

blackbook2

3

Presented by:

Buster Fields
Program Manager

Agenda

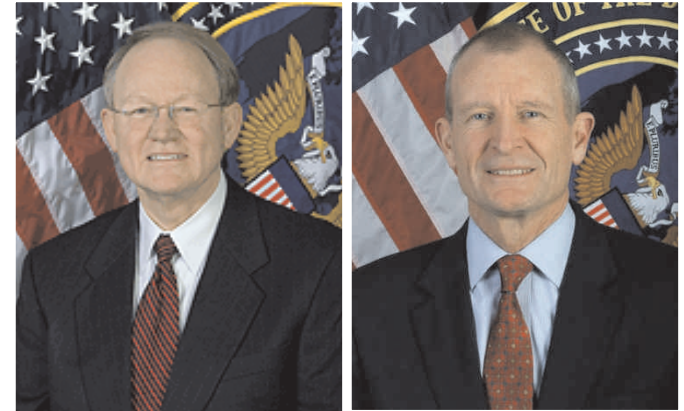
- Analytic Modernization
 - Linked Data and Semantic Web
 - What is Blackbook?
 - Blackbook 2.x - Current Capabilities
 - Blackbook 3.x - Future Capabilities
 - Timeline
 - Technology Transfer
 - Blackbook wiki
 - Q&A
-

Analytic Modernization

Six Focus Areas:

- Create a Culture of Collaboration
- Accelerate Information Sharing
- Foster Collection and Analytic Transformation
 - A-SPACE – *Collaborative Environment*
 - Catalyst – *“Services of Common Interest”*
 - Library of National Intelligence – *Consolidated repository containing IC-disseminated products*
- Build Acquisition Excellence and Technology Leadership
- Modernize Business Practices
- Clarify and Align DNI’s Authorities

Director of National Intelligence
Mike McConnell Dennis Blair



October 10th, 2007

Linked Data

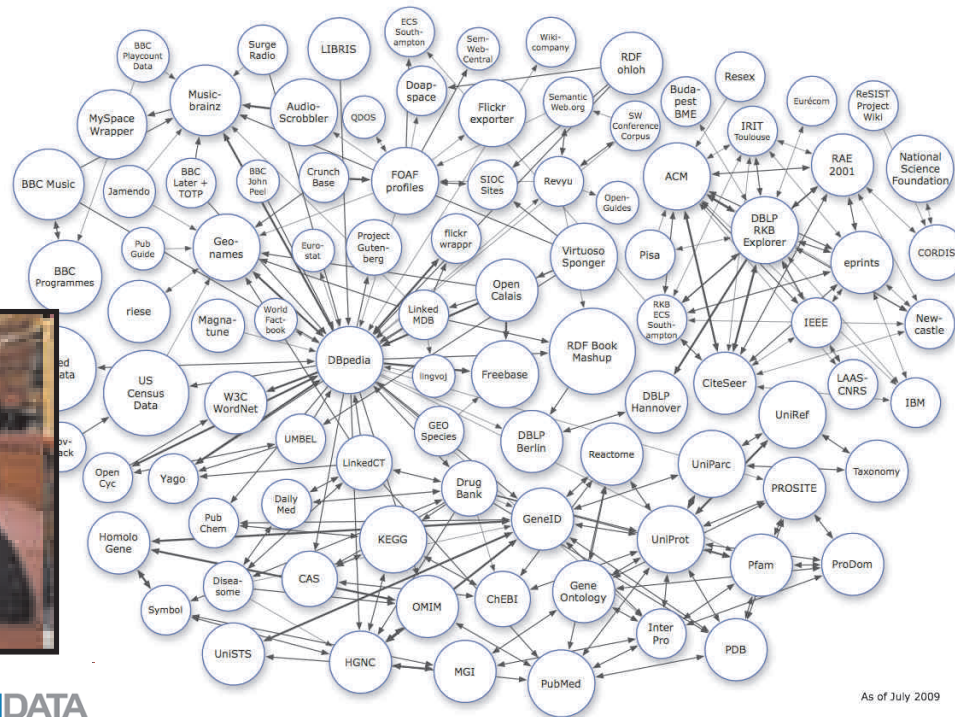
- The term Linked Data refers to a set of best practices for publishing and connecting structured data on the Web



- 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
-

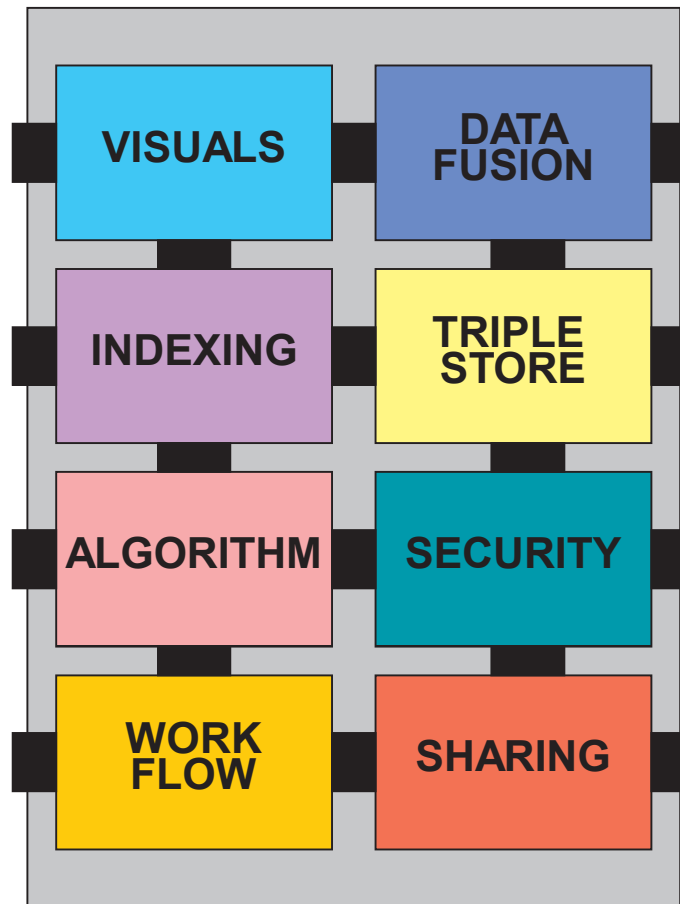
Core Components

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



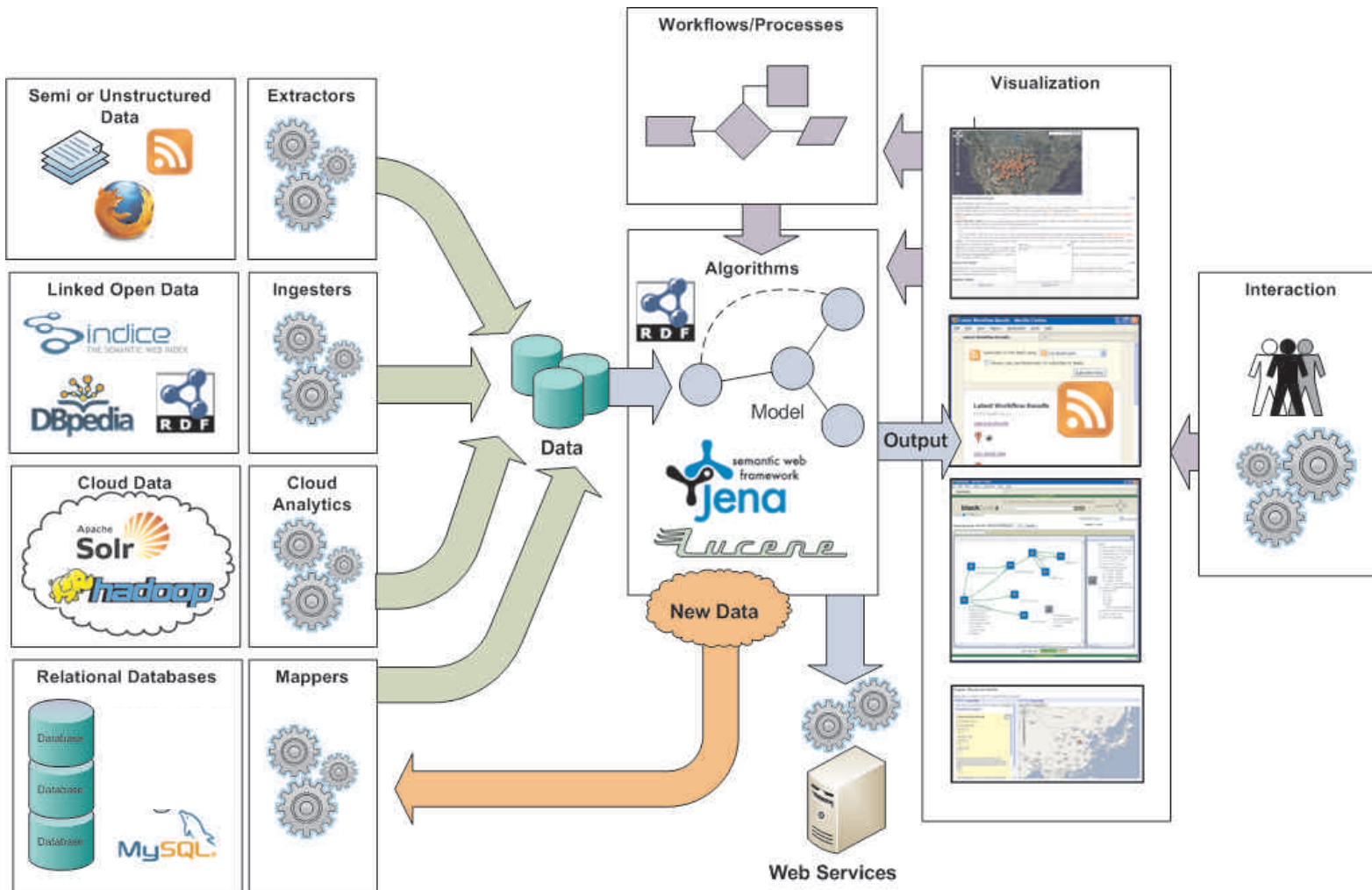
Query and merge data from many different sources, both structured and unstructured

