

Cloud computing is nowadays a popular computing paradigm. Computers are interconnected via network and jointly offer a lot of computing performance. SOFA 2 is a hierarchical component system offering a distributed run-time environment; therefore, it is a suitable environment for cloud computing. Applications are composed from components; each component may run on different computer in the 'cloud'. The deployment of the components influences the overall performance of the application and the utilization of resources in the 'cloud'; therefore, it has to be planned carefully. In this thesis, an algorithm for automated deployment planning of hierarchical component-based applications is proposed and further implemented in the SOFA 2 system. The algorithm incorporates components' demands and machines' resources in order to maximize performance of the deployed applications. The thesis also proposes and implements extensions that allow using the SOFA 2 component system as an actual cloud platform.