

Single Sign-on Access Control System Based on Kerberos in Cloud Federation

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ABSTRACT

Cloud computing is designed to revolutionize resource and service management. This technology is constantly evolving by providing attractive solutions and services to businesses and consumers. Cloud computing is a promising paradigm for delivering computing as services. Cloud computing providers have a lot of distributed resources around the world, however, sometimes these resources are not enough to satisfy customers, so a concept called the cloud federation has been developed to extend this technology. The cloud federation gives providers the opportunity to share their resources to meet customer demands that a single cloud could not meet those demands on its own. One of the important issues that exist in a federation environment is managing users and authenticating them in the cloud federation. In this article, we focus on controlling access to resources in a cloud federation. The proposed solution is a single sign-on system based on the Kerberos authentication protocol. The evaluations using the cloud simulator show that in the proposed method the access time to the shared cloud resources in different scenarios is limited. Also, in the proposed approach, the elasticity of cloud resources has not significantly affected the access time to resources. Hence, the overhead due to the proposed security mechanism in the cloud federation is tolerable.

Keywords: Cloud Computing, Cloud Federation, Access Control, Kerberos, Single Sign-on.