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

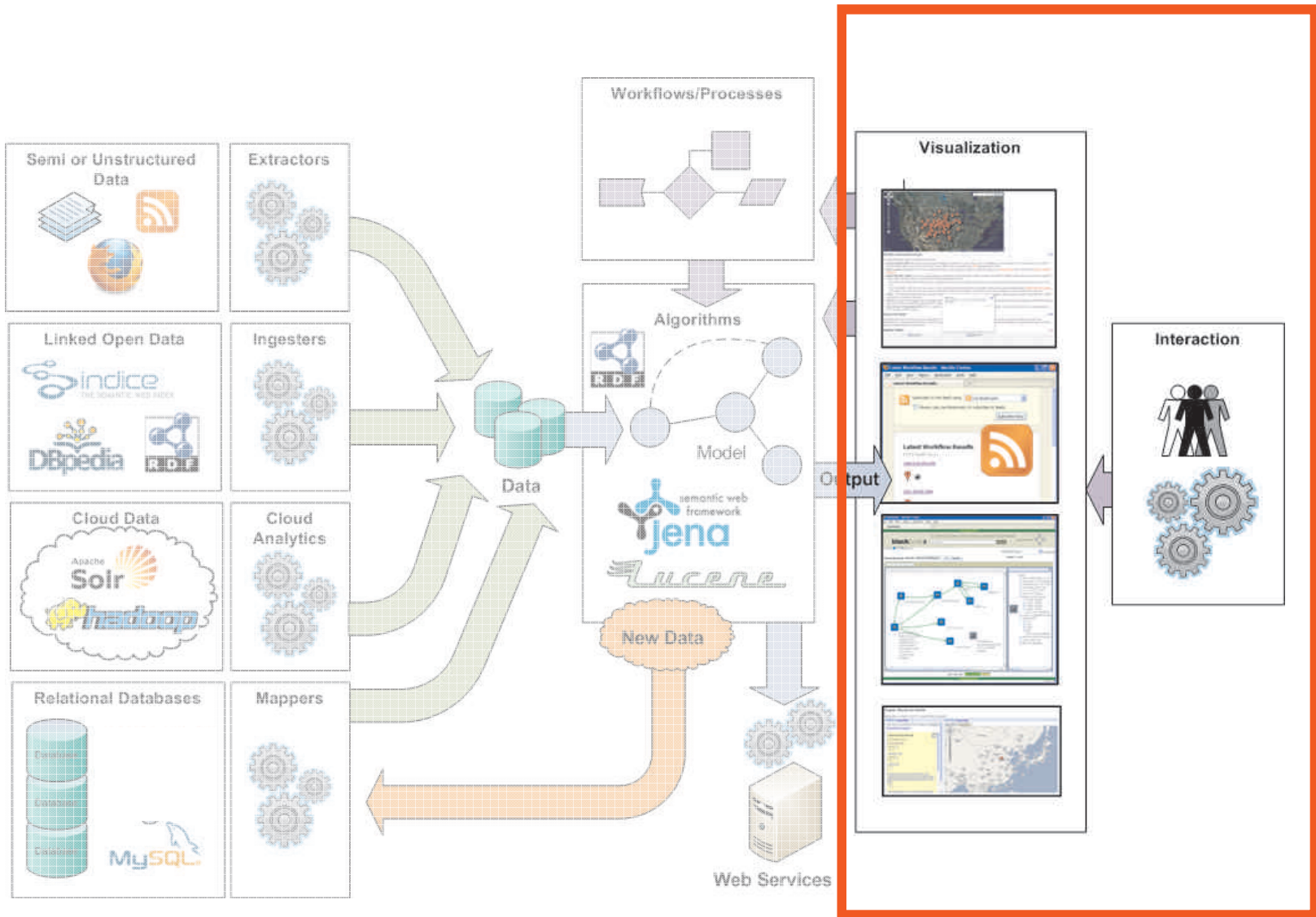
The auditing and adjudication of data as it is accessed and transformed

Discovery of web-services, and user workspaces

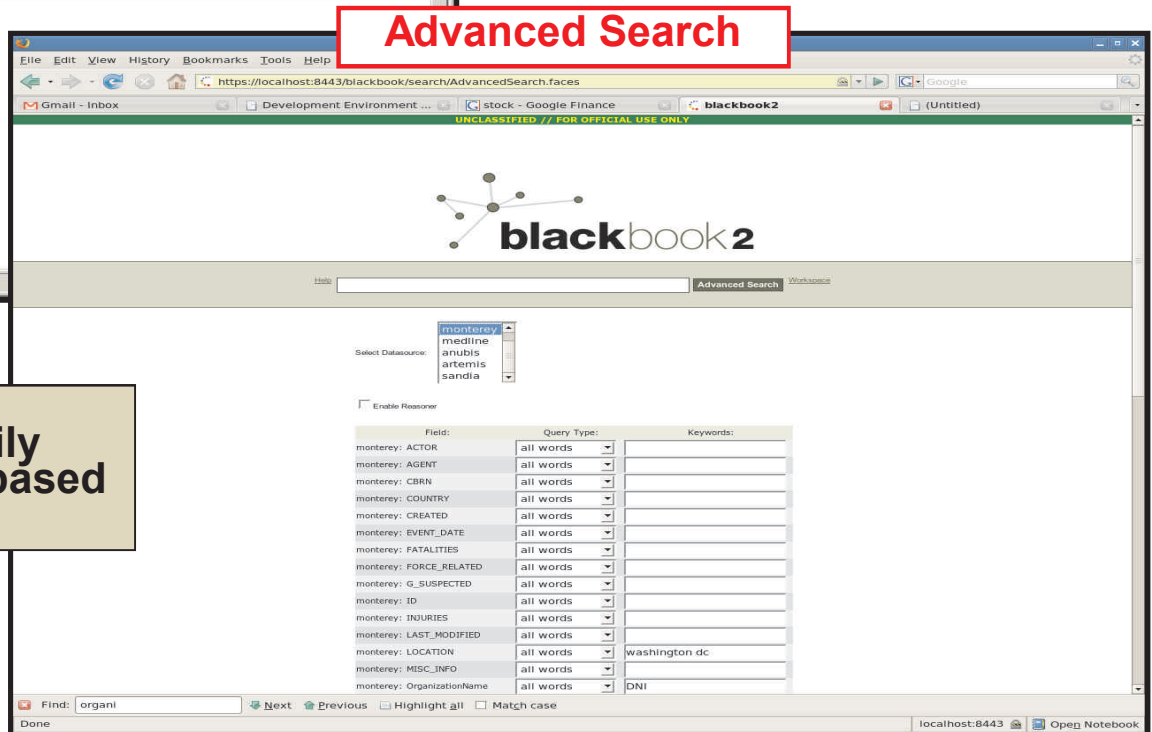
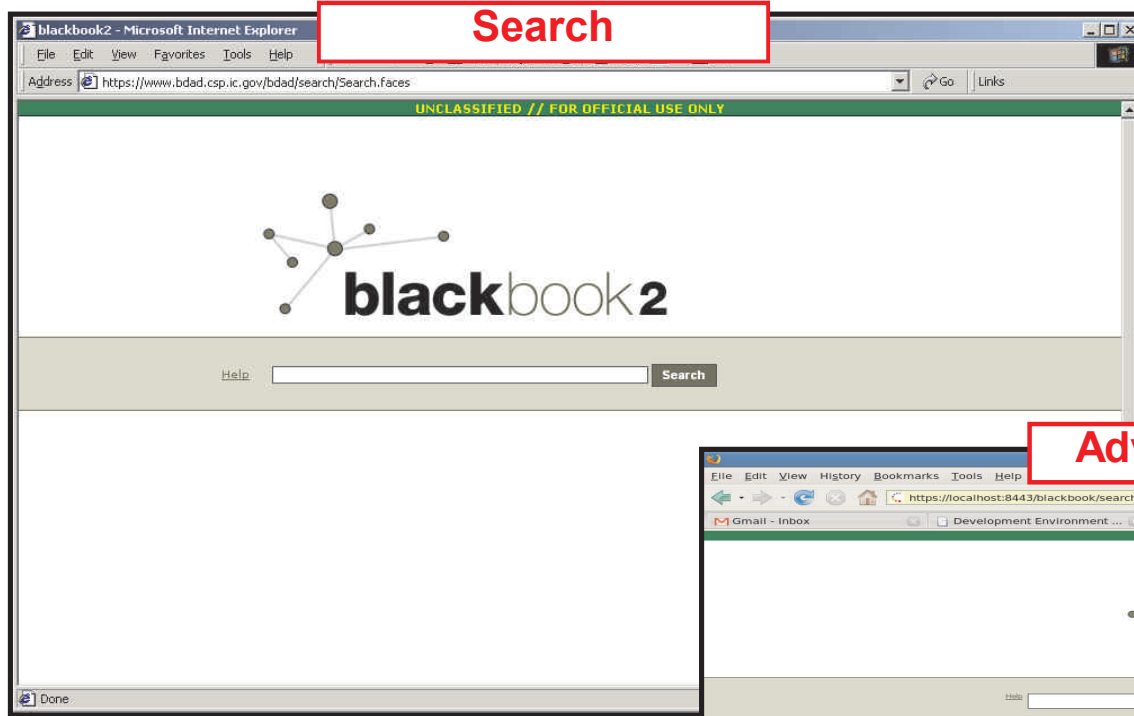
Current Capabilities



