



**TEKSOUTH**  
CORPORATION

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# Teksouth's EntelliCache Technical White Paper

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*EntelliCache reduces query response times and simplifies the data structures that users will query.*

*Let the application server make intelligent decisions about which data sources can provide the quickest answers.*

## *Teksouth's EntelliCache*

### **What is EntelliCache?**

EntelliCache is a suite of middle-ware software components that are exposed as a data source to industry leading Business Intelligence tools such as Cognos, Business Objects and Microsoft Reporting Services. Utilizing industry standard metadata formats, data caching techniques and query optimization rules, EntelliCache can dramatically improve query response times across large database systems. In turn, this lowers database load and concurrency, improves user acceptance and efficiency, and transforms Business Intelligence into what it was intended to be.

### **Why EntelliCache?**

Although high performance is a primary goal, other factors make EntelliCache a smart choice for any enterprise. Imagine this scenario: you have hundreds of users running ad-hoc queries against your large database. Over time, query performance begins to degrade because of increased database size, poor indexing due to ETL conflicts, or simple transaction volumes that are competing with queries. Your IT staff wants to pre-aggregate data into data marts to alleviate this problem, but this introduces other problems. First, users now need to know that the data marts are available, what data they contain, and when to run a query against a mart and when not to. Second, data marts are generally high maintenance when it comes to loading, data latency, and security.

EntelliCache is designed specifically to address these kinds of issues. Users will only need to see the logical view of your data that you have presented to them in your BI tool. The EntelliCache will make the intelligent decisions to redirect queries to a data cache for optimal performance, and will manage that data cache intelligently. All this is transparent to the end user and the BI application.

### **Proven Performance**

Currently, EntelliCache is in place within the Department of Defense, servicing more than 6 million ad-hoc queries per year in a large scale financial data warehouse implementation. Performance in 2005 is impressive: 13,000 users worldwide (up 33% from '04); 500k queries a month (up 83% from '04); average response time of 24 seconds (down 70% from '03), with 80% of ad hoc queries returned in 10 seconds or less.



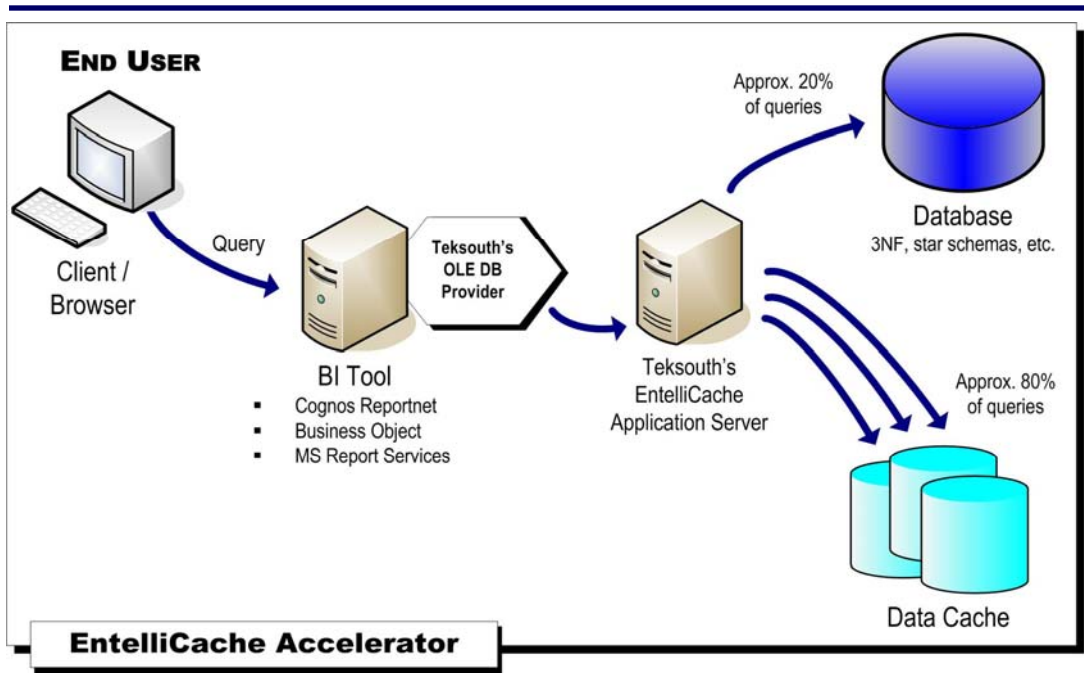
## Architecture

The EntelliCache consists of 3 main components—Data Cache Manager, Application Server Software and an OLE DB Provider..

*Data Cache Manager describes and intelligently manages the data cache.*

### Data Cache Manager

Using industry standard interfaces, the data cache manager defines the data cache and can populate the cache from a source system based on a variety of rules and metadata settings.



*The Application Server optimizes system performance, utilizing query processing rules and a metadata defined data cache.*

### Application Server Software

The application server software uses query optimization rules to take advantage of data caching and other specific business rules that are defined via metadata. This application server appears as a data source to the BI Tool so that it can “intercept” every query submitted by the BI tool, evaluate it based on metadata defined rules and restructure the query to use any data cache that may be available. The application server can be accessed via HTTP, HTTPS, or TCP/IP protocols.



*Implementation will not affect your database, and can greatly simplify the logical data model presented to the users.*

*The scale out architecture makes expansion simple without adversely affecting performance.*

### **OLE DB Provider**

This industry standard provider connects the BI tool to the Application Server.

### **Implementation**

Generally, EntelliCache implementation can be completed in less than two weeks. This may vary, depending on the complexity of the environment and the reporting requirements. If query demographics and report types are known, implementation could be performed in one to two weeks. For a newer implementation where query and report requirements are unknown, the system can be installed and can begin to collect statistics about the queries and reports being executed. This will provide the necessary information to initially define a data cache environment so that significant performance improvements can begin. Remember, no changes will be necessary to an existing database structure and users will not need any knowledge of the data cache. Over time, as query statistics are collected by the system, additional improvements can be made quickly and seamlessly to the end user.

### **System Specifications**

Teksouth's EntelliCache runs on a Windows platform (2000 and 2003). It can access most of the industry leading database systems such as SQL Server, Oracle, Teradata and DB2. The data cache can reside in an existing database environment (transactional or data warehouse) or it can reside on separate servers. As your needs increase, the scale out architecture makes it easy to add additional rack grade hardware to the environment.