

Developing a Horizon Scanning System for Early Warning

NATIONAL SECURITY
COORDINATION SECRETARIAT

Background

We are living in an increasingly complex world threatened by terrorism and other threats like Avian Flu



Need for Risk Assessment and Horizon Scanning (RAHS)



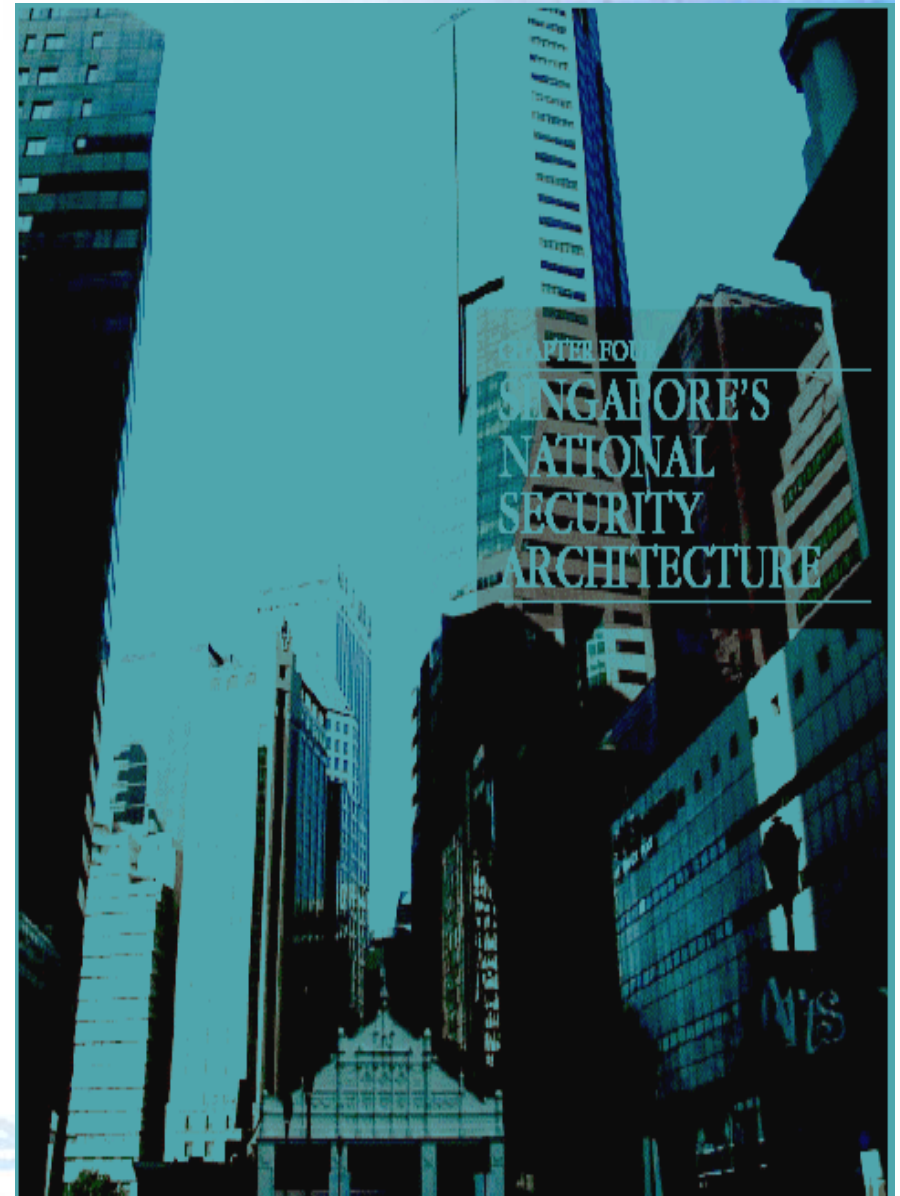
- ❑ Increasing complexity and tempo of issues handled by the Singapore Public Service
- ❑ Inherent vulnerabilities of Singapore
 - Small country serving as manufacturing and transport hub
 - Diverse races and religions
- ❑ Anticipation of emerging trends for advance action

RAHS - A Key Initiative

“In the longer term, we need to establish a risk-assessment and horizon-scanning capability to anticipate strategic surprises...

...Uncertainty and unpredictability are the key challenges, and our focus will be on anticipating surprises...

*The Fight Against Terror:
Singapore’s National Security
Strategy, 2004*



Survey of organizations



- Scenario planning by Shell
- Millennium Project
- UK Horizon Scanning Centre
- Global Public Health Intelligence Network (GPHIN)

Principle of RAHS Systems

The RAHS System Enabler Principle



Enabled Less Search and More Analysis Time for Analyst Team

Enabled Sharing of Analyst's Viewpoint on Data

Enabled Building of Contexts to Make Sense of Incoming Data

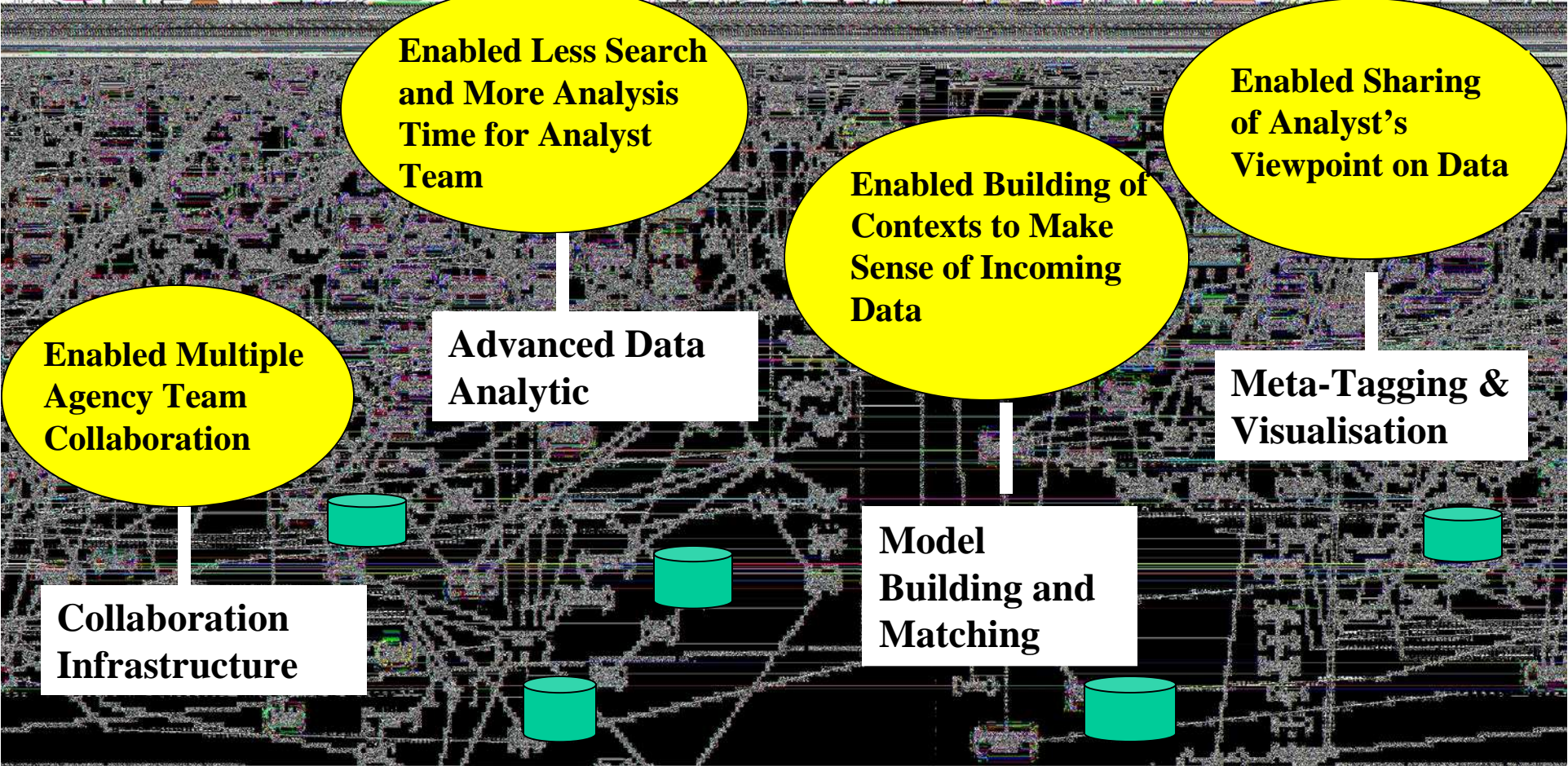
Enabled Multiple Agency Team Collaboration

