

## SQL Anywhere<sup>®</sup>

Industry-leading embedded database management and data movement technologies built for frontline environments



### PRODUCT DATASHEET

#### EXPLOSION OF FRONTLINE DATA

The frontlines have evolved into a mission-critical computing environment as businesses look for new ways to fuel competitive advantage and growth. Sybase's award-winning solutions have been built from inception to enable frontline applications — whether server, desktop, remote, or mobile — to be just as reliable, secure, and available as those running in the data centers of a traditional enterprise.

SQL Anywhere is a comprehensive package providing data management and data movement technologies that enable the rapid development and deployment of database-powered applications. SQL Anywhere offers enterprise caliber databases that scale from 64-bit servers with thousands of users down to small handheld devices. SQL Anywhere's data movement technologies extend information in corporate applications and enterprise systems to databases running in mission-critical frontline environments. Design and management tools within SQL Anywhere enable developers to implement and deploy frontline applications and equip administrators to easily manage and support them.

With SQL Anywhere developers can more easily architect an application's underlying data management, synchronization, security, and remote support using technologies that handle the complexities of frontline environments. As a result, developers can focus more attention on building applications to suit the specific needs of their customers, while reducing implementation time.

#### SQL ANYWHERE TECHNOLOGIES

SQL Anywhere is a high performing and embeddable relational database-management system (RDBMS) that scales from thousands of users in server environments down to desktop and mobile applications used in widely deployed, zero-administration environments.

#### ULTRALITE

UltraLite<sup>®</sup> is a database-management system designed for small-footprint mobile devices such as smartphones and tablets.

#### MOBILINK

MobiLink<sup>™</sup> is a highly-scalable, session-based synchronization technology for exchanging data among relational databases and other non-relational data sources.

#### QANYWHERE

QAnywhere<sup>™</sup> facilitates the development of robust and secure store-and-forward mobile messaging applications.

#### SQL REMOTE

SQL Remote<sup>™</sup> technology is based on a store and forward architecture that allows occasionally connected users to synchronize data between SQL Anywhere databases using a file or message transfer mechanism.

#### DESIGN AND MANAGEMENT TOOLS

SQL Anywhere includes a powerful suite of tools to assist in the design and development of data-driven applications and to simplify the management of database, synchronization, and mobile messaging environments.

“The data management features in SQL Anywhere are incredible. The column compression feature has enhanced our performance by significantly decreasing time spent on compressing data, while the table encryption feature has allowed us to keep our data safe and secure.”

— CHRISTOPHER POLLACH, PRESIDENT,  
SOFTWARE TOOL AND DIE INC.

## ENTERPRISE DATA MANAGEMENT

### SQL ANYWHERE SERVER

SQL Anywhere is a high performing and easily embedded relational database-management system (RDBMS) that scales from thousands of users in server environments down to desktop and mobile applications used in widely deployed, zero-administration environments. It is a small-footprint, enterprise-caliber database packed with features found in more resource-intensive and administratively demanding databases — features include transaction processing, referential integrity, stored procedures and triggers, materialized views, spatial data, hot failover, and automatic backup and recovery.

#### *Easy to Use, Easy to Administer*

SQL Anywhere includes features for self-administering, self-tuning, self-healing and remote support, making it ideal for widely deployed, zero-administration environments. For example, sophisticated event handling and scheduling capabilities can automate a set of maintenance activities to occur at predefined times or when certain conditions are met, such as when a disk reaches 90% capacity.

Remote support for SQL Anywhere databases is simplified with features like trace logging, auditing, and the ability to move databases with a simple file copy. An integrated error-reporting facility allows administrators to submit error reports and statistics, to query iAnywhere® support for updates and the availability of bug fixes, and to check if previously-submitted problems have been fixed.

SQL Anywhere includes integrated graphical development tools for all stages of application development. Software developers can analyze and optimize many different aspects of an application, from designing and testing queries to debugging stored procedures to diagnostic tracing and synchronization monitoring.

