SALESLOGIX®
Product Architecture
WhitePaper

# SalesLogix® Product Architecture

SalesLogix® was designed and built with one objective –
provide the best performing, most reliable, scalable,
configurable and secure sales automation system in the
world. The software uses worry-free security to assure
administrators and users that data is secure and never
compromised. The robust modular architecture of the
product can be attributed to the years of design
experience that went into building this state-of-the-art
client/server, Web-enabled sales automation
solution.

Enterprise Customization

Enterprise Administration

Enterprise Security

ACT-like Ease of Use

The SalesLogix product is extremely easy to
use, administer, and maintain.
SalesLogix engineers developed this
unprecedented ease-of-use in the
product with "behind the scenes" use
of enterprise strength security,
administration, and customization technology.

SalesLogix is built with the most advanced Rapid
Application Development (RAD) tool in the market.
When applications are built with this tool, the
development time is significantly reduced in
comparison to applications that are built with
traditional programming languages such as C
and C++. The RAD tool enables SalesLogix engineers
to respond rapidly to changing customer needs and demands. The application is
pure 32 bit and confirms to open standards.

Designed for
Microsoft
BackOffice
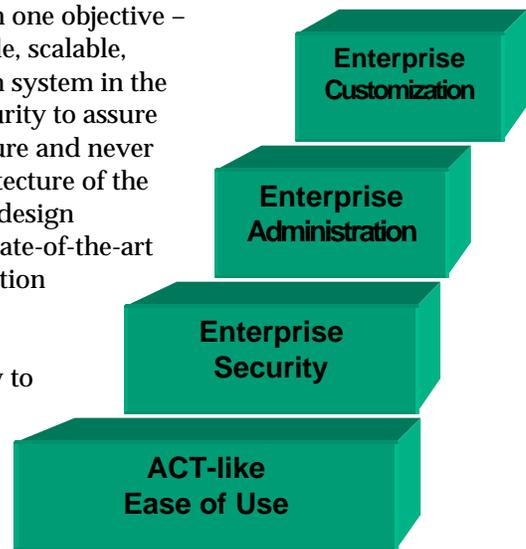
At the heart of SalesLogix, lies proven Microsoft recommended building blocks. SalesLogix is fully Microsoft® BackOffice™ compatible. The SalesLogix user interfaces are consistent with technologies currently used by Microsoft in its popular suite of office applications.

SalesLogix supports modular product extensions known as *SolutionPacks™*. SolutionPacks, as extensions to the base SalesLogix system, provide new features and/or customize an existing feature to meet specific needs. The SolutionPacks are built using SalesLogix customization tools, to allow users to create and/or manipulate forms and add VBA/C++ code that uses APIs and COM (Component Object Model) objects to access the database. SolutionPacks also include technology that secures the value-added modules through the use of licenses. This allows both customers and SalesLogix certified business partners to add significant value to the product and safely and securely distribute this value.

SalesLogix Client	← VBA	Solution Paks
	← API	
	← COM	
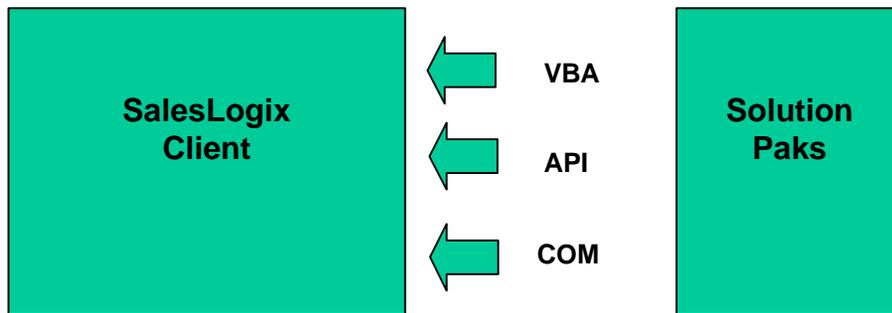
The COM interface layer within the SalesLogix application provides dynamic access to the SalesLogix database, features, and functions from external applications. The forthcoming Computer Telephone Integration (CTI) feature is one such application that takes advantage of SalesLogix through this COM interface. Several other applications that require such dynamic interaction ability can use the COM interface to SalesLogix.

