

***Link Explorer, a data analysis
and visualization system
written in Lisp***

Overview

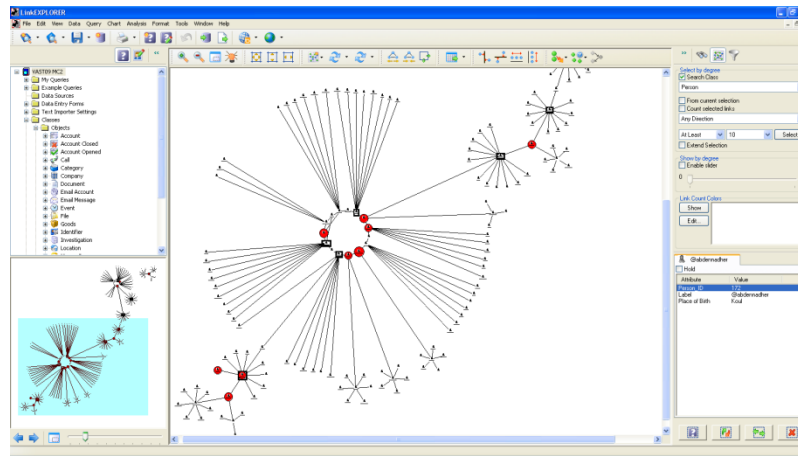
- The Link Explorer Application
- Using Lisp for Windows development
- Future plans

The Link Explorer Application

- - What is it?
- - What does it do?
- - What is it for?
- - How does it work (demo)
- - Integration on the desktop (MS office, ESRI, Bing)

What is it?

- - A Windows desktop application
- - A tool for data analysts
 - deals with the specifics of a case or scenario
 - relatively small numbers of individual items
 - analytical product is data sets of 10's or 100's

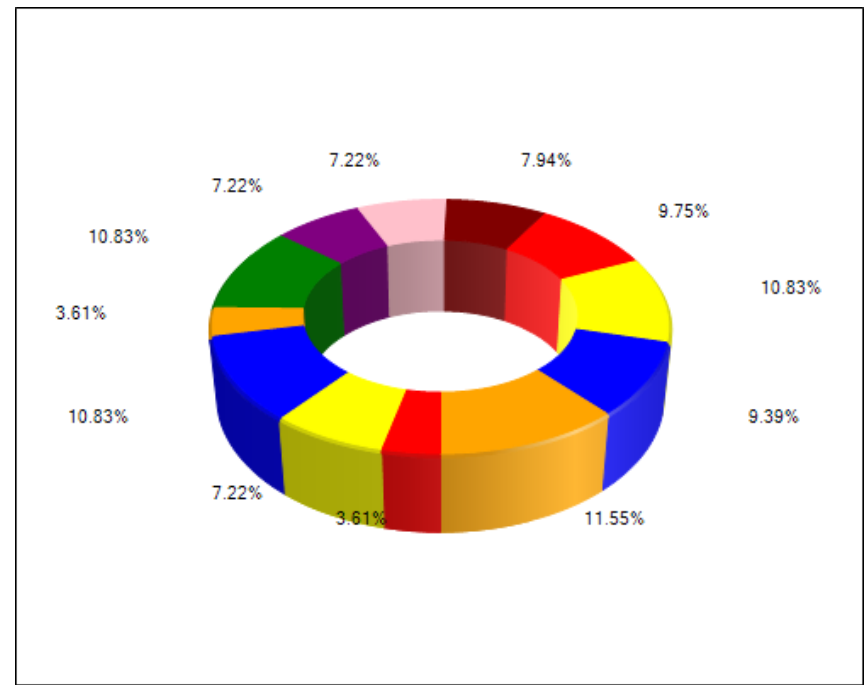


What does it do? (1)

Many data analysis tools
convert this ...

... into this ...

