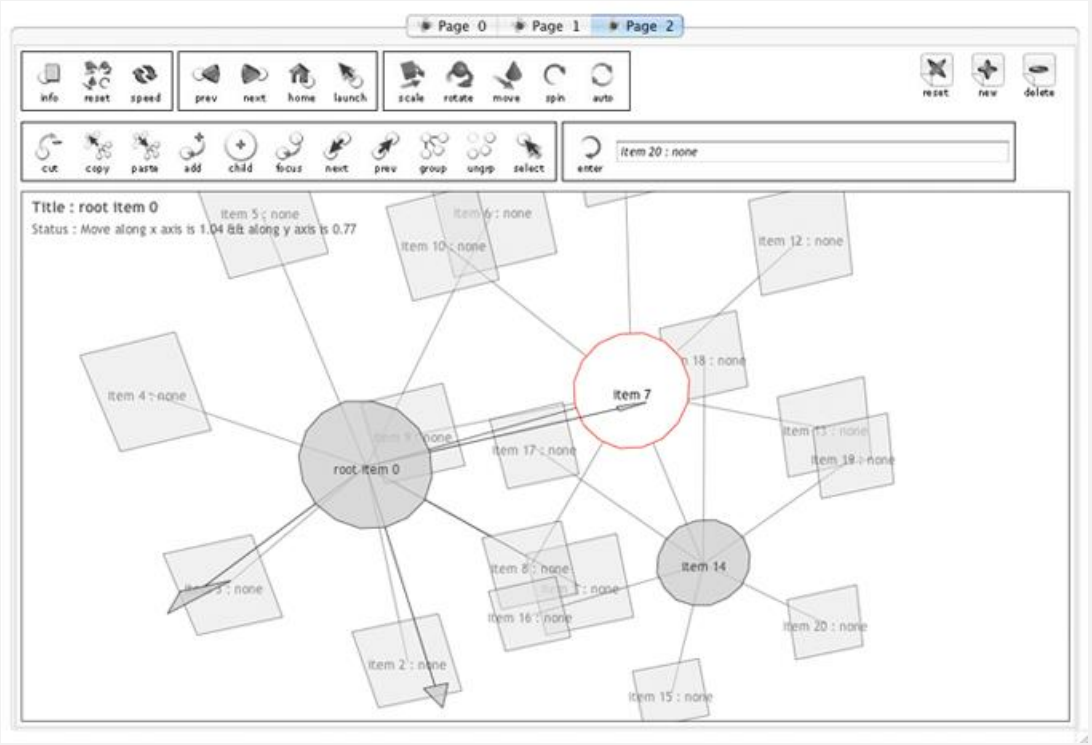
Cluster (2010)
The Visual Data-Warehousing, Mining and Analysis System

Cluster is a real-time, visually rich and intuitive software solution.



Cluster has been developed to:

- Utilise visual intelligence to speed up the exploration of data sets,
- Present a rich visual representation of data,
- Power data-driven applications,
- Enable smarter decision making and,
- Provide intuitive real-time touchscreen interaction.

What is its key advantage?

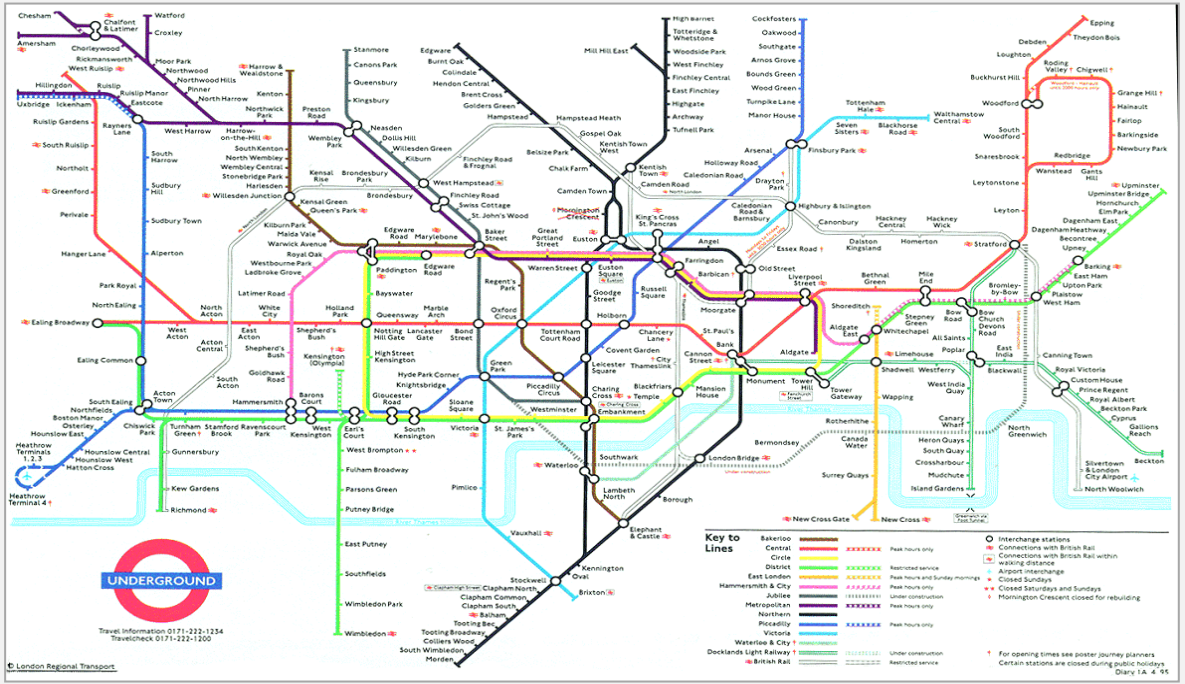
- It combines Data-Warehousing, Data-Mining and Data-Analysis in an interactive, seamless and intuitive manner, such that a user can visually:
  - Search,
  - Explore,
  - Discover,
  - Modify, and
  - Evaluate complex relationships within data.

