Architectural review of load balancing single system image

ABSTRACT

Problem statement: With the growing popularity of clustering application combined with apparent usability, the single system image is in the limelight and actively studied as an alternative solution for computational intensive applications as well as the platform for next evolutionary grid computing era. Approach: Existing researches in this field concentrated on various features of Single System Images like file system and memory management. However, an important design consideration for this environment is load allocation and balancing that is usually handled by an automatic process migration daemon. Literature shows that the design concepts and factors that affect the load balancing feature in an SSI system are not clear. Result: This study will review some of the most popular architecture and algorithms used in load balancing single system image. Various implementations from the past to present will be presented while focusing on the factors that affect the performance of such system. Conclusion: The study showed that although there are some successful open source systems, the wide range of implemented systems investigated that research activity should concentrate on the systems that have already been proposed and proved effectiveness to achieve a high quality load balancing system.

Keyword: Single system image; NOWs (network of workstations); Load balancing algorithm; Distributed systems; OpenMosix; MOSIX