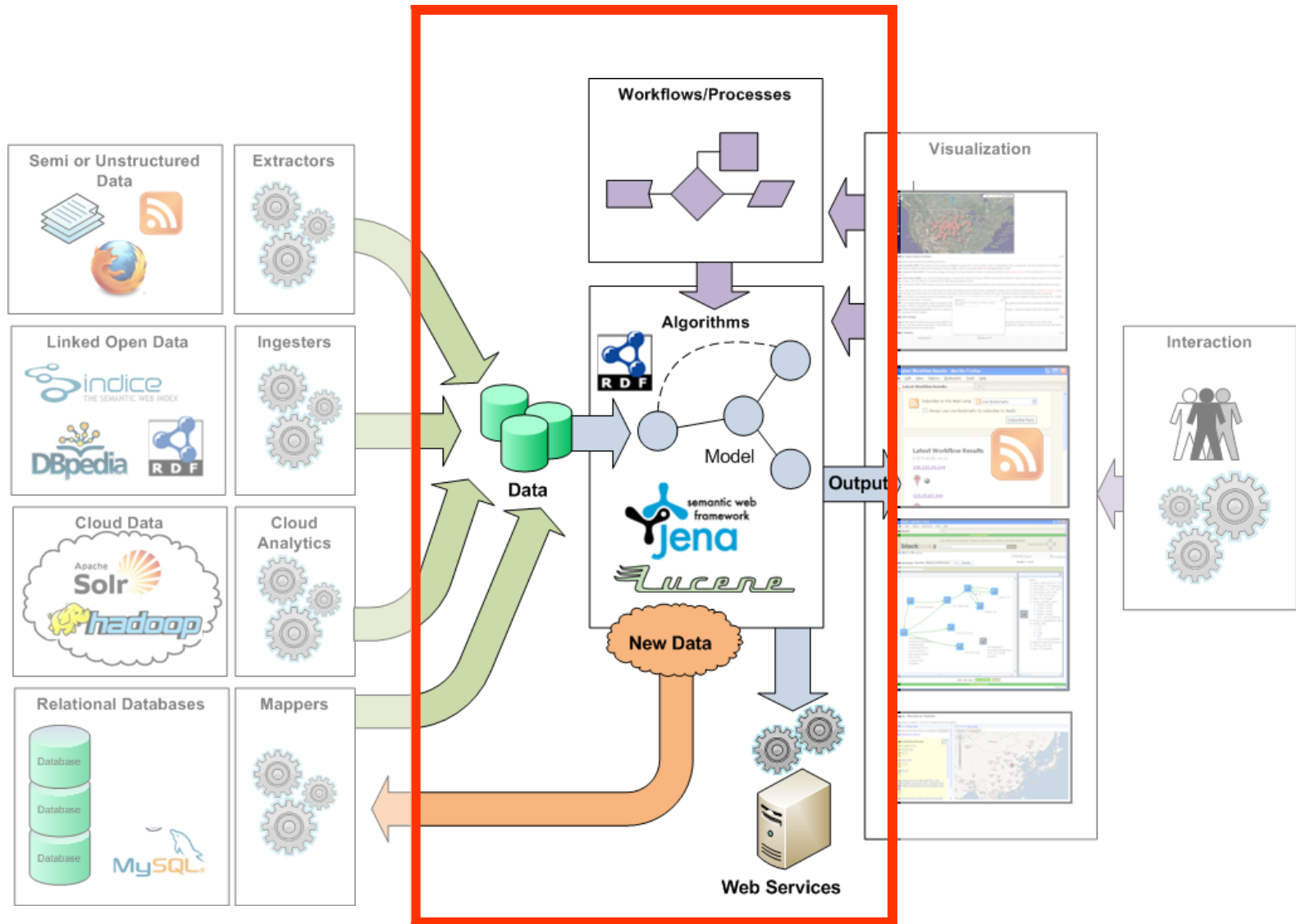


Mediawiki



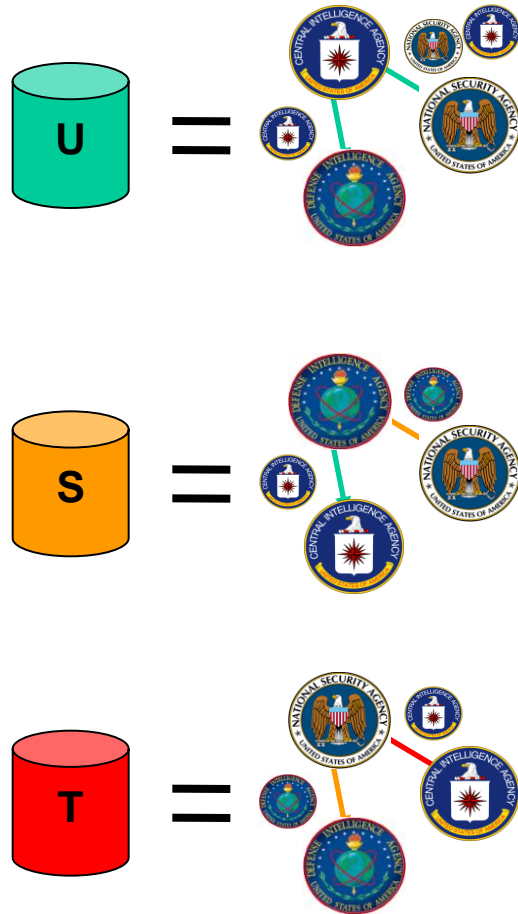
Blackbook is developing a framework called "Aqueduct", allowing interoperability between ozone widgets and wikis.