#### *Performance and Scalability*

Customer deployments demonstrate that SQL Anywhere can scale to thousands of users and hundreds of gigabytes of data. High performance is achieved out-of-the-box with a self-tuning query optimizer and innovative query processing algorithms. SQL Anywhere provides symmetric multiprocessor (SMP) support, including intra-query and inter-query parallelism for improved query processing. SQL Anywhere can truly scale on a wide range of platforms, from 64-bit Unix, Linux and Windows platforms with multiple processors down to Windows Mobile devices where it requires as little as 4 MB of available memory.

For environments with large numbers of concurrent users, snapshot isolation can greatly reduce wait time, contention for locks, and deadlocks in environments where data is being changed frequently, giving the snapshot transaction a consistent view of the database. For environments with frequent, repeated requests joining large tables, SQL Anywhere provides materialized views offering the ability to pre-compute data, reducing response time and improving performance. A set of online analytical processing (OLAP) features further enable analysis of data in a database. For reporting applications, SQL Anywhere's read-only scale-out configuration provides greater scalability as the load is split across multiple database servers.

### ***Data Security and Availability***

SQL Anywhere includes 128 and 256-bit strong encryption, resulting in true end-to-end security that meets the needs of customers in privacy-conscious industries such as government, healthcare and financial services. Database file encryption protects stored data from unauthorized access, while communications encryption protects the confidentiality and integrity of packets as they pass between the client machine and the database server. For applications that require only portions of the data to be secured, individual tables in the database can be encrypted. SQL Anywhere supports Federal Information Processing Standards (FIPS), is Common Criteria certified, and uses industry standard encryption algorithms and protocols, including AES, ECC, RSA, and SSL.

To ensure the availability of data and applications in the case of system failure, SQL Anywhere supports database mirroring and provides a SQL Anywhere agent for Veritas Cluster Server (VCS). Database mirroring enables the operation of multiple database servers so that if the primary database server becomes unavailable, it automatically fails over to another server. The SQL Anywhere VCS agent provides for the configuration of a SQL Anywhere database server to be managed within a Veritas Cluster, including the ability to failover from one node to another, either manually or automatically.

### ***Broad Platform, Tool and Data Access Support***

SQL Anywhere was built on the premise that application developers should be given the option to choose the tools, technologies and platforms that best meet their needs and preserve existing investments in operating systems, databases, development skills and tools. SQL Anywhere operates on a wide range of operating systems (Windows, Linux, Unix, Mac OS® X and NetWare), works with many different development tools (Sybase PowerBuilder®, Microsoft Visual Studio, Eclipse and more) and languages (C/C++/C#, VB.NET, Java, Perl, PHP, and others). SQL Anywhere also implements many different data access standards (ODBC, OLE DB, ADO/ADO.NET, JDBC, and more), and has extensive XML support, including a built-in Web services server, XML import/export capabilities and SQL/XML functionality.

### **ULTRALITE**

Designed for small-footprint mobile devices, the UltraLite database management system provides full transaction-processing support, referential integrity, a choice of development models, strong encryption, and built-in synchronization with enterprise data stores through SQL Anywhere's Mobilink synchronization solution.

### ***Broad Platform, Tool and Data Access Support***


UltraLite provides several object-based programming interfaces for straightforward access to data from different programming environments. Integration with popular development tools eases development for programmers looking to create dynamic data-driven applications. UltraLite database applications can be developed and deployed for a range of handheld platforms, including Android, BlackBerry, iPhone®, iPod touch®, iPad®, and Windows Mobile.

### ***Robust Data Management***

Data captured on small devices in the field should be treated with the same respect as data stored in enterprise databases within the walls of an organization. UltraLite ensures enterprise data integrity by bringing the robust data management benefits of enterprise databases — such as transaction processing, referential integrity and security — to small devices.

**“SQL Anywhere is core to our operation. It provides a platform that works not only in a mobile environment, but also supports a very large database. We can actually provide this state of the art technology not only to the large agencies that have IT staff, but also to the small agencies that may have no IT staff.”**

— MICHAEL KRAMER, CEO AND PRESIDENT, HEALTHWYSE INC.



**“SQL Anywhere integrates well with our existing systems. It’s flexible, reliable, backward and forward compatible, and handles large numbers of data exchanges each day. Our field workers aren’t aware that there is a database on their device. It lets them focus on their jobs rather than having to worry about the technology.”**

— GREG BEGG, AMR PROGRAM  
MANAGER, SARGENT ELECTRIC

### ***Security for Small Devices***

UltraLite provides user authentication as well as local data store and communication stream encryption for devices operating outside corporate offices and firewalls. User authentication and strong local data encryption protect information — even if the device is lost or stolen. Communications encryption protects the confidentiality and integrity of packets as they pass between the mobile device and the database server.