Advanced Data Analytic

Meta-Tagging & Visualisation

Collaboration Infrastructure

Model Building and Matching

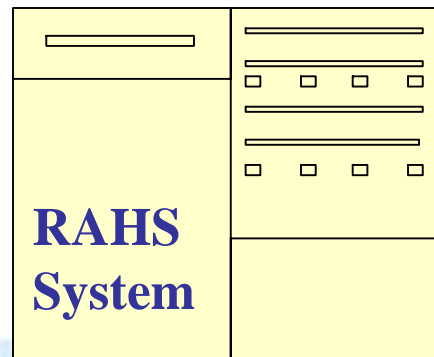
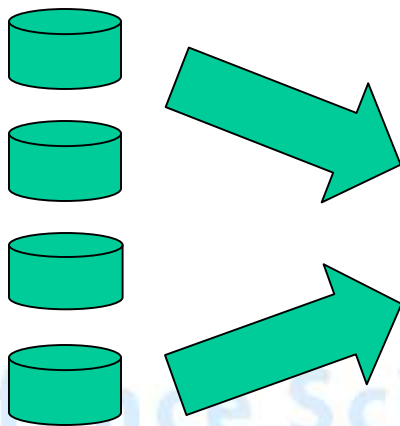


High Level Overview of RAHS System

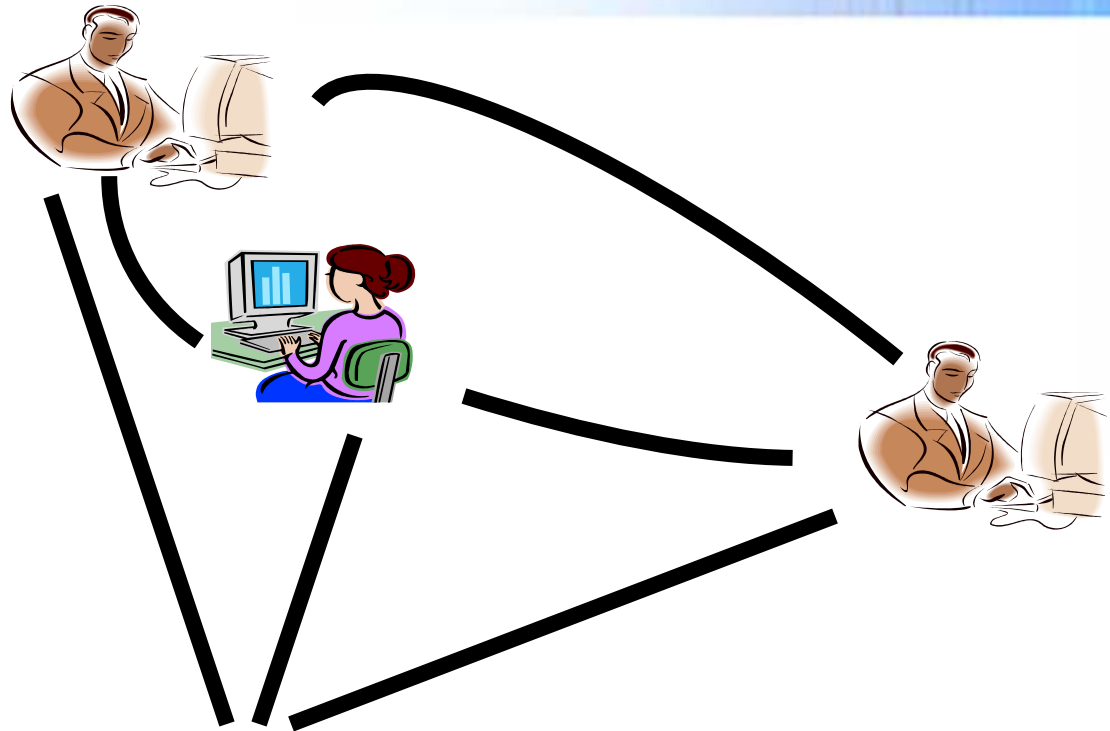
EWI – A Human Enterprise

**Asking the Right
Questions and
Formulating Hypotheses
Need Human Creativity**

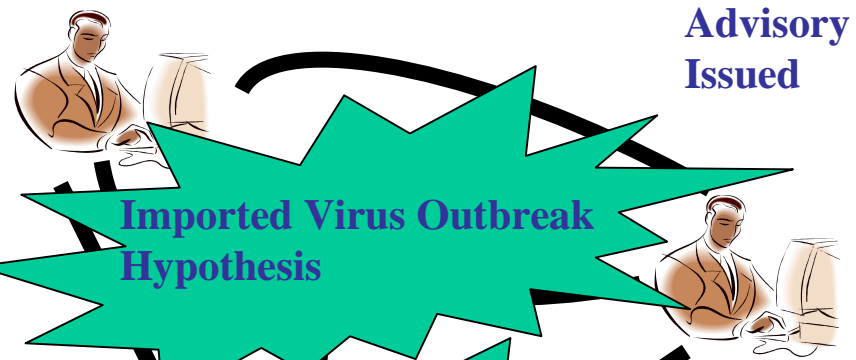
**RAHS Augmented Human
Analyst Team**



**Early
Warning**



Anticipating Imported Virus Outbreak – Possible with RAHS Augmented Human Team



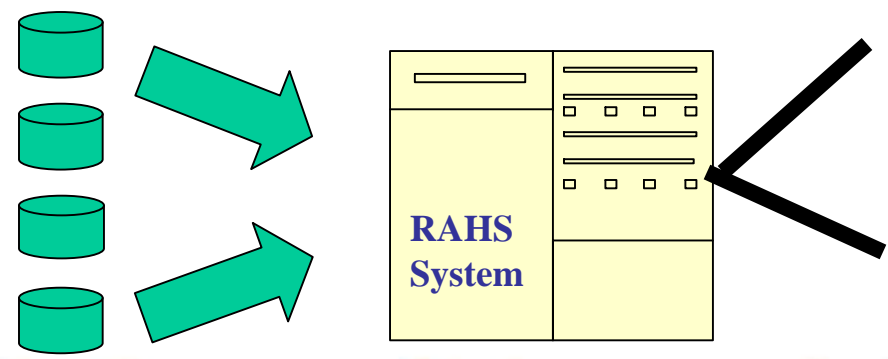
**Discharged 12/3/2003.
Principal Diagnosis: Viral
Pneumonia**

“Recent travel to Hong Kong from 21/02/2003 to 25/02/2003. 01/03/2003. High fever, cough (3 days), headache (4 days), running nose.”
Date of visit: **2 Mar 03**



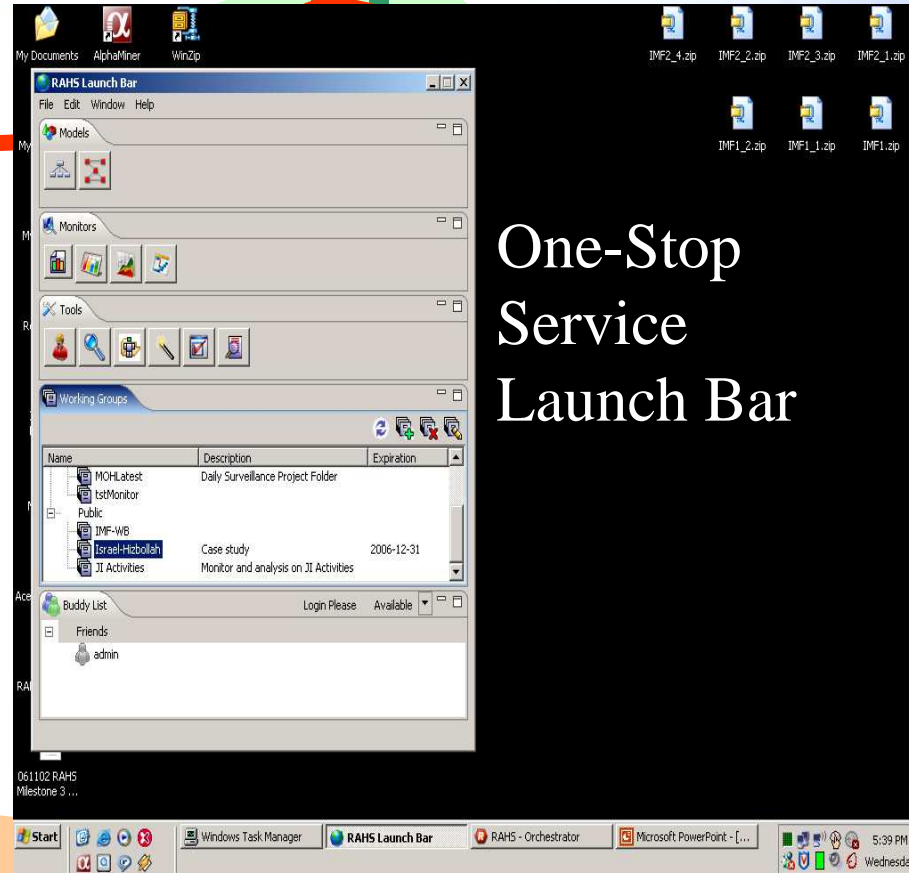
Article from <http://service.china.org.cn> on 11 Feb 03:

“Authorities in southern China's Guangdong province called for emergency measures to combat a mysterious lung virus that has so far stricken 305 people and killed five, officials said Tuesday. Guangdong's top leader Zhang Dejiang has called on the provincial health department to set up an emergency experts group to investigate the causes and sources of the "atypical pneumonia" and take measures to curb the spread of the disease and further fatalities.”