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What does it do? (3)

- The Intelligence Cycle
 - Collection
 - Processing
 - Analysis
 - Dissemination
 - Feedback

- Link Explorer aimed at Processing and Analysis

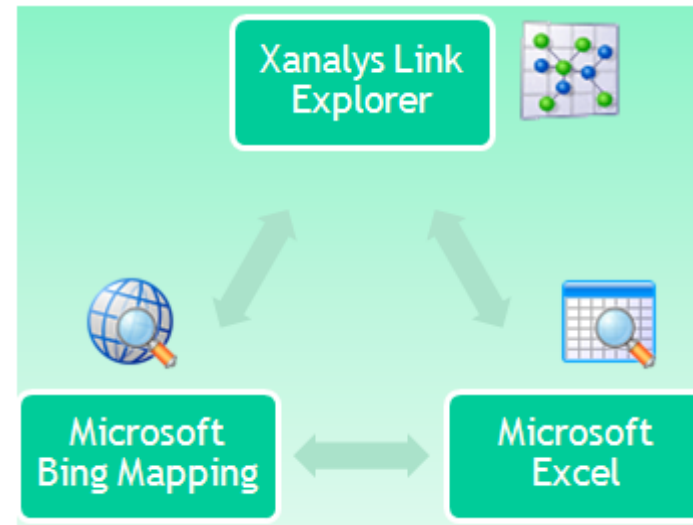
What does it do? (4)

■ Processing and Analysis includes:

- a) model the problem domain
- b) gather and unify data from various sources
- c) query big data source to produce interesting data sets (drill down or explore out)
- d) visualize and analyse the data sets
- e) if understanding \neq good enough goto c:
