

IADS (Intelligent Application Development Studio): Development of open source software based services

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Abstract. Three critical technologies – mobile, smart, and cloud computing – have rapidly emerged as the result of recent new IT technology issue. However, majority of the infra service, platform service, and software service are highly dependent on foreign products. Accordingly, this paper developed the Korean cloud system through the development of “Open Cloud (Platform) System-Based Integrated Intelligent Application Development Studio” which is an open source software-based, and developed various open source software based services.

Key Words : open source software, Application Development, Convergence, Cloud

1 Introduction

Critical technologies – mobile, smart, and cloud computing – have rapidly emerged as the result of recent new IT technology issues. The smart phenomenon is affecting not only the IT industry but all areas of business.

This paper developed the Korean cloud system through the development of “Open Cloud (Platform) System-Based Integrated Intelligent Application Development Studio”. In Chapter 2, the domestic and overseas open cloud light-weight PVI provisioning and the trend of app development tools were investigated. Chapter 3 suggests the intelligent-based studio developed by utilizing the open cloud platform based open source, and shows the design to develop it. Chapter 4 shows the realization of results. Chapter 5 gives the conclusion [1].

2 Related Research

2.1 Checking the PDF File

(1) Overseas Open Type Trend

Application development to increase the productivity by transferring the work environment to mobile has grown. In case of development studio for application development, it is released in versions that can be used in mobile environment. The following are the on-going projects of foreign conglomerates.

- Google: Launched Inventor to manufacture terminal App. [2]
- Antenna Software: Selling studios that can develop mobile App. And G/W functions.
- Apple: Can develop iPhone App. using iPhone SDK and iTunes
- IBM: Can manufacture, corporation linkage tool and provides App. Client Runtime environment using Eclipse SDK and Lotus Expeditor.
- MicroSoft: Can make App. using Visual Studio and SQL Server Business Intelligence Development Studio, and provides Back-end System interface.

(2) Domestic Cloud Trend

Domestic conglomerates have attempted to enter the desktop-oriented software industry, and to enter the market using the core technology.

The following are the on-going projects of the domestic corporations.

- KT: File sharing between employees with 'ucloud Pro', began operating real time automatic backup data storage service, plans to expand to computability provision service, and plans to open 'Smart Working Centre' in Bundang and induce 1.15 million users by 2015.
- LG U+: Interlock personal cloud service with 100Mbps high speed wireless Wi-Fi service and 3G based on telecommunications and AP Centric Network (CAN), and provide it as U+ Box which manages the personal multi-media contents.
- SKT: Built Cloud Computing Platform (CCP) and Office Platform, to provide the server hosting environment of CP developer and partially carried out the mobile spread of Biz Common Platform (BCP) corporation environment. But does not have the device application studio function

2.2 Hybrid intelligent based app. Development tools

(1) PhoneGap : Though registration on iPhone OS4.0 is not certain, it is the framework that can most easily develop Native App for Major Mobile [3].

(2) Accelerator Titanium : QuickConnectiPhone Framework provides one complete template.

(3) Rhomobile : Rhomobile provides Rhodes, RhoSync and RhoHub API, and Rhodes is an open source framework that allows one code to be applied simultaneously to the OS of iPhone, Windows Mobile, RIM, Symbian, Android, etc.

(4) Appcelerator's Titanium Mobile : The environment to develop Apps that are compatible with desktop and mobile, the titanium had a later start than PhoneGap but it is a hybrid app development framework which suggests new direction for hybrid app development with a completely different approach [5].

(5) Appspresso : Appspresso, which is the most recently released among the hybrid app. development platform, provides eclipse-based integrated IDE, and supports mobile java script framework template formation tools such as iQueryMobile, Sencha Touch, and WAC Waikiki which is the standard for telecommunication companies-focused web-app.

3 Research

The open cloud platform developed in this paper utilizes the open source software to use sharing cloud computing OVM hypervisor for service technology development, and developed the management system through open API.

The following (Fig. 3-1) shows the architecture of the open cloud system.