RAHS Architecture and Data Analytic Service

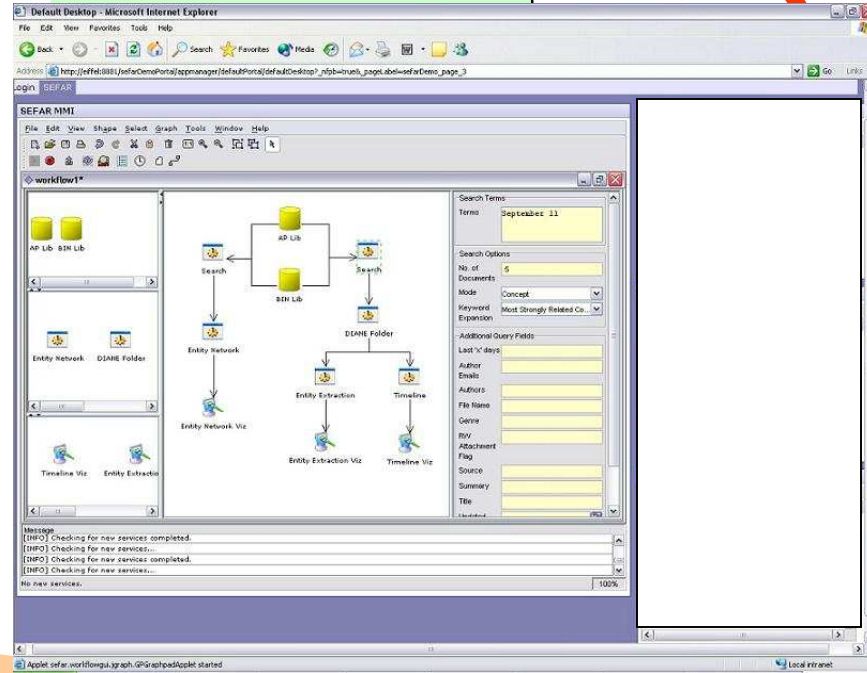
One-Stop Service Launch Bar



The screenshot shows a Windows desktop environment with a custom interface. The desktop background is black and contains several icons for zip files: IMF2_4.zip, IMF2_2.zip, IMF2_3.zip, IMF2_1.zip, IMF1_2.zip, IMF1_1.zip, and IMF1.zip. A window titled "RAHS Launch Bar" is open, displaying a menu with "File", "Edit", "Window", and "Help". Below the menu are four sections: "Models", "Monitors", "Tools", and "Working Groups". The "Working Groups" section contains a table with the following data:

Name	Description	Expiration
MOHLatest	Daily Surveillance Project Folder	
tstMonitor		
Public		
IMF-WB		
Israel-Hizbollah	Case study	2006-12-31
II Activities	Monitor and analysis on II Activities	

Below the table is a "Buddy List" section with a "Login Please" button and a dropdown menu set to "Available". The taskbar at the bottom shows the Start button, Windows Task Manager, RAHS Launch Bar, RAHS - Orchestrator, and Microsoft PowerPoint. The system tray shows the time as 5:39 PM on Wednesday.



