# Systems Design for the Effective Management

# Of World Cup Soccer

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# Systems Design for the Effective Management Of World Cup Soccer[1]

## Problem Definition

Soccer is considered the most popular sporting event in the world. Its popularity surpasses American football. The World Cup is the world championship of professional soccer, and is held triennially. In 1994 the event is to be held in the United States. The schedule includes the playing of 52 games by 24 different soccer teams. The production of the event is expected to be mammoth in size, and it is very important that a system is created that will accommodate the many features that will be needed.

Issues that require attention

There are scores of individuals that need to be kept track of. Players, officials, support staff on each team, stadium personnel, and press must all be accounted for.

Massive amounts of data need to be available, and that data needs to be available quickly. When a good play is made by an individual team member, a replay of that play is usually shown on television. But prior highlights of that player are also often shown when time permits. An effective data management system is needed so that video clips, player photos, or player statistics are available quickly.

Effective measures must be taken to minimize violence. While American fans are not historically likely to experience extreme violence at soccer events, fans in foreign countries have been known to be tragically violent.

A system must be created that will address the issues listed above. A sound management force will ensure that proper steps are taken to have an effective system.

[1] This case study is depicted on page 206 ("Sidebar 5.1: The World Cup Soccer Client-Server System") of Software Engineering: Theory and Practice by Shari Lawrence Pfleeger, (1998).

Underlying fundamental issue and problem statement

The producers of the World Cup need to specifically address the following fundamental issue: *How do we best manage the details of the production and organization of the World Cup*.

## Justification for Problem Definition

A computer system and peripherals must be set in place that will be fully functional for the duration of the World Cup. Once the World Cup is over, the system will no longer be needed in the capacity for which it is designed. Many thousands of individuals will be involved in the production of the tournament. A soccer fan who watches a soccer game does not realize the time and effort required to produce that game. Production includes efforts required before, during, and after the actual game.

Because of improvements in technology over the past couple of decades, many benefits have been recognized by end-users. First of all, communication speed has been dramatically increased, and individuals who need information quickly can get it quickly. Secondly, more information is available than ever before, and new database systems and data warehousing techniques allow massive amounts of data to be stored and accessed through ad hoc queries. Thirdly, networking has improved the ability of geographically dispersed individuals to work together through a distributed system. These benefits from recent technological improvements will facilitate the production of soccer's most popular event, the World Cup.

## Alternate Courses of Action

Alternative 1

Create a centralized database system

Alternative 2

Create a client-server system

Alternative 3

Create a Web-based Intranet

## Evaluation of Alternatives

Alternative 1 (Create a centralized database system)

Advantage(s). Since the World Cup tournament will be held in several cities, some plan must be made to access data that will be located at numerous locations. One massive database can be used to hold all of the information that will be needed during the event. It can be accessed through the network that will be set up.

Disadvantage(s). A centralized database system may not be enough to solve the fundamental issue, because more than just data needs to be managed. A centralized system may be easy to access for local users, but users at a distance may experience problems with connectivity and availability.

Alternative 2 (Create a client-server system)

Advantage(s). A client-server system will allow as many workstations as needed to accommodate the number of workers that will be needed to make the production a smooth event. It will provide a reasonable framework for which to design a system that can be used for this singular tournament, and then broken down.

Disadvantage(s). A client-server system will require costs to set up, especially connection costs for long distances. Also, connectivity problems could mean that certain data may not be available when needed.

Alternative 3 (Create a Web-based Intranet)

Advantage(s). With a Web-based Intranet, the flexibility of Web-based designs can be used. All of the needed data can be accessed through an Intranet, which is basically a virtual private network. Intranets using Web-based technology can allow use of the Internet for access.

Disadvantage(s). There may be too much data to store as HTML files, and the time required to save data in HTML format may be prohibitive.

