

# Advantage™ Database Server CA-Clipper RDDs

## ADVANTAGES FOR YOUR CA-CLIPPER APPLICATIONS

- Eliminates index corruption
- Increases multi-user performance
- Reduces network traffic
- Maintains 100% source code compatibility
- Provides advanced features such as transaction processing and security
- Drastically reduces support costs
- Offers lower cost of ownership
- Drastically speeds up creating and rebuilding indexes

## FLEXIBLE ARCHITECTURE THAT GROWS WITH YOUR DEVELOPMENT NEEDS

- Share data with Windows or Linux applications using the same client/server architecture
- Internet-enable your application without rewriting a single line of code using the Advantage Internet Server functionality
- Supports Microsoft Windows, Novell NetWare, and Linux server operating systems

The Advantage CA-Clipper RDDs provide a seamless interface to the Advantage Database Server. With a simple application re-link, the Advantage solution brings client/server architecture to CA-Clipper applications. Advanced Advantage commands, functions, and optimized filters are provided to go beyond the CA-Clipper-defined language and allow developers to fine tune their application to maximize the benefits of Advantage and client/server technology.

## CLIENT/SERVER TECHNOLOGY BENEFITS

The Advantage Database Server solution for CA-Clipper provides increased multi-user performance, index integrity, and database security while making it easy to integrate Advantage into existing applications. Performance is achieved mainly by reducing network traffic, intelligently maintaining tables and index files, and intelligent lock management. Advantage also supports the following client/server features:

### Transaction processing

The Advantage Transaction Processing System allows an application to perform multiple insert, update and delete operations to any number of tables as one logical business transaction. Either all the insert, update and delete operations will succeed or none of the operations will occur.

### Database security

When using Advantage Database Server, the system administrator can remove file access rights to the directories where the data files are located. With access rights to the data removed, all non-Advantage applications can no longer reach the data to make unauthorized updates, inserts, or deletes.

Only your Advantage applications that are accessing data via the Advantage Database Server will have access to the data files.

With Advantage database security, you have full control of how your database is accessed and updated. For enhanced security, Advantage Database Server supports data encryption. Selected fields, records or even entire tables can be encrypted. Sensitive data is protected over the network wire as well as on the file server.

### Index integrity

Each update to an individual record involves updates to the table as well as every index that has an index key associated with the updated fields. With non-Advantage applications, these updates occur on the client PC. If the client PC or network goes down at any time during the transfer of data to or from the file server or during the updates, the result will be partially updated indexes and a corrupt database.

The Advantage Database Server eliminates index corruption by updating all table and index data on the file server. Advantage Database Server will not begin updating any data until all information required to update the table and indexes has been received from the Advantage client application. If the workstation or network goes down before all update information has been received by the Advantage Database Server, no updates will occur. If the workstation or client goes down while the database is being updated on the server by the Advantage Database Server, all updates will still occur to completion. Workstation or network instability will not cause index or table corruption with the Advantage Database Server.

#### Advantage optimized filters

Advantage Optimized Filters (AOFs) provide high performance filters for state of the art query optimization for CA-Clipper applications. AOFs speed record filtering and query processing by eliminating the need to read each table record to determine if it should belong in the query result set. Query speed improvements of up to 1000x can be realized by drastically reducing the amount of data that must be retrieved from the disk.

CA-Clipper's SET FILTER command and other selected CA-Clipper commands that include a FOR clause can be optimized. AOFs also have several low-level optimization functions exposed so CA-Clipper developers have complete flexibility and control over the filter optimization process.

#### INCLUDED WITH THE ADVANTAGE CA-CLIPPER RDDS

The Advantage CA-Clipper RDDS provide the following binaries for easy integration with CA-Clipper applications:

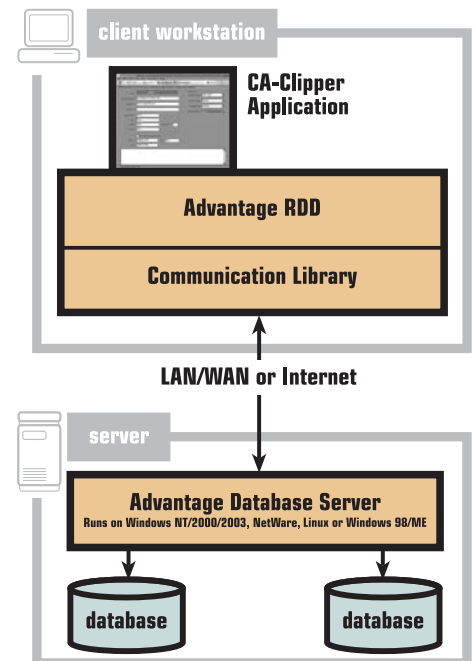
#### Advantage RDDS

Advantage RDDS are CA-Clipper Replaceable Database Drivers which work with CA-Clipper applications to store and retrieve data. Advantage RDDS are used to allow CA-Clipper applications to perform all database operations on the server via the Advantage Database Server. Advantage's client/server architecture provides performance, database stability and database security functionality for your CA-Clipper applications.