Presentation Tier



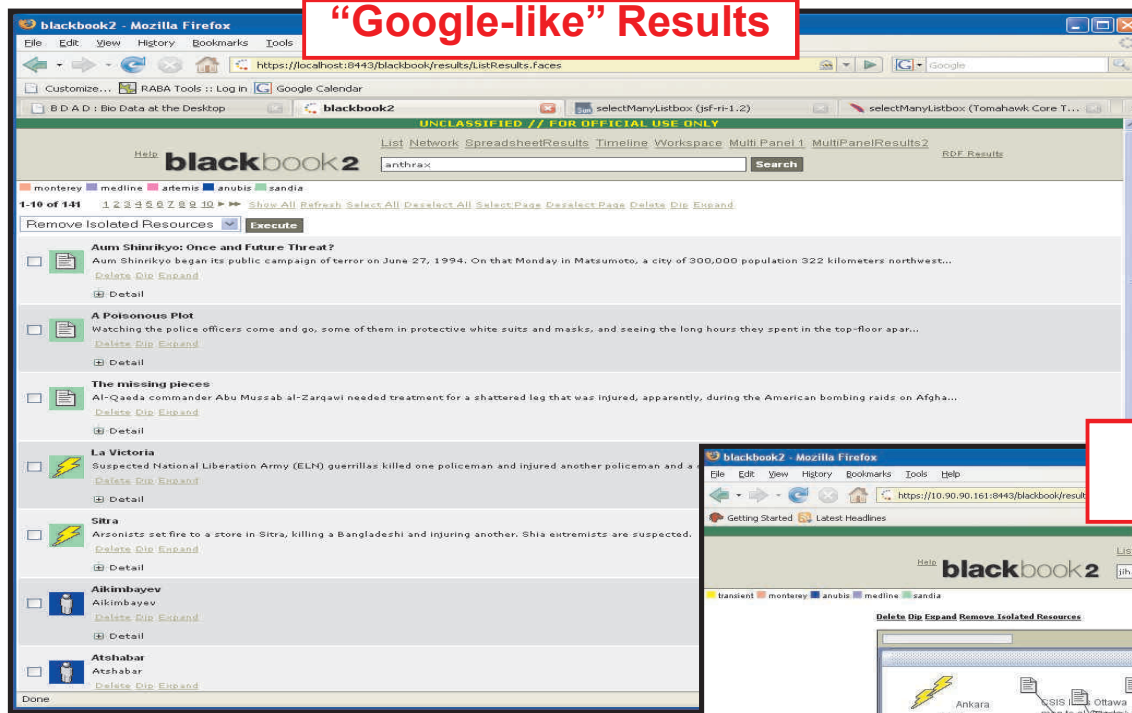
User Interface



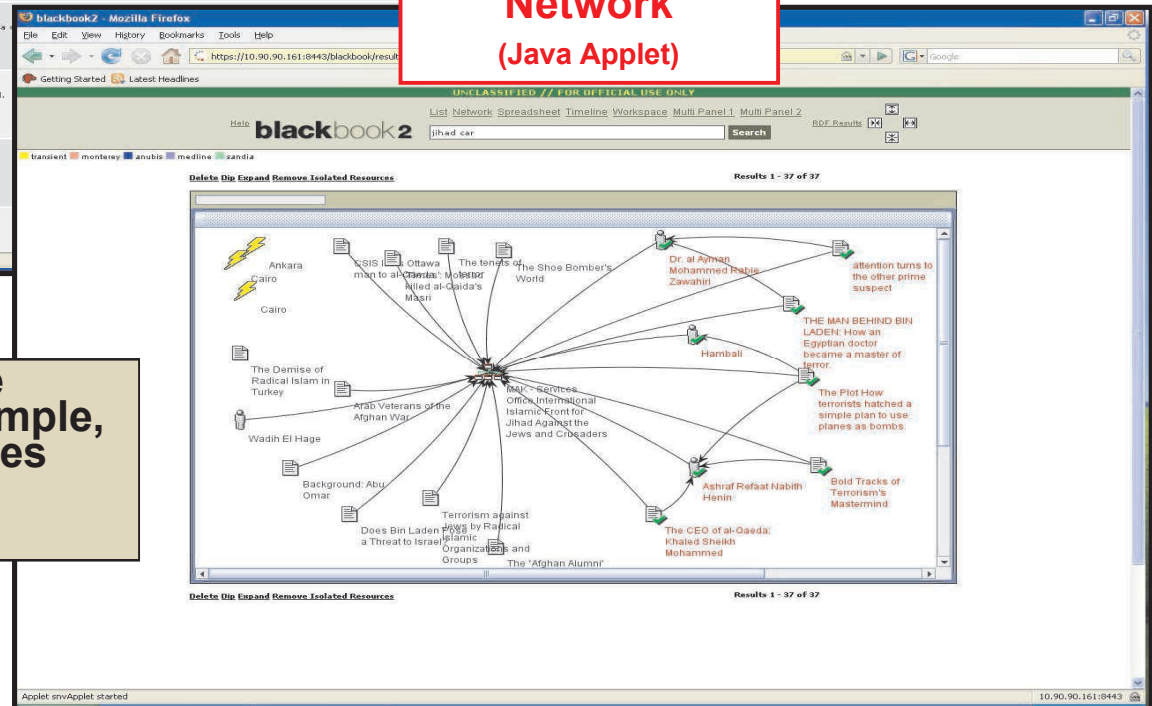
A front-end “Google-like” user interface allows analysts to easily perform keyword and attribute based searches.

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

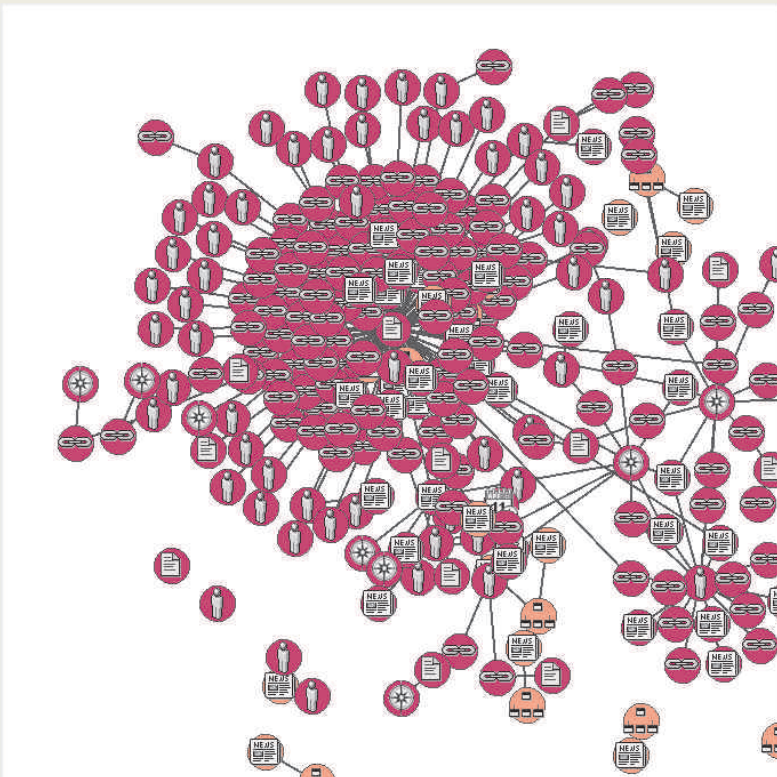
Network (AJAX)

Halo **blackbook2** [Advanced Search](#)

monterey medline sandia the911report anubis RDF Export

Four Eyes Viewer

256 nodes and 253 edges.



Appearance Settings:

Width:	<input type="text" value="100"/>	<input type="text" value="1200"/>	<input type="text" value="680"/>
Height:	<input type="text" value="100"/>	<input type="text" value="1200"/>	<input type="text" value="680"/>
Node Size:	<input type="text" value="1"/>	<input type="text" value="20"/>	<input type="text" value="18"/>
Maximum number of nodes to render client side:	<input type="text" value="0"/>	<input type="text" value="2000"/>	<input type="text" value="118"/>

Show node icons.
 Show node labels.
 Show only materialized data.

