



Cloud Computing: An Integrated Development Environment for Web Design and Development

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Abstract: Cloud computing provides an Integrated Development Environment (IDE) for web developers using this they can design and develop websites or web application in popular web development programming languages like HTML, CSS, PHP, Java, .Net, Python, JavaScript with Node.js, Ruby and so on. Cloud providers provide web services that allow users to build and host a web application or website online and manage relational databases which live in Cloud. It is also provides security scanner which automatically scans web application or websites and remove all vulnerabilities. It is a powerful technology that provides Platform as a Service (PaaS), Infrastructure as a Service (IaaS) and Software as a Service (SaaS). So it is provides everything online includes data center, storage, software, hardware, infrastructure and so on and also provides an online environment for design, coding, publishing and hosting in the popular web technologies are known as LAMP which stands for Linux, Apache, MySQL and PHP. In this paper, discuss about cloud computing and cloud providers which provides an Integrated Development Environment for web design and development.

Keyword: Cloud Computing, Cloud Providers, Integrated Development Environment, Web Design, Web Development, Web Developers and Programming Languages

I. INTRODUCTION

Cloud Computing is a latest technology which provide everything online, includes storage, data center, software, hardware, infrastructure and application and they are on demand, anytime and anywhere with low-cost. Cloud computing has transformed the way of Information technology and provide remote location technique. Using this user and organization can access our data and information in anytime and anywhere through Internet. It is provides storage, database, infrastructure, network, application and data center because of these advantages organization prefer cloud computing and due to cloud computing is so popular.

Cloud Computing provides an Integrated Development Environment (IDE) which helps web developers for Web Design and Development in remote location. Its support many programming languages include HTML, CSS, PHP, Java, .Net, Python, JavaScript with Node.js, Ruby and so on. So web developers build, manage and deploy own web application online in any programming languages using cloud computing because cloud computing provide an online platform for web developers to design and develop applications online every time and everywhere. It is also provides security scanner which automatically scans web application or websites and remove all vulnerabilities. Here web developer can also upload your existing code. It is provides remote location facility for web design and development.

Without cloud computing developers need to build and manage a website and web applications on a particular computer system at a particular location. But Cloud Computing provide an online platform for web developers where all team members work together and they can online share, access, manage and modify their source code easily and build, manage and deploy a perfect web application or website.

II. MODELS OF CLOUD COMPUTING

Cloud Computing provide three types of model they are Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS), which are explained below:

A. Software as a Service (SaaS)

Software as a Service runs on cloud that are owned and operated by other. Software as a Service provides a Cloud based Application. Software and Application are not installed in user computer. User only use software and application they install in cloud due to no need to install, update and maintain the software and application.

B. Platform as a Service (PaaS)

Platform as a Service provide complete life-cycle of building and hosting a web based applications. In Platform as a Service we can buy and manage hardware, software and hosting. Using Platform as a Service user and organization faster develop a web application based on cloud. It provides to develop and migrate application to both public and private cloud.

C. Infrastructure as a Service (IaaS)

Infrastructure as a Service provides computer resource like storage, server, data center and network to the users and organization. In Infrastructure as a Service no need to own data center space, storage, server and network, these all are provides to user and organization on a pay per use basis and also cost effective.

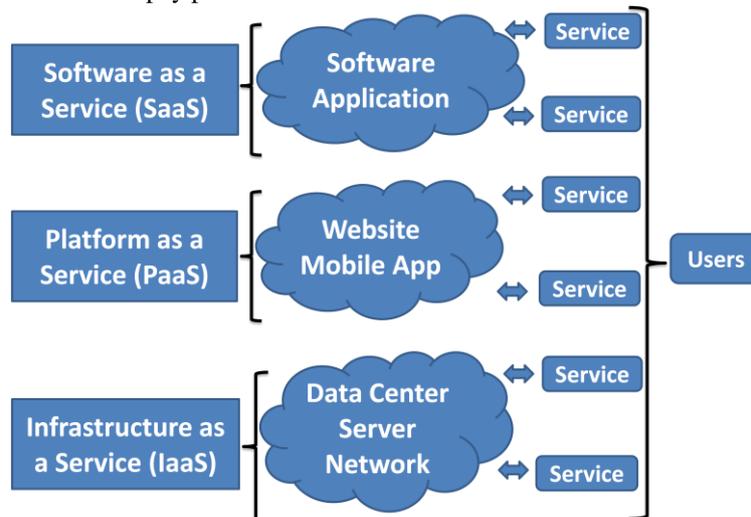


Fig. 1: Services of Cloud Computing in different model

III. TYPES OF CLOUD COMPUTING

Cloud Computing divided into three different types. They are Public Cloud, Private Cloud and Hybrid Cloud, which are explained below:

A. Public Cloud

According to name they are public and shareable, it operated by providers. In Public Cloud no need to use our hardware, software, network and infrastructure. They all are provide and maintain by providers so due to some security and privacy issues also occur but it work on trust base system.