- f) publish analysis results

What does it do (5)

- Integration with other desktop tools



- Integration with analysis systems and workflow

Key Features?

- Domain specific model builder
- Semantics and style rules
- ETL (extract-transform-load) tool to gather data
- Visual query builder
- Multiple visualizations for links, temporal, spatial
- Various network analysis features
- Integration with Excel, Bing, ESRI (GIS)
- Interfaces for bespoke workflow integration
- Free reader for publishing results

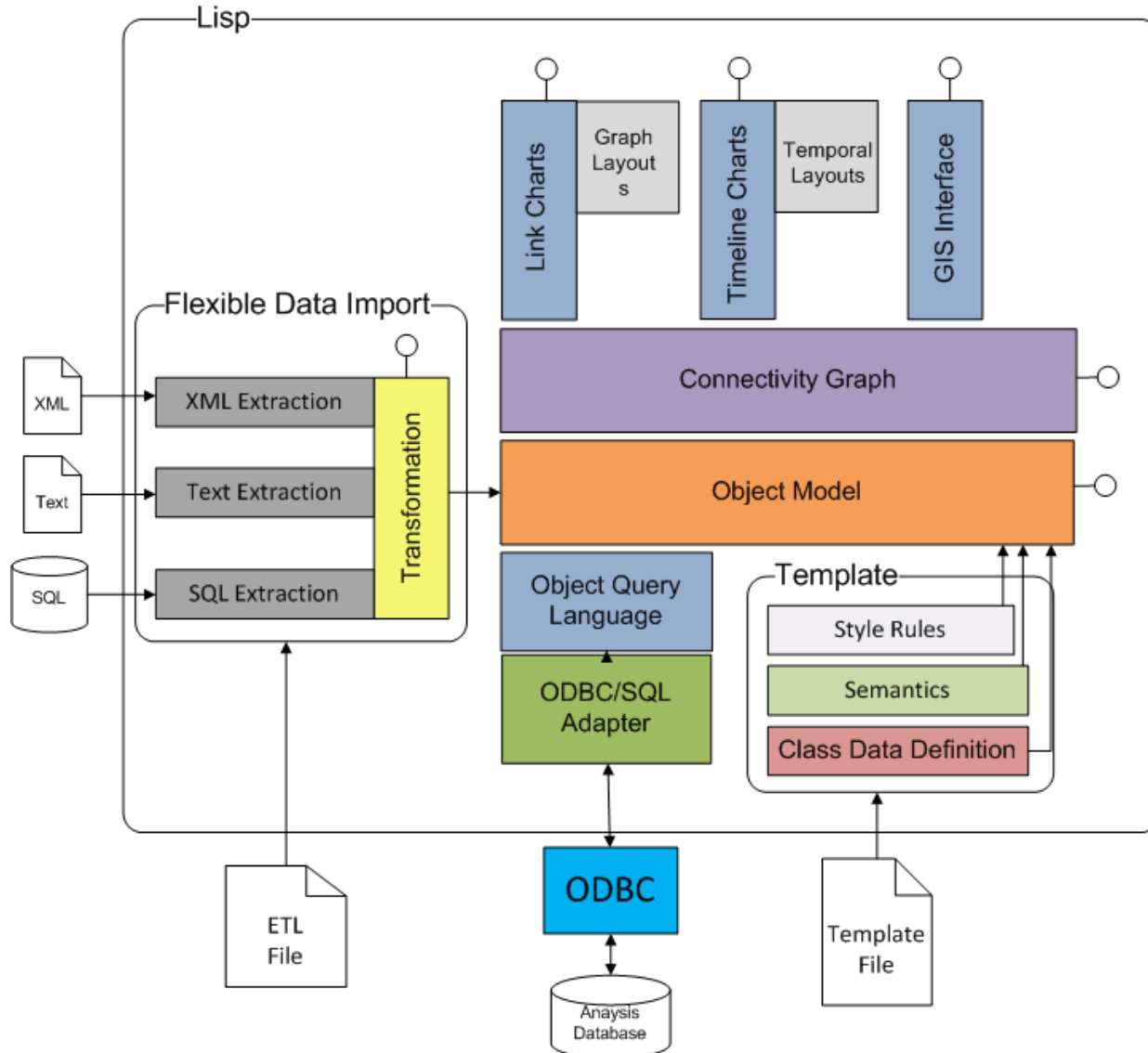
Time for a demonstration...

