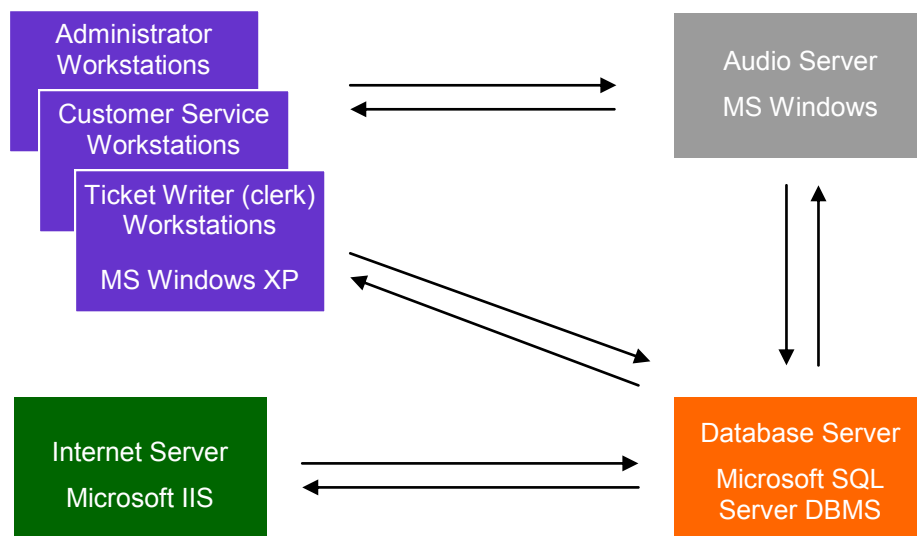


Action Sportsbook International Technical Information

Extension Software, Inc.

SYSTEM DESIGN

Action Sportsbook International (ASI) system is a client-server application designed with a distributed processing architecture. In its most basic implementation, the system hardware is comprised of multiple workstations, a database server, an Internet server and audio server. Workstations provide the means for entering bets, managing customers, and general system administration. The database server runs Microsoft SQL Server and provides access to system data and communication between workstations. Internet access is provided by Microsoft's IIS on the Internet server, while the optional audio server stores recordings generated when accepting wagers.



In systems typical of the sportsbook business, large amounts of data must be processed in a short period of time, while leaving the entire system accessible. An example is when bet taking processes must remain responsive while running other resource consuming tasks such as grading games. ASI's distributed design delivers quick response by conserving database server resources, while harnessing the power of workstations to take on much of the overall processing. With the minimized database server resource requirement, the system remains responsive in all of its activities, while delivering excellent grade and bet acceptance speeds.

Both hardware and software fault tolerance is an important factor in choosing a system design. By distributing processes among workstations, if a failure should occur, the problem is generally isolated to the failed computer. Other workstations and processes are unaffected by the fault enabling the system to continue running. Of course if the database server fails, the system must stop, however swapping in a backup server is made easier since no special software is loaded on the server. ASI provides utilities to backup and quickly restore data should the primary database server fail.

Modern technology has made high-end workstations affordable, so harnessing the power of these machines is now practical. Ordinary PC's can be used for all of the workstations—even those used for administrative purposes. With the database server relegated to accessing data alone, even the database server requirements are minimized, enabling investment in comparable backup servers.

HARDWARE REQUIREMENTS

Administrator Workstations
Customer Service Workstations
Ticket Writer (clerk) Workstations
MS Windows XP

Workstations run Microsoft XP and require video resolutions found in all modern PC's. As with all computers running MS Windows, a minimum of 1 GB memory is recommended. All data is stored on the database server so the hard drive capacity is of no significance. No special network hardware is necessary. Most workstation built in sound cards will work with ASI's digital recording mechanism.

Administrator workstations accomplish much of the systems processing, therefore these computers should be considered high-end workstations with fast processors and additional physical memory (2 GB).

Internet Server
Microsoft IIS

Requirements for the Internet server are hard to generalize since a large difference in network traffic exists from one client to another. However only IIS is required to run on the server, and the ASI Internet component is written entirely in server side ASP (Java Script).

Database Server
Microsoft SQL Server DBMS

ASI's database server must be capable of running Microsoft SQL Server DBMS. Requirements for the database server also vary widely based on bet volume. No other software must be present—and is in fact discouraged. Since the system depends on the database server, a backup server identical to the primary is strongly advised.

Database size rarely exceeds 20 GB, so storage size is not a factor, however hard drive data access typically determines the responsiveness of the system, while larger physical memory can significantly improve MS SQL's performance.

Audio Server
MS Windows

One of the most interesting aspects of ASI is its ability to digitally record phone conversations. This feature was integrated into the system design and results in seamless background recording and instant playback. The audio server should contain one or more large hard drives configured into a single volume. Recording storage requirements are about 1/2 meg per minute—a 100 GB drive typically holds over 3,000 hours of talk time. No special software is required.

