

Information Technology and Software

System for Performing Single Query Searches of Heterogeneous and Dispersed Database

[Workflow management system](#)

The NASA Technology Transfer System (NTTS) is a NASA created technology transfer workflow management system, a schema-less database management system used to track the lifecycle of NASA inventions. It is built on XDB, a NASA home-grown XML database. NTTS can host a cluster of distributed XDB nodes, referred to as Grid XML data-storage framework (GDx). NTTS stores data associated with different modules like Invention Disclosures, Patent Applications, Contract Grants, and Partnership Agreements, etc. Different communities at NASA use a module or a group of modules to manage their domain workflow. With volumes of heterogeneous data stored in different modules on a schema-less storage framework, the challenge is to provide a flexible query Application Programming Interface (API) to perform traditional relational-model queries. This challenge is addressed by an NTTS Search API, the product of this Invention.

BENEFITS

- Ability to provide search criteria on content within a context and scope
- Ability to dynamically interpret the operations based on data type
- Ability to provide conditional operators on combination of logical operations on datasets ability
- Perform set-operations on datasets in combination with logical operations
- Output can be retrieved in XML or Comma Separated Value (CSV) format
- Scalable, high-throughput open framework

technology solution

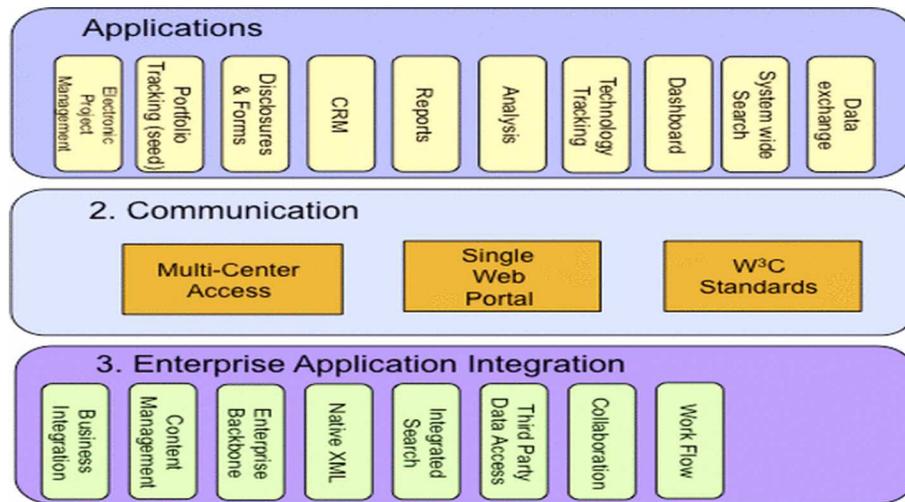


NASA Technology Transfer Program

Bringing NASA Technology Down to Earth

THE TECHNOLOGY

NTTS Search API analyzes query-relevant data in real-time to structure implicit relationships within a document. In this process, a record is characterized by a group of relationship-objects and associated data-objects within a document. Using these objects from multiple documents as parameters for query-criteria function, the Search API provides relational model query approaches on heterogeneous schema-less distributed data from multiple modules. Also, using the API, a user can formulate complex queries using relation-model operations like primary key - foreign key, inner joins, outer joins, unions, intersections, etc. in real-time. This technology leverages the power of GDX that enables an unlimited number of desktops and distributed information sources to be linked seamlessly and efficiently into an information grid. Using XML, Web, and Excel spreadsheets as the import/export format, GDX has XML Hadoop-like type file management available over the net to tie these to the vertical applications.



NTTS Architecture

APPLICATIONS

The technology has several potential applications:

- Information Technology Industry
- Telecommunications
- Health Care Information Systems
- Scientific and Engineering industry
- Database Management
- E-Commerce

PUBLICATIONS

Patent Pending

National Aeronautics and Space Administration

Technology Partnerships Office

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