Where can it be used?

Wherever:

- A better understanding of latent relationships and connections within data is required.
- A rich visual representation of data is useful to search for or retrieve information.
- Choice or decision making needs to be smarter, and more quickly and accurately focused.

The London Underground is an example of interconnected complex relationships that could be easily “clustered”.



Cluster has 3 integrated interactive key technical characteristics:

1. **Data-Warehousing**: Extract multi-table data in a single pass and store it as transactional data specifically structured for visual query and analysis.

2. **Data-Mining**: Sort through such warehoused data picking out relevant information and create, and display, new relationships.

3. **Data-Analysis**: Provide better understanding and decision making by transforming, extracting and then displaying data-mined information using a real-time, time-based, visually rich and intuitive user interface.

Why Data-Warehousing?

- So that a user can perform complex queries and analysis, such as data mining, on information without slowing down operational systems.
- To achieve this, Cluster can extract multi-table data in a single pass and store it as transactional data specifically structured for visual query and analysis

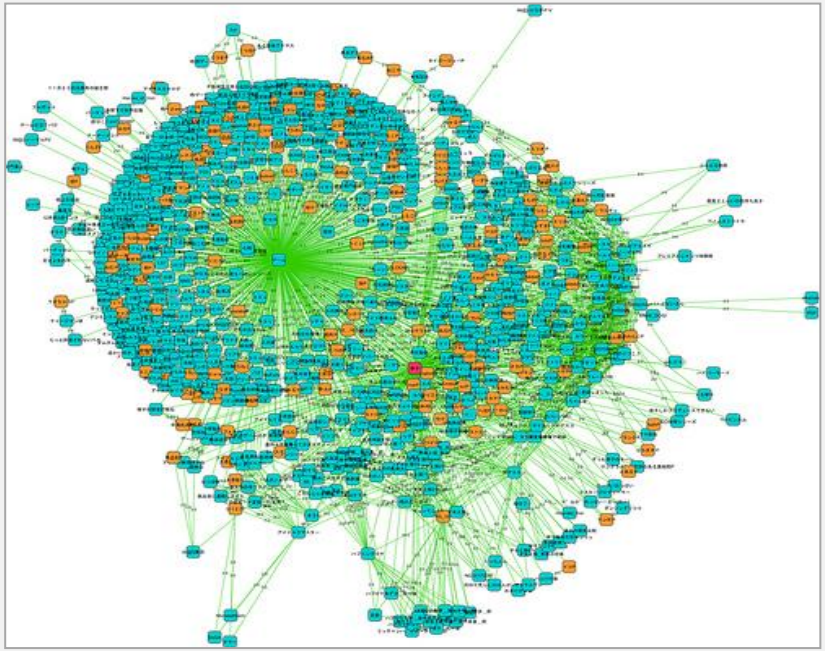
Why Data-Mining?

To create and explore relationships within legacy information?

- The Cluster database enables a new and powerful visual experience of data, one that enable users to search for and discover fresh insights, and hitherto unappreciated information, in existing data-sets.

- The resulting graphical Cluster experience re-invents the visual data-mining paradigm.

Cluster can be used to visualise complex, multi-dimensional inter-associated, relationships and structures.



