Abstract

The treated distributed server multimedia in this work is composed of a Server Node, several Storage Nodes and many Client Nodes. Algorithms for the distribution of multimedia objects in the multimedia server storage space can be divided into two groups: Data Striping and Random Data Allocation models. Multimedia object storage redundancy mechanisms can be added with the purpose of increasing performance and providing fault tolerance.

The RIO Multimedia Server is a distributed multimedia server that allows for simultaneous access to its Storage Nodes. Distribution is achieved by means of a Random Data Allocation algorithm. The RIO Multimedia Server implements a redundancy mechanism for the storage of multimedia object blocks known as replica.

The accidental removal or, for that matter, a connection fault of a Storage Node can cause a failure or the interruption in the exhibition of multimedia objects in the Client Nodes, depending on the number of replicas defined in the RIO Server configuration archives. Conversely, the insertion of a Storage Node with the purpose of increasing the storage space, will not cause problems to the functioning of the server but it will not be detected by the RIO Server. Currently, the recovery of the services provided by the RIO Server, in virtue of the modification of the configuration of a Storage Node, demands that the server should be stopped to modify the configuration registers, then restarted for the removal of multimedia objects and then the reinsertion of multimedia objects multimedia according to the new configuration of the Storage Node. Only after these operations are completed, will the supply of objects multimedia for the customers in the RIO Server be re-established. The customer will be left without attendance during all this process.

The solution adopted in this work for the redistribution of multimedia objects, when an modification in the configuration of a Storage Nodes occurs, is composed for three basic procedures: the interruption of the RIO Server, the off-line update of the configuration archives, and the re-initialization of the RIO Server in parallel with a redistribution procedure that gradually redistributes the multimedia objects randomly in the new Storage Node scenario, at the same time that the clients are taken care of. A number of experiments have been conducted, in which the number of multimedia object blocks moved around during the operation and the time consumed for the complete execution of the implemented routine were evaluated. Therefore, after a brief interruption of the RIO Server, it is possible to re-establish the supply of multimedia objects from the RIO Server to its clients.