Server Side Layout Settings:

Maximum Time Allowed (seconds):

Interaction Settings:

Distance to farthest affected node:

Other Settings

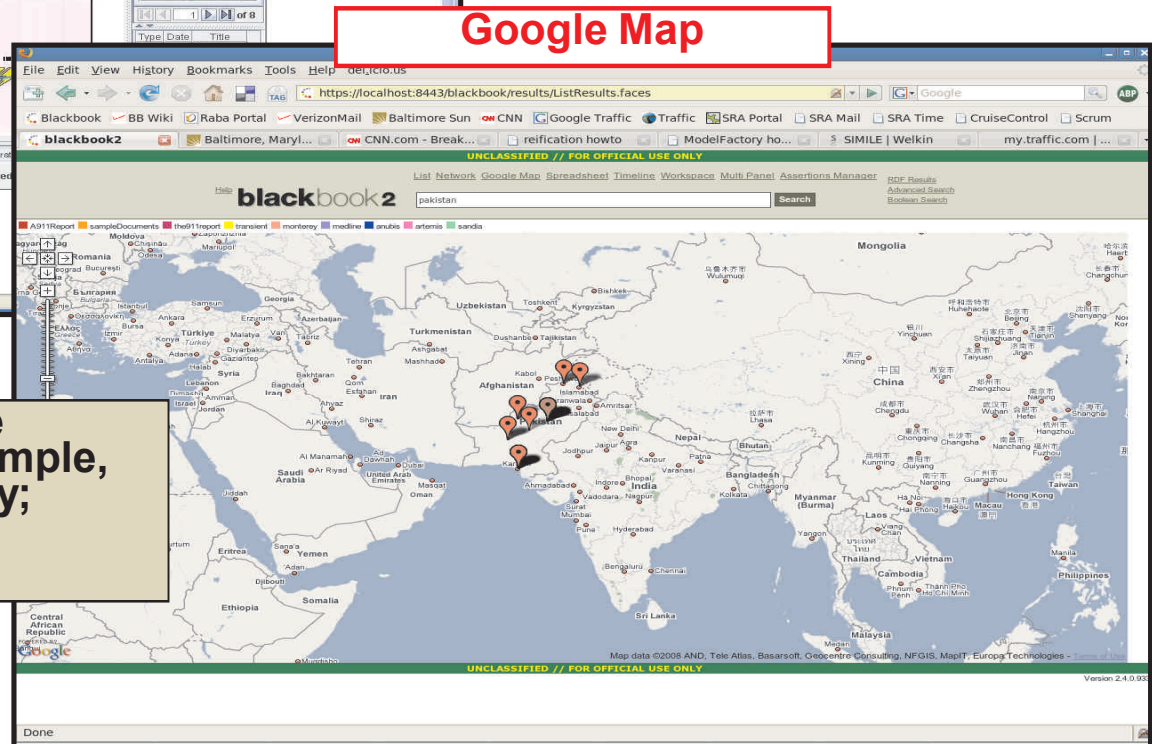
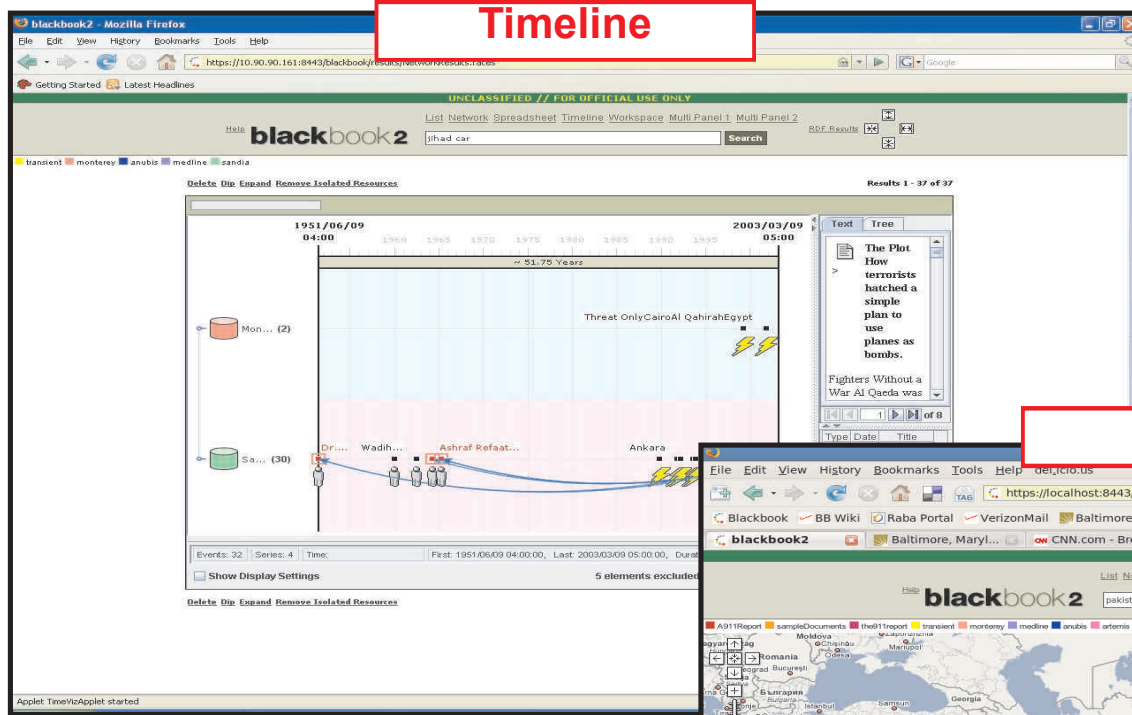
Use Blackbook Data.
Select a graph to load:

Level of Detail:

fas

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



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 shows a web browser window displaying the iGoogle Developer sandbox. The browser's address bar shows the URL `http://www.google.com/ig#`. The page features the iGoogle logo and a search bar. Below the search bar, there are navigation links for "Web", "Images", "Maps", "News", "Shopping", "Gmail", and "more". The user's email address, "2byrds@gmail.com", and links for "Classic Home", "My Account", and "Sign out" are visible in the top right corner.

The main content area is divided into several sections:

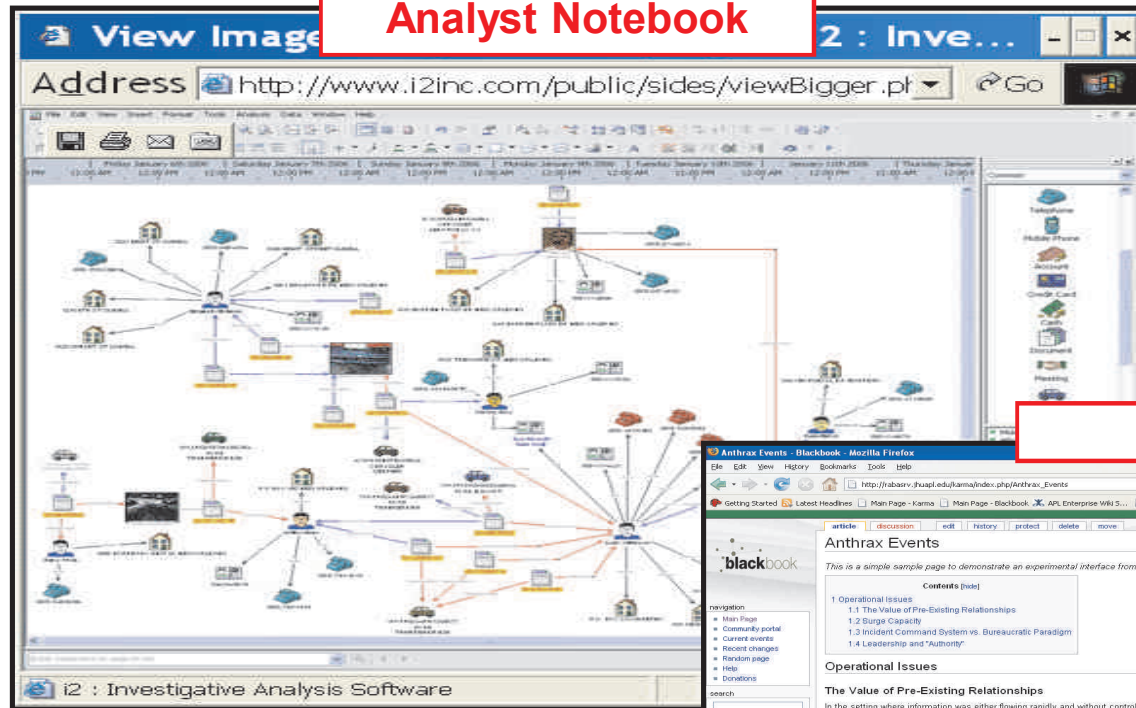
- Home:** A sidebar menu with options like "Weather", "My Entities", "Multiple SetPref...", and "My Gadgets".
- My Entities:** A widget with input fields for `rss_url` (http://blackbook2/rss/), `entity_list` (vessel1,vessel2,vessel3), `process_def` (1), and `base_wiki_url` (http://blackbook2/wiki). It includes "Save" and "Cancel" buttons.
- Weather:** Two weather widgets. The first is for "Halethorpe, MD" showing a current temperature of 36°F, cloudy conditions, and a 4-day forecast. The second is for "Kill Devil Hills, NC" showing a current temperature of 37°F, clear conditions, and a 4-day forecast.
- My Gadgets:** A section for managing gadgets, including a table with columns for "Gadget", "Inlined", and "Cached". It lists gadgets like `myAttention.xml`, `developer.xml`, and `myEntities.xml`. There is also an "Add a gadget:" field with a placeholder `http://` and an "Add" button.
- Multiple SetPref - Iframe:** A widget containing 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 page, there are links for "Add a theme" and "Mobile - Advertising Programs - Business Solutions - Privacy Policy - Help - About Google".

