Securing Open Source Cloud Storage on OpenStack Cloud Computing Platform

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ABSTRACT: In cloud computing, cloud storage plays a vital role for storing the data in cloud because the data which is in cloud can be access through internet from anywhere with the help of internet. To store the data in cloud, much software are used but we are not assure that stored information is secure and confidential. Open-Stack provides open source platform to compute, network and for storing in single Application Program Interface (API) layer. Open-stack Block Storage (cinder) serves a self servicing management for block level storage device. The original raw data is converted into blocks with the typical data storage structure of Storage-Area Network (SAN). The block storage creates a virtualization pools to define back end storage device. It allows creating data center for defining software which includes the features such as availability, scalability and security.

Keyword: Open-Stack, API, Cinder, SAN.

INTRODUCTION

Cloud Computing has been introduced by Joseph Carl Robnett Licklider at the year of 1960's. The people can be connect from anywhere at anytime with the help of Advanced Research Projects Agency Network (ARPANET).

Cloud provides a small volume of disk space is available to upload the data in cloud is said to be 'CompuServe' at the year of 1983.

Then cloud Storage become web based and commercial basis, it was launched by AT & T at the year of 1994. Amazon web service is a good example for commercial system basis.

Cloud offers file sharing and personal information storage in online; it has been announced at the time of 2005. With the help of this two features peoples can transfer the information very easily and they can access the data from anywhere at anytime through internet.

Cloud Storage Architecture
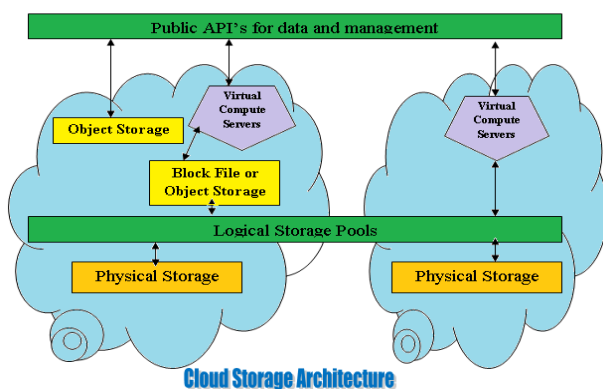
At the year of 2006, Storage of data in cloud has been widespread and recognizes many services which are very popular such as smugmug, dropbox, printerest and synaptop. Cloud storage service can be access from cloud API web services or by utilization of API desktop storage or web based content management system.

OPEN SOURCE COMPUTING

Open-source cloud is any cloud administration or arrangement that is constructed utilizing open-source programming and advancements. This incorporates any open, private or cross breed cloud show giving SaaS, IaaS, PaaS or XaaS constructed and worked totally on open-source advances.

Software as a Service (SaaS) allows a users (or) clients to build a software in a cloud and it can be accessible with the help of internet.

Infrastructure as a Service (IaaS) provides the infrastructure to work the business needs according to the requirements as per client needs. IaaS supplies server form in online premises, it provides servers to maintain stock and system administration work globally on the virtualization or hypervisor layer.

Open Source cloud Computing web services

Platform as a Service (PaaS) is a distributed computing model in which an outsider supplier conveys equipment and programming instruments - normally those required for application advancement - to clients over the web. A PaaS supplier has the equipment and programming individually framework. Subsequently, PaaS allows the client to install the software in their personal computer and to program (or) to create another application to run on the platform.

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OPEN-STACK PLATFORM

Open-Stack is open source programming, which implies that any individual who jars get to the source code, roll out any improvements or adjustments they require, and unreservedly share these progressions pull out to the group on the loose.

Open-Stack allows the users to deploy the virtual machines and it allows to handle different task on cloud environment to manage in easy manner. It works on horizontal scaling to run the task concurrently on the cloud server, it can be access from many users instantly from the open-stack cloud storage.

Block Storage (cinder): The *Cinder* is a kind of information storage commonly utilized as a part of Storage-Area Network (SAN) situations where points of interest put away in volumes, likewise alluded to as blocks.