ORCHESTRATOR

Default Desktop - Microsoft Internet Explorer

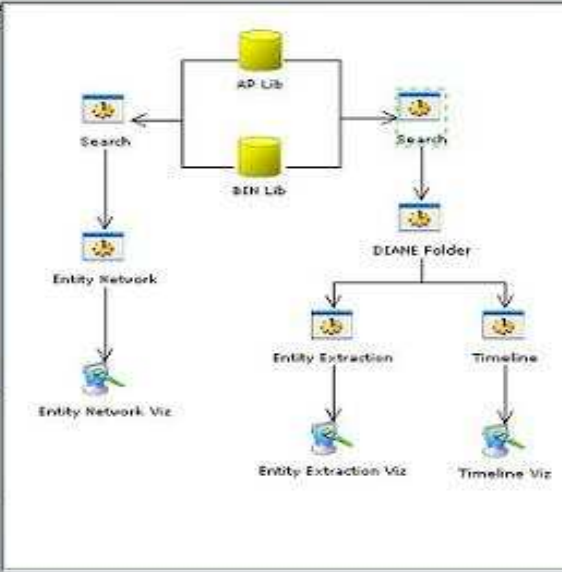
Address: http://effel:8881/sefarDemoPortal/oppmanager/defaultPortal/defaultDesktop?_nfpb=true&_pageLabel=sefarDemo_page_3

Login: SEPAR

SEFAR MMI

File Edit View Shape Select Graph Tools Window Help

workflow1*



```
graph TD; AP[AP Lib] --> S1[Search]; BIN[BIN Lib] --> S1; S1 --> S2[Search]; S2 --> DIANE[DIANE Folder]; DIANE --> EN[Entity Network]; EN --> ENV[Entity Network Viz]; DIANE --> EE[Entity Extraction]; EE --> EEV[Entity Extraction Viz]; DIANE --> T[Timeline]; T --> TV[Timeline Viz];
```

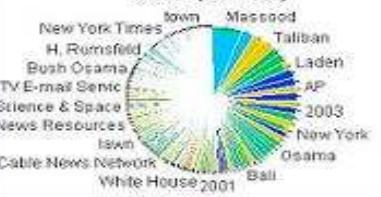
Search Terms: Terms: September 11

Search Options: No. of Documents: 5; Mode: Concept; Keyword Expansion: Most Strongly Related Co...

Additional Query Fields: Last 'x' days; Author; Emails; Authors; File Name; Genre; RVV; Attachment; Flag; Source; Summary; Title

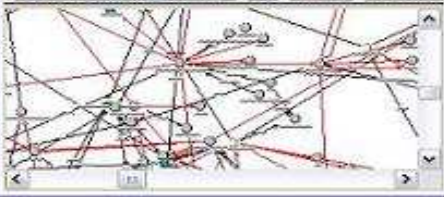
Entity Extraction Visualiser

Count per Entity

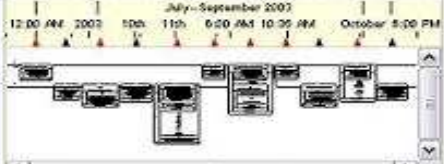


Entity	Count
New York Times	1
H. Rumsfeld	1
Bush	1
Osama	1
TV E-mail Sent	1
Science & Space	1
News Resources	1
Cable News Network	1
White House 2001	1
Ball	1
Osama	1
New York	1
2003	1
AP	1
Laden	1
Taliban	1
Massood	1
town	1

Entity Network Visualiser



Timeline Visualiser



Message: [INFO] Checking for new services completed. [INFO] Checking for new services.... [INFO] Checking for new services completed. [INFO] Checking for new services.... No new services.

Applet: sefar.workflowgui.graph.GPGraphpadApplet started

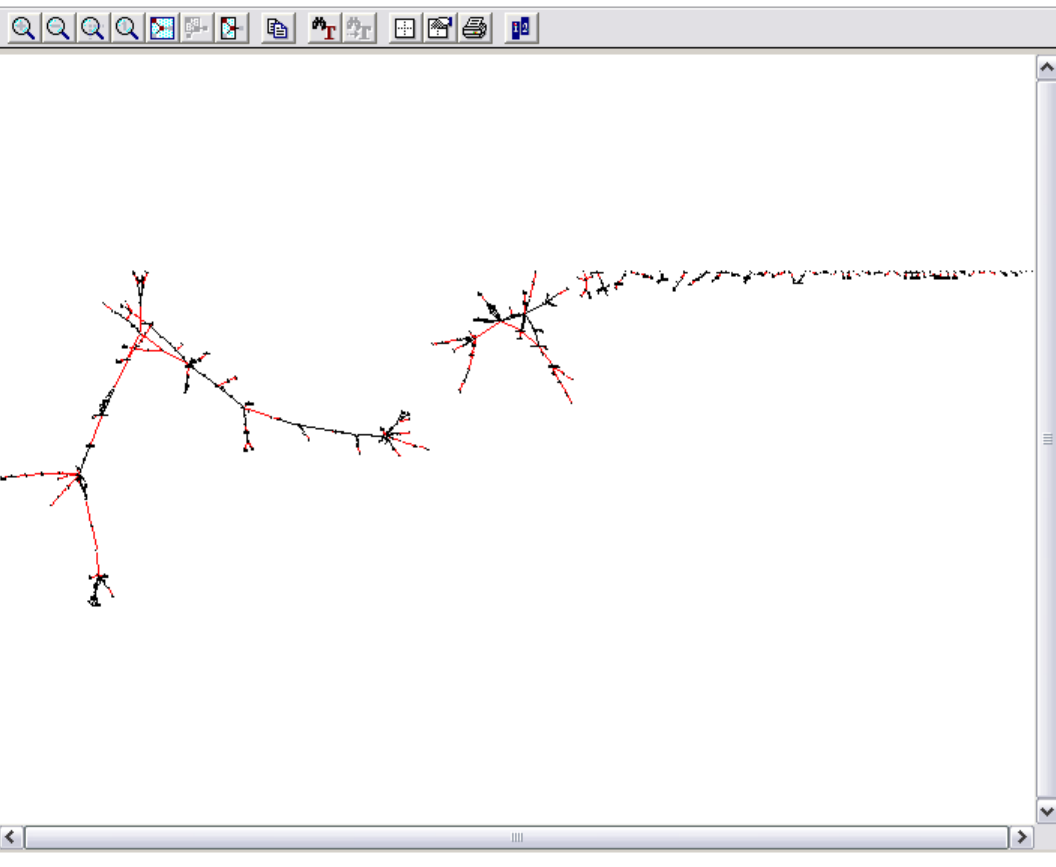
Conducting Further Analysis – Data Analytic Service

