

e Store for Cloud Services

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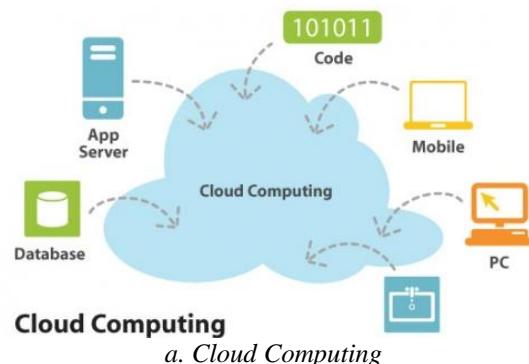
Abstract-Cloud computing allows to access software and services over the network. The network servers and connections are collectively known as “The Cloud”. The way the cloud computing is designed that allows the user to access the similar way as super computer being accessed. User can acquire resources as they need them. Cloud computing is simply a metaphor for internet. User doesn't have or need knowledge, control, and ownership in the computer infrastructure. Users simply rent or access the software, paying only for what they use. Cloud computing is often used to sort through enormous amount of data. Cloud computing requires the use of software that can divide and distribute components of a program to multiple computers. In technology, the word cloud computing is a synonym of distributed computing over a network, which means the ability to run an application or a program on several connected computers at the same time. It provides easy, scalable access to applications, resources and services, and are fully managed by a cloud service provider.

eStore for Cloud Services is a web app that will publish standardized cloud services as a catalog. An example of a service would be “Provision a Virtual Machine” and the related service item is a Virtual Machine. The application will automate the process of provisioning the item related to the service and hide all the complexity. Users will be able to order any service from the published catalog. The application will also display the price for each service. Once a Service Item is provisioned, the user will be able to view it in his purchases list. The user will also be able to relinquish this service. In that case the Service Item will be de-provisioned. An administrator will be able to view all the services that have been consumed by all the users and de-provision any service item. This app can be utilized by any small/medium sized organization to manage IAAS(Infrastructure as a service) requirements on the cloud.

I. INTRODUCTION:

Cloud computing allows to access software and services over network. The network servers and connections are collectively known as “The Cloud”. The way the cloud computing is designed that allows the user to access the similar way as super computer being accessed. User can acquire resources as they need them.

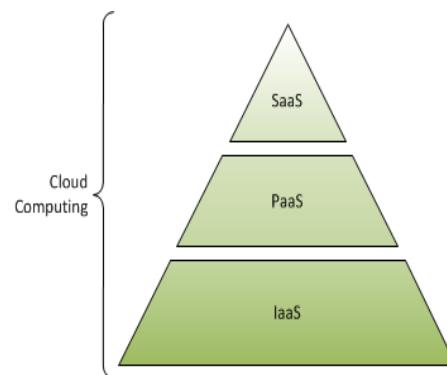
Cloud computing is simply a metaphor for internet. User does not have or need knowledge, control, and ownership in the computer infrastructure. Users simply rent or access the software, paying only for what they use. Cloud computing is often used to sort through enormous amount of data. Cloud computing requires the use of software that can divide and distribute components of a program to multiple computers. New technology in process, virtualization technology, disk storage, broadband internet access and fast, inexpensive servers have all combined to make cloud computing a compelling paradigm.[1]



II. TYPES OF SERVICES:

These services are broadly divided into three categories:

- Infrastructure-as-a-Service (**IaaS**)
- Platform-as-a-Service (**PaaS**)
- Software-as-a-Service (**SaaS**).



a. Infrastructure-as-a-Service (IaaS)

Infrastructure-as-a-Service(IaaS) like Amazon Web Services provides virtual servers with uniqueIP addresses and blocks of storage on demand. Customers benefit from an API from which theycan control their servers. Because customers can pay for exactly the amount of service they use,like for electricity or water, this service is also called utility computing.[8]

b. Platform-as-a-Service (PaaS)

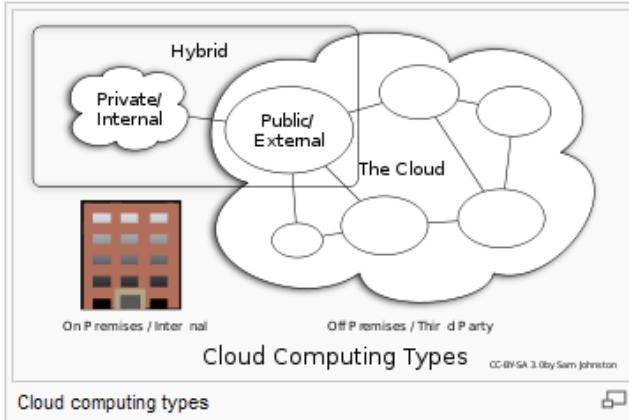
Platform-as-a-Service(PaaS) is a set of software and development tools hosted on the provider'sservers. Developers can create applications using the provider's APIs. Google Apps is one of the most famous Platform-as-a-Service providers. Developers should take notice that there aren't anyInteroperabilitystandards (yet), so some providers may not allow you to take your application andput it on another platform.[6]

c. Software-as-a-Service (SaaS)