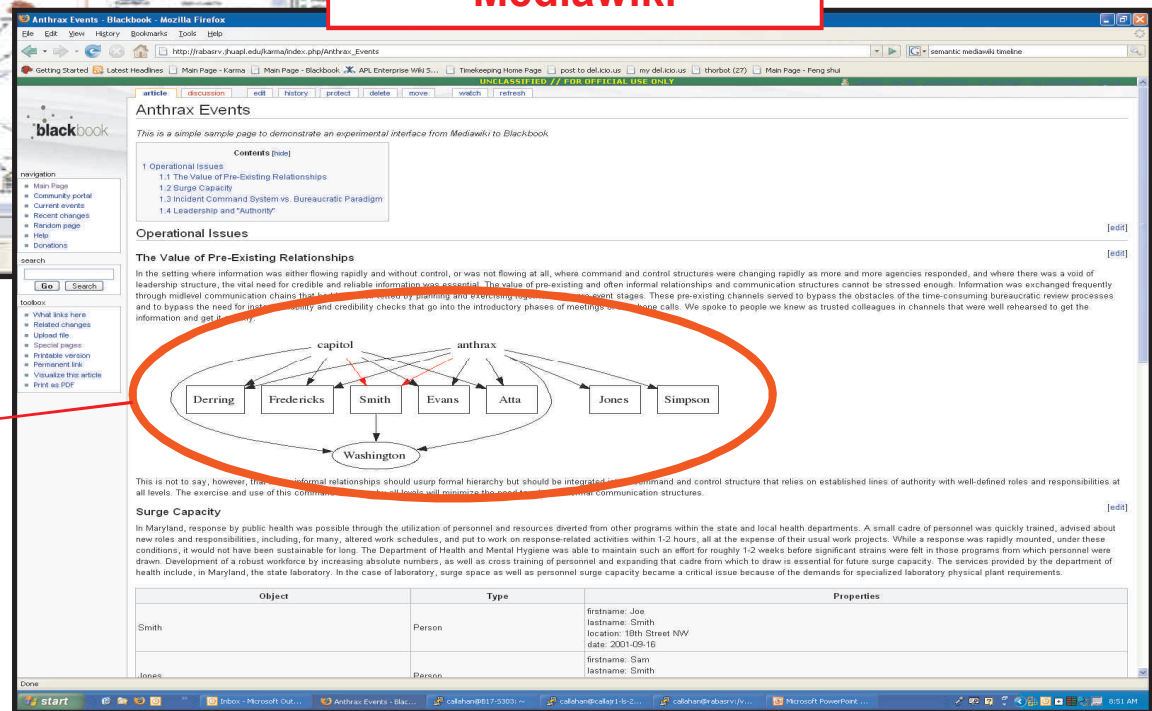
Similar to Google gadgets, Blackbook provides analysts with widgets compatible with the Ozone (an iGoogle-like) framework.

User Interface

Analyst Notebook

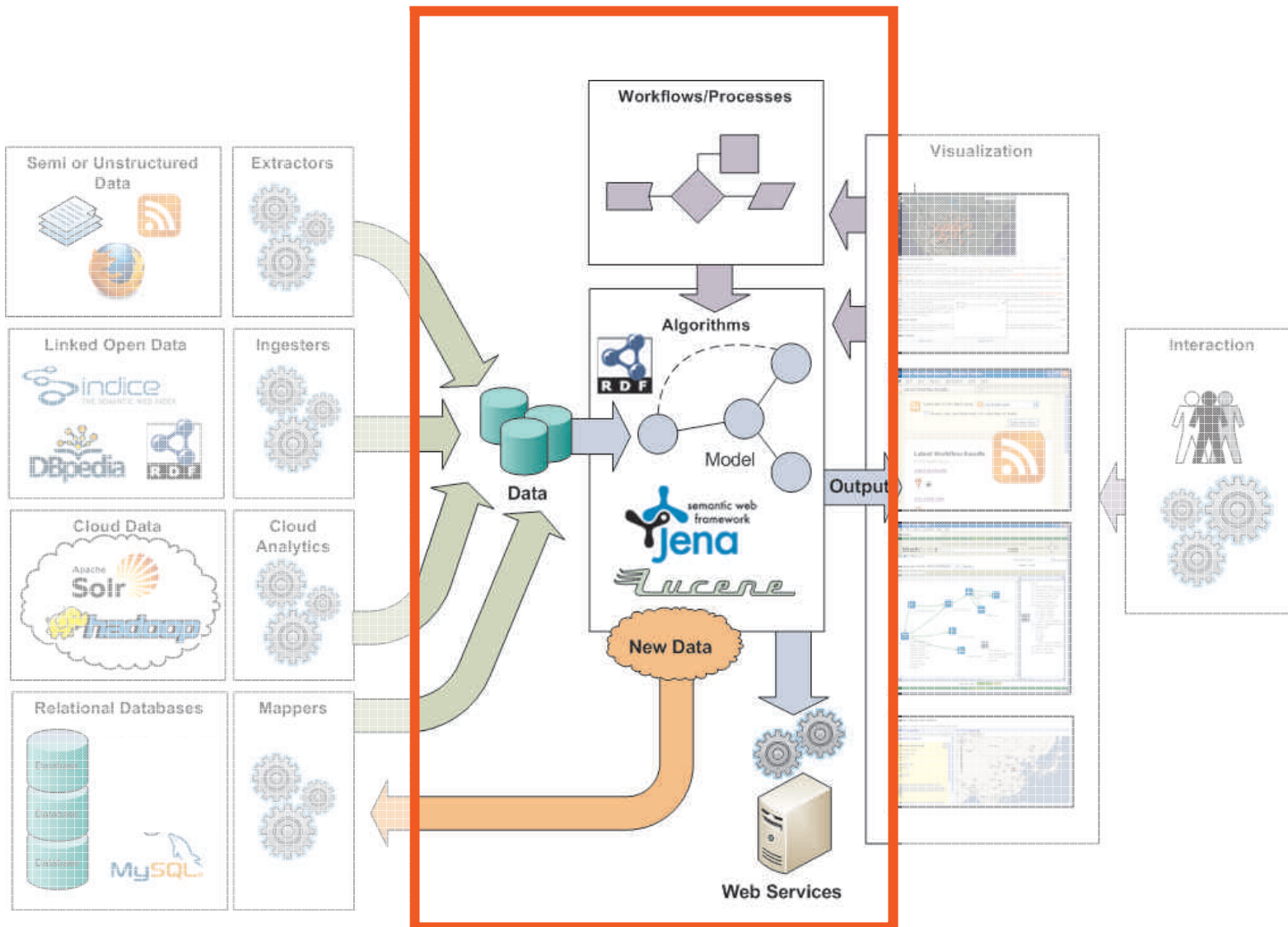


Mediawiki



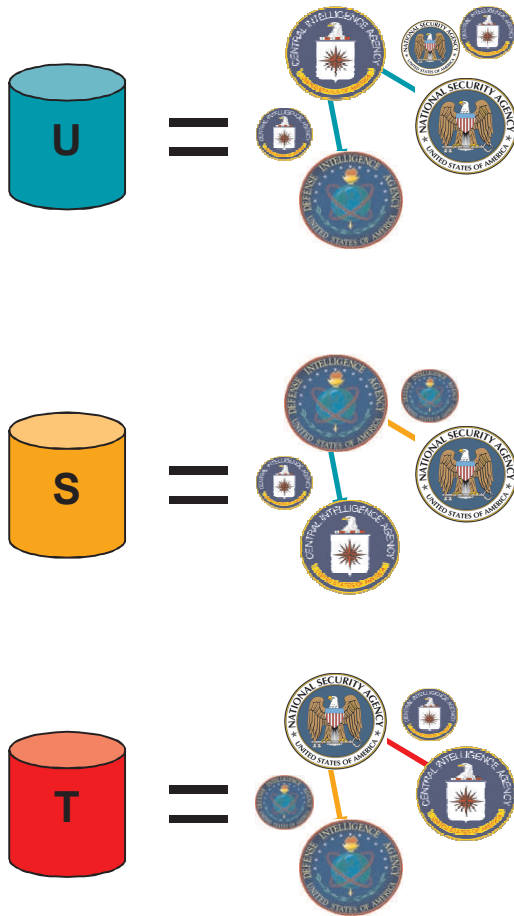
Blackbook is developing a framework called "Aqueduct", allowing interoperability between ozone widgets and wikis.