Middle Tier

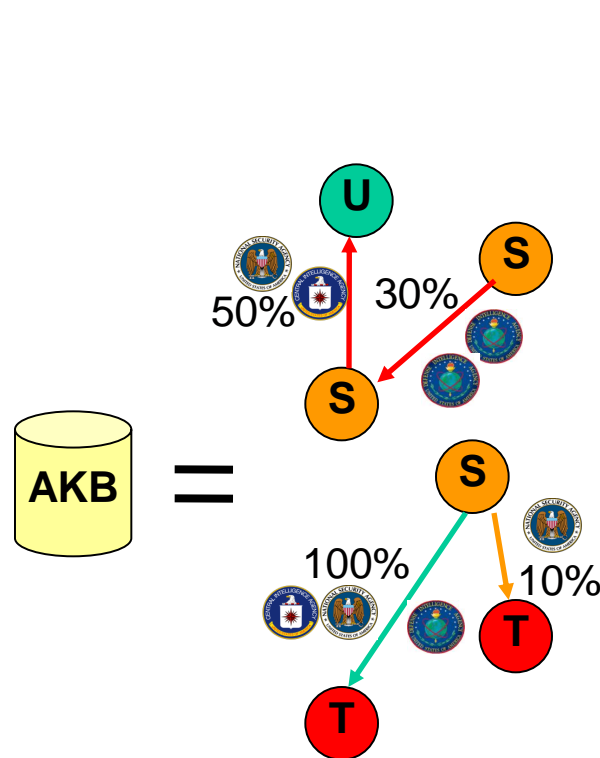


Security, Confidence, Affiliation

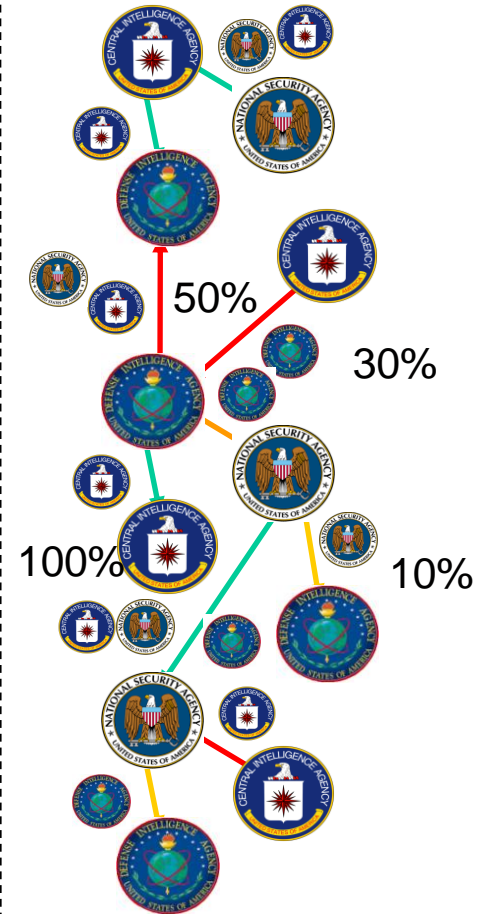
Original Datasource



Analyst Knowledge Base



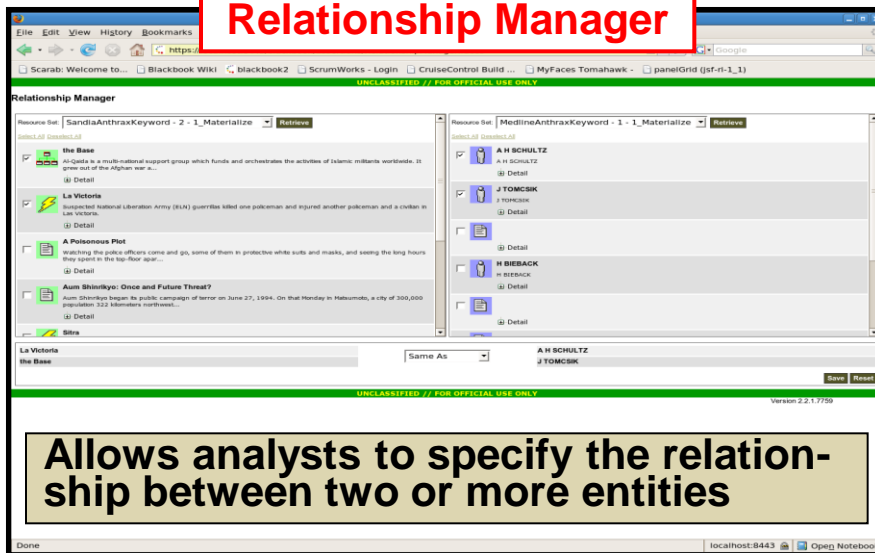
Composite Knowledge



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

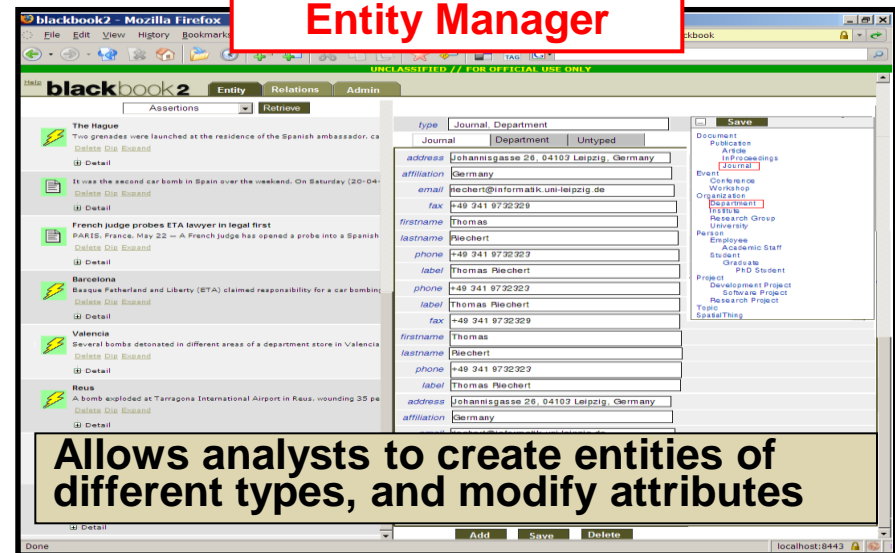
User Interface

Relationship Manager



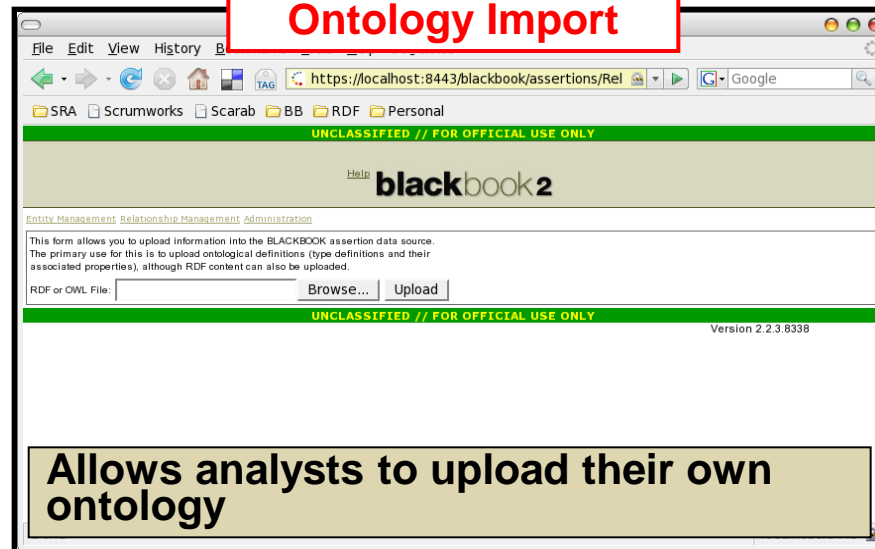
Allows analysts to specify the relationship between two or more entities

Entity Manager



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

Ontology Import



Allows analysts to upload their own ontology

User Interface

Workflow

The screenshot displays the 'blackbook2' web application in a Microsoft Internet Explorer browser. The address bar shows the URL: `https://10.90.90.161:8443/blackbook/workflow/DefineWorkflow.faces`. The page has a green header bar with the text 'UNCLASSIFIED // FOR OFFICIAL USE ONLY'. Below this, the 'blackbook2' logo is visible, along with navigation links: 'List', 'Network', 'Spreadsheet', 'Timeline', 'Workspace', 'Multi Panel 1', and 'Multi Panel 2'. A status bar at the top lists data sources: 'transient', 'monterey', 'anubis', 'medline', and 'sandia'.

The main interface is divided into several sections:

- Algorithms:** A list of available algorithms: 'Dip', 'Expand', 'Jena Keyword', 'Lucene Keyword', and 'Materialize'.
- Process Flow:** A table for defining the workflow steps.
- Process Diagram:** A visual representation of the workflow as a directed graph.

Process Flow Table:

