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STRATAFRAME MIDDLE TIER ENTERPRISE SERVER

MIDDLE TIER
ENTERPRISE SERVER
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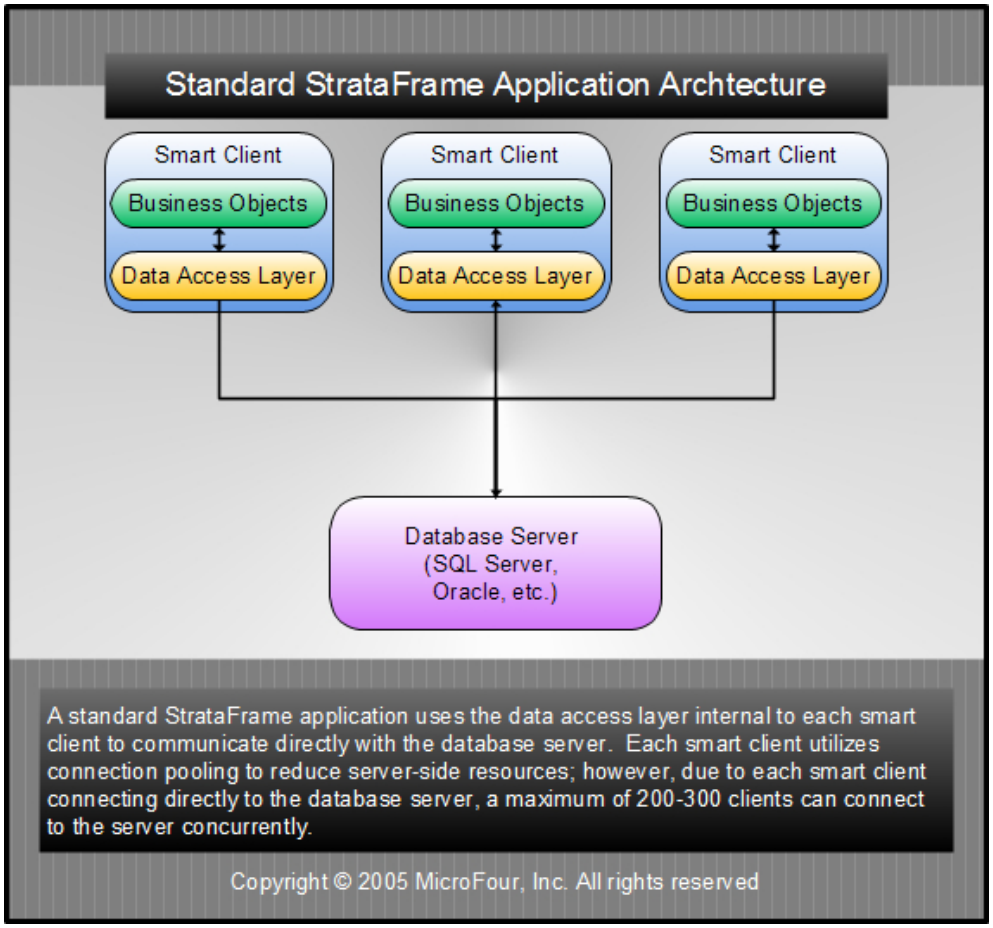
INTRODUCTION

As application development has become more and more distributed, the need for smart client applications accessing remote data has become an absolute necessity. The Middle Tier Enterprise Server is ready, out-of-the-box, to provide web-serviced data access to smart client applications without writing a single line of code. The data access layer used to access the remote data source is completely interchangable with existing StrataFrame data sources and can even be changed real-time, without exiting the application.

