Design and Implementation of Multi-Tenant Infrastructure on Cloud Computing using CloudStack Framework with Restaurant Management Application as a Case Study

Student’s Name : Dimas Yoga Pratama
Student’s ID : 5110100039
Department : Teknik Informatika FTIf-ITS
First Advisor : Royyana Muslim Ijtihadie, S.Kom., M.Kom., Ph.D.
Second Advisor : Waskitho Wibisono, S.Kom., M.Eng., Ph.D.

ABSTRACT

Cloud is a shared environment built on a highly efficient, automated, and preferably virtualized IT infrastructure where IT resources can be provisioned on demand from anywhere over a broad network. By using the cloud computing, user does not need to provide the infrastructure, configuration, and software maintenance. Multitenancy is the main concept in cloud computing, the idea of multitenancy is a set of resources that can be utilized by multiple users. CloudStack is a cloud platform that offers cloud computing infrastructure as a service (IaaS). CloudStack supports developers in customizing a cloud computing system with an extensive API support.

With the growth of services that are built based on cloud computing technology as well as outdated of the old technology, therefore created a system that adopts multitenancy in the cloud computing infrastructure using CloudStack Framework. Virtualization technology is used as a basis for multitenancy in this system, so that users data and application is not mixed up with other. This system also implements scalability mechanisms in which the system automatically adds the backup computing
resources when the capacity of the existing system is not enable to serve the users.

Functionality and performance of the system is tested and evaluated in various scenarios. The results of the experiment show that the proposed system is capable of implementing multitenancy in providing services to the users. The system also provides monitoring mechanisms for the corresponding service provider.

*Keywords: CloudStack, Cloud Computing, Multi-tenant, Monitoring System.*