Software-as-a-Service(SaaS) is the broadest market. In this case the provider allows thecustomer only to use its applications. The software interacts with the user through a

user interface. These applications can be anything from web based email, to applications like Twitter or Last.fm[7]

III. TYPES BY VISIBILITY



a. Types of Cloud Computing Types

a. Public cloud

Public cloud or external cloud describes cloud computing in the traditional mainstream sense, whereby resources are dynamically provisioned on a fine-grained, self-service basis over the Internet, via web applications/web services, from an off-site third-party provider who shares resources and bills on a fine-grained utility computing basis.[7]

b. Hybrid cloud:

A hybrid cloud environment consisting of multiple internal and/or external providers¹ "will be typical for most enterprises". A hybrid cloud can describe configuration combining a local device, such as a Plug computer with cloud services. It can also describe configurations combining virtual and physical, collocated assets—for example, a mostly virtualized environment that requires physical servers, routers, or other hardware such as a network appliance acting as a firewall or spam filter[2].

c. Private cloud:

Private cloud and internal cloud are neologisms that some vendors have recently used to describe offerings that emulate cloud computing on private networks. These (typically virtualisation automation) products claim to "deliver some benefits of cloud computing without the pitfalls", capitalising on data security, corporate governance, and reliability concerns. They have been criticized on the basis that users "still have to buy, build, and manage them" and as such do not benefit from lower up-front capital costs and less hands-on management⁴, essentially "[lacking] the economic model that makes cloud computing such an intriguing concept". While an analyst predicted in 2008 that private cloud networks would be the future of corporate IT, there is some uncertainty whether they are a reality even within the same firm.[8]

IV. EXISTING METHODOLOGY

Startups and small size companies find it problematic to create and manage initial infrastructure. This application will serve them as a one-stop solution for all their needs for

infrastructure needs by providing them a simple shopping interface and setting up their infrastructure on Amazon cloud using IAAS (Infrastructure as a service) model. Using this system they can provision a virtual machine on Amazon cloud and request for required software's on it, and instantly they can start development work the idea/business they are aiming for. It reduces lots of overhead and difficulties a start-up company finds themselves into when they start working on an idea.[3] They don't have any initial infrastructure to start their work. This system will solve this problem.

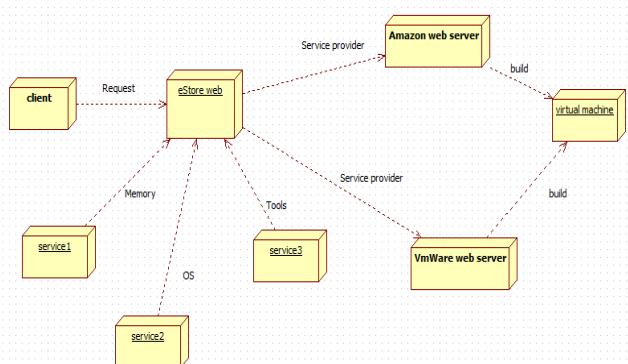
V. PROPOSED METHODOLOGY

The system under development will act as a one-stop solution to all needs of provisioning a virtual machine at amazon cloud. Just like we order usual goods online using shopping cart, similarly, this system will act as a shopping cart for those users who want to provision a virtual machine with specific configuration (cpu, memory, environment and other configurations). It will also act as bridge between the service provider and the user for the better accessibility and resource sharing among them. Likewise other shopping cart like Myntra.com and Jabong.com for shopping of our basic needs. eStore also act as the shopping for the cloud services, which provides different types of services according to the user satisfaction.

The eStore is now coming three categories and various products. Through the eStore user can shop the convenient cloud services as they preferred. User can add it to my cart or also can remove it from the cart. After checkout from eStore the service provider like Amazon will provision the user and configure the VM on the cloud.