The benefit of public cloud are when you need hardware, software, network and infrastructure then all are available anywhere and anytime on demand.

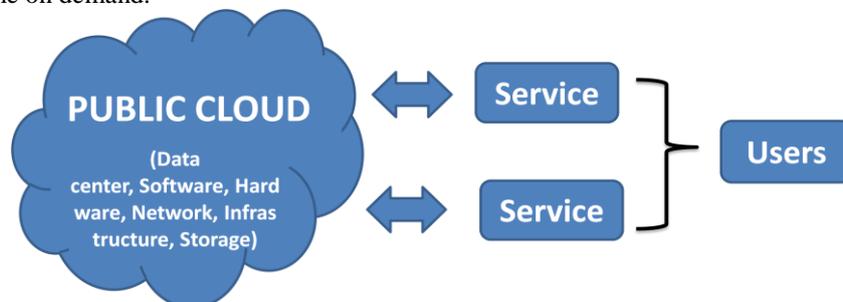


Fig. 2: More than one services share Public Cloud

B. Private Cloud

It provides to a single organization and this organization managed hardware, software, network, application and infrastructure itself. Here including a security level due to use encryption and decryption technique. Using encryption and decryption security and privacy issues removed.

With the help of encryption and decryption security and privacy is high compare to public cloud.

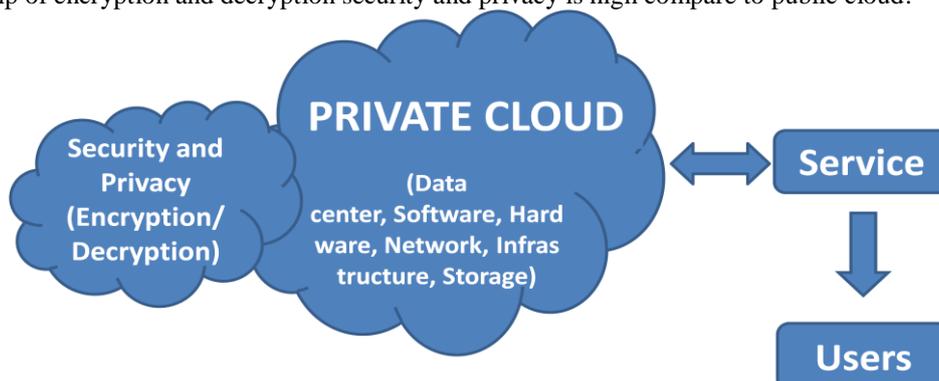


Fig. 3: Private Cloud include Security and Privacy

C. Hybrid Cloud

Hybrid Cloud is combination of both public and private cloud. It holds properties of public and private cloud. It includes security level and also sharable nature.