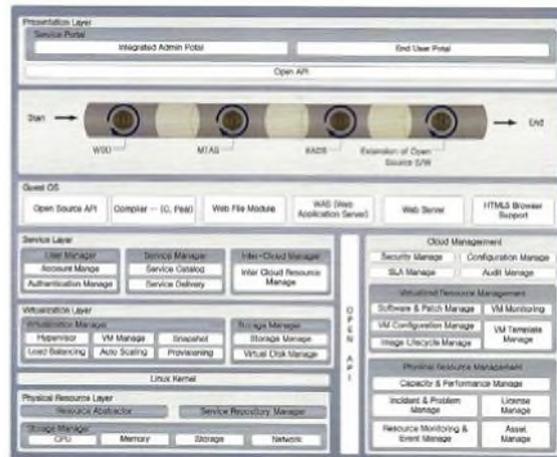


Fig. 3-1. Open cloud platform architecture

3.1 Open Cloud System Technology Development

Open Cloud System includes the following four main services [7].

- (1) Compute infrastructure : Compute Infrastructure is the software which operates and manages the virtual machine in the server in Cloud Computing. It defines the driver to operate the virtualization mechanism of the host machine and provides the service via the web.
- (2) Storage Infrastructure : It provides object storage service which is similar to Amazon’s S3 service by open sourcing the core technology of Rackspace which is the leading cloud storage service company.
- (3) Imaging Service : It manages the virtual machine images by using imaging service, and uses Open Stack Object Store of Amazon S3 as its storage.
- (4) Management Service : The management system of the open cloud system manages the computing environment connected in cloud, and manages the life cycle of the entire related instance within the cloud. As a management platform, it provides computing resource, networking, verification control, and expansion function, and can be interlocked with hypervisors on some support list using libvirt API.

The functions and features of the management service are as follows.

- Instance life cycle management

- Compute resources management
- Networking Authorization
- REST-based API
- Asynchronous eventually consistent communication
- Hypervisor Vital Interlock: OVM
- Scheduled for later: Xen, XenServer/XCP, KVM, UML, VMware vSphere / Hyper-V

4 Results

This paper has developed three service types on a trial basis, using the IADS which is an open cloud system.

- Web Mobile Desktop Service
- HTML5-based multimedia tag ad. service
- Easy App development support service

The following (Fig. 4-1) shows the integrated development service environment and IADS Service architecture.

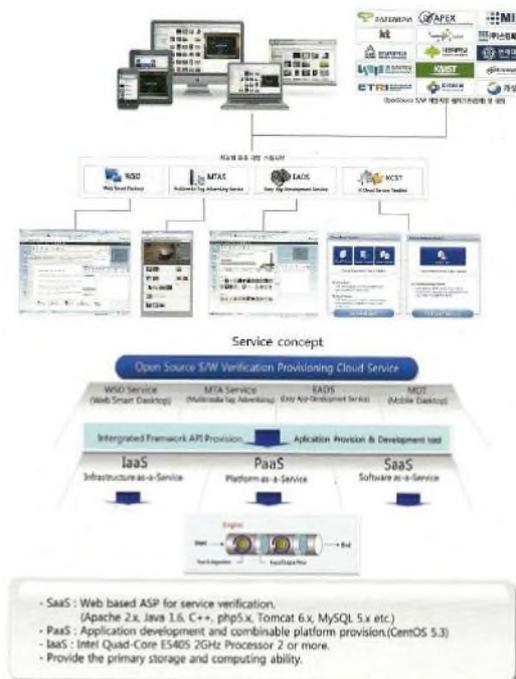


Fig. 4-1. Integrated development service environment and IADS Service architecture

IADS is an open cloud (platform) system which was developed as an open source based hypervisor management technology and open system, and has the platform provisioning function for the development and service for open software test verification.

(2) Web Smart Desktop Service (WDS) and Multi-Media Tag AD Service (MTAS)

The following (Fig. 4-2) shows the Web Smart Desktop Service screen.



Fig. 4-2. Web Smart Desktop Service screen and Multi-Media Tag AD Service

5 Conclusion

Recently, the cloud service is warming up, and the government and corporations are investing huge budget and manpower in cloud infra building and service development. Nevertheless, majority of the service and infra building are highly dependent on foreign products.

In software industry, the focus is on open source software regarding service development. Corporations and the government are looking for a solution in open software for new IT service model and service. However, there is no shared infra to provide development infra for open source software, or to operate and verify.

Accordingly, this paper developed the intelligent application development studio as the solution for the problem. It is an open cloud (platform) system which can provide sharing infra for open source based hypervisor management procedure and the development of the open source software development which has the platform provisioning function for open software test verification.

Vitalization of open soft based development through service verification technology and various open API development is necessary. Also, the vitalization of open source software development support service and demand for verification system building to give confidence to the users through quality guarantee for the service is required.

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