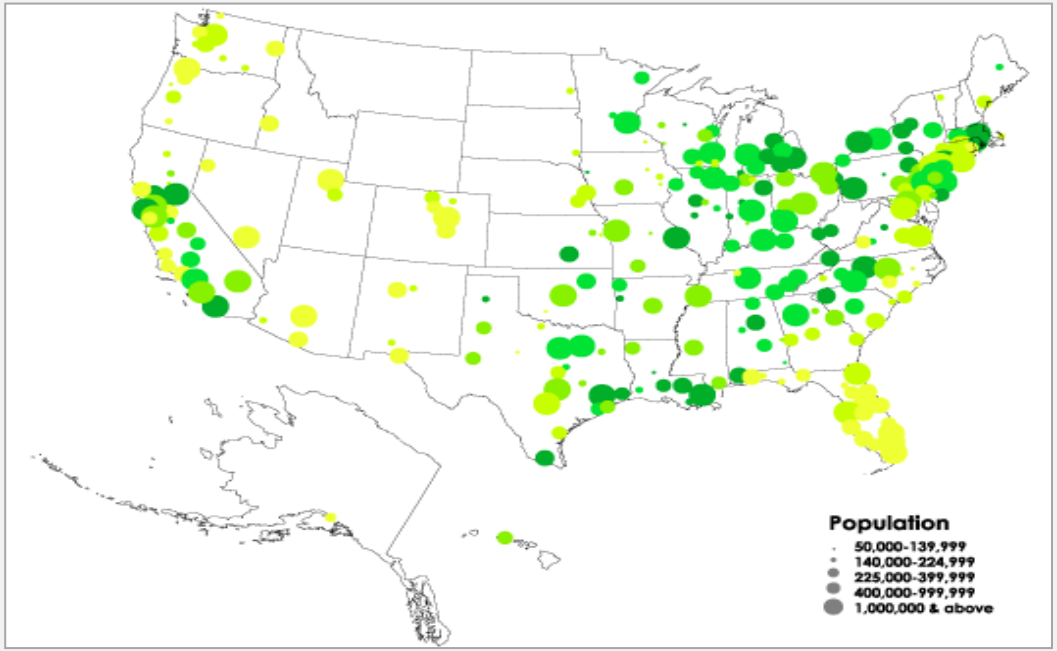
What other advantages are there?

- Each atomic unit of information or node can also be an “intelligent” object, possessing one or more Agents (a software object that can manipulate or act on its behalf).
- It can simultaneously mimic Relational, Associative, Network and Hierarchical data models.
- Provide simultaneously for both multiple parents AND multiple child relationships.
- It can also be used to design Fuzzy Logic and Neural networks.

Why Data-Analysis?

- It can seamlessly combine Data-Warehousing, Data-Mining and Data-Analysis such that a non-technical person or an expert can discover and explore, hidden or unforeseen relationships within information.

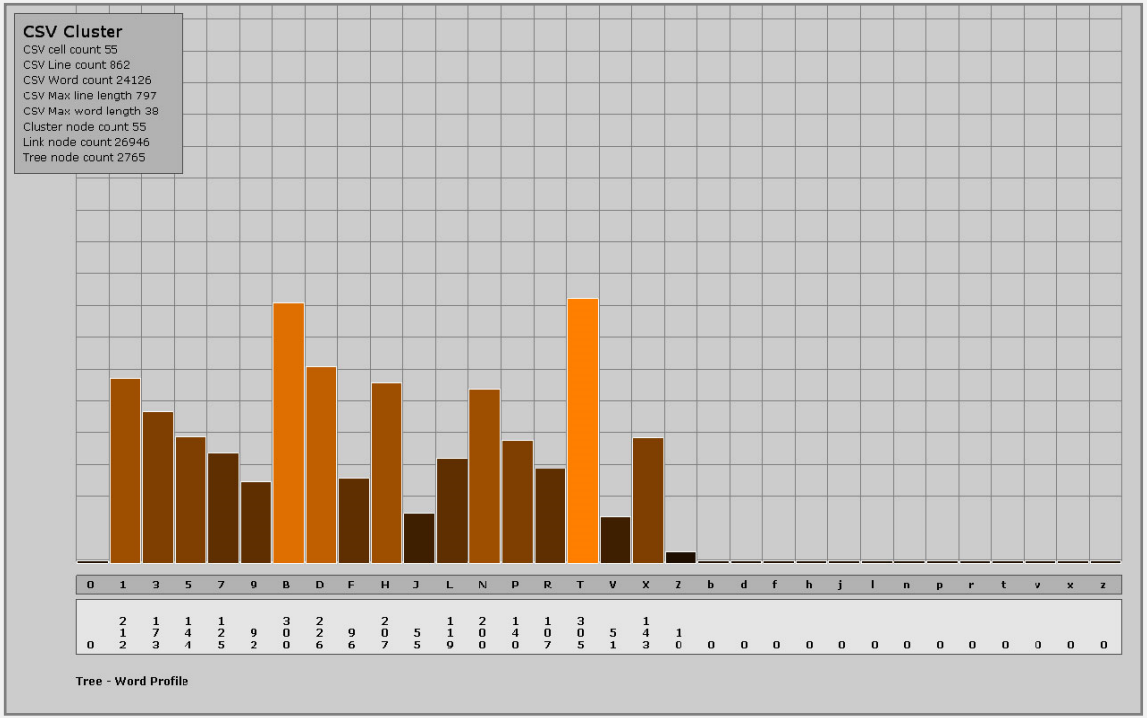
An example of Cluster based visual data-analysis showing ethnic USA population distribution.