RAHS - Visual Documents

File Edit Window Help

Visual Documents Perform Analysis Perform Analysis (SEFAR) Jemaah Is... (SEFAR) JI Demo W...

Title	Type
(SEFAR) JI Demo Workflo...	Entity Network
(SEFAR) Jemaah Islamiah...	Discrete Entity
(SEFAR) Jemaah Islamiah...	Discrete Entity
(SEFAR) Jemaah Islamiah...	Entity Network

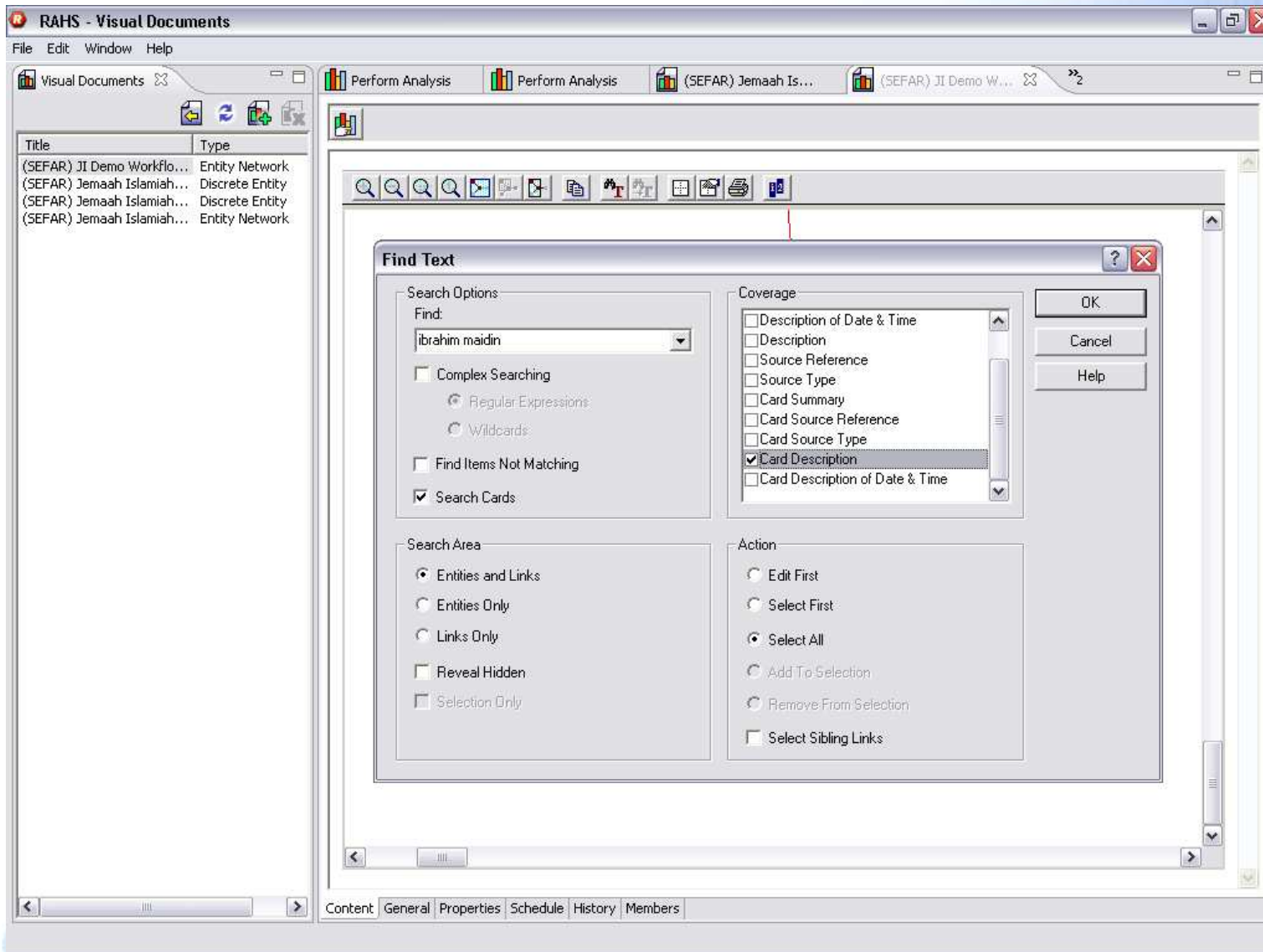


The diagram shows a complex network of nodes and edges. Nodes are represented by small black and red squares, and edges are thin black lines. The network is divided into several clusters, with a prominent cluster on the left and a long, thin chain of nodes extending to the right. The edges are colored red and black, indicating different types of relationships or weights between the entities.

Content General Properties Schedule History Members



Conducting Further Analysis – Data Analytic Service



The screenshot displays the RAHS - Visual Documents application window. The main interface includes a menu bar (File, Edit, Window, Help), a toolbar, and a central workspace. A 'Find Text' dialog box is open, showing search options and coverage settings. The search term 'ibrahim maidin' is entered in the 'Find' field. The 'Search Area' is set to 'Entities and Links', and the 'Action' is 'Select All'. The 'Coverage' list includes 'Card Description' (checked) and 'Card Description of Date & Time'. The dialog box also has 'OK', 'Cancel', and 'Help' buttons.