Middle Tier

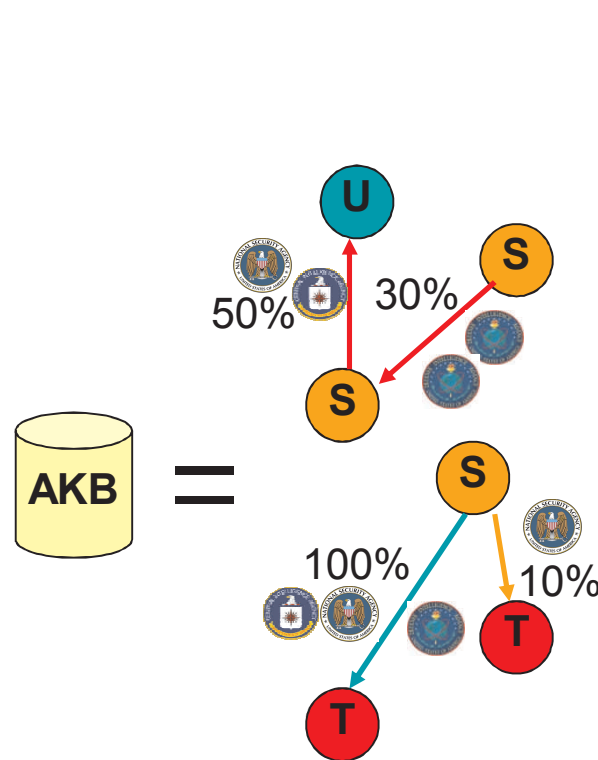


Security, Confidence, Affiliation

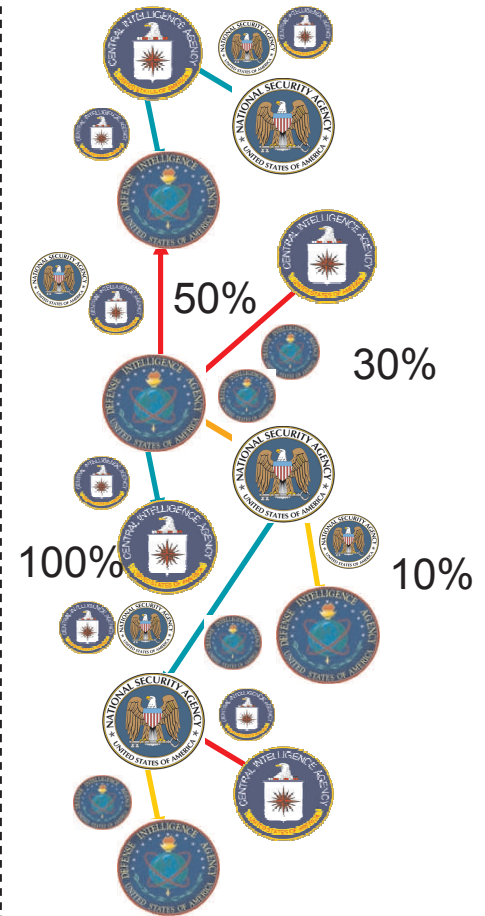
Original Datasource



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

Relationship Manager

Allows analysts to specify the relationship between two or more entities

Entity Manager

Entity Manager

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

Ontology Import

Ontology Import

Allows analysts to upload their own ontology

fas

User Interface

Workflow

The screenshot shows the 'blackbook2' web application interface. The browser title is 'blackbook2 - Microsoft Internet Explorer'. The address bar shows 'https://10.90.90.161:8443/blackbook/workflow/DefineWorkflow.faces'. The page content includes a navigation menu with 'List', 'Network', 'Spreadsheet', 'Timeline', 'Workspace', 'Multi Panel 1', and 'Multi Panel 2'. Below the menu, there are colored squares representing different data sources: transient (yellow), monterey (orange), anubis (blue), medline (purple), and sandia (green).

The main interface is divided into several sections:

- Algorithms:** A list of algorithms including Dip, Expand, Jena Keyword, Lucene Keyword, and Materialize.
- Process Flow:** A table defining the sequence of tasks and their parameters.
- Process Diagram:** A visual representation of the workflow showing the flow from '1. Lucene Keyword' to '2. Materialize', which then branches into '0. Expand' and '3. Dip'.

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

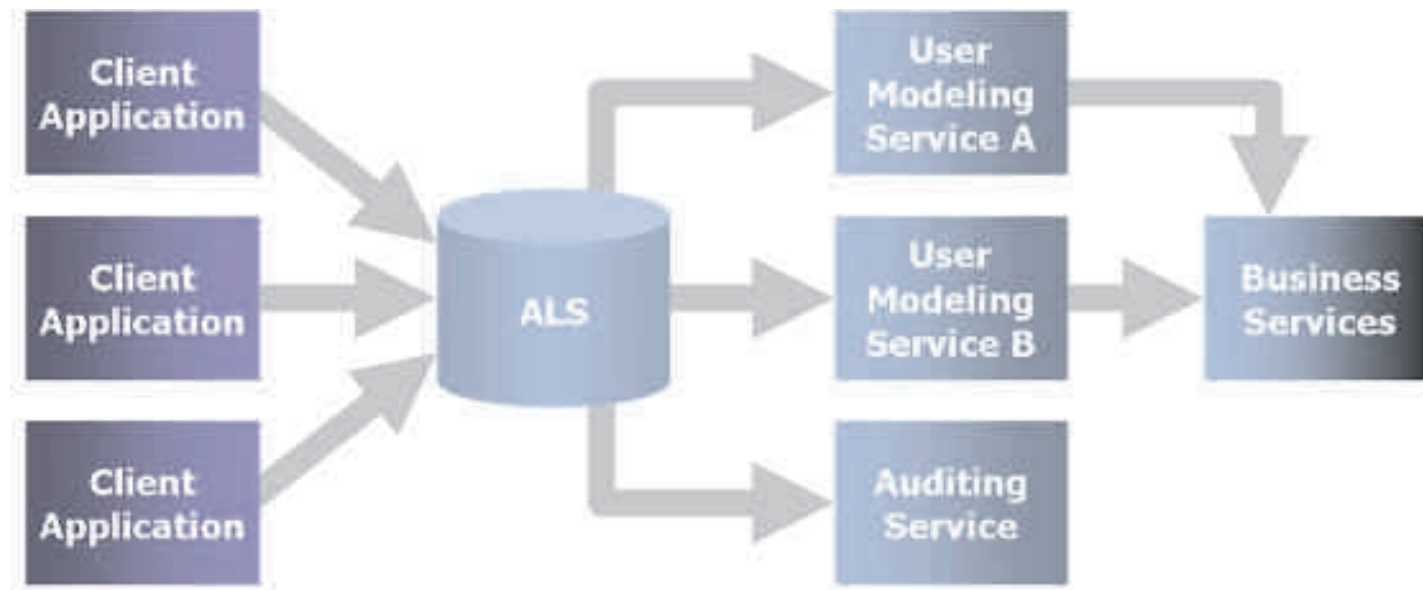
The Process Diagram shows a flow starting with '1. Lucene Keyword', which leads to '2. Materialize'. From '2. Materialize', the flow branches into two paths: one leading to '0. Expand' and another leading to '3. Dip'. The diagram includes 'Refresh' and 'Clear' buttons and a 'Save' button labeled 'MyNewProcess'.

1-4 of 4

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

fas

Analysis Log Service



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

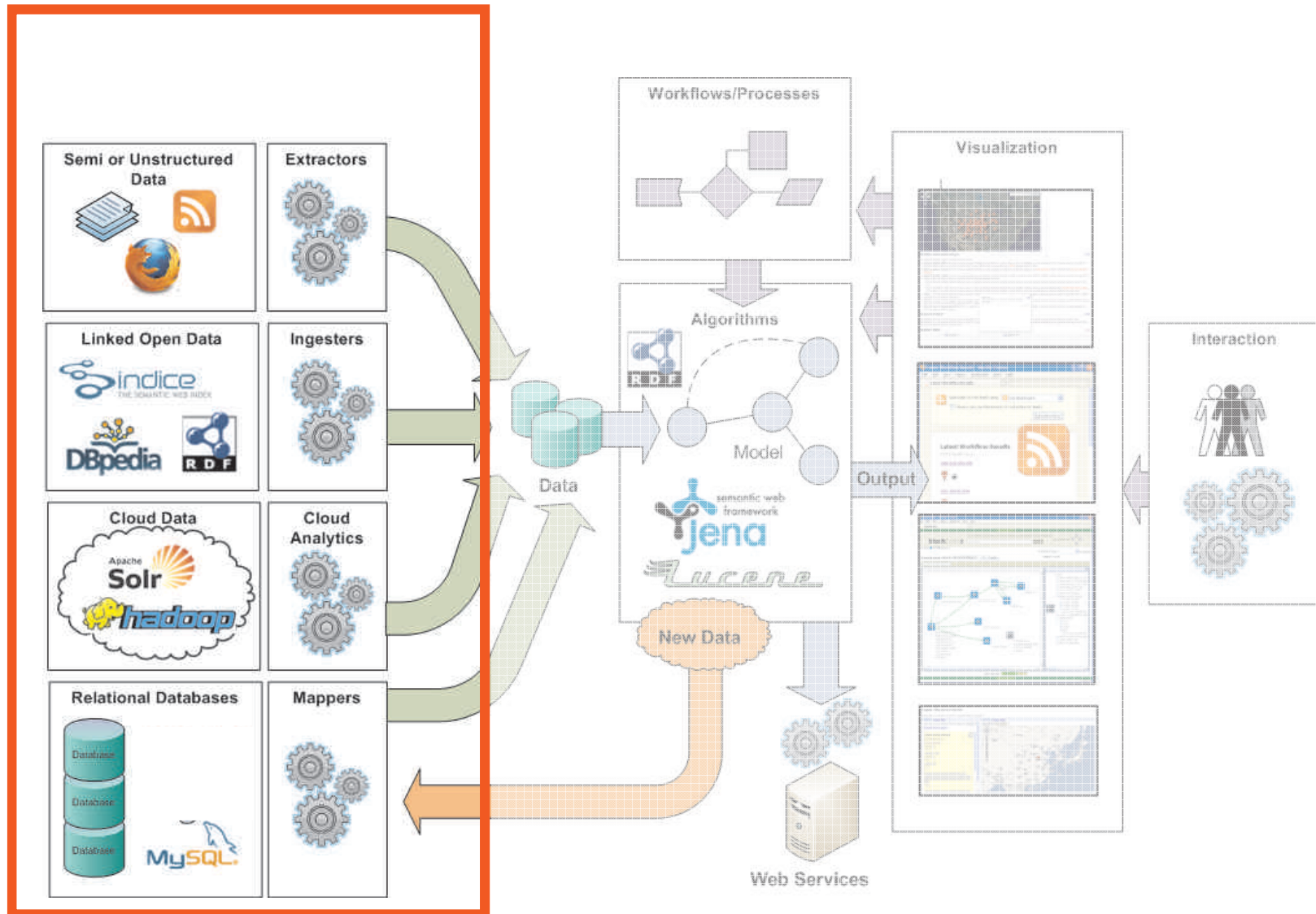
The ALEs are transmitted to the ALS.