Where is it used ?

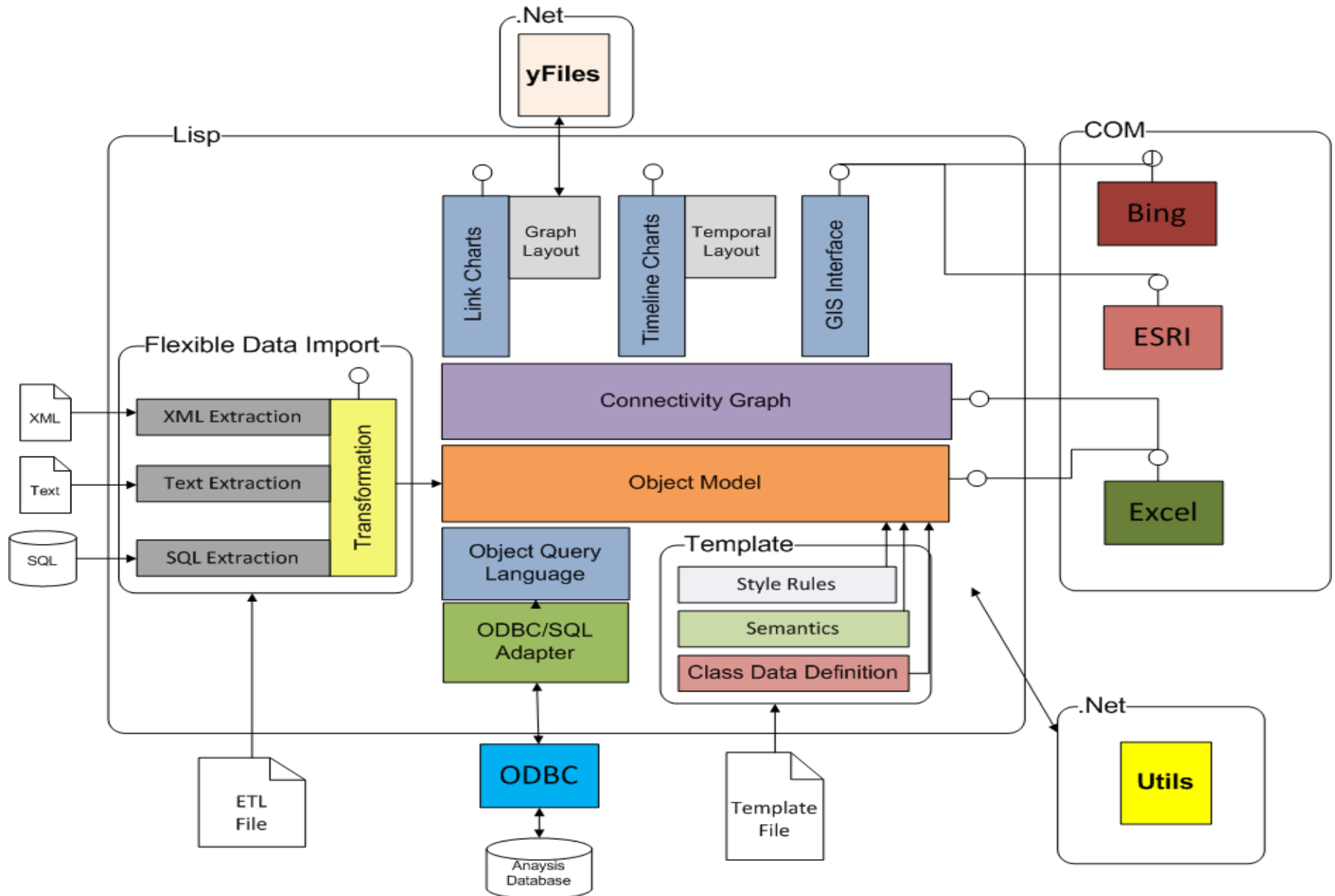
- Intelligence-Led Policing
- Triage Analysis of Fraud Incidents
- Prisons Intelligence Analysis
- Professional Standards Auditing and Investigation
- Freedom of Information Enquiries and Reporting
- Tactical Military Intelligence Analysis
- Supply Chain Analysis
- Business Intelligence
- Forensic Accounting
- Social Network Analysis

**Back to software
...how is it built?**

How is it built? (1)



How is it built? (2)



How is it built? (3)

■ Key technologies

- LispWorks for Windows
- LWW CAPI - User Interface
- LWW ODBC - ETL and Analysis Database
- LWW COM -
 - MS Office integration,
 - GIS integration (ESRI ArcView)
 - Bespoke system/workflow integrations
- RDNZL - access to useful .Net libraries
- yFiles - graph library - www.yworks.com
- LispWorks FLI - access to Windows API

Using Lisp for Windows Development

Using Lisp (1)

■ Lisper

- Lisp lets you focus on the problem not the language.
- Lisp lets you build a language for the problem.

■ Libraries let you focus on your problem

- Where are the libraries?
- How are they licensed?

Using Lisp (2)

- Libraries let you focus on your problems
- Some random “problems” I don’t want to deal with...
 - building logging functionality
 - using encrypted application configuration files
 - designing user authorization/authentication
 - integration with other MS desktop applications

Using Lisp (3)

■ .Net provides

- - The Logging Application Block
- - System.Configuration Namespace
- - ASP.Net Membership Model
- - VSTO for COM Add-ins to MS Office

■ Lisp provides...

- - LWW COM and Automation
- - RDNZL

■ Most problems solved...

Future Directions

The future of Lisp in Link Explorer

- Desktop Link Explorer continues in Lisp (LWW)
 - Currently testing with LWW 6.1 beta
 - Using CAPI “quality mode” drawing enhancements
- Web deployment project “WebLink”
- Design rationale for web/SOA architecture
 - Lisp for “our core problems”
 - XAML - MVVM (model-view-viewmodel) in .Net for UI
 - .Net WCF for web services

WebLink Architecture

