Introduction

What is Cloud Computing and what does it mean for the business. Everyone in the technology world and business are talking about it. What unique advantages does a cloud computing architecture offer to companies in today’s economic climate. Before exploring the cloud computing infrastructure and its impact on critically important areas to IT, like security, infrastructure investments, business application development and more, we shall see how traditional server concept works.

1.1. Life before Cloud Computing:

1.1.a The Traditional Server Concept:

System Administrators often used to talk about servers as a whole unit that includes the hardware, the OS, the storage, and the applications. Servers are often referred to by their function i.e. the Exchange server, the SQL server, the File server, etc.

If something goes wrong

If the File server fills up, or the Exchange server becomes overtaxed, then the System Administrator must add in a new server. Unless there are multiple servers, if a service experiences a hardware failure, then the service is down. System Administrators can implement clusters of servers to make them more faults tolerant. However, even clusters have limits on their scalability, and not all applications work in a clustered environment. This raised issues on server maintenance and thus originating the concept of Virtual server.

1.1.b. The Virtual Server Concept:

Virtual Server – Close up

Virtual server concept separates the server software away from the hardware. This includes the OS, the applications, and the storage for that server. Servers end up as mere files stored on a physical box, or in enterprise storage. A virtual server can be serviced by one or more hosts, and one host may house more than one virtual server. Virtual servers can still be referred to by their function i.e. email server, database server, etc. If the environment is built correctly, virtual servers will not be affected by the loss of a host. Hosts may be removed and introduced almost at will to accommodate maintenance. Virtual servers can be scaled out easily. If the administrators find that the resources supporting a virtual server are being taxed too much, they can adjust the amount of resources allocated to that virtual server. Server templates can be created in a virtual environment to be used to create multiple, identical virtual servers. Virtual servers themselves can be migrated from host to host almost at will.

1.2 Why Cloud Computing?

Suppose you are Forbes.com:

Forbe’s.com

Forbe server’s operation hours are from 9AM till 5PM in a day. Then why spend resources on the server during nights when it is not actually used? If Forbe’s host their server themselves then why leaving it idle during its non operational hours.

Forbe’s Solution:

Host the web site in Amazon’s EC2 Elastic Compute Cloud.

Provision new servers every day, and de-provision them every night.

Pay just $0.10\* per server per hour or more for higher capacity servers.

Let Amazon worry about the hardware.

2. Background and Principle:

Cloud Computing:

Cloud Computing takes virtualization one step ahead. Virtualization is, “The ability to run multiple operating systems on a single physical system and share the underlying hardware resources.”

Whereas Cloud computing is, “The provisioning of services in a timely (near on instant), on-demand manner, to allow the scaling up and down of resources.”

# internet of things (IoT)

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers ([UIDs](https://internetofthingsagenda.techtarget.com/definition/unique-identifier-UID)) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

2.3. Research papers:

Research paper 1:

Athena Karumbaya Department of Electronics and Communication Vellore Institute of Technology

The Internet of Things (IoT) is a computing concept that describes a future where every day physical objects will be connected to the Internet and be able to identify themselves to other devices. In the future, every device is more likely to be connected to the web directly with the users expecting it to be responsive to their needs.[1] In this project, three modules are created which is used to monitor various environmental parameters and update it real time data to a server. The parameters measured include ambient temperature and humidity of the room, noise levels, the number of people entering and leaving the room and toxic gas detector. In case a flammable gas is detected, an alarm is triggered and an email is sent to the user’s account. Arduino is used to integrate and program the hardware components with ESP8266 being the WiFi component which connects to the host webpage. The server side is created on an IoT platform, Ubidots.

Research paper 2:

Gowri Satheesh Department of Electronics and Communication Vellore Institute of Technology

Using the Internet of Things (IoT) in homes and industries it is possible to control any electrical or electronic equipment. Moreover, you can get the information from any sensor and analyse it graphically or in any user-defined format from anywhere in the world. The IoT using Arduino microcontroller (MCU) is easy and fun for those who are new to the field. Presented here is a humidity and temperature monitoring using ArduinoIn this article, humidity and temperature information f of humidity and temperature monitoring using ESP8266 (Node Mcu) analysed through web site.

**Existing System**

When the user hits on a certain URL and if the requests are more then there will be increase in the traffic load. There will be lagging of the site and can’t be accessed and there will be unavailability of the URL for the users. If the load on the webpage is more on Big Billion Days for a shopping cart site, then huge loss to the Commercial Applications. Purchasing of physical servers only for one day sale is waste of money and configuring every server day by day is a difficult task to the administrator. Maintenance of servers is difficult. This much of infra of websites building and managing, it is challenging

**PROPOSED SYSTEM**

To overcome this issue, we are moving to the cloud. That is AWS CLOUD, and it is providing a feature called load balancing and Auto scaling. So when the load hits on the websites, then automatically virtual servers are created so that entire load will be redistributed to all servers. When the load is exhausted, to up and run 24x7. AWS increases the servers count, based on the policy.