The ALS stores the ALEs received from the client applications.

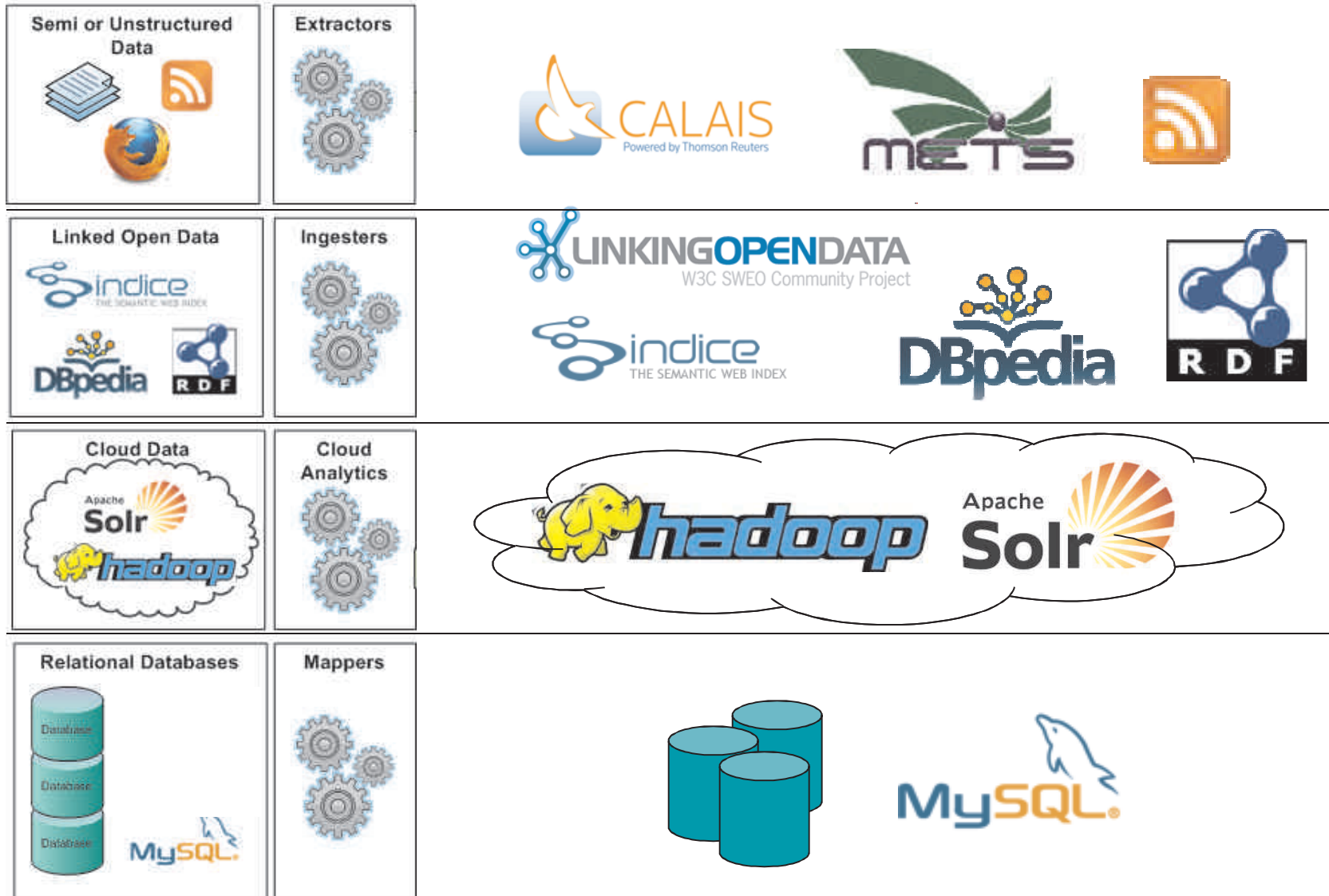
Services interested in using ALEs can query the ALS for ALEs.

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

Data Tier



Data Integration Points

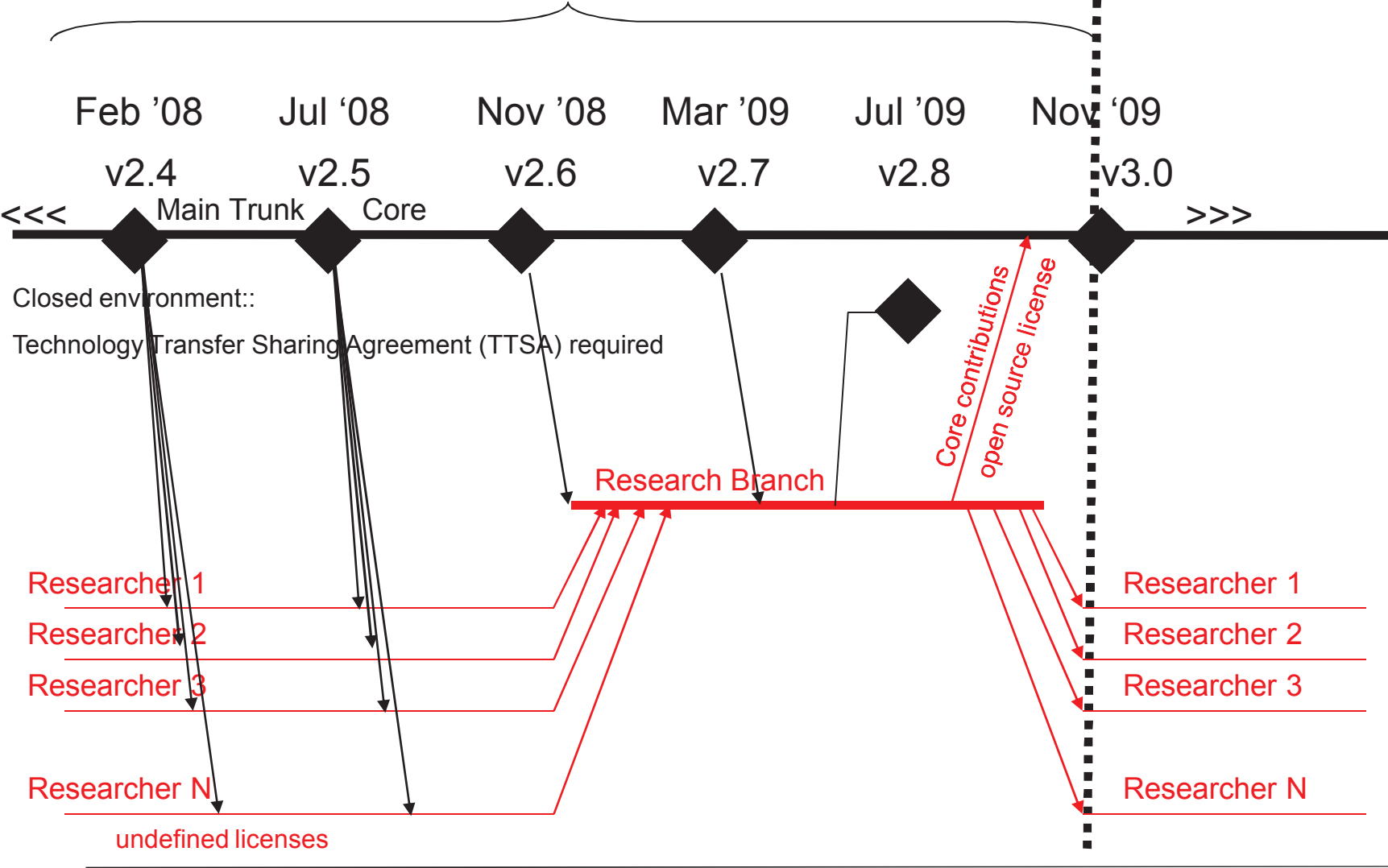


Future Capabilities

- **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)
 - **Blackbook v3.1**
 - Implement OSGI technology for algorithm “hot-deployment”
 - Demonstrate the mobile analytic concept
 - Improve visualization with rich interface
 - **Blackbook v3.2**
 - Peer-to-Peer connectivity for Blackbook platforms
-

