**Supplementary Specifications**

**Nonfunctional requirements**

* *Low operating cost*. The operator must be able to install and administer an arena without purchasing additional software components and without the help of a full-time system administrator.
* *Supportability/Extensibility.* The operator must be able to add new games, new tournament styles, and new expert rating formulas. Such additions may require the system to be temporarily shut down and new modules (e.g., Java classes) to be added to the system. However, no modifications of the existing system should be required. Alterations, such as inclusion of foreseeable module types should preferably be able to add without any interruptions in system availability.
* *Performance/Scalability.* The system must support the kick-off of many parallel tournaments (e.g., 10), each involving up to 64 players and several hundreds of simultaneous spectators.
* *Low-bandwidth network*. Players should be able to play matches via a slow ADSL connection or faster.
* *Usability*.Spectators must be able to access games in progress without prior registration and without prior knowledge of the Game.
* *Reliability*. Crashes due to software bugs in game components should interrupt at most one Tournament using Game. The other Tournaments in progress should proceed normally.
* *Reliability*. When a Tournament is interrupted because of a crash, its LeagueOwner should be able to restart the Tournament. At most, only the last move of each interrupted Match can be lost.
* *Operation.* An advertiser should not be able to spend more advertisement money than a fixed limit agreed beforehand with the Operator during the registration.
* *Legal.* Advertisers should be able to cancel sponsorship agreements within a fixed period, as required by local laws.

**Target environment**

* All users should be able to access any arena with a web browser supporting cookies, Javascript, and Java applets.
* The client interface is intended to be primarily web based, but plans include a future downloadable standalone software as well as a mobile platform with implementations for different mobile OS.
* Administration functions (e.g., adding new games, tournament styles, and administrators (League Owners)) used by the operator does not have to be available through the web.
* ARENA should run on any operating system supporting java and the server application should run on any web server supporting Servlets (and jsp).