To integrate Advantage into CA-Clipper applications, an Advantage RDD library and an Advantage communication library must be linked into the CA-Clipper application for the client to access the server.

#### Communication libraries

Communication libraries are provided to allow communication between CA-Clipper applications and the Advantage Database Server. Separate communication libraries are provided for support of Blinker, CauseWay, ExoSpace, and other linkers. Separate communication libraries allow for IPX protocol communication, IP protocol communication, and for compressed network communication to the Advantage Database Server.



The Advantage Database Server client/server solution

### Libraries for FiveWin and Clip-4-Win

FiveWin and Clip-4-Win are products that convert CA-Clipper DOS code into 16-bit Windows applications. Advantage works with FiveWin and Clip-4-Win by providing Windows communication layer DLLs to allow FiveWin and Clip-4-Win applications to communicate with the Advantage Database Server and use the Advantage Database Server for all database access and updates.

### FEATURES AND BENEFITS

There are many features and benefits available to CA-Clipper users with Advantage Database Server v8.0 and newer.

#### Benefits to users upgrading from Advantage Database Server v6.x or older:

- Added full text (content) search capability. Full text searches are used to find records containing data that matches search conditions constructed of search words and phrases combined with logical operators AND, OR, and NOT and the proximity operator NEAR. Any character, memo, and BLOB field can be searched. In addition, full text search (content) indexes can be built on specific fields to provide for extremely fast  $O(\log N)$  searches.
- Added data compression functionality for data passed between the client and the server. This reduces network traffic and increases application performance.
- Improved performance when creating indexes. When creating new indexes on a table with many records or when performing a reindex operation on a table with many records, the creation of that index will be much faster in newer versions of Advantage Database Server. On tables with fewer than 100,000 records, the performance improvement may not be significant. Tables with more than 100,000 records can expect up to a 50% performance increase. Tables with multiple millions of records can expect even better performance increases, perhaps as much as 300% faster. Increasing the Advantage Database Server SORT\_BUFFER configuration value can lead to even larger index creation performance increases with very large tables.
- Added ability to configure whether Advantage Database Server for NetWare "user" names are the client computer name or the client's NetWare connection name.
- Added support for dynamic Advantage Optimized Filters (AOFs) when used with the Advantage Database Server. Applications will no longer need to constantly refresh filters in order to see updates made by other users.
- Optimized transaction processing file I/O to increase speed of transactions.
- Optimized AOF usage when very few (if any) records pass the filter condition.
- Improved Advantage Database Server error logging for bad filter expressions. If a filter expression cannot be parsed by the Advantage Database Server Expression Engine, that filter expression text will get logged in the Advantage Database Server error log file, ADS\_ERR.DBF.
- Removed necessity for application developer to manually refresh an AOF after a transaction rollback. Any AOF updates will be automatically rolled back during a transaction rollback.
- Applications now support connecting to the Advantage Database Server via local drive letters when the Advantage Database Server is running on the same machine as the application.
- Clip-4-Win/FiveWin applications support multicast discovery for "finding" the Advantage Database Server. This allows Clip-4-Win/FiveWin applications to connect to the Advantage Database Servers via the IP protocol on a server running NetWare 5 or greater.
- 160-bit encryption support has been added when connecting to the Advantage Internet Server.

## **SPECIFICATIONS**

### **Client operating systems**

- DOS 3.3 or later
- Windows 3.1x
- Microsoft Windows 95/98/ME
- Microsoft Windows NT/2000/XP/Vista/2003

### **Server operating systems**

- Novell NetWare 5.x and greater (IP, IPX)
- Microsoft Windows x86 (IP, IPX)
- Microsoft Windows x86\_64 (IP)
- Linux x86, x86\_64 (IP)

### **Supported file formats**

- FoxPro-compatible (DBF tables, CDX index files, FPT memo files)
- CA-Clipper compatible (DBF tables, NTX index files, DBT memo files)

### **Linkers supported**

- Blinker
- ExoSpace
- CauseWay
- RTLink
- WarpLink

IANYWHERE SOLUTIONS, INC.  
WORLDWIDE HEADQUARTERS  
ONE SYBASE DRIVE  
DUBLIN, CA 94568-7902  
U.S.A.

North America  
Advantageinfo@iAnywhere.com  
1 800 801 2069

Germany  
ADS-team@iAnywhere.com  
+49 (0) 7032 / 798 - 200

United Kingdom  
AdvantageUK@iAnywhere.com  
+44 (0)117 333 9000