# EIQ SERVER® SUMMARY

REVISION 2.2

## INTRODUCTION

EIQ Server® is a near real-time middleware product to INDEX, query, retrieve, integrate and share data and information from almost any data source and multiple data sources simultaneously, regardless of data source type, platform or location. EIQ Servers reside between applications and data sources. In many cases, neither applications nor data sources need to be aware that an EIQ Server system is being used. A system consisting of multiple EIQ Servers and associated indexes can provide extensive universal intra and inter-organization data and information integration and sharing capabilities. Near-future development of multiple metadata dictionaries, security clearances and Role Based Access Controls (RBACs) will be accommodated within the EIQ Server middleware system layer. One-to-common and common-to-one maps for metadata, security clearances and RBACs enable universal many-to-many integration and sharing of data and information among organizations, users, applications, and data sources.

## DATA SOURCES AND QUERY SUPPORT

EIQ Server can index and query structured data sources (databases and files), unstructured data sources (Web documents, word processing, Adobe PDF, spreadsheets, e-mail and XML), and semi-structured data sources (spreadsheets and XML). Both structured database-type queries, including internal and external SQL JOINs and range queries, and unstructured text search, can be executed against almost ALL data sources, and can be combined on the same data sources. Structured database-type queries will work with unstructured data sources using 3rd party entity extraction software.

## STANDARD DRIVER ACCESS, WEB SERVICES AND SQL

An EIQ Server system is accessed as though a single data source through standard database-type drivers, such as ODBC, JDBC and OLE-DB/ADO, and Web Services. Queries are submitted in Standard Query Language (SQL). SQL extended text search commands (T-SQL), such as CONTAINS and FREETEXT, are used for text searching.

## APPLICATION DEVELOPMENT MADE SIMPLE

EIQ Server uses virtual data schemas called Superschema® that remove any requirement for an application developer to know anything about underlying data source schemas. In their simplest form, Superschema have no structure, i.e., flat. In more specialized forms, Superschema can have application developer-defined virtual relational structures to support more complex data integration and sharing requirements, such as Communities of Interest (COIs).

## DEPLOYMENT AND SCALABILITY

In general, it is usually preferred that indexing and query processing occurs close to data source systems, either in front of or behind firewalls. EIQ Server systems scale through parallel distributed processing. Individual EIQ Servers can index and process queries against multiple data sources of different types, on different platforms and in different locations. EIQ Servers communicate with other EIQ Servers as though they are other data sources, allowing queries to cascade through a system to be edge-processed where data source indexes are encountered. Web Services change this process to a greater or lesser

extent, depending on the EIQ Server system configuration and can work in conjunction with EIQ Server to EIQ Server communication.

## IT'S ALL ABOUT CONTROL!

Disparate data and information integration and sharing is all about CONTROL over access, data quality, indexing, query processing and result-set data:

- The **DATA WAREHOUSE APPROACH** assumes control by moving data to a "one size fits all" centralized repository. The data source owner loses control over their data, causing accountability, security and privacy issues

- The **FEDERATED DATABASE APPROACH** has been described as virtual data warehousing (a misnomer), where processes similar to data warehousing are used to create adapters, which assume some control over the query process. However, data quality, index types and query processing are mainly out of the control of federated database systems and under the control of data source systems. Adapters are usually custom-made for each data source and queries tend to be "hard-wired". Among the problems with federated database systems are that they are expensive and time-consuming to set up; up to 50% of data is not found due to data quality, index and query processing problems; and data source systems are overloaded with external queries. Independent access controls can be put in place.

- The **EIQ SERVER APPROACH** assumes control by:
  - Leaving data in the data sources
  - Building and maintaining indexes based on underlying source data schemas OR on result-sets from data source systems
  - Allowing multiple index types including cleansed, SOUNDEX, metaphone, stemming, synonyms, fuzzy, similarity and context indexes - total freedom in applying index algorithms and rules for query processing and results retrieval
  - Imposing a rigorous role-based access control system from user-level to data source field or column-level (not just row-level)
  - Processing all queries 100% in the EIQ Server indexes - no interim tables and no interaction with data sources
  - Only retrieving final result-set data from data sources
  - Enabling highly flexible data models to be used for query generation and results data integration

The data warehouse and federated database approaches each have their role in an organization, but when data cannot be moved, data source systems are unable to support queries, implementation time (and/or cost) is critical, and/or the disparate nature of the data precludes a "one size fits all" approach, EIQ Server fulfills a unique role.

EIQ Server combines the positives of the data warehouse and federated database approaches and thereby overcomes the negatives of each approach. See Table 1 over the page that compares EIQ Server, data warehouses and federated databases.

| Number | Feature | EIQ Products | Data Warehouses | Federated Databases |
|---|---|---|---|---|
| 1 | Clean data | + | + | - |
| 2 | Multiple indexes and types | + | + | - |
| 3 | Unlimited query options and performance | + | + | - |
| 4 | No index or query load on data sources | + | + | - |
| 5 | Archive | (+) | + | - |
| 6 | Data source owners not aware of queries | + | + | - |
| 7 | Data remains at source | + | - | + |
| 8 | No major data schema transformation | + | - | + |
| 9 | Near real-time updates | + | - | + |
| 10 | Drill-down | + | (-) | + |

**Table 1: Comparison between EIQ Products, data warehouses and federated databases**

Additional information can be found at web site: www.whamtech.com.

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