**Enterprise IT Solution for Columbus Computer Repair – Best Practices**

After careful analysis of Columbus Computer Repair’s current information system and assessment of their current and future business needs, Abbott, Orcutt & LaGrass Consultant Group has determined that the best IT solution for Columbus Computer Repair would be to implement three-tier application architecture using the principles of object-oriented programming and design.

**Three-Tier Application Architecture**

The advantages accompanying three-tier application architecture include efficient use of Columbus Computer Repair’s hardware and networks and the ease of system maintenance. In three-tier architecture, applications are segmented into three layers. The presentation tier will be located on the client side of Columbus Computer Repair’s existing client/server architecture and will provide a simple graphical user interface that employees can use to view, enter, and manipulate data. The business tier, normally located on the server side of client-server architecture, will enforce necessary business and data rules and can be used by various applications on the client side, freeing up network resources for other business-critical functions. The data tier allows the business tier and, at times, the presentation tier, access to the database without needing a copy of the database management system installed on the client or server side. Another advantage of three-tier application architecture is the ease of maintenance. Since the layers are logically separate, adding, updating, or redesigning one tier does not involve redesigning the entire application.

**Object-Oriented System Design**

Object-oriented system design comes with several advantages to Columbus Computer Repair, including, again, ease of maintenance, reusability, scalability, and information security. Maintaining code is easier with object-oriented programs as business objects are self-contained, so it is easier to pinpoint errors or bugs than it would be to do similarly in the procedural language currently in use. Reusing code is a benefit to object-oriented programming, meaning that the data and functions contained in an object can be inherited by a related object, resulting in fewer lines of code. Object-oriented systems are eminently scalable; new classes of objects can be developed and applications added as needs arise. Secure data is another advantage to object-oriented programming; business objects are responsible for their own data, only allowing outside access to data through public properties and data manipulation through pre-defined methods.

**The Particulars**

Columbus Computer Repair’s graphical user interfaces and business objects will be coded in VB.Net. As with all object-oriented programming languages, VB.Net gives us the capability to connect the front-end interfaces with business logic and company databases. Columbus Computer Repair’s databases will be Oracle databases using SQL for query purposes. Client-side computers will feature the Windows 7 Enterprise operating system; the server’s operating system will be Windows Server 2008. Company intranet as well as Columbus Computer Repair’s Web site will be scripted using HTML5 standards and Javascript.

With the exception of the general ledger, which will be coded in VB.Net, accounting functions will use Excel spreadsheets with menu-driven interfaces. Company documents, available on the company intranet, will be created in Microsoft Word. System documentation will be created using Microsoft Word and Microsoft Vizio where appropriate. Marketing materials will be created in Word as well, with images developed using Adobe Photoshop. Summary and detail reports will be produced using the Crystal Reports reporting tool in VB.Net