## **ENTERPRISE DATA MOVEMENT**

### **MOBILINK**

MobiLink is a highly-scalable, session-based synchronization technology for exchanging data among relational databases and other non-relational data sources. Advanced synchronization logic ensures the transactional integrity of the databases in the event a network connection is lost, and offers sophisticated strategies for the resolution of data change conflicts.

### ***Heterogeneous Synchronization***

MobiLink offers bidirectional exchange of information between remote SQL Anywhere or UltraLite databases and a variety of enterprise data sources including SQL Anywhere, Sybase Adaptive Server® Enterprise, Oracle, Microsoft Server, My SQL and IBM DB2. MobiLink also provides the ability to synchronize to data sources other than databases, such as application servers, ERP systems such as SAP®, Web services, XML files, or other third party relational databases.

### ***Scalable and Robust Performance***

A single MobiLink synchronization server can handle thousands of synchronization users, and multiple MobiLink servers can be run simultaneously to support load balancing and scalability to very large systems.

### ***Reliable and Secure***

Reliability is ensured through guaranteed data delivery. In the event that a network connection is lost or a message becomes corrupted during transmission, the missing data is automatically re-sent.

Strong 128-bit encryption can be used to ensure data is fully protected during transmission. The MobiLink server has built-in user authentication, and Java and .NET logic can be placed in the MobiLink server to allow for external authentication, when required. The MobiLink Relay Server provides secure and load-balanced communication between mobile devices and backend servers through a web server.

### ***Implement and Manage Large Deployments***

MobiLink synchronization is designed to be easy to use for both database administrators and end users. MobiLink provides a set of integrated tools to automate the development of synchronization applications, such as creating synchronization scripts, conflict resolution rules, and shadow tables, as well as registering and managing a large number of remote users. Administration and monitoring of the entire synchronization ecosystem is vastly simplified through a central management point, leading to automation and greater control of the data exchange environment.

### ***Handheld and Wireless Integration***

MobiLink supports wired, wireless and cradle-based synchronization. MobiLink's data transfer is extremely efficient and will allow a synchronization to pick up where it left off in the event of a lost network connection. For large sets of changes, MobiLink can create a file of database changes that can be broadcast to large groups of users. Server-initiated synchronization can be used to push important information to a mobile database such as a route change or a change in inventory.

### ***Subsetting of Data***

MobiLink includes the ability to subset data, partitioning both horizontally and vertically — or more complex user-programmed schemes — to ensure that remote systems are only getting the customized data relevant to their job function. This allows companies to put data where it is most needed, without overloading a remote user's database with unused information. This also reduces the communication time, thus decreasing communication costs.

### ***File Transfer and Remote Tasks***

MobiLink provides the ability to download files and execute tasks in remote devices. This is useful when deploying a new remote database application, when a software upgrade is required on a remote device, or publishing non-relational static data.

### ***Priority Synchronization***

Priority synchronization enables independent control over the synchronization of different data subsets. This also enables developers to maximize available communications bandwidth, which is particularly important for wireless or low bandwidth environments.

### **QANYWHERE**

QAnywhere facilitates the development of robust and secure store-and-forward messaging applications that are optimized for mobile environments. It extends the MobiLink server to function as a messaging server, either independently or in conjunction with traditional database synchronization configurations.

By extending SQL Anywhere's Web services capabilities, QAnywhere also provides mobile Web services that ensure secure and reliable delivery for mobile devices.

### ***Ease of Development and Administration***

The QAnywhere API delivers a simple and powerful messaging programming interface for development in C++, .NET and Java. A server-side JMS connector provides seamless connection to any JMS supported system, providing an easy point of integration to enterprise applications. The QAnywhere plug-in for Sybase Central™ simplifies administrative tasks and makes it easy for developers to test applications at development time, as well as to monitor and track messages in deployed systems.