SalesLogix Database Architecture

At the core of SalesLogix, is a powerful object-oriented system that uses a universal database engine to provide high performance and throughput connections to leading databases such as Microsoft® SQL Server™ and Oracle™. The same client/server technology is used whether users are working from their desktops with a local database, or if they are working on their laptops at a remote location. SalesLogix also uses a highly efficient database schema that can be easily altered or extended to meet the needs of the user, and allows rapid query response.
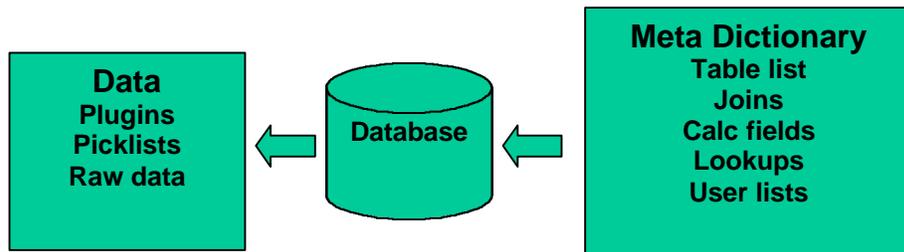
SalesLogix database architecture is designed to be scalable, flexible, and highly configurable. Addition and deletion of tables and fields is supported, with the exception that the core schema shipped with the product may not be altered. Database access queries are optimized for the database in use, and intelligent choices are made during program execution, resulting in maximum speed and performance.
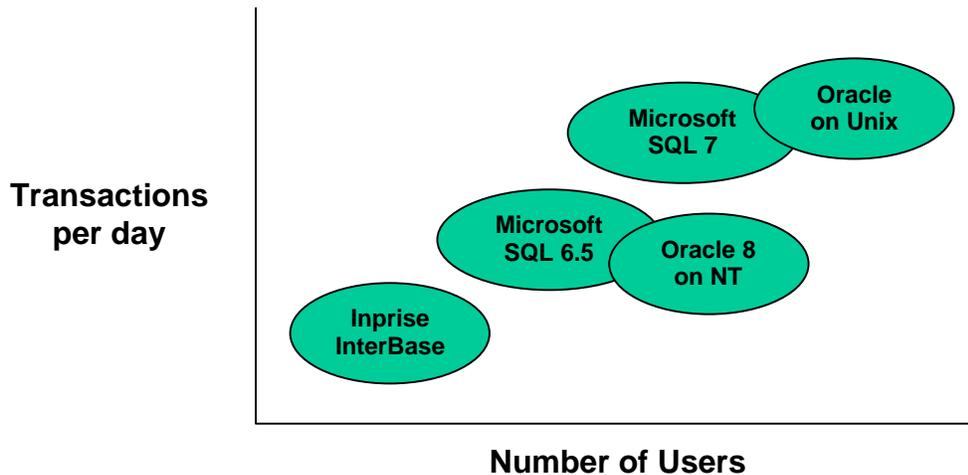
SalesLogix uses the universal database engine to handle all its communications with databases. This powerful engine has high performance connections to the in-use database, to provide maximum efficiency and throughput. SalesLogix supports Microsoft SQL Server, Oracle, and Inprise InterBase™ databases.
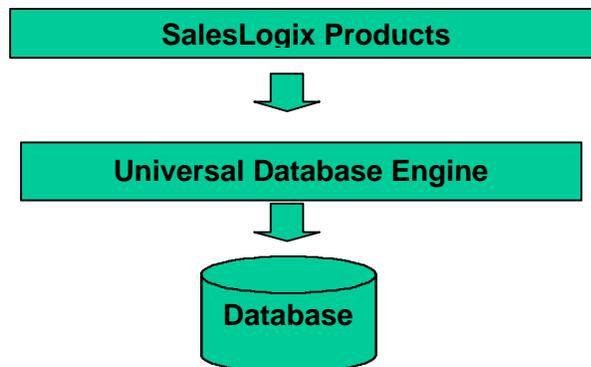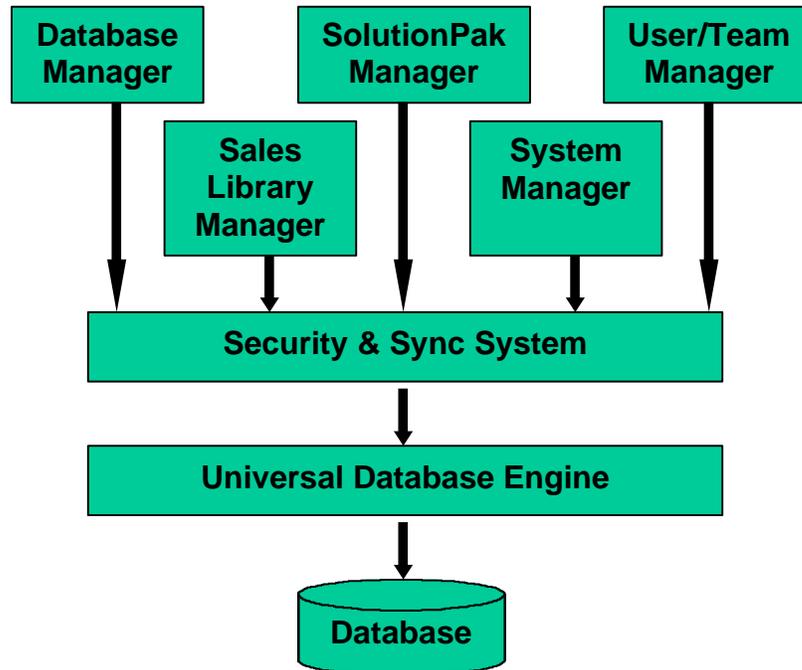
SalesLogix Database Scalability