Title	Type
(SEFAR) JI Demo Workflo...	Entity Network
(SEFAR) Jemaah Islamiah...	Discrete Entity
(SEFAR) Jemaah Islamiah...	Discrete Entity
(SEFAR) Jemaah Islamiah...	Entity Network

Find Text

Search Options:

Find:

Complex Searching

Regular Expressions

Wildcards

Find Items Not Matching

Search Cards

Search Area:

Entities and Links

Entities Only

Links Only

Reveal Hidden

Selection Only

Coverage:

Description of Date & Time

Description

Source Reference

Source Type

Card Summary

Card Source Reference

Card Source Type

Card Description

Card Description of Date & Time

Action:

Edit First

Select First

Select All

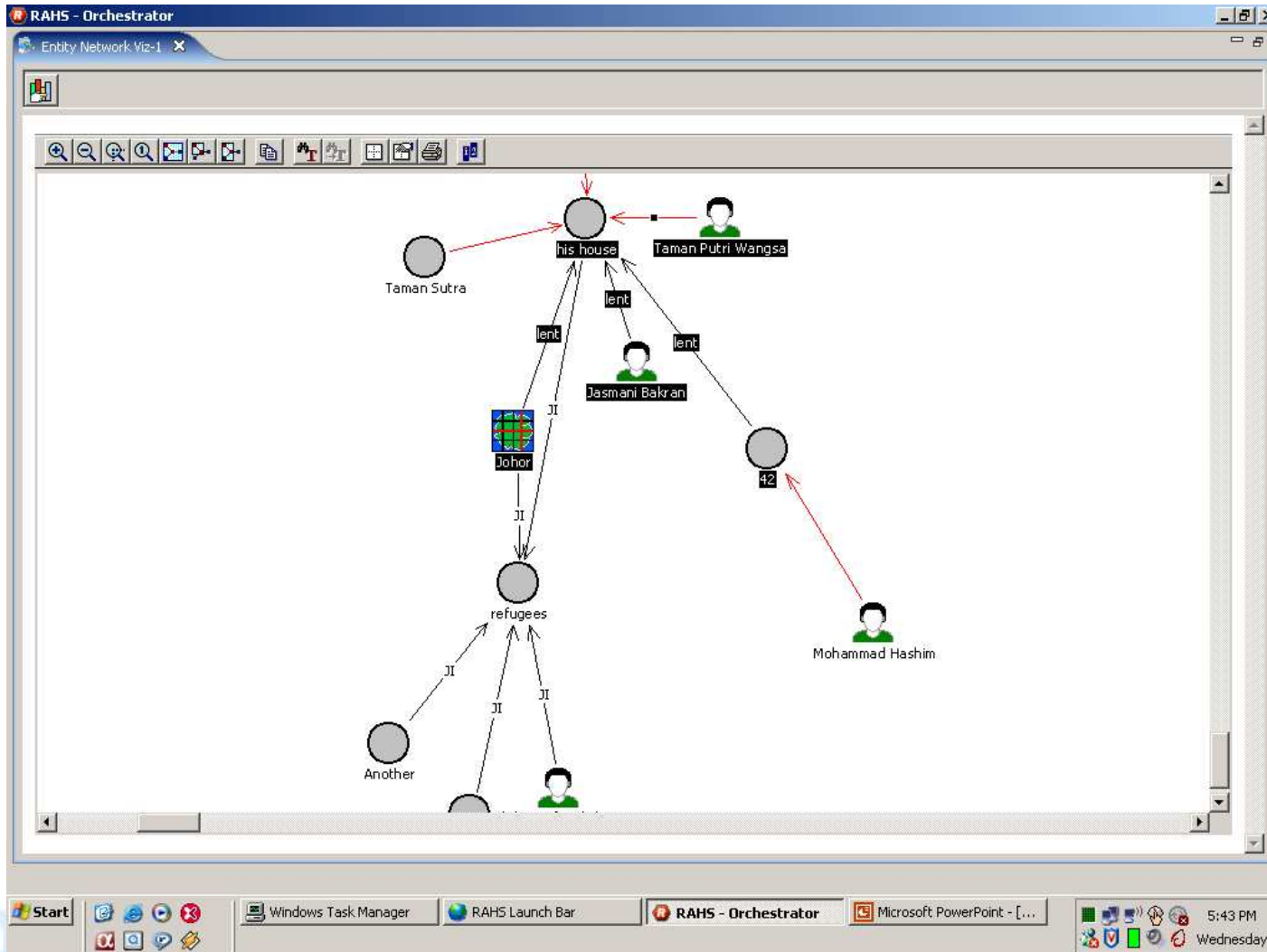
Add To Selection

Remove From Selection

Select Sibling Links

Buttons: OK, Cancel, Help

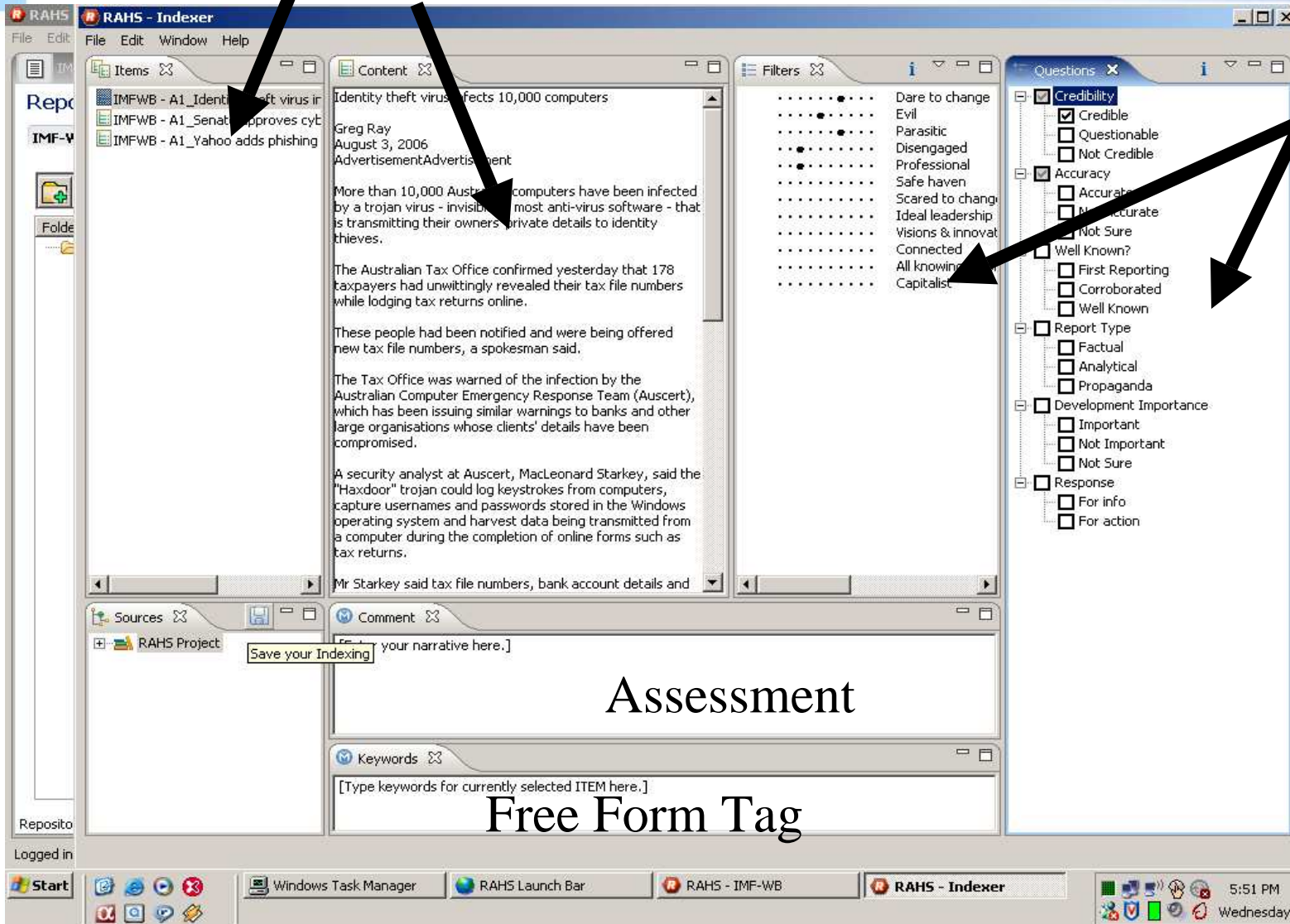




Perspective Sharing through Meta Tagging and Visualization

Indexer

Data



RAHS - Indexer

Items

- IMFWB - A1_Identity theft virus in
- IMFWB - A1_Senate approves cyb
- IMFWB - A1_Yahoo adds phishing

Content

Identity theft virus affects 10,000 computers

Greg Ray
August 3, 2006
AdvertisementAdvertisement

More than 10,000 Australian computers have been infected by a trojan virus - invisible to most anti-virus software - that is transmitting their owners' private details to identity thieves.

The Australian Tax Office confirmed yesterday that 178 taxpayers had unwittingly revealed their tax file numbers while lodging tax returns online.

These people had been notified and were being offered new tax file numbers, a spokesman said.