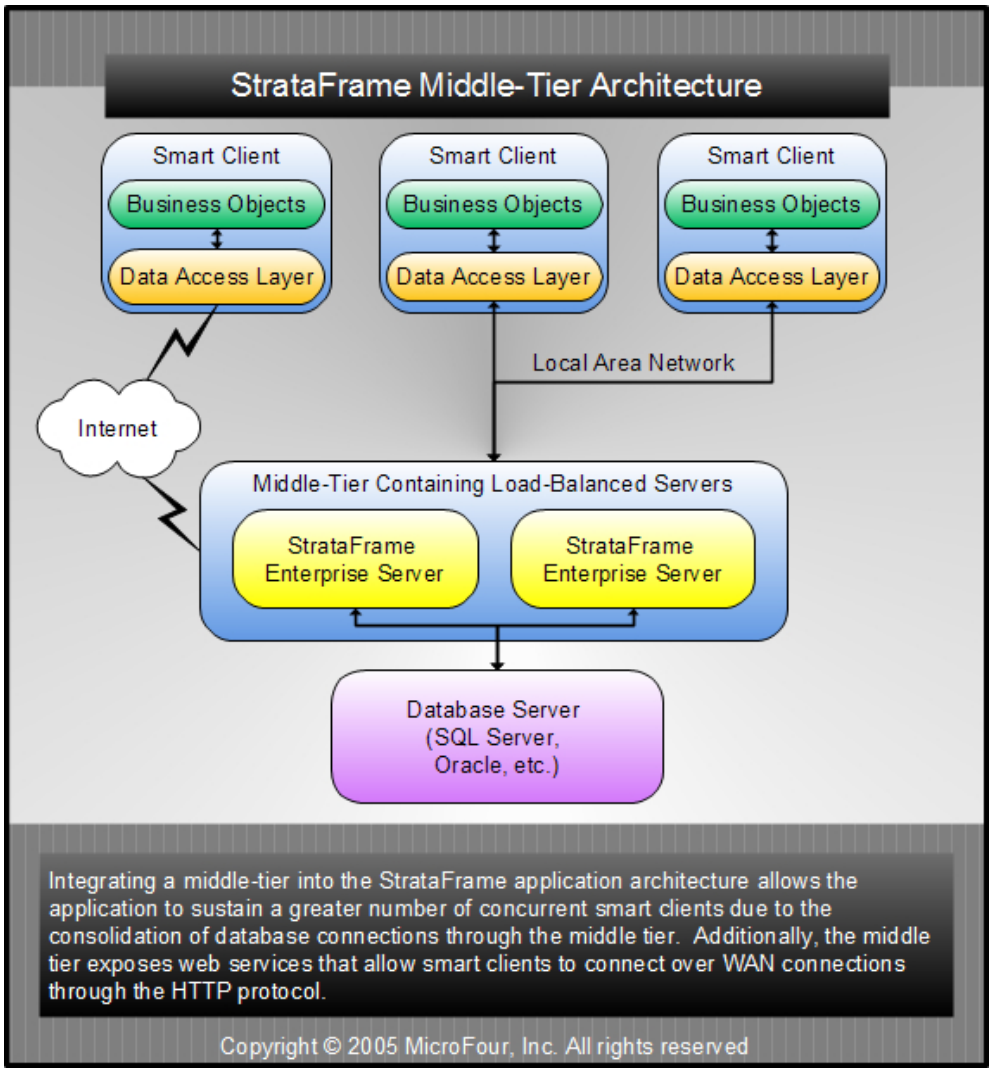
The Middle Tier Enterprise server provides remote data access using the HTTP protocol, allowing the use of either SSL certificates (HTTPS) or a VPN solution. It enhances scalability by providing connection pooling, load balancing support, and web farms. While the Middle Tier Server can provide increased security to web form applications, it is especially beneficial to developers creating Windows forms applications by adding SOA (service oriented architecture) functionality. The Middle Tier Enterprise Server allows any StrataFrame application to achieve greater scalability, security, and flexibility in its data access.

HOW DOES IT WORK?

StrataFrame is engineered to have three logical layers: Data Access Layer, Business Layer, and Presentation Layer. The layer that interfaces with the Middle Tier Enterprise Server is the Data Access Layer (DAL). While using StrataFrame business objects, a developer never directly interfaces with the DAL, allowing him/her to program the data access for the business objects at an abstract level. The DAL can then be interchanged with provider-specific DAL implementations that communicate directly with a specific type of database. One of these DAL implementations communicates with the remote Middle Tier Enterprise Server.