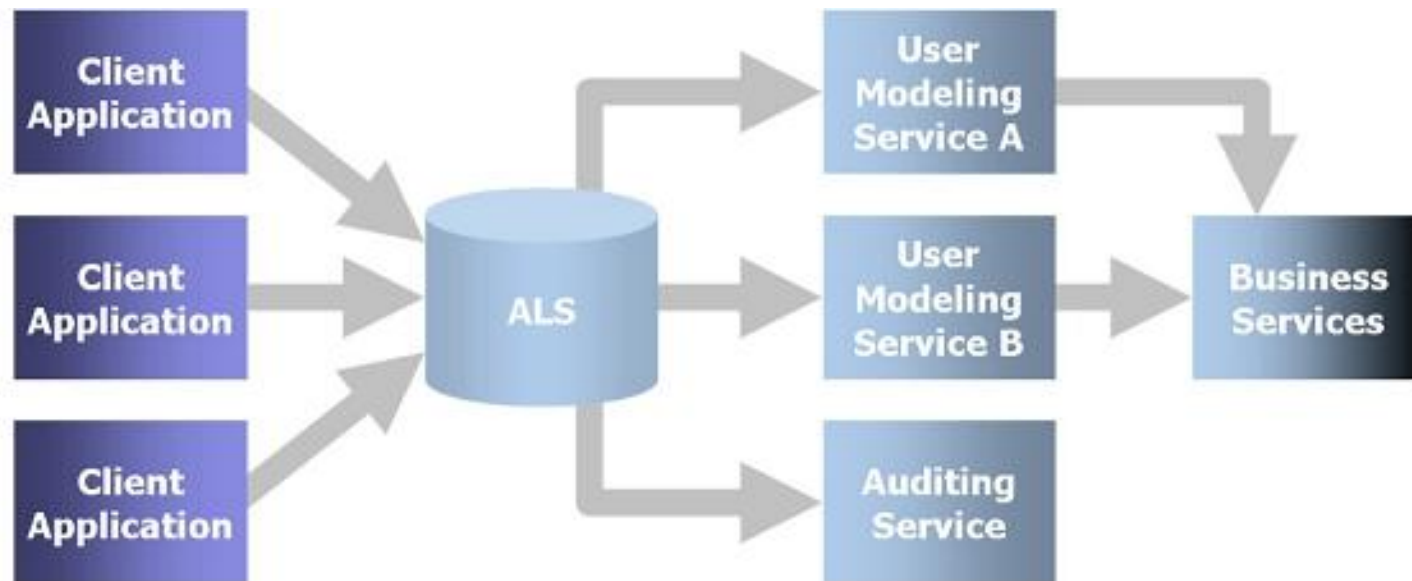
States	To States	Additional Criteria
0. Expand <input type="checkbox"/> fork	<none>	DataAccess: transient
1. Lucene Keyword <input type="checkbox"/> fork	2. Materialize	DataAccess: transient val: jihad car
2. Materialize <input checked="" type="checkbox"/> fork	<none> 0. Expand 1. Lucene Keyword	DataAccess: transient
3. Dip <input type="checkbox"/> fork	<none>	DataAccess: transient

Process Diagram: The diagram shows a flow starting from '1. Lucene Keyword', which leads to '2. Materialize'. From '2. Materialize', the flow branches into two paths: one leading to '3. Dip' and another leading to '0. Expand'.

Buttons for 'Populate', 'Refresh', and 'Save' are visible. The 'Save' button is labeled 'MyNewProcess'.

“Workflow” allow analysts to define the order of tasks, configure algorithm parameters, and batch processes concurrently

Analysis Log Service



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

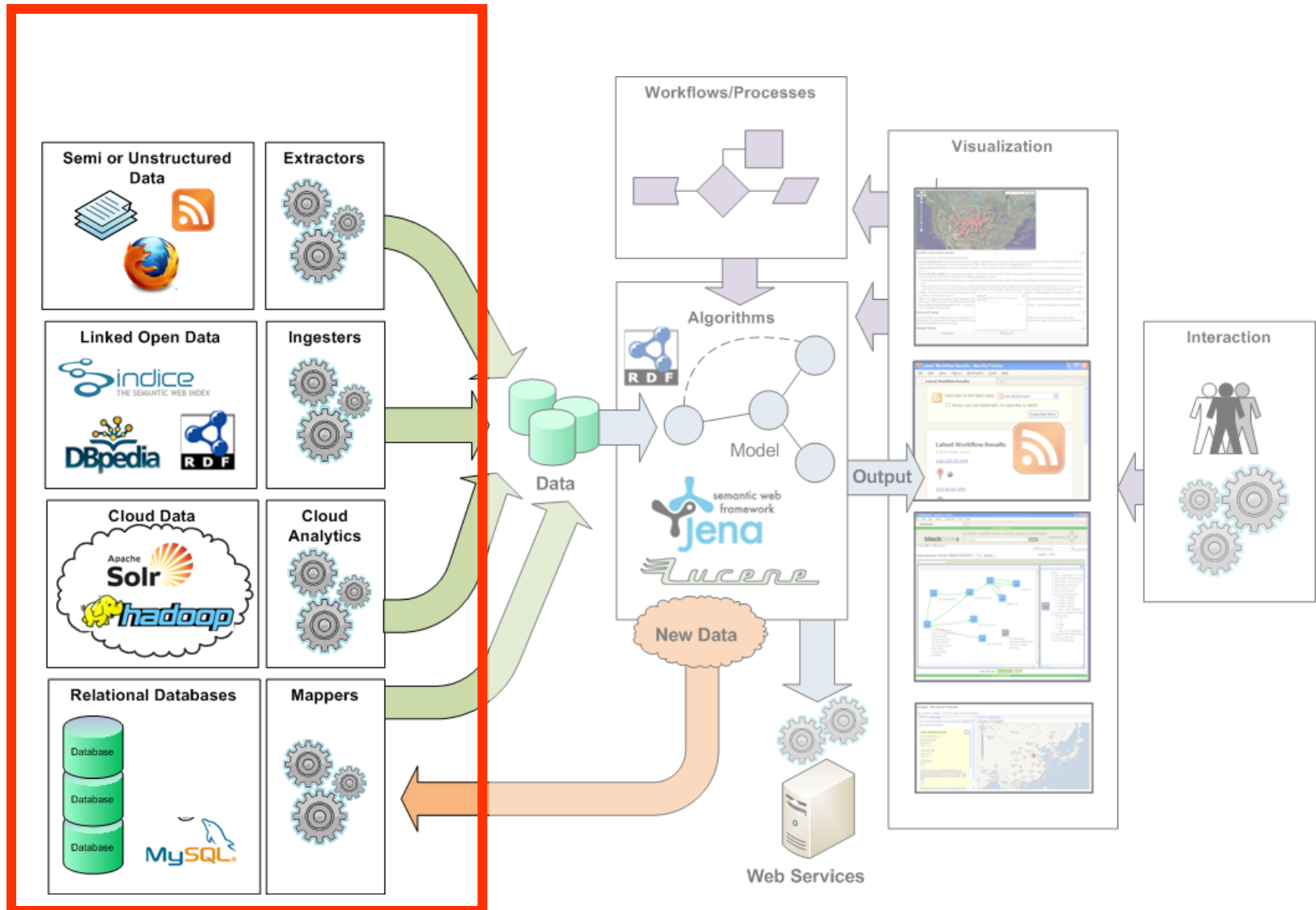
The ALEs are transmitted to the ALS.