Object Storage (swift): The *Swift* is a computer information data storage engineering that oversees information as articles, instead of other data storage models like record frameworks which oversee information as a document chain of importance.

Image storage (glance): The *glance* can be arranged to store pictures on an assortment of capacity back closures upheld by the look store drivers.

Ephemeral storage (nova): The *Nova* storage benefit is designed to give cases root or transient plates, putting away for brief time.
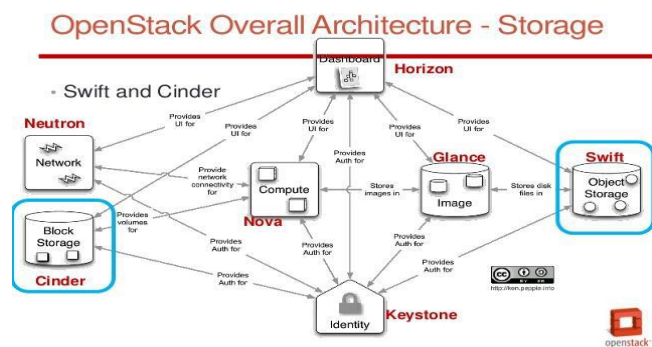
Result:Open-Stack is presently utilized as a part of generation arrangements by a portion of the biggest organizations in the United States, including Walmart, Comcast, BestBuy, Time Warner Cable, AT&T and eBay. Late endeavors like VENOM, a virtual machine (VM) breakout, and Heartbleed, a SSL-related imperfection, have influenced Open-Stack.

Robert Clark, lead security draftsman for HP's Helion cloud and undertaking specialized lead (PTL) of the Open-Stack Security Group, talked in a few sessions at the most recent summit, and clarified that a wide range of advancements can be utilized on have working frameworks and inside Open-Stack to give security.

CONCLUSION

In open source cloud storage, Open-Stack is mainly used for storing the data in cloud because user can utilize 1TB of storage space freely, and it provides security to the data by identity key and it store the data in binary format of the original data. Binary format of the data can not be hacked by the intruder without knowing the key provided at the time of uploading the data. Open-Stack provides availability, scalability and security for the block storage of the data in cloud storage.

REFERENCE

1. H. Takabi, J. B. Joshi, and G.-J. Ahn, "Security and privacy challenges in cloud computing environments," IEEE Security & Privacy, no. 6, pp. 24–31, 2010
2. K. Ren, C. Wang, and Q. Wang, "Security challenges for the public cloud," IEEE Internet Computing, no. 1, pp. 69–73, 2012
3. Wen, X., et al, Comparison of open-source cloud management platforms: "OpenStack and OpenNebula. Fuzzy Systems and Knowledge Discovery (FSKD)," 2012 9th International Conference on. IEEE
4. E.Srimathi and Dr. SP.Chokkalingam, "OpenKey-Generation for Enabling Cloud Storage Security in Open Source Cloud Computing",JARDCS,Vol.9.Sp-17/2017.
5. Yang Luo, Wu Luo, Tian Puyang, Qingni Shen, Anbang Ruan†, Zhonghai Wu, "OpenStack Security Modules: a Least-Invasive Access Control Framework for the Cloud,"2016 IEEE 9th International Conference on Cloud Computing
6. Kui Ren, Cong Wang, and Qian Wang • Illinois Institute of Technology, "Security Challenges for the Public Cloud"
7. Suryadipta Majumdar, Taous Madi, Yushun Wang, Yosr Jarraya, Makan Pourzandi, Lingyu Wang and Mourad Debbabi, "Security Compliance Auditing of Identity and Access
8. Secured Data Communication in Cloud Computing using Channel API with MD5 Hashing, ISSN: 2320-1363, journal of International Journal of Merging Technology and Advanced Research in Computing
9. Management in the Cloud: Application to OpenStack," 2015 IEEE 7th International Conference on Cloud Computing Technology and Science