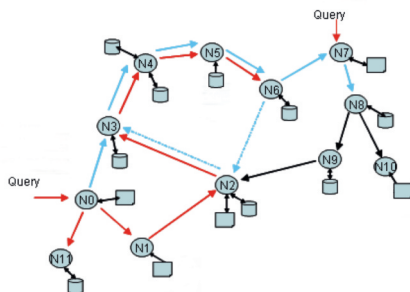# Gaian

A dynamic distributed federated database

Store locally, query anywhere

Federating and aggregating information distributed across an organisation is a major operational challenge. Doing so efficiently, transparently and with minimal management overhead has remained an unachieved goal. Gaian removes that limitation.

Originating from a fundamental research programme but now available as commercial offering, Gaian establishes the concept of a **Dynamic Distributed Federated Database** (DDFD). This is a selforganizing network of federation nodes that combines ideas from data federation, distributed databases, network topology and the semantics of data. It is an information virtualisation middleware component that is ideally suited to the adhoc queries and processing operations that are needed to maximize business intelligence.

Gaian uses a **Store Locally Query Anywhere** (SLQA) paradigm giving global access to data from any participating node.


Moreover, Gaian makes it possible for a set of heterogeneous data sources to be accessed as a single federated database (including sources as diverse as databases, document repositories, spreadsheets and text files). Applications can transparently perform database queries across a multiplicity of data sources in a single operation. Access to data

and the flow of data can both be controlled using formal policy-based mechanisms that provide fine-grained management of security constraints.

Efficiency of operation is a key consideration. Queries are propagated between participating nodes using techniques that autonomically adapt to changing system and network conditions, and ensure optimal performance with minimal overhead.

Gaian does not replace existing systems, instead it federates them in a transparent, scalable and secure manner. It introduces a new agile model of information integration that revolutionizes the way that organizations can access and exploit the information held within their IT systems.
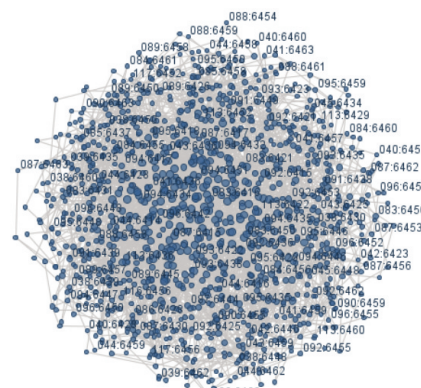
A 1250 node Gaian Database formed using its self-organizing capabilities

It's small footprint and efficiency make it ideal for use everywhere from the enterprise to mobile and other constrained environments.

Gaian was originally developed under the International Technology Alliance (ITA) in Network and Information Science (www.usukita.org).

Download:
http://ibm.co/gaiandatabase

Highlights

1 Dynamic distributed federation, that is self-organizing and scalable to thousands of nodes

2 A "store locally query anywhere" model that provides global access to local data on any participating node

3 Database queries can combine data from a multiplicity of sources including relational databases, spreadsheets and flat files

4 Policy-based access control mechanisms provide flexible data protection

Contact

Graham Bent / Patrick Dantressangle
Emerging Technology Services
MP137
Hursley Park
Winchester
Hampshire
SO21 2JN, UK
Tel GB: +44 (0) 1962 816192
Tel PD: +44 (0) 1962 815269
Email: grahambent@uk.ibm.com
Email: dantress@uk.ibm.com