The SalesLogix product is designed to be highly scalable across a large number of users, as well as large number of database transactions. The system administrator controls several variables that fine tune the system and maintain exceptional system performance.

A good system design minimizes the number of transactions to the host and remote databases, while providing remote and workgroup users access to all the data that they need. Proper use of subscription rules, smaller remote databases, working within smaller Contact, Account, and Opportunity groups help to streamline the system and maximize its efficiency and performance. The following chart illustrates how the transaction volume determines the selection of the appropriate database and server platform.

Transactions per day

- Inprise InterBase
- Microsoft SQL 6.5
- Oracle 8 on NT
- Microsoft SQL 7
- Oracle on Unix

Number of Users

SalesLogix Workgroup Server Architecture

The Workgroup Server is also modular, and has several components that provide advanced sales automation functions. These functions include user management, creation and management of sales teams, security, territory management, creation and maintenance of the Sales Library, administration and distribution of SolutionPacks, and the Database Manager.

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Database    │      │ SolutionPak  │      │  User/Team   │
│  Manager     │      │  Manager     │      │  Manager     │
└──────┬───────┘      └──────┬───────┘      └──────┬───────┘
       │    ┌──────────┐     │   ┌──────────┐      │
       │    │  Sales   │     │   │ System   │      │
       │    │ Library  │     │   │ Manager  │      │
       │    │ Manager  │     │   └────┬─────┘      │
       │    └────┬─────┘     │        │            │
       ▼         ▼           ▼        ▼            ▼
┌─────────────────────────────────────────────────────┐
│            Security & Sync System                    │
└───────────────────────┬─────────────────────────────┘
                        ▼
┌─────────────────────────────────────────────────────┐
│            Universal Database Engine                 │
└───────────────────────┬─────────────────────────────┘
                        ▼
                  ┌───────────┐
                  │ Database  │
                  └───────────┘
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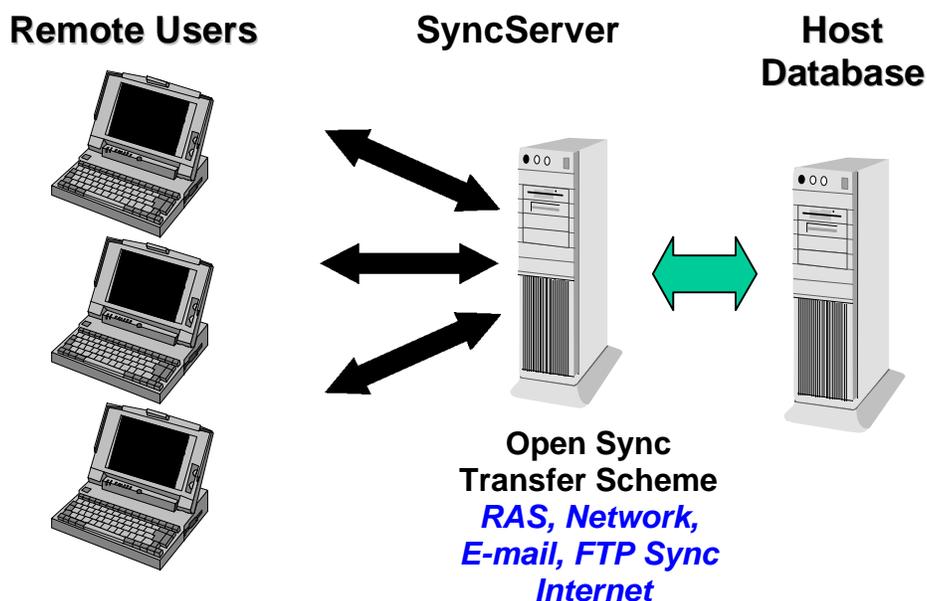