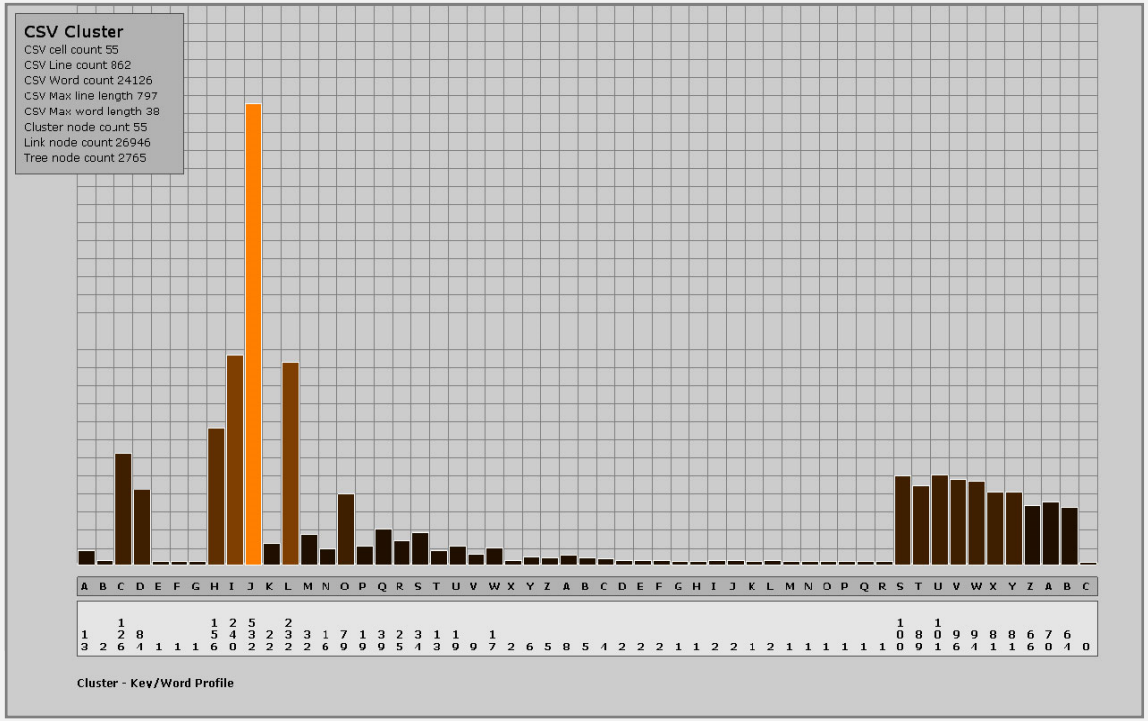
The Cluster toolkit provides:

- Various software tools that allow developers to control the Cluster process.
- These tools include:
  - Alphanumeric distribution profiling,
  - Key (entity, attribute and value) distribution profiling and
  - Multi-tier filtering, and...