The ALS stores the ALEs received from the client applications.

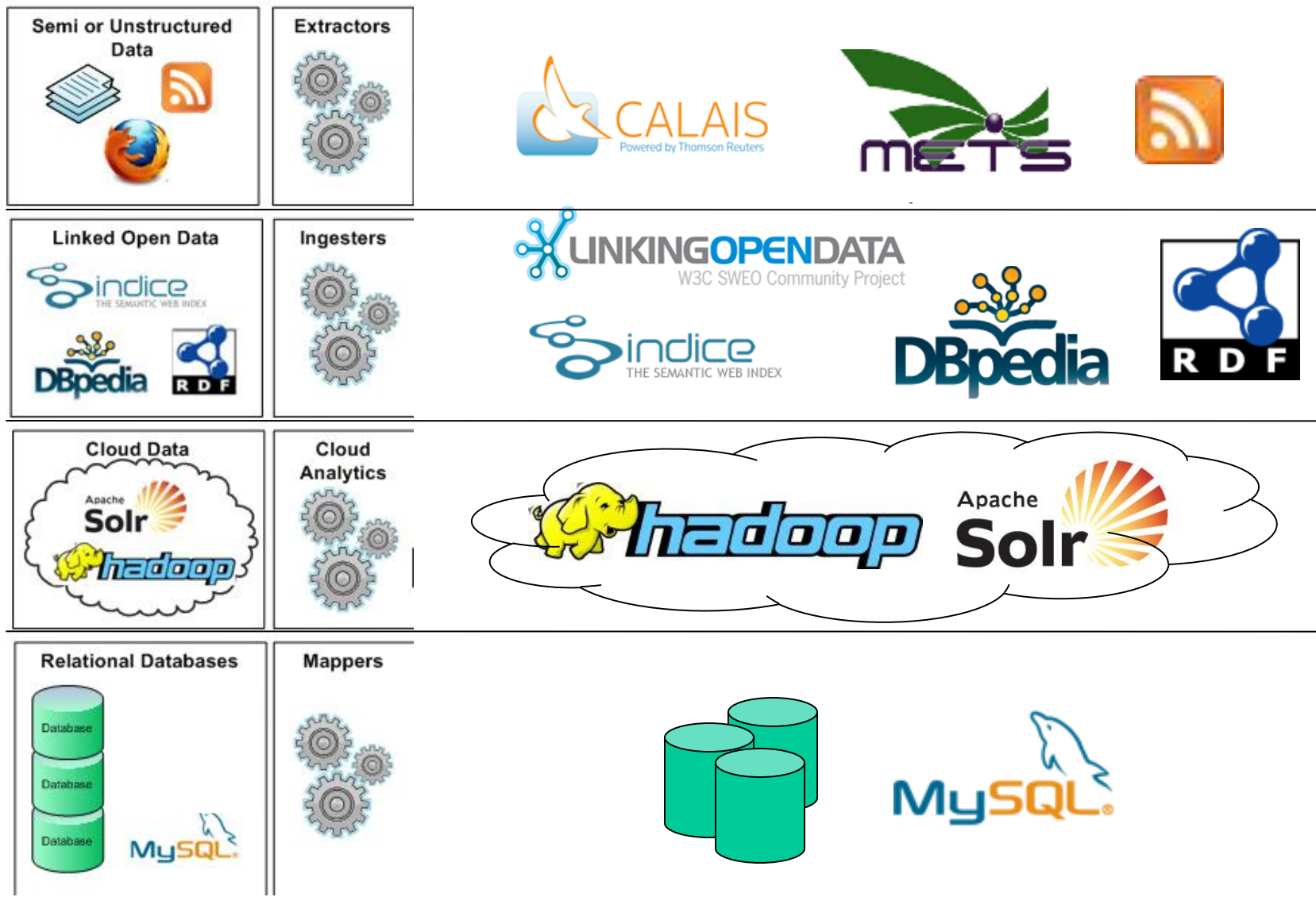
Services interested in using ALEs can query the ALS for ALEs.

