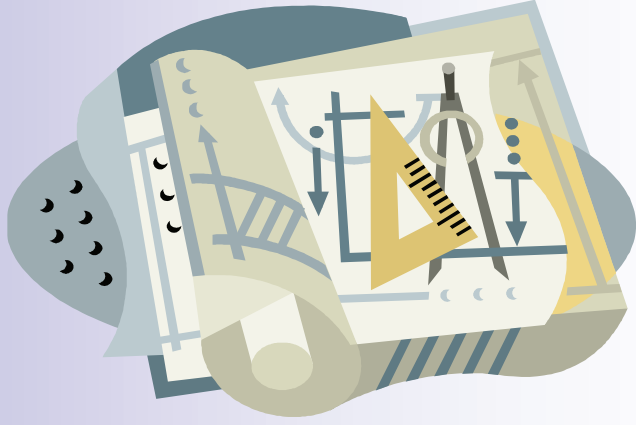


Etude Technical Architecture

 **Etude-Virtuoso**
a beat ahead

A highly
interoperable
model



Logical Distribution

Upgrade Executable Versions on the Fly

The target infrastructure that will support the execution of the application is a Three Tier Architecture, comprised of a Client, Execution Server and Database Server. The following points will show the logical distribution of the platforms to support the execution of Etude. This is considered from a more conceptual point of view, requiring a particular study for each case of Etude implantation, where figures in terms of application usage and volume are used to create an estimation of the actual sizes and required capacity planning.

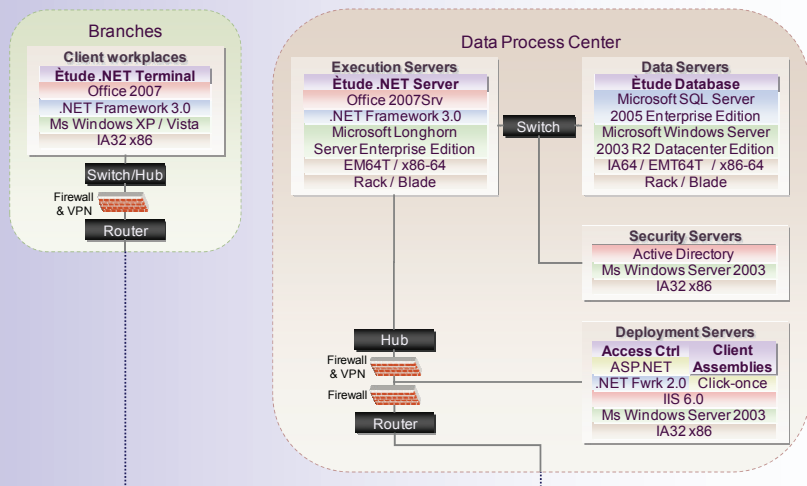
Client tier: Executes the Front-end of The Etude Programme, being a Smart Client application. This considers both the Branch Terminal and Headquarter Workplaces. A single Front-end to provide the needed capabilities to the different scenarios. This is possible due to the adaptability nature of the desktop, which automatically adapts its contains according to the role of the user that is connecting to the system.

Execution Server Tier: Holds the Etude Server execution. Its stateless nature allows to deploy the Server Application on a NBL Cluster providing a high capable path for horizontal scalability. So the Execution Server can be deployed as a NBL Cluster

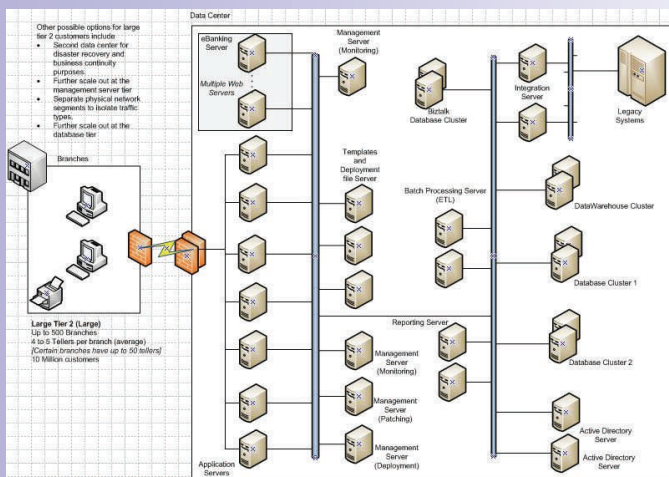
(recommended option) where multiple geographically distributed Servers can be added to collaboratively work in a Server Farm.

Rationale for sizing calculations of the needed support at the Execution Server level will be applied in the elaboration of the solution proposal to comply with the performance needed considering the requests concurrency and processing distribution.

Database Server Tier: The database server is planned to support Very Large Database, VLDB, for the on-line, OLTP database, and the data warehousing, OLAP. In the topology recommended for Etude, these will be supported for different servers. The logical application data source for the on-line execution, will support being split up by Financial Entity, and even if needed, by functional area, so that certain level of horizontal scalability is provided. In this case, each of the supporting database servers can be leveraged and scaled vertically independently according to the demanding processing from the different entities.



Topology and Infrastructure: To provide the application distribution, two feasible approaches are applicable, Centralized (just one Data Center will support the whole application execution for the different financial entities.) or Distributed(considering different Data Centers for corresponding processing areas and financial entities.) . In this point, a proposal of the topology is provided, what serves as a base for the final composition of the particular topology required in each implantation of Etude, depending on the different measures and infrastructure information provided that is are needed to establish what should be the better approach to cope with the customer expectations in terms of performance and availability.



The recommended infrastructure to support a database server will be HP Integrity Superdome servers with Itanium2 up to 64 ways. This configuration is proven to support from database sizes from 5 to 100TB. The combination of HP Integrity Superdome 64-bit 9 Itanium2 processors with Ms SQL Server 2005 and Ms

Windows Server 2003 has been proven to support more than one million tpmC, which is a guaranty of performance and scalability possibilities in Mission Critical environments.

Security Server: The system will consider security from perspective of attempts to compromise the solution, including denial of service, elevation of privilege, spoofing, information disclosure, tampering, repudiation (auditing)

Authentication, cryptography and identity management. Integration with Active Directory, LDAP, Sun Directory is provided. Also the migration from security RACF based (form Mainframe environments) is consider.

Deployment Server: The Deployment Server provides the client through the Etude-Virtuoso the execution files for automated deploy feature. This reduces the complexity of distribution of new product version or upgrades in Client side. The System Operator will just control the versions made available in the Deployment Server, being the Client workstations automatically updated over the internet to the latest available version.



About SlaterLabs

SlaterLabs focuses on the design, development and deployment of mission critical application software to financial services organisations worldwide. The SlaterLabs team combines over 500 man years of core banking business and technical experience. The company is 100% dedicated to developing and delivering the first end-to-end core banking system, The Etude Programme, built entirely using the Microsoft Windows platform and Microsoft's .Net. For more information about SlaterLabs, visit www.slaterlabs.com.

About The Etude Programme from SlaterLabs

The Etude Programme is a collaborative programme which aims to deliver a significantly different offering to the financial services sector which is currently faced with the build versus buy dilemma. The Etude Programme will let customers in-house staff lead the integration and implementation phases, with SlaterLabs development team effectively becoming the customer's own support system, providing consultancy, installation support and expertise to provide customers with the best of both the buy and build worlds. For further information about The Etude Programme from SlaterLabs, visit www.slaterlabs.com/etude.html