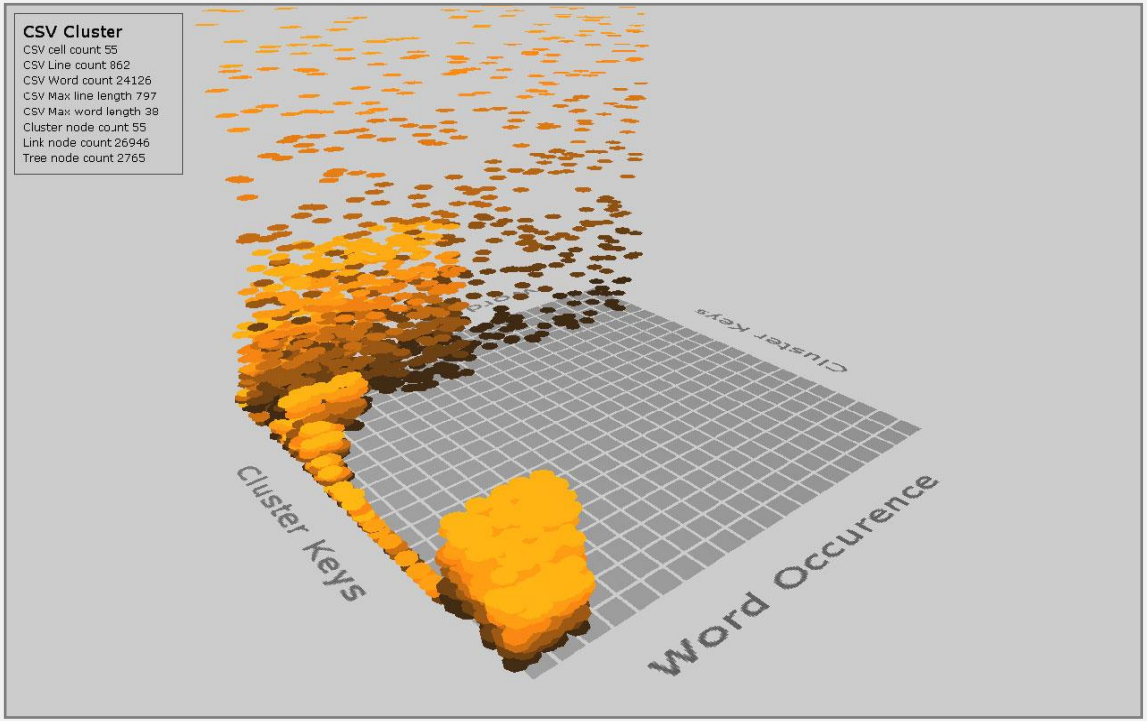
Hierarchical Cluster profiling,….



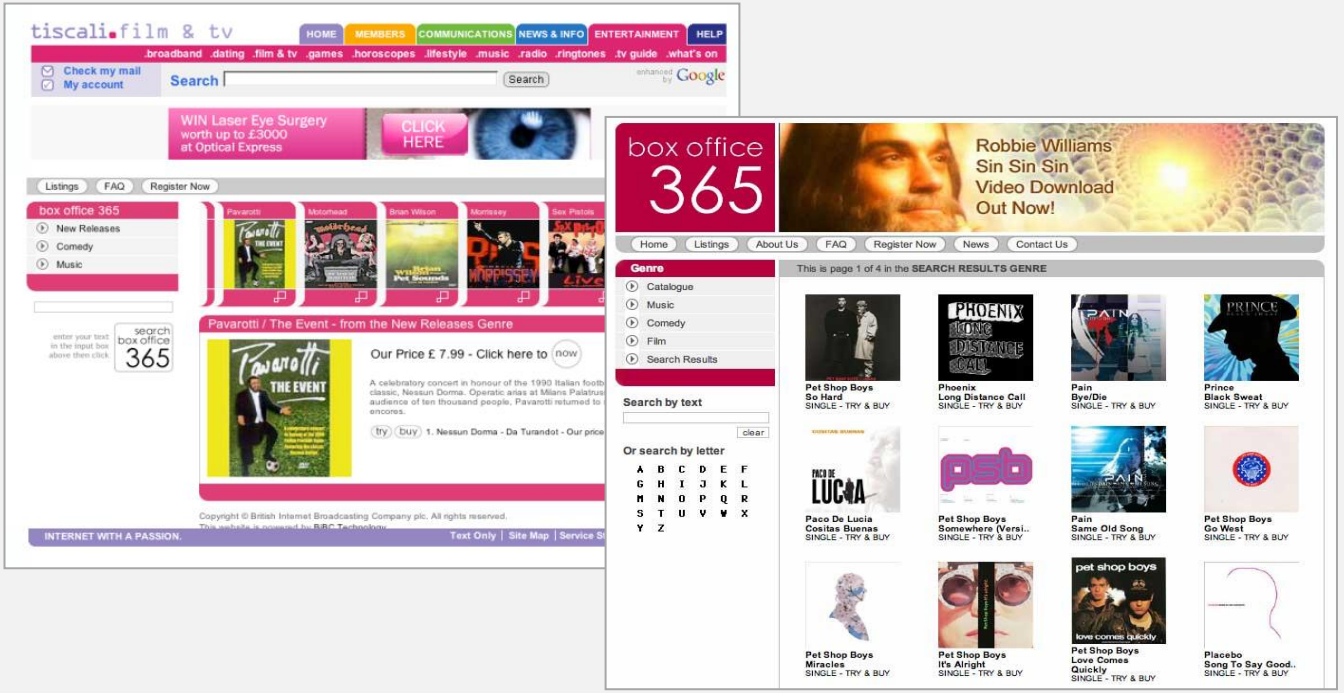
Hierarchical key word Cluster profiling,….