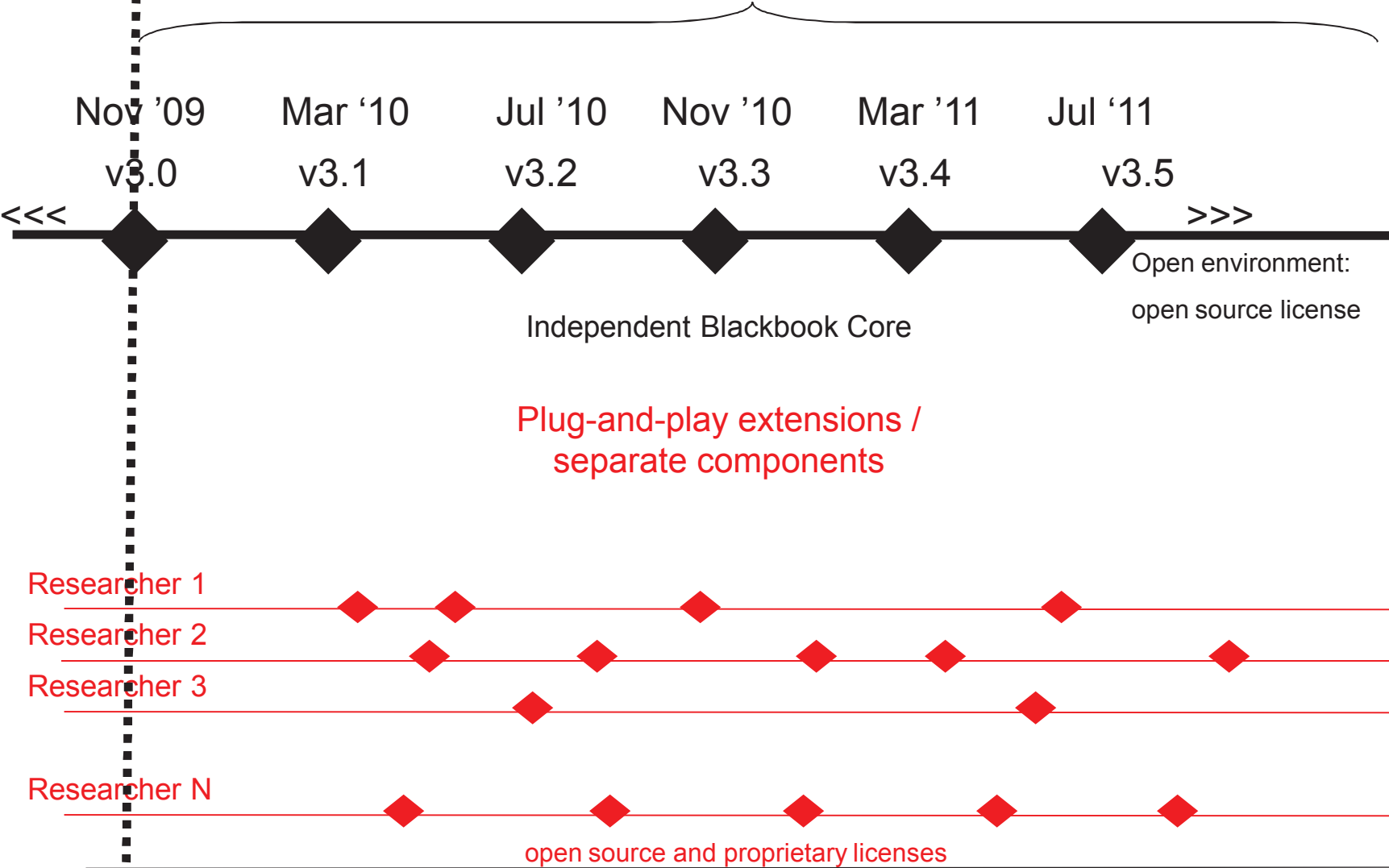
Timeline

Blackbook 2.x core is a "tightly-coupled" architecture



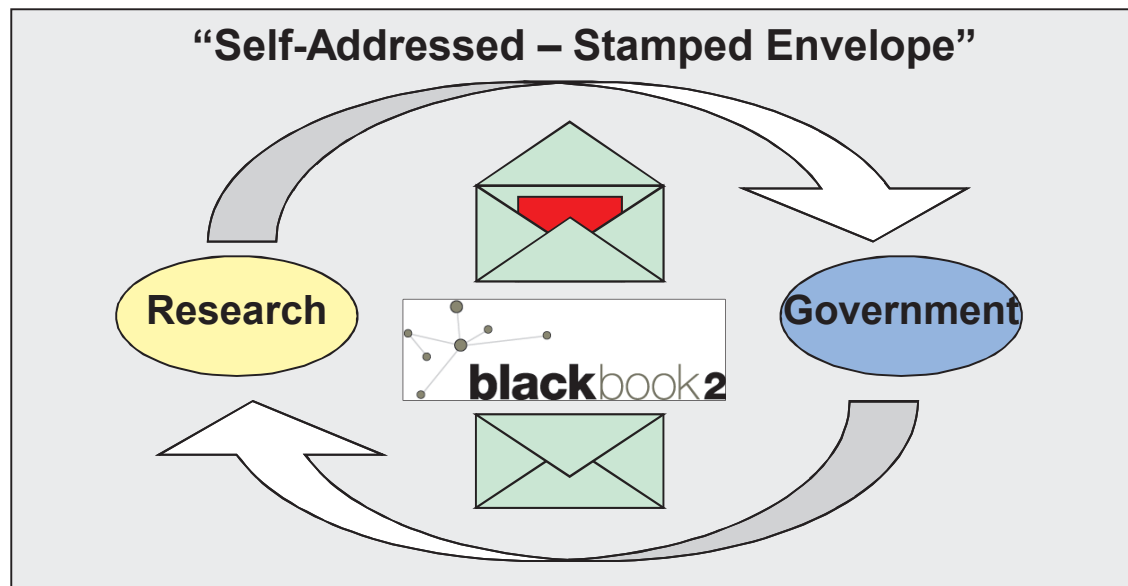
Timeline

Blackbook 3.x core is a “loosely-coupled” architecture



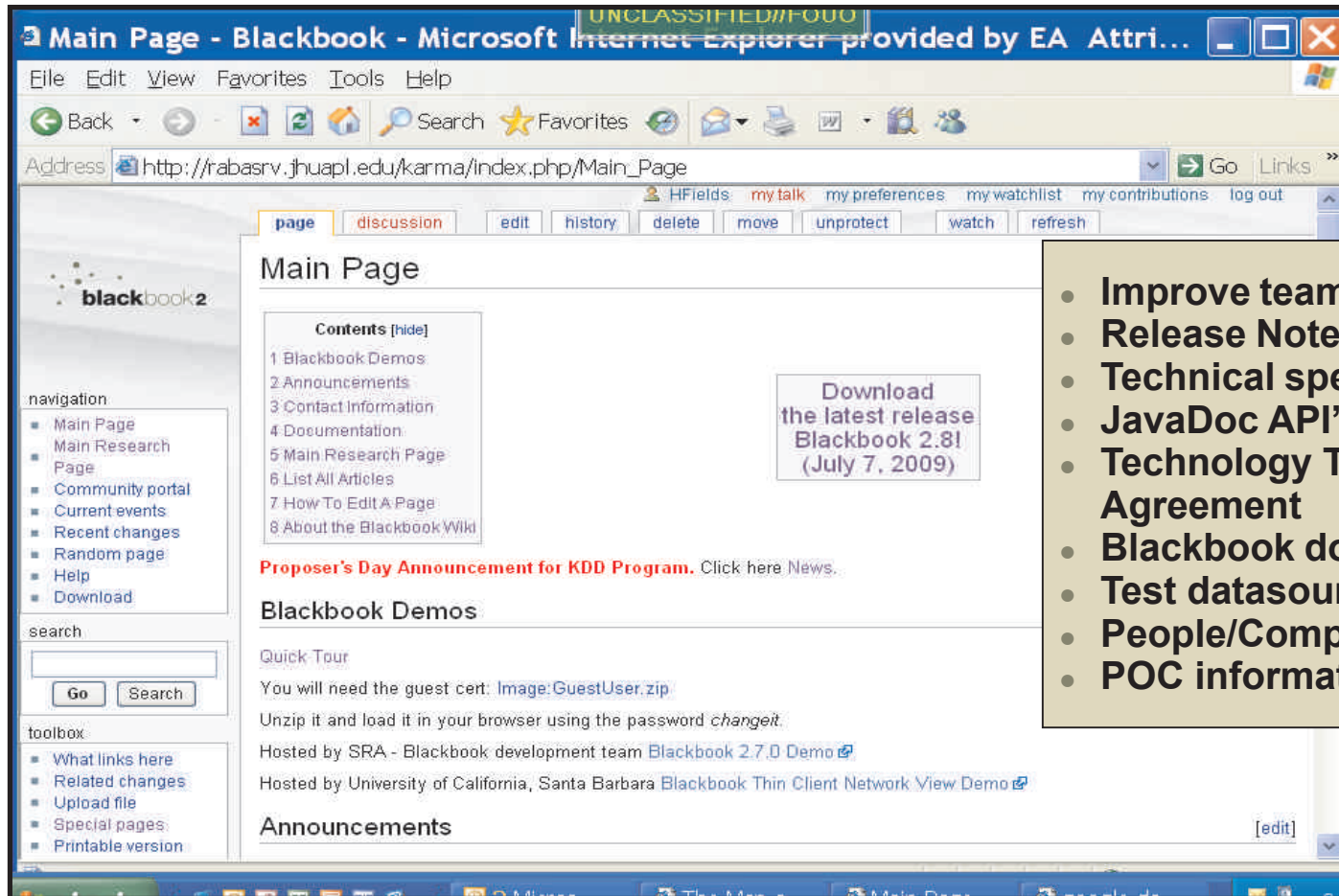
Technology Transfer

- 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