The Tax Office was warned of the infection by the Australian Computer Emergency Response Team (Auscert), which has been issuing similar warnings to banks and other large organisations whose clients' details have been compromised.

A security analyst at Auscert, MacLeonard Starkey, said the "Haxdoor" trojan could log keystrokes from computers, capture usernames and passwords stored in the Windows operating system and harvest data being transmitted from a computer during the completion of online forms such as tax returns.

Mr Starkey said tax file numbers, bank account details and

Filters

- Dare to change
- Evil
- Parasitic
- Disengaged
- Professional
- Safe haven
- Scared to change
- Ideal leadership
- Visions & innovat
- Connected
- All knowing
- Capitalist

Questions

- Credibility
 - Questionable
 - Not Credible
- Accuracy
 - Accurate
 - Inaccurate
 - Not Sure
- Well Known?
- First Reporting
- Corroborated
- Well Known

Report Type

- Factual
- Analytical
- Propaganda

Development Importance

- Important
- Not Important
- Not Sure

Response

- For info
- For action

Sources

- RAHS Project

Comment

Save your Indexing [your narrative here.]

Keywords

[Type keywords for currently selected ITEM here.]

Windows Task Manager

RAHS Launch Bar

RAHS - IMF-WB

RAHS - Indexer

5:51 PM
Wednesday

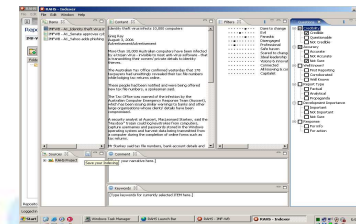
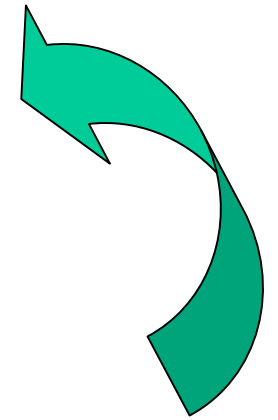
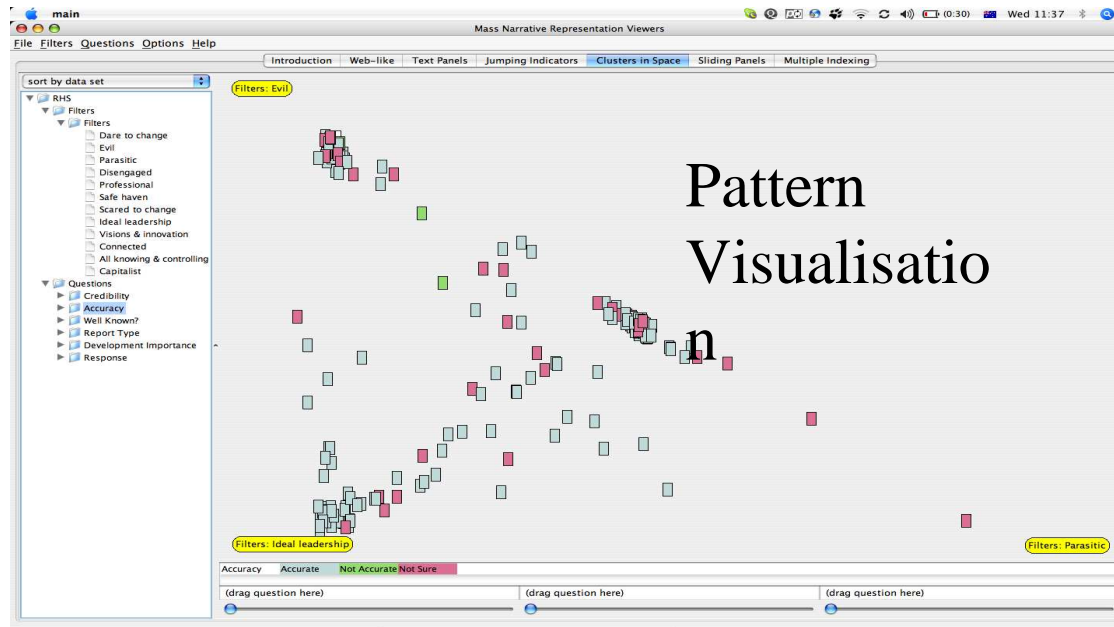
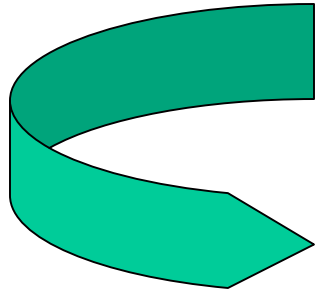
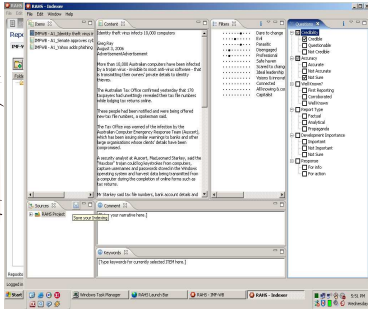
Meta-Tag
Agreed by
Network