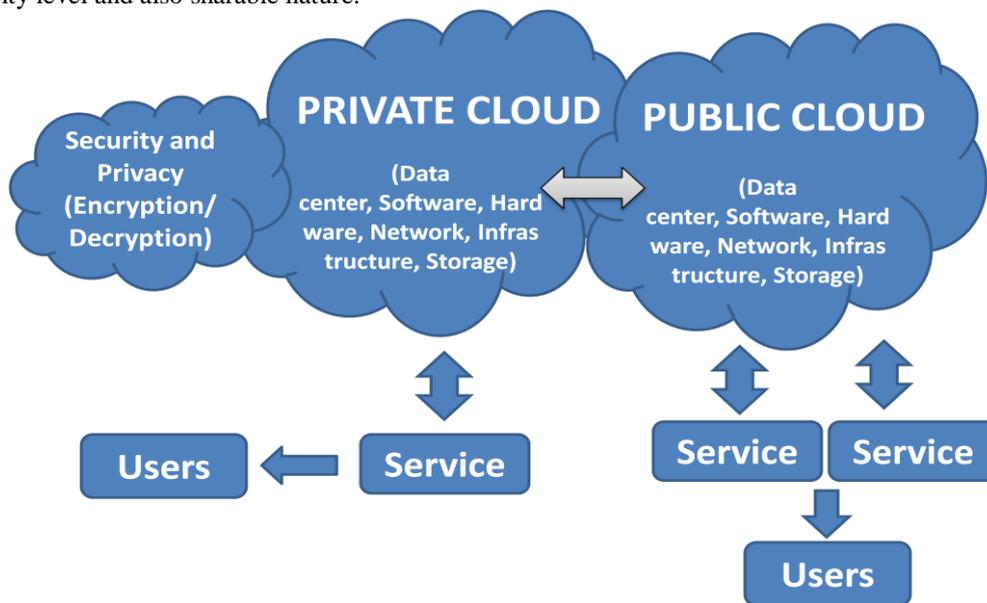


Fig. 4: Hybrid Cloud Combination of both Public and Private Cloud

IV. CLOUD PROVIDERS FOR WEB DESIGN AND DEVELOPMENT

The top players of this field are Google App Engine, AWS Cloud Services, Microsoft Azure, Codeita and so on, which all are explained below:

A. Google App Engine:

Google is one of the top players of cloud computing. Google App Engine is a Platform as a Service (PaaS) that provides building and hosting of web applications in Google's own servers. Web developers can build their applications in popular web development languages like Java, PHP, and Python. It provides free sign-up and also free building and hosting for a level. They provide to web developers with 500 MB of storage and 5 million page views a month, at no cost. Google App Engine provides web services that allow users to build, host, and manage web applications and relational databases that live in Google servers. It provides an in-built security scanner for web design and development. The Security Scanner automatically scans users' web applications and removes all vulnerabilities.

B. Amazon Web Services (AWS):

Amazon is also one of the top players of cloud computing. It helps web developers to store and control their application's source code and automatically build, test, deploy, and host their applications on Amazon's own servers. AWS provides some developer tools:

- **AWS CodeCommit:** AWS CodeCommit is a source control service which is fully managed by Amazon that makes it easy for web developers to host secure and highly scalable private storages.
- **AWS CodeDeploy:** AWS CodeDeploy is a service that automates code deployments to any instance, including Amazon Elastic Computer Cloud (Amazon EC2) instances and instances running on platform. AWS CodeDeploy makes it easier for web developers to rapidly release new features, helps you avoid downtime during application development and handles the complexity of updating your applications.
- **AWS CodePipeline:** AWS CodePipeline is a continuous delivery service for fast and reliable application updates. CodePipeline builds, tests, and deploys your code every time. It provides you to reliably and rapidly deliver updates and features.

C. Microsoft Azure:

Microsoft is also a big player of Cloud Computing. Microsoft Azure is a cloud computing platform for building, managing, and deploying web applications in Microsoft's own servers. It provides Platform as a Service (PaaS), Software as a Service (SaaS), and Infrastructure as a Service (IaaS). It supports many programming languages, tools, and frameworks and also provides third-party software and systems. Microsoft Azure helps web developers to easily publish and manage websites. It allows web developers to build websites using many programming languages, including ASP.NET, PHP, Python, and JavaScript with Node.js and can be deployed using Git, FTP, Mercurial, or Team Foundation server.

D. Codeita:

Codeita is a new cloud-based development platform for web developers. It allows developers to do everything from a cloud perspective like design, coding, publishing, and hosting online using the popular web technologies. These

technologies are known as LAMP, which stands for Linux, Apache, MySQL and PHP. Codeita holds the following features:

- Auto-highlighting code editor
- Project specific, task management
- In-browser page content editing
- Flexible cloud storage
- Advanced image editor
- In-browser FTP publishing.

Like other cloud providers, Codeita is free sign up, and provides developers with 100 MB of space to start out. Not only can you upload files from your local computers but also you can create them on the spot using the online editor. You can also create and use MySQL databases online, as well as open your project up to additional developers who also use Codeita.

E. *Cloud9:*

Cloud9 is a powerful online code editor with a full Ubuntu workspace in the cloud. It supports more than 100 of programming languages, including HTML, PHP, Java, Python, Ruby, Go, JavaScript with Node.js. It provides all web development features like online preview and browser compatibility testing.

