

## Censeo's Technology Architecture

### Hardware

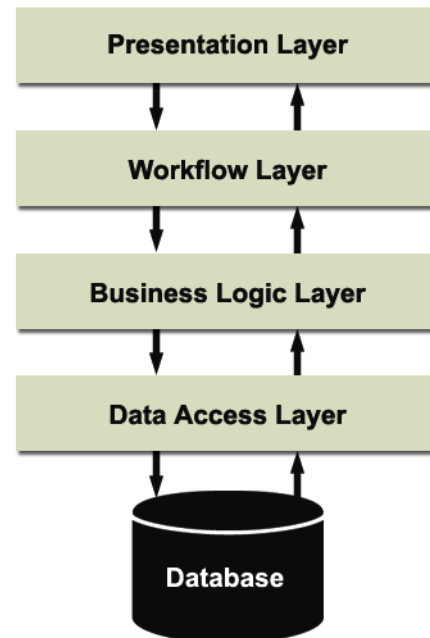
In line with Censeo's priority on performance and reliability, Censeo only utilizes top tier hardware – Dell, CISCO, Big-IP, SonicWall and APC. There is no dependence on unsupported shareware.

### Architecture Overview

After evaluating available technologies for developing CenseoOnline (Unix, LINUX, Oracle, etc.), Censeo selected the DNA (Distributed internet Architecture) products and technologies of Microsoft including the SQL 2005 Enterprise database. CenseoOnline has been made scalable at the software level. It is a truly stateless application, which means that it does not maintain client state. This is invaluable for scaling and minimizing load on servers and maximizing the utility of stateless front ends (e.g., browsers). CenseoOnline is also a component-based application. This means that all data access and business logic is encapsulated in very small and efficient COM+ components. This aspect fits in perfectly with the COM+ services, which optimizes database connections by pooling of components. This design supports the partitioning of CenseoOnline across specialized servers that offer specific services. For example, when Censeo detects that the report generation service is taking longer than normal, one or more new servers can be designated as report server(s). Thus, we have scaled CenseoOnline to provide smooth response by offloading reporting function to additional servers.

### Five-Tier Model

CenseoOnline was developed based on a five-tier model shown below:



**Presentation Layer:** The Presentation Layer presents HTML pages to the end user's browser. This is done via server side ASP pages and JavaScript on the client side.

**Workflow Layer:** The Workflow Layer is a COM component written in Visual Basic and Visual C++ that provides a wrapper around the Business Logic Layer component API. Server-side ASP scripts use the ASP object model, WFL components, and style sheets to implement workflow methods.

**Business Layer:** The Business Layer implements business rules and serves the Workflow Layer requirements for providing the end user data. It captures the rules that govern CenseoOnline applications and connects the user at one end with the data at the other.

**Data Access and Database Layers:** The Data Access Layer is solely responsible for all data access. All components in this layer access the database via a single COM+ component. This Component Object Model (COM) component offers several benefits:

- It concentrates all ActiveX® Data Objects (ADO) code in a single place. This makes it easy to fine-tune the ADO parameters for best performance.
- If we want to port CenseoOnline to another database, like Oracle 8, we only need to port this component.
- It maps SQL Server™ stored procedures to a set of easy-to-use, familiar functions.

This single COM+ component accesses the database via Stored Procedures (SP). SPs are parsed and normalized SQL statements that are saved by SQL Server 2005. SQL Server caches the SPs and re-uses them on subsequent executions. Thus, SPs save a significant amount of processing at execution time. SPs also result in reduced network traffic and, therefore, CenseoOnline scales well to clustered architecture.