During this economic time of recession, there are huge cost reduction pressures and cloud computing allows business to do just that by tapping into cloud computing platform on what you pay or how much you want to access. Customer retention is vital, especially in our current economy situation. Software and applications are extremely costly. With cloud, you rent so the heavy investment is forgone. eStore provides a set of technologies and business practices that enable companies of all sizes to build, deploy, monitor and scale application using resource accessed over the internet.[5]

VI. SYSTEM ARCHITECTURE



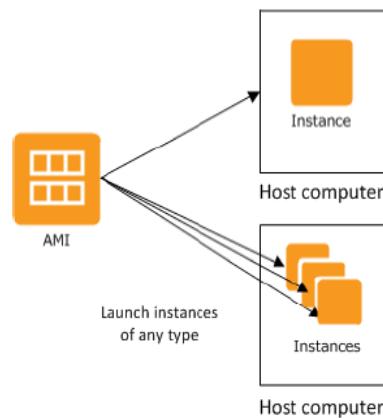
VII. WHAT IS AMAZON EC2

Amazon Elastic Compute Cloud (Amazon EC2) provides resizable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.[3]

Amazon EC2 Features of

- a. Amazon EC2 provides the following features:
 - Virtual computing environments, known as instances
 - Pre-configured templates for your instances, known as Amazon Machine Images (AMIs), that package the bits you need for your server (including the operating system and additional software)[3]
 - Various configurations of CPU, memory, storage, and networking capacity for your instances, known as instance types[3]
 - Secure login information for your instances using keypairs(AWS stores the public key, and you store the private key in a secure place)[5]
 - Storage volumes for temporary data that's deleted when you stop or terminate your instance, known as instance store volumes[3]
 - Persistent storage volumes for your data using Amazon Elastic Block Store (Amazon EBS), known as Amazon EBS volumes[3]
 - Multiple physical locations for your resources, such as instances and Amazon EBS volumes, known as regions and Availability Zones[3]
 - A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using security groups.
 - Static IP addresses for dynamic cloud computing, known as Elastic IP address.[3]
 - Metadata, known as tags, that you can create and assign to your Amazon EC2 resources[3]
 - Virtual networks you can create that are logically isolated from the rest of the AWS cloud, and that you can optionally connect to your own network, known as virtual private cloud(VPCs)[3]
- b. Amazon EC2 provides the following purchasing options for instances
 - **On-Demand Instances**
Pay for the instances that you use by the hour, with no long-term commitments or upfront payments.[5]
 - **Reserved Instances**
Make a low, one-time, upfront payment for an instance, reserve it for a one- or three-year term, and pay a significantly lower hourly rate for these instances.[5]
 - **Spot Instances**

Specify the maximum hourly price that you are willing to pay to run a particular instance type. The Spot Price fluctuates based on supply and demand, but you never pay more than the maximum price you specified. If the Spot Price moves higher than your maximum price, Amazon EC2 shuts down your Spot Instances.[5]



VIII. FRAMEWORK

This web-application will use the following

- 1) Three tier web application framework
- 2) The UI will be developed using JS frameworks like ExtJS and JQuery
- 3) The mid-tier will be written in java
- 4) SQL Server will be used to persist data
- 5) VMs will be provisioned on the Amazon EC2 or vSphere server.[5]

IX. WORKING PROCEDURE

The e-Store has come with different features. The user can login to site to browse for different products available on the shopping cart. After selecting the product from the shopping, the product will be shown on the user my cart. The user can select multiple instances from the cart. Before check out from the cart, the instances will be shown as pending. After connecting to the Amazon site for the instances, an alert will be generated as java script that your instance got select and running on the VM's.[1] There are multiple VM's, cloud service and SAS services as products. Those products have sub-categories with different pricing. The usage of the product will based on different schemes decided by the Amazon service providers which are discussed above. After checkout from the cart, the instance that you have ordered will be shown on the Amazon dashboard as running instances.[3]

The e-store works as rest service between the Amazon service provider and the user. After the creation of the instances on the Amazon, an public IP will be created which user can use to access the VM's by using putty.exe on Linux OS. As we are creating micro instances because of the cost effect.

One of the major concerns about cloud is the security reason. Here we are using public key for encryption and private key for decryption. The service is running as a

restful service which will make it more secure and authenticate. The detail of the instances will also be shown on the Amazon site.

X. CONCLUSION:

The eStore will help those users who are newly adventuring about the cloud services and provide a uniform platform between the user and the service provider. The service provider can also keep track of the different purchases made by the user and do both custom and manually installations at various platforms. It acts as bridge between the user and the service provider for better communication and utilizations of the resources. The eStore is based on the concept VM provisions which come with three categories and different products for the user convenient. There are more categories and products which will be added in the future for more user prospective.

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