F. *Codeanywhere:*

Codeanywhere is a cross-platform cloud integrated development environment. It provides users to write, edit, collaborate and run web development projects online. It supports more than 75 programming languages, including HTML, PHP, Java, Python, .Net, JavaScript, Node.js, and Ruby. It is a powerful Integrated Development Environment (IDE) has all the features of a Desktop IDE but with additional features only a cloud application can give you.

G. *Koding:*

Koding is an online development environment which allows developers to program and collaborate online. It supports multiple programming languages, including C, C++, Java, PHP, Go, Python, Ruby, JavaScript with Node.js.

H. *CodeRun Studio:*

CodeRun is a free, Integrated Development Environment. It provides to build, debug and deploy web applications online. Here you can also upload your existing code. It supports multiple programming languages including C#, .Net, HTML, PHP, Java, ASP.NET etc.

I. *ShiftEdit:*

ShiftEdit is a powerful online and Integrated Development Environment for web development. It supports multiple programming languages including HTML, PHP, Java, Python, .Net, JavaScript, Ruby.

J. *Orion:*

Orion is an open source software development environment that runs in the cloud. Its primary use at the moment is for front end web development, so it is limited to HTML and JavaScript for the most part.

The following table shows the website information of all cloud providers for web design and development which explain above:

Table1: Cloud Providers name and websites URL for Web Design and Development

Cloud Providers for Web Design and Development	Websites URL
Google App Engine	https://cloud.google.com/appengine/
AWS Cloud Service	https://aws.amazon.com
Microsoft Azure	https://azure.microsoft.com
Codeita	www.codeita.com
Cloud9	https://c9.io
Codeanywhere	https://codeanywhere.com
Koding	www.koding.com
CodeRun Studio	www.coderun.com
Shift Edit	https://shiftedit.com
Orion	https://orionhub.org

V. BENEFITS FOR WEB DESIGN AND DEVELOPMENT

Cloud Computing provides several benefits for web design and development, which are explained below:

- a. **Online Build:** Web developers can build websites or web applications online using Cloud Computing.
- b. **Online Manage:** Cloud computing helps web developers to manage our web application or project online.
- c. **Online Deploy:** Cloud providers also provide online deploying websites or web application facility.

- d. Hosting:** It provides online web hosting facility for web developers.
- e. LAMP:** It allows web developers to do everything from a cloud perspective like design, coding, publishing and hosting online using the popular web technologies. These technologies are known as LAMP, which stands for Linux, Apache, MySQL and PHP.
- f. Programming Languages Support:** It supports more than 100 of programming languages, including popular web design and development languages like HTML, CSS, PHP, Java, .Net, Python, Ruby, Go, JavaScript with Node.js.
- g. Remote Access:** It provides remote access facility for building, managing and hosting websites or web application.
- h. Online Storage:** Cloud Computing provides online storage and web developers can also manage storage.
- i. Online Database:** It also provides online database and gives a facility to web developers to manage our database in cloud.
- j. Existing Code:** Web developers also upload your existing source code and update, modify and manage these source codes to online.
- K. Security:** Cloud computing also provides some security features for web design and development. It provides inbuilt security scanner which automatically scans user's web application and removes all vulnerabilities.
- L. Low cost:** It provides free Signup and also free building, hosting and storage for a level after that fee is applicable with a low cost.

VI. CONCLUSION

Cloud Computing is a latest online platform for web developers. It is an Integrated Development Environment (IDE) and supports many programming languages, includes top web design and development languages like HTML, CSS, PHP, Java, .Net, Python, JavaScript with Node.js and Ruby. Cloud providers provide web services that allow users to build and host a web application or website online and manage relational databases which live in Cloud. It also provides security scanner which automatically scans web application or websites and removes all vulnerabilities. Hence Cloud Computing is a preferable platform for Web Design and Development.

REFERENCES

- [1] <https://www.ibm.com/cloud-computing/what-is-cloud-computing/>
- [2] <https://cloud.google.com/appengine/>
- [3] <https://aws.amazon.com>
- [4] <https://azure.microsoft.com>
- [5] www.codeita.com
- [6] <https://c9.io>
- [7] <https://codeanywhere.com>
- [8] www.koding.com
- [9] www.coderun.com
- [10] <https://shiftdit.net>
- [11] <https://orionhub.org>
- [12] <http://www.htmlgoodies.com/beyond/webmaster/toolbox/article.php/3900716/Cloud-Computing-for-Web-Developers.htm>