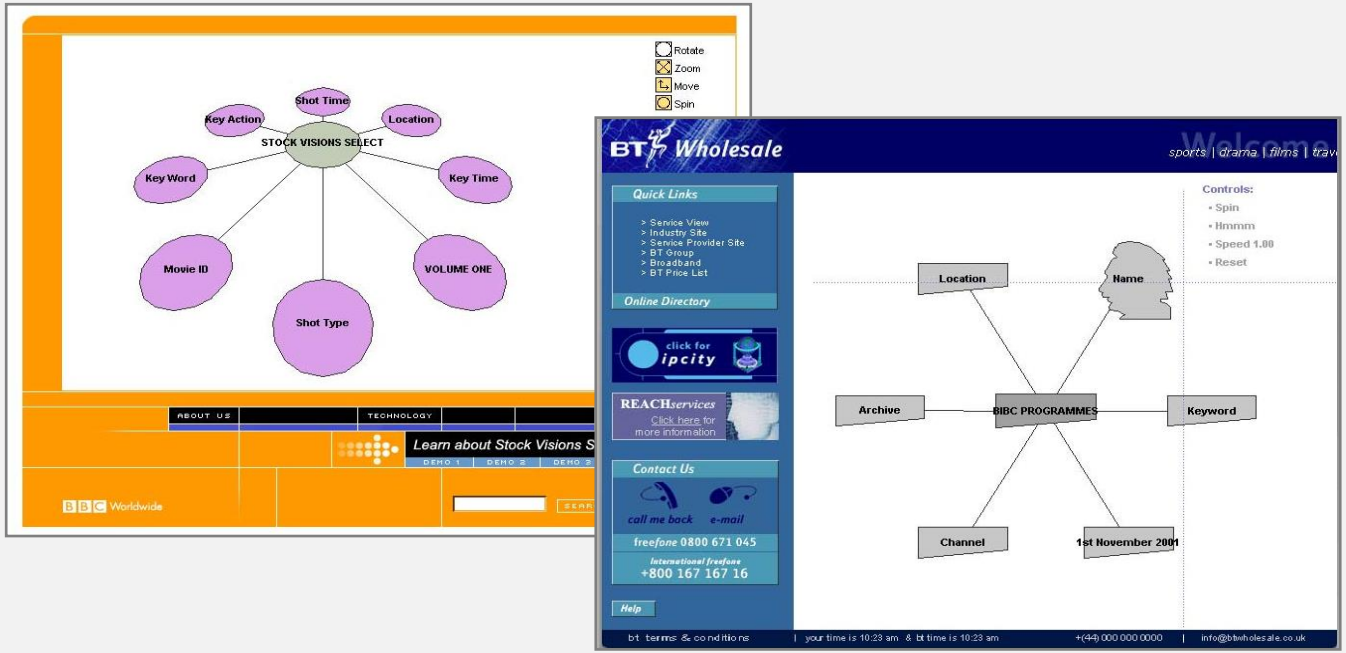
... and Cluster keys & word occurrence profiling.



Cluster has been used to power web-based DHTML applications for many Clients, including tiscali and the box office 365….