### ***Reliable and Efficient Message Delivery***

QAnywhere leverages the inherent capabilities of SQL Anywhere and MobiLink to provide secure message storage and transmission as well as ensuring guaranteed delivery of messages. SQL Anywhere handles the challenges of wireless networks, such as slow speed, spotty coverage, and dropped network connections. By setting transmission rules, messaging applications can send and receive data in ways that optimize performance, cost, and bandwidth. For example, high priority messages might be sent immediately over a wide area wireless network but the transmission of very large or low priority messages could be delayed until a high-speed network is available.

### ***Mobile Web Services***

QAnywhere provides support for mobile Web services, allowing mobile applications to reliably and securely make Web service requests while disconnected and receive responses when reconnected to a network. Applications can make object method calls in the traditional manner automatically causing QAnywhere to build a SOAP request, and managing the store and forward transmission of requests and responses. Furthermore, responses can be received even when an application is no longer running or across different instances of an application.

### **SQL REMOTE**

SQL Remote technology is based on a store and forward architecture that allows occasionally connected users to synchronize data between SQL Anywhere databases using a file or message transfer mechanism such as FTP or email. Only data changes are sent, minimizing communication costs. SQL Remote performs change capture using transaction log scanning, which preserves transactional integrity, making it ideal for many business applications. Further, this powerful method minimizes performance impact on the server.

### **DESIGN AND MANAGEMENT TOOLS**

SQL Anywhere includes a powerful suite of tools to assist in the design and development of data-driven applications and to simplify the management of database, synchronization, and mobile messaging environments.

### ***Centralized Control and Administration***

Sybase Central provides a graphical user interface to design, debug, and administer SQL Anywhere and UltraLite databases, MobiLink and SQL Anywhere servers, and Relay Server configurations. In addition to facilitating routine tasks, Sybase Central also provides performance statistics, application profiling and the ability to manage events and schedules, synchronization system modeling, Web services, and connection profiles.

### ***Integrated Design Environment***

PowerDesigner® Physical Data Model combines object-oriented, conceptual and physical data object modeling capabilities in a single environment. Developers can model the overall physical structure of a database, build a Physical Data Model (PDM) using diagrams, create and use business rules and other model objects, generate triggers, procedures, scripts and databases or reverse engineer existing databases.

### ***Application Profiling***

Performance analysis is simplified with the Application Profiling Wizard. Using captured database activity, the Application Profiling Wizard recommends system changes based on profiles of stored procedures, functions, triggers and events, identification of deadlocks, database schema design, and more. Developers can review detailed analysis through a single graphical user interface.

### ***Index Selection and Optimization***

The Index Consultant streamlines the process of selecting indexes for a database or a query by creating many different sets of virtual indexes during its analysis. The queries and other requests for each set are then optimized and analyzed, resulting in a set of recommendations. A set of queries can be captured from a live SQL Anywhere database for analysis by the Index Consultant.

### ***Creation and Management of Synchronization Environments***

With MobiLink's Create Synchronization Model wizard, developers can create a model of a synchronization environment, defining what subset of data to synchronize and how conflicts are handled. The MobiLink Monitor is an administration tool that provides detailed information about the performance of MobiLink synchronizations, including start/end times, data volume uploaded/downloaded, successful completions, conflicts, and more.

### ***Development and Testing***


SQL Anywhere includes additional graphical development tools that help accelerate the implementation of database applications including an Interactive query editor, integrated database object debugger, and stored procedure profiler.

### ***Deployment Wizard and Tools***

The Deployment Wizard can be used to create a Microsoft Windows Installer Package file or a Microsoft Windows Installer Merge Module file customized for an application's requirements, greatly reducing the database footprint.

### ***Easy Report Generation***

InfoMaker® is a powerful, easy-to-use reporting tool that enables developers to query a wide range of databases and create sophisticated reports and forms — without writing code, or learning a programming language.



Sybase, an SAP company, is a leader in delivering enterprise and mobile software to manage, analyze, and mobilize information. We are recognized globally as a performance leader, proven in the most data-intensive industries across all major systems, networks and devices. Our information management, analytics, and enterprise mobility solution have powered the world's most mission-critical systems in financial services, telecommunications, logistics, manufacturing and government.

To learn more about Sybase SQL Anywhere please visit [sybase.com/sqlanywhere](http://sybase.com/sqlanywhere).

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