The Workgroup Server administers and manages the many system-level features and functions of the SalesLogix® Sales Information System™. It provides a robust Database Manager that allows addition and deletion of fields and tables. All changes made to the host database are captured and subsequently synchronized with each of the remote databases. The SolutionPak Manager administers and distributes the SalesLogix SolutionPaks. The User/Team Manager provides a sophisticated function set that allows user and team creation, deletion, and management. Powerful team selling techniques can be created and administered using the Workgroup Server. The Workgroup Server also administers the Sales Library, enabling document collection and distribution to LAN-based and remote sales users. Lastly, the System Manager administers several system-level functions and attributes.

SalesLogix Synchronization Server Architecture

SalesLogix offers a rich synchronization scheme specifically crafted for the needs of sales automation. The SalesLogix synchronization scheme was designed from the ground up to provide very specific sales features, rather than use conventionally available, generic synchronization schemes with database replication, or other third party software manufacturers.

Synchronization at its base level is the mechanism used to align remote user and remote office databases with of the host database. The synchronization server and the synchronization client are the two key components used to ensure consistency in all instances of data in the network, and that the database maintains a high level of integrity. The synchronization client software executes on the client and works with the local database, while the synchronization server executes on the server and operates on the host database.

SalesLogix employs an offline "store and forward" scheme to collect, exchange, consolidate, and apply synchronization changes to the involved databases. The offline scheme has considerable advantage over any online scheme, in that it uses only connect time to exchange pre-sorted data between the databases. Changes are applied to the database after the connection is broken. This significantly reduces the user's connect time charges and frees the computer for other purposes (such as running other applications) while the SalesLogix synchronization client applies collected changes to the local database. In contrast, the online method not only dynamically attempts to align the remote database with the host database during connection, but also creates considerable network traffic and database transactions to the host – at both opportune and inopportune times. The SalesLogix synchronization server can be scheduled to run only during off-peak hours (i.e. when the network traffic is minimal) and optimally "packetize" the data for transmission to the remote users when they dial in or connect through one of several supported connection mechanisms.