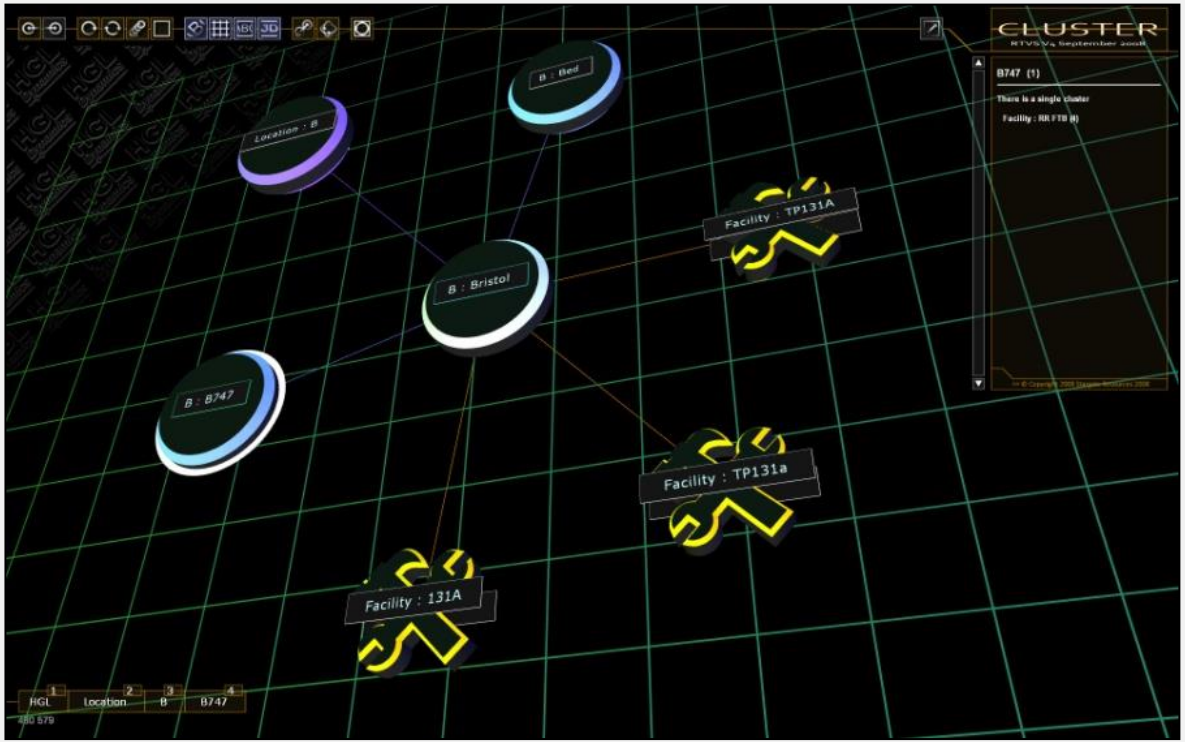


It has also been used to power web-based Java applications for clients such as the BBC, BT, and….

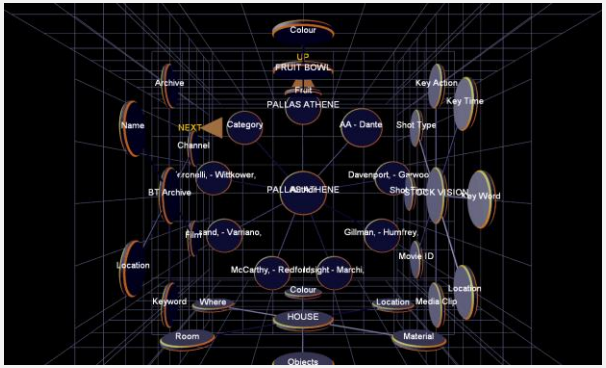


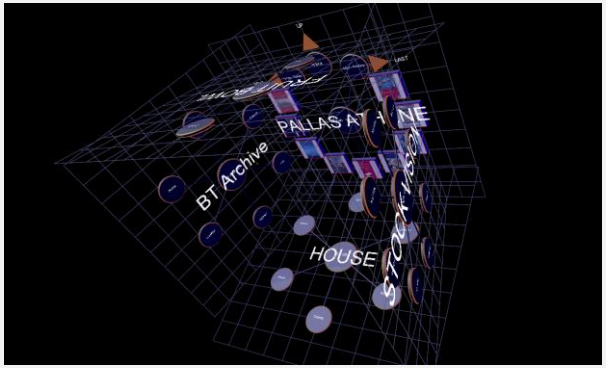
… the Almanack of World Football, & the West Bromwich Football Archive.

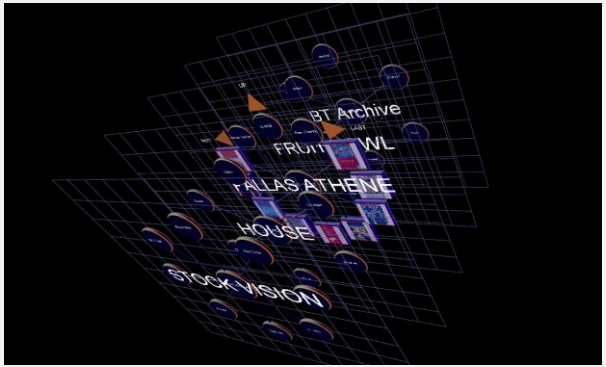
As a PC 3D visual data search explorer engine for Rolls Royce.