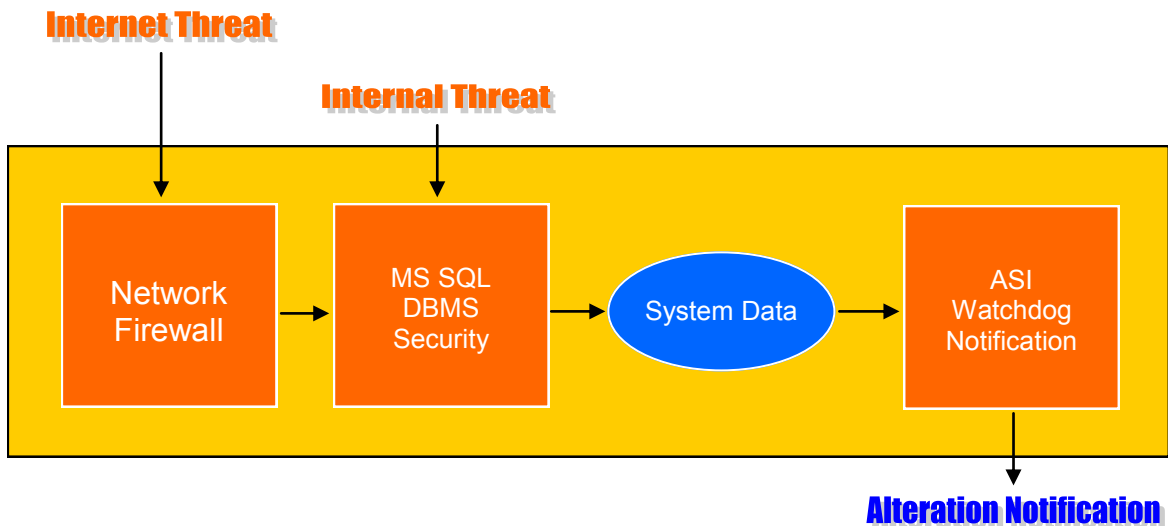
System Security

Security issues and recommendations are broken down into two broad categories, authorization and backup/recovery. Good authorization security will keep intruders from accessing your database and manipulating or vandalizing your data. Appropriate backup procedures enable you to recover from a variety of problems including hardware outages and configuration problems.

As an analogy, we can consider the ASI system as a compound of sorts.

1. Your network firewall is similar to a perimeter fence surrounding a compound.
2. MS SQL provides data authorization via account passwords, similar to keys used on a front door.
3. ASI's WatchDog is a feature that acts like a burglar alarm protecting the residence.

We make recommendations to help implement the first two steps of authorized security. The third step, WatchDog, is a feature of ASI that constantly monitors certain database structures, waiting for unauthorized changes to occur. Should a data change occur that is not considered normal or recognized by the ASI system, operators are alerted immediately so appropriate action can be taken. Of course one would hope the burglar alarm never sounds, but it is reassuring to know that ASI watches your data should the firewall and SQL password authorizations be inadequate for the given threat.



WatchDog is an integrated set of encrypted processes that monitor critical tables for outside changes. Should an unexplained data change occur, notifications are passed to administrators via the frequently referenced InstantAction module. Notifications include what data was changed and when.

In addition to constantly watching data, WatchDog monitors itself, making changes to special security accounts and expecting corresponding notifications to occur. If none are detected, notification is sent to the administrators that the security feature has been disabled.

Possessing recent data backups is crucial when recovering from any type of database damage. We provide backup and recovery information and tools that enable you to recover from unlikely data corruption situations. Our intentions are to minimize time and difficulty in recovering from an unexpected attack or failure.

Internet Customization

Realizing that our clients need ultimate flexibility in the design and behavior of their web sites, we designed the ASI Internet component to utilize server-side ASP. All Internet component source code is provided, and can be modify as needed to suit individual needs. With ASP being a relatively simple programming language to learn, all of our existing clients' technical staff have extended ASI to reflect their product's image.

Although our Internet component can be placed into service with few, if any, changes, access to the source code provides unlimited customization possibilities, welcomed by many in the competitive sports-book industry.

Third Party Interfaces

ASI's focus has always been sports betting; however nearly all of our clients require other systems to share customer funds and information. Casino, lottery, and poker systems are just a few of the many systems that can be attached to ASI providing customers with a common wallet to bet from.

BetService is a set of WEB services that enable third party systems to integrate with the ASI system. This important service not only minimizes development cost of integrating new systems with ASI, but also provides security measures to ensure compatibility and accuracy. All BetService activity is logged to ensure proper third party control and discrepancy correction.

Technical Overview

Operating System:	Microsoft Windows XP or Vista
Database Management System:	Microsoft SQL Server
Technical Design:	Distributed
Backend Language:	Visual C++ and C#
Internet Language:	Server Side ASP
Digital Recording:	Integrated and Automatic
Application Documentation:	F1 help and printed user's guide
Report Management:	Crystal Reports