Assessment

Free Form Tag



Collaborative Tagging



Model Building and Matching

Building and Exploiting System Map Service

Properties

General Options Attachments Query Monitor Results

Add Option

Hizb Military Hostility (against Isr)

	Extreme	High	Minimal	Moderate
None	-1	-1	-1	-1
Minimal	-1	-1	1	-1
Moderate	-1	-1	1	1
High	-1	1	1	1

Apply



Morphological Analysis

RAHS - Scenario Builder

Scenario Option Space

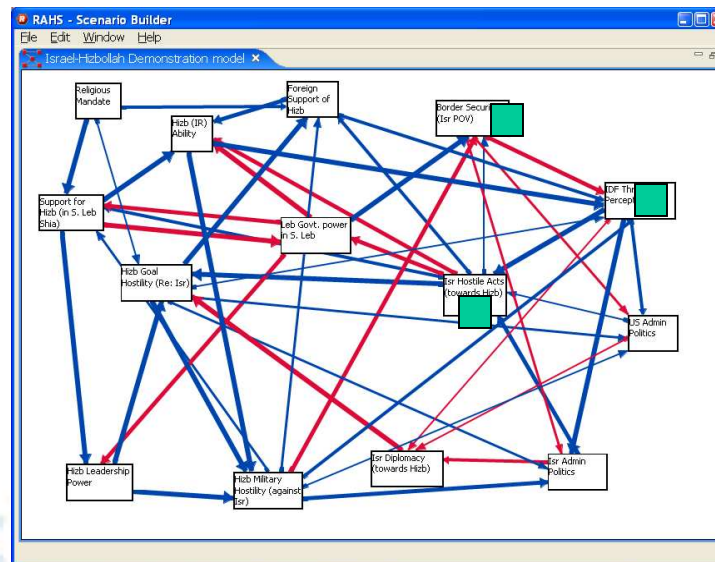
Israel-Hizbollah Scenario Option Space

High Military	High Goal Hostility	EDF Threat Perception	Religious Mandate	High (IR) Ability	Isr Diplomacy	Isr Admin Politics	US Admin Politics	Border Security	Leb Leadership	Isr Hostile Acts	Leb Govt. power in S. Leb	Support for Hizb (in S. Leb)	Value	Color	Name
None	None	Minimal	None	Cleared	None	High-Dovish	High-Dovish	Chaos	Non-existent	None	Non-existent	None	0.4303		Lebanese g
Minimal	Minimal	Moderate	Anti-Israel	Minimal	Min. Dovish	Min. Dovish	Minimal	Ineffective	Minimal	Ineffective	Minimal	None	0.4303		
Moderate	Moderate	High	Moderate	Moderate	Min. Hawkish	Min. Hawkish	Moderate	Respected	Moderate	Respected	Moderate	None	0.4303		
High	High		High	High	High Hawkish	High Hawkish	High	Complete control	High-Circle	Complete control	High	None	0.4303		
Extreme	Extreme		Fully equipped	Fully equipped	Extremely Safe	Extremely Safe	Extremely Safe	Extremely Safe	Extremely Safe	Extremely Safe	Extremely Safe	None	0.4303		

Consistency Matrix

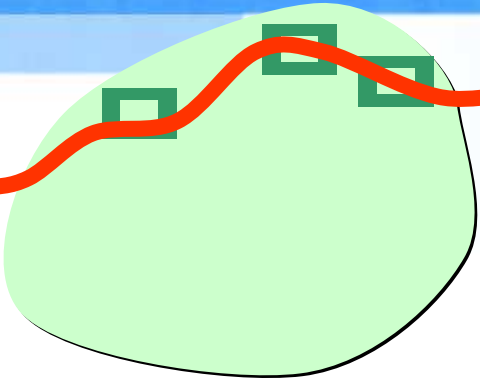
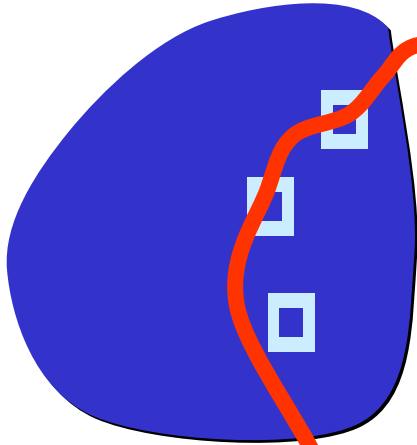


Lock Cell with Current Data



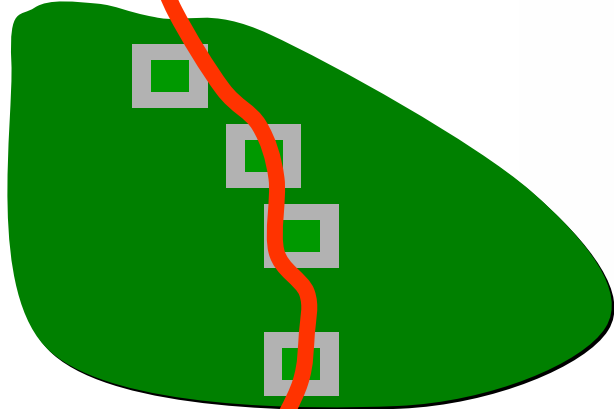
RAHS is a network:

- Agencies
- People
- Tools
- Data

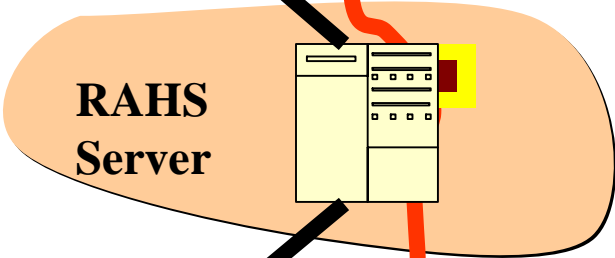


RAHS Architecture

**Service Oriented Architecture
Collaboration Services
One-Stop Service LaunchBar**

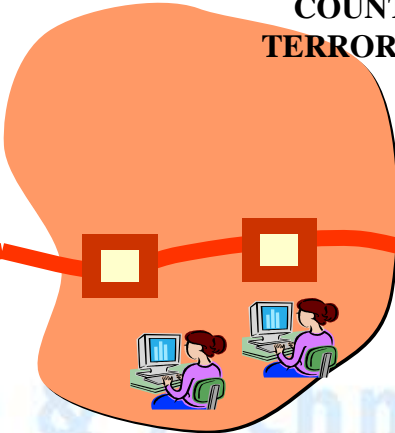


**Perspective
Sharing
Capability**



**RAHS
Server**

**Data Analytic and
Structuring
Capability**



**COUNTER
TERRORISM**



**STRATEGIC
PLANNING**

**RAHS
Clients**

Thank You