## Review, Conclusions, Recommendations

The producers of the World Cup have at least four main objectives. First of all, they need disciplined coordination and organization of each individual event. Secondly, they want to minimize violence at all events. Thirdly, they need a system that will allow quick transfer of data (e.g., individual and team statistics, video clips of prior highlights). Lastly, the producers want the event to be a financial

success. If the event is successful, then it will ultimately prove worthwhile in the following three ways: (a) advertisers will feel that their ad budgets were well spent, (b) the sport of soccer will be brought to higher awareness in America, and (c) the players themselves will have a comfortable time during the event realizing that the matches were well planned and all related activities were well coordinated.

Creating a Web-based Intranet is the alternative that should be chosen[2]. Not all data files will be able to be saved as HTML files, but they do not need to be. Many Internet sites allow access to databases and the data can be presented in whatever format is necessary. For instance, an Excel spreadsheet can be accessed on the Internet as an Excel file rather than as an HTML file if it is set up properly on the Web site. In fact, on my own real estate Web site, I have one available file (i.e., an amortization schedule) that was intentionally left in Excel's format rather than changed to an HTML file so that users who download the file will be able to use it (or modify it as necessary) as an Excel file.

Having a Web-based Intranet will allow speed of access to users. The speed of access to data will be as fast as the connectivity speed they are willing to pay for. Considering how much revenue the tournament will likely generate, paying for T-1 lines, which transfer data at a rate of 1.544 Mbps[3], will not be unreasonable.

Using a Web-based Intranet will be less costly than either of the other two alternatives. If users can access the Internet, they will have all they need to access the Intranet. Even 56 kbps modems will work for some of the users whose access to data is not of an urgent or immediate nature (e.g., names of hotels where players are staying; names of food service companies that provide service, etc.).

## Follow-up and Evaluation

Producers of the World Cup will obviously have experience from prior World Cup events as a background from which to plan the current event. Advances in connectivity and data management will simply allow them to do their job more efficiently.

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[2] While the authors of "Sidebar 5.1: The World Cup Soccer Client-Server System" described a client-server system that was used, I intentionally chose a different alternative so that the analysis for this case study assignment would be unique.

[3] Laudon, K. C., & Laudon, J. P. (2000). Management information systems: organization and technology in the networked enterprise (6th ed.) (p. 273) Upper Saddle River, NJ: Prentice Hall.

A database (or data servers) can be used to store the statistical data that must be available. Users will access the data through the temporary network that will be set up prior to the World Cup.

Once the event is over, specialists can submit all new statistical data to a data warehouse. A data warehouse is just what its name implies- it is a facility for saving and storing data (Bischoff & Alexander[4], 1997). The data that is sent to a data warehouse cannot typically be modified, because its value lies in being historically accurate. Modifying the data would compromise its value.

Many actions must take place prior to the World Cup. For instance, hotel reservations must be made for each team and its support staff. Also, plans for meals and incidentals must be arranged for teams and support staff. The producers of the event will already have many things in place before the event begins, and a solid system will ensure smooth planning and data acquisition.

With an effective system in place, schedules can be quickly accessed for each team, and a list of assigned officials (e.g., referees, judges, score keepers, etc.) for each game will be readily available.

Contingency plans must also be made in case of emergencies, or in case extreme weather conditions force postponement of games. These contingency plans must be written down and available to the producers of the event via the Web-based Intranet.

One additional benefit of the Web-based intranet will be the allowance of quick access to data no matter where the end-user happens to be physically located. An individual can access the Intranet via a cellular phone and a laptop computer using a wireless connection protocol.

As long as sound planning principles are followed and as long as connectivity issues are dealt with prior to the World Cup, the event should run smoothly. A Web-based intranet will allow producers of the World Cup to realize success in solving the underlying fundamental issue of *managing the details of the production and organization of the World Cup.*

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[4] Bischoff, J., & Alexander, J. (1997). Data warehouse: practical advice from the experts (p. 6). Upper Saddle River, NJ: Prentice Hall.