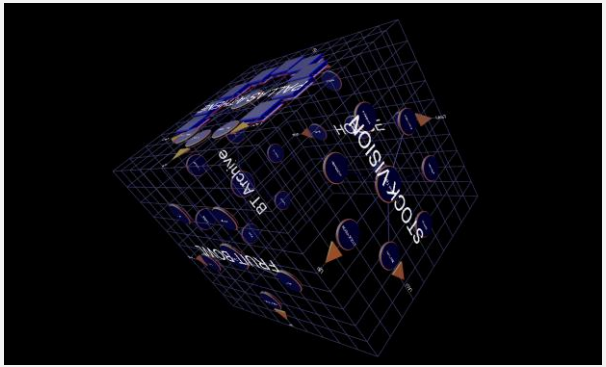


As a PC 3D visual data search explorer engine for Pallas Athene.

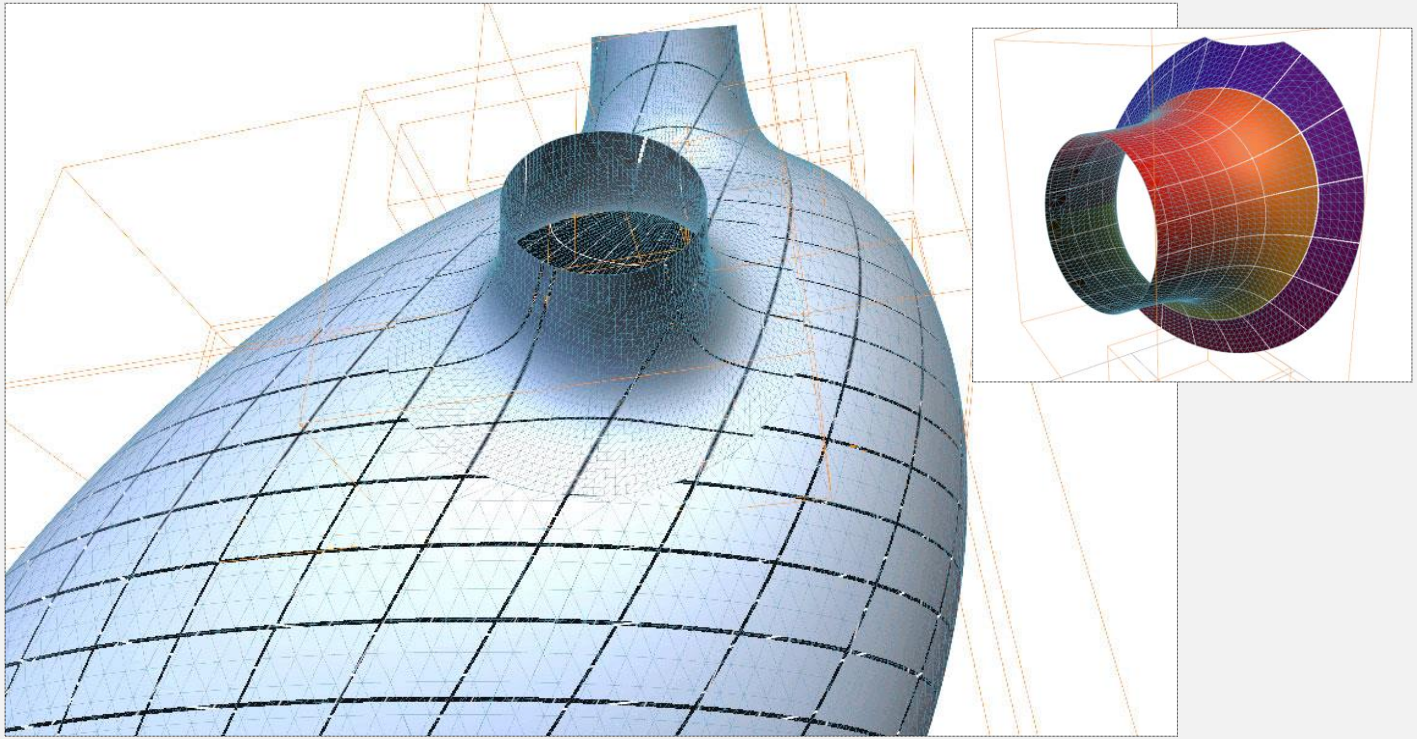








As a PC 3D spatial analysis architectural engine for Zaha Hadid.



It has been used to model data driven interactive set-top clients....

It as been used to model 3D effects...

Cluster

The Visual Data-Warehousing, Mining and Analysis System

End