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
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

October 10th, 2007
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)
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
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
A front-end “Google-like” user interface allows analysts to easily perform keyword and attribute based searches.
Different ways to view the same information. “Network”, for example, displays entities of different types and their relationships to other entities.
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)
Different ways to view the same information. “Timeline”, for example, displays entities chronologically; “Google Map” displays entities geospatially.
Similar to Google gadgets, Blackbook provides analysts with widgets compatible with the Ozone (an iGoogle-like) framework.
Blackbook is developing a framework called “Aqueduct”, allowing interoperability between ozone widgets and wikis.
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
“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)

- **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
Blackbook 2.x core is a “tightly-coupled” architecture

Timeline

Closed environment:
Technology Transfer Sharing Agreement (TTSA) required

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

Timeline

Independent Blackbook Core

Open environment:
open source license

Plug-and-play extensions /
separate components

Researcher 1
Researcher 2
Researcher 3
Researcher N

open source and proprietary licenses
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”.

“Self-Addressed – Stamped Envelope”

Research

Government

blackbook2
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
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
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
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