Remote Users　　　　**SyncServer**　　　　**Host Database**

Open Sync Transfer Scheme
RAS, Network, E-mail, FTP Sync Internet

SalesLogix Customization Architecture

SalesLogix is perhaps the most customizable sales automation software in the world. Almost every facet of SalesLogix can be customized to meet the needs of the user. Here are some of the facets of SalesLogix that can be customized:

- Main views (Contact, Account and Opportunity) can be customized for a user and/or team

- Navigation bar, toolbar, and menus can be centrally customized and/or by the end user

- Many aspects of the SalesLogix calendar are customizable to suit the needs of the user

- Many wizards within SalesLogix can be customized to meet user requirements

- New tables, new fields can be added to the database, then associated with one of the core SalesLogix tables – Contact, Account or Opportunity.

- New views can be added at will and displayed as tabs in the main view or in pop-up dialog boxes

- VBA and triggers can be added at will and made to work with any customizable view in the system

- Subscription rules and account ownership can be used as criteria to customize the data that a remote user can see

- Security can be used at record or field level to restrict the data that a given user can see

- SolutionPaks can be deployed at the touch of a button and can synchronize down to each and every user in the system, or to selected users

- Agents can be configured to send precise database reports to all or selected users

SalesLogix customization is so powerful because all customizable data is not "hard-coded" but is stored as data elements in the SalesLogix database. The most attractive aspect of the SalesLogix customization features, is the guarantee that 100% of the changes done at the host, reach remote user databases as part of the synchronization process.

SalesLogix Distributed Architecture vs. Traditional Client/Server Systems

Traditional client/server products are hampered by two major factors – network bandwidth usage and database transaction volume.

In traditional client/server products, numerous database transactions tend to clog the network bandwidth and place unwieldy burden of computing requirements on either, or both client and server computers. In a highly optimized client/server application, the client does an appropriate share of CPU processing and sends only the optimum number of transactions to the database server, while ensuring the network bandwidth remains clear. "Smarter" systems break the required transaction volume into multiple buckets, and allow more than the client and server computers to participate in the issue and process transactions. SalesLogix employs this type of a smart architecture.

Under the distributed architecture, SalesLogix engineers minimized the number of transactions issued by the client, hence occupying the least possible amount of network bandwidth. In a typical sales automation system, a significant part of transactions belong to the synchronization aspect. By employing an off-line "store and forward" synchronization system, the client does not process these transactions and does not issue them over the network to the database server. These synchronization-related transactions are compressed into files and sent to the SyncServer, which can be scheduled to apply changes to the database server at off-peak times. The SyncServer can run on its own computer, independent of the client and server computers.

SalesLogix also uses a multi-tier approach for database transactions from the client computer to the database server. The user interface and business rule modules formulate a highly optimized query, then pass it to the universal database engine. The universal database engine uses its own high performance database drivers to issue the request to the database server.

By reducing and optimizing the transaction load, and further providing a SyncServer component, SalesLogix provides the framework for a highly scalable sales automation system.

Forthcoming SalesLogix Distributed N-tier Architecture

SalesLogix engineers are busily working on the next generation of N-tier architecture, termed as the Distributed N-tier Architecture. The anticipated shipment date for this advanced architecture in SalesLogix products is during the second half of 1999.

The Distributed N-Tier architecture as compared to current day N-Tier architecture attempts to use the vast processing bandwidth that exists on multiple server computers to accomplish a task. For example, when a tier that is servicing a certain set of users experiences performance degradation on the server computer, it spawns a mirror image of itself on yet another server computer, then balances its load. In this type of system, a high level of predictability can be maintained with respect to performance and scalability characteristics. Under this scheme, the tiers running on the server computers are blind to the type of "thin" client they are communicating with, regardless of whether they are LAN-based, WAN-based or Web-based.

The current SalesLogix technology is highly scalable and offers superb performance to users. The forthcoming Distributed N-Tier technology promises to up the ante and provide SalesLogix uses with unparalleled performance and scalability characteristics making SalesLogix the sales automation of system of choice for small businesses, corporations and enterprises.