The DAL implementations are completely interchangeable, allowing for scenarios such as these: a) A laptop might use a DAL implementation that connects to the SQL Server directly while in the office and uses a separate DAL implementation to communicate with the Middle Tier Enterprise Server for data access when outside the office. Changing the database connection would only require a change to the configuration settings. b) An organization might be small enough for smart clients to connect directly to the SQL Server initially. However, after growing and adding more computers to the network, the Middle Tier Enterprise server can be introduced to increase scalability without needing to recompile the application. c) An application might use multiple DAL implementations concurrently. One might communicate with a SQL Server located within the office while another communicates with a Middle Tier Enterprise Server allowing access to a database located in a geographically separate region



WHEN IS A MIDDLE TIER SERVER NEEDED?

DATABASE RESOURCES HAVE REACHED CAPACITY

Even with connection pooling enabled, when a smart client connects directly to the database server, it is very common for ADO.NET to open between 7 and 14 connections to the database server. Depending upon the hardware resources of the computer running SQL Server, the server will generally not be able to accept more than 2000 to 3000 simultaneous connections. Assuming an average of 10 database connections per smart client, an estimated maximum of 200 to 300 simultaneous clients can connect to the database server. By introducing one or more Middle Tier Enterprise Servers into the architecture of the application, the use of the database server resources is greatly reduced. Since only the Middle Tier Enterprise Servers communicate directly with the database, and each utilizes connection pooling, the number of simultaneous database connections is reduced and the number of smart clients that can use the application simultaneously is greatly increased.

REMOTE DATA ACCESS IS REQUIRED

The most common reason for deploying a Middle Tier Enterprise Server is to provide data access for remote or geographically distributed clients. Geographic and network limitations reduce the effectiveness of a direct connection to SQL Server. Additionally, it is not generally prudent to directly expose a SQL Server to the Internet. The StrataFrame Middle Tier Enterprise Server can provide a point of access to the database for a remote StrataFrame application. Using HTTP (and possibly HTTPS), the same smart client can access the same database whether inside the local network or outside the local network. Remote clients requiring a proxy are also supported through the use of the HTTP protocol.

INCREASED NETWORK SECURITY IS REQUIRED

Security can be increased using the Middle Tier Enterprise server by introducing an additional process and/or network barrier between the client and the database. The physical separation of the Middle Tier server and the database allows additional firewalls and security checks to be implemented between the smart client's DAL and the data it is accessing. This can be especially beneficial in applications where security is difficult to control, such as ASP.NET applications; the front-end ASP.NET server can communicate with the Middle Tier Enterprise Server rather than directly with the database.

WHAT DOES THE MIDDLE TIER SERVER INCLUDE?

The Middle Tier Enterprise Server contains all of the necessary client- and server-side assemblies needed to utilize it. The client-side DAL implementation is included and can be used within the smart client like any other StrataFrame DAL implementation. The Middle Tier Server itself is contained within the server-side assembly and web service files that can be installed to an IIS website.

ITEM	DESCRIPTION
MicroFour StrataFrame Enterprise Client.dll	This assembly contains the DAL implementation that is used to communicate with the web services located on the Middle Tier Enterprise Server.
MicroFour StrataFrame Enterprise.dll	This assembly contains the serializable classes used to pass data between the smart client DAL and the Middle Tier Enterprise Server.
MicroFour StrataFrame Enterprise Config.exe	This application provides a simple front-end to edit the Middle Tier Enterprise Server's configuration.
MicroFour StrataFrame Enterprise Server.dll	This assembly contains the web services exposed through the Middle Tier Enterprise Server.
Server Installation Packages / Merge Modules	This allows the Middle Tier Server to be installed on any web server easily through a standard setup process. Once installed and configured the server is ready for use.

DEPLOYMENT

The Middle Tier Enterprise Server is licensed on a per application-farm basis. This means that a single Enterprise Server license can be activated on all of the servers in a server farm. The literal number of activations for each license is limited to 8, as 8 should be sufficient to cover all but the largest of web service farms.

CONCLUSION

MIDDLE TIER ENTERPRISE SERVER

The Middle Tier Enterprise Server is a “must have” addition to any StrataFrame application that requires remote data access, increased scalability to accommodate a large number of clients, and/or additional security. By using this pre-built remote data access server and DAL, a StrataFrame developer can provide a scalable, flexible, secure, service-oriented application without requiring additional development.

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