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

Data Tier



Data Integration Points

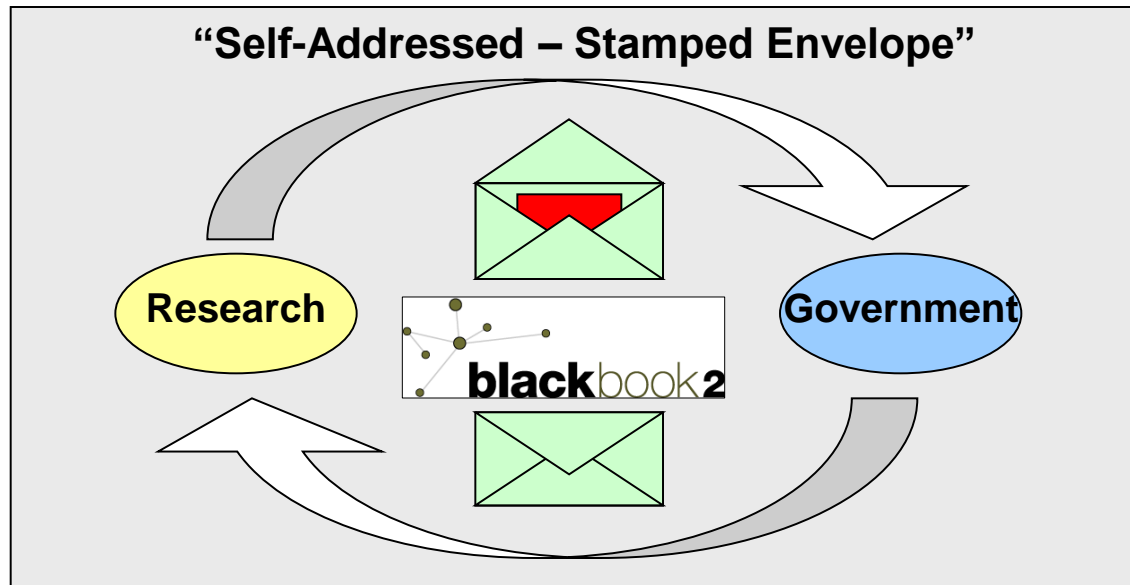


Future Capabilities

- 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)
-

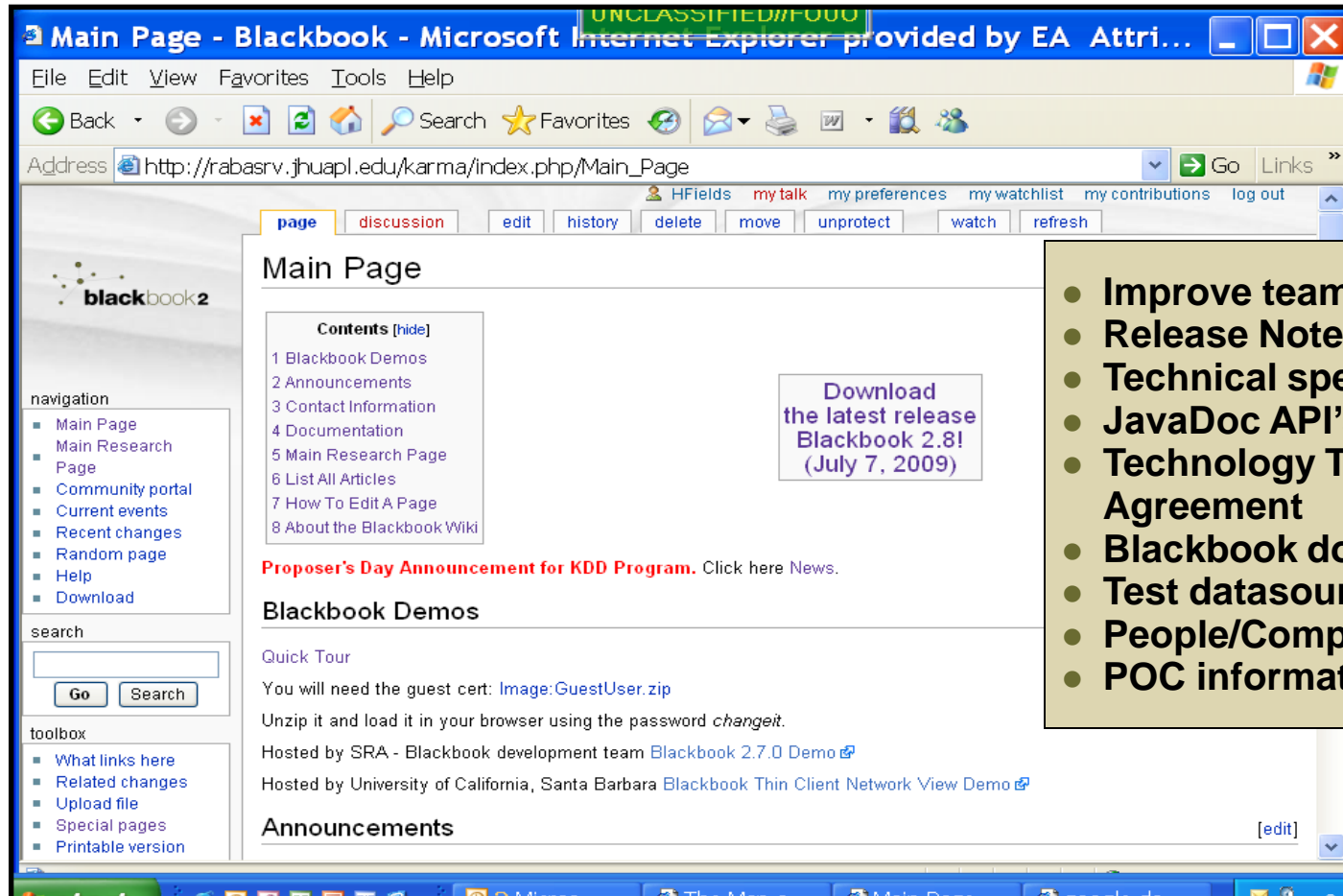
Technology Transfer

- Knowledge Discovery and Dissemination (KDD) program
 - Led by Dr Art Becker
- Blackbook provides a common integration framework for technology transfer



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