

Proprietary Database development experience:

Our developers in Russia have been working for a software company to develop a complex proprietary database (enterprise, mobile and embedded versions) for the last 10 years.

Our developers spend a lot of time making this database making it cross-platform for a wide variety of OS (WIN32, including Windows CE, NetWare, various versions of UNIX, OS9/9000, QNX, VxWorks etc.) that makes use of each system's advantages. The basic version of the developed database has the same interface on all platforms, which allows to easily switch from OS to OS. The database supports multiple hardware platforms: Intel, Sparc, MIPS, Alpha, VAX, ARM, SHx etc. The system enables transparent interaction between the client applications and the database server functioning in hardware and software environments.

The developed database is equipped with multiple service facilities, including various utilities and program interfaces:

- interactive/package SQL interface – InI;
- administration utilities (graphic, pseudographic, command line utilities) providing the user with a set of database administration and information processing tools;
- PCI - embedded SQL for C and C++;
- ODBC – ODBC 3.x interface;
- OLE DB – interface for accessing data in the Windows environment;
- Perl – interface for accessing the database resources from Perl programs (supports DBI specifications and native developments);
- Php – interface for accessing the database resources from programs written in PHP (v. 3.x, 4.x, 5.x);
- dbExpress – interface for accessing the database from Delphi/Kylix/C++ Builder;
- Jdbc - interface supporting JDBC 1.0, 2.0, 3.0;
- Lintcl - interface supporting Tcl/Tk;
- LinPy - interface for accessing data from Python programs;
- Oralin - interface for using the database in programs developed using the OCI interface of Oracle;
- LinAPI (this database Application Program Interface) – high-level interface for developing complex programs in C;
- Call – low-level program interface.

This database supports asynchronous mode, query processing by priority, the use of pre-translated queries, which makes it possible to work with real-time operating systems.

The Optimistic Concurrency Control transaction processing mode enables to use this database in public service systems that do not allow waiting while the data needed is accessed by another user.

This database can be easily customized in embedded version. The database components can be hidden from the application user, all settings and configuration are performed automatically when installing the application. Due to this, application developers may create products that do not require separate installation and configuration of the database.

The database backup server support mechanism provides high performance and reliability of the hot backup. In case of main server failure, the transition of the backup server to the main server mode will take only a few

seconds. The hot backup copying system in database is used in fault-tolerant software, e.g. air traffic management systems.

This database supports geometric data types allowing the user to create, store and process geographical data.

Windows CE version of this database functions efficiently in systems with limited resources, e.g. on pocket computers under Windows CE. On this platform, database can be used as a client or a fully-functional database server. At the same time, database can work with large amounts of data, providing rich functionality and high performance in limited-resource systems.

The database dev experience for real-time Systems

The real-time functionality of the database enables to develop unique software for real-time systems: QNX, SUN Solaris, OS-9, VxWorks, OS/9000, Win 2000/2003.

The scope of using real-time systems is exceptionally broad: from simple controllers to elaborate decision support systems with artificial intelligence features. In such systems, the fault-tolerance requirements to the OS and all software (most importantly, the data storage and processing devices) are very strict.

To process data in a real-time environment, this database does not require administration, and provides reliability, high performance and the usual interface of a relational database. The last feature is especially important, since, unlike many highly specialized products, in database the developer has the entire set of development tools.

The developed database has what it takes to work in real-time systems:

- possibility to submit queries in the asynchronous mode;
- processing queries according to predefined priorities;
- separating the query translation stage from the execution stage (using pre-translated queries);
- event mechanism that makes it possible to set events in case of which the system will perform certain actions;
- in-memory tables, i.e. the possibility to create a copy (slave) of an existing table (master) and work with it as an independent table;
- customizable database kernel, i.e. possibility to disable the functionality that is not required for a particular task (in order to increase the system's performance).

This database is used in nuclear reactor control, monitoring and security systems, air traffic management systems, oil-producing industry etc.

Experience to develop database for mobile device

The capabilities of developed for this client database enables to effectively organize enterprise processes using mobile devices on Windows CE and Embedded Linux.

The Mobile version of this database has embeddable system supporting SQL access, which is convenient to use on servers with relatively small memory space, when high performance, fault-tolerance and rich functionality are required.

This database also allows developers to take advantage of relational system built in components, SQL language, reference integrity mechanisms, transaction processing and multi-user operations.

One of the main advantages of the developed database over many other databases for mobile devices is its ability to work on these platforms not only as a client, but also as a fully functional database server. The system can use big amounts of data, providing rich functionality and high performance in systems with limited resources.

One of the main problems in a distributed environment supporting mobile users is obsolescence of information. Therefore, when developing a distributed system, data synchronization should be taken care first.

Also this database has an option that allows developers to select either the built in standard replication tool, or an external data synchronization program

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