 ISSN : 0976-8491 (Online) | ISSN : 2229-4333 (Print)

A Comparitive Analysis of the Cloud Platform Over Job Scheduling Approaches

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Abstract
The term cloud computing has come into this world as an evolution of the century. An idea to keep the entire data of a user over one server so that the user can access it from anywhere has taken a tremendous step towards the safety and security of the user's data. A cloud data center is termed as sophisticated architecture where users can relies over the preservations of the data from external theft. The cloud computing server has its disadvantages also. For a server to contain the entire data of millions of users in a safe manner is a hectic job. In the same manner, if a process is given to the cloud server, the way it responds is a major concern in rating up the servers for the performance evaluation. This paper focuses on the analysis of the different cloud computing platforms over different aspects and this paper also deals with the scheduling algorithms which are common for the last couple of years.

Keywords
Cloud Computing, Performance Evaluation, Job Scheduling

I. Introduction

Cloud Computing is an evolutionary platform which represents all the basic requirements of a day by day user. The need of the cloud computing signifies the relevance of the security threats and the parameterized object detection of any server. With the increasing demand of security the servers are not secure enough to meet user's demand. Hence the cloud platform is designed in such a manner so that it meets all the requirement needs of the user. A cloud is consisted of three basics working environment. They are described as follows and are shown in fig. 1.

A. IAAS

IAAS stands for Infrastructure as service. It is a service which is provided by the cloud computing network to avail users with the infra required by the user. As for the example if a user would require any operating system, it would be provided by the cloud computing platform. In the same manner the user will have to pay for each and every MB of space getting used. In such a manner plagiarism ends at both the sides.

B. PAAS

PAAS stands for Platform as a service and it is used to avail the users with the platform required. We can take the example of the .NET platform. The platform will be availed by the cloud server and again the user will have to pay for such work space.

C. SAAS

SAAS stands for software as a service and it covers all the software required by the user like Media Player, Job Schedulers etc.

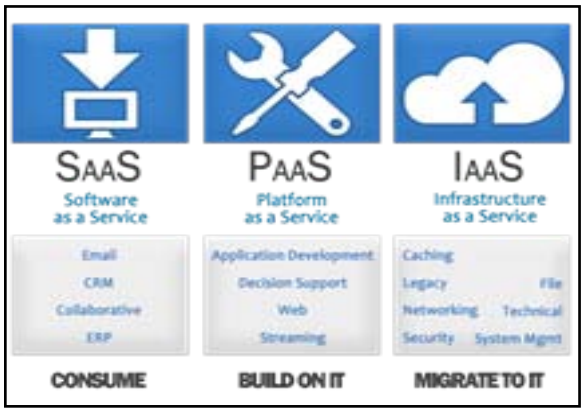

Fig. 1: Map of Cloud Computing

II. Different Types of Cloud Networks

A. Window's Azure

Window's Azure is a cloud computing evolutionary platform from Microsoft. The online portal for windows azure is www.windowsazure.com. The features of this cloud service platform are as follows.

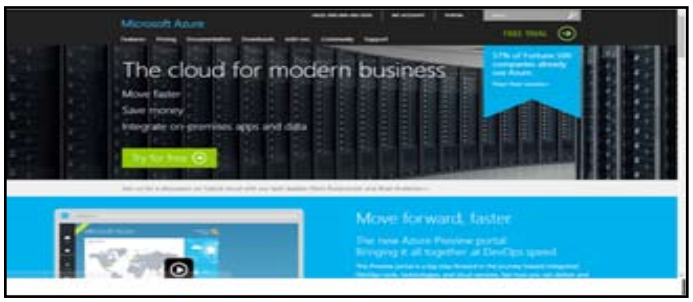

Fig. 2: Represent the Window's Azure Development Portal

Azure is an Internet-scale computing and services platform hosted in data centers managed or supported by Microsoft. It includes many separate features with corresponding developer services which can be used individually or together.
The main features of this cloud computing service are as follows:
Data Services provide the ability to store, modify and report on data in Azure. Benefits include manageability, high availability, high scalability, and a familiar development model. The following learning resources are available:

1. Windows Azure Storage is an overarching feature that contains 3 developer services.

- Blobs can store large text or binary data files. For example - log files, video, audio and images.
- Tables can store large amounts of unstructured non-relational (NoSQL) data.
- Storage Queues provide reliable, persistent messaging between application tiers running in Azure. Also see Service Bus Queues, which are similar but have different benefits

and limitations.

2. SQL Database can store large amounts of relational data.
3. SQL Data Sync enables creating and scheduling regular synchronizations between SQL Database and either on-premises SQL Server(s) or other instances of SQL Database.
4. HD Insight is based on Apache Hadoop. It simplifies working with big data through integration with tools like Microsoft Office and System Center. Additional information is available at Big Data
5. Hyper-V Recovery Manager lets you orchestrate and manage replication of your primary data center to a secondary site, for the purposes of data management, continuity, and disaster recovery. You can use off-premise automation to control on-premise private clouds that are defined in System Center 2012 Service Pack 1 (SP1) and System Center 2012 R2 Virtual Machine Manager (VMM).
6. Backup protects important server data offsite with automated backups to Azure, where they are available for easy restoration.
7. Cache is a distributed, in-memory, scalable solution that enables you to build highly scalable and responsive applications by providing super-fast access to data. This includes a very common scenario of session state and output caching in ASP.NET. Caching increases performance and reduced traffic by temporarily storing information from other backend sources and updating it at controlled intervals. In an Azure solution, Cache can reduce the costs and increase the scalability of other storage services such as SQL Database or Azure storage.
8. Azure SQL Reporting is a cloud-based reporting service built on SQL Server Reporting Services technologies. It allows you to build reporting capabilities into Azure applications. Reports can render on the desktop and remove the need to maintain your own reporting infrastructure. **NOTE: SQL Reporting is being deprecated in favor of running SQL Reporting Services on an Azure Virtual Machine. The documentation here is provided to support existing users only.**

B. Go Daddy

Similar like window's azure web portal, Go daddy is also cloud computing network which provides the following facilities to its end users. The main features of the GO Daddy cloud service is as follows

Go Daddy is the giant of the web hosting service industry, many times larger than any other domain registrar. They service upwards of 45 million domain names and the number is on the rise. They definitely know what they are doing, and you can count on their service to be reliable and competent, earning our TopTen REVIEWS Silver Award. They have some of the best domain searching features available – if a domain you want to purchase is no longer available, Go Daddy can put it on back order. They also provide a massive domain auction where the shortest, spiciest domain names are up for grabs. Because they have grown so large, you can also expect Go Daddy to be somewhat more commercially minded and less personal.

This web hosting service has all the features you can imagine – email, database and blogging are only the beginning. No other web hosting service can match the breadth and depth of Go Daddy's feature set, which is a major reason that they have become such a prominent player. Don't expect to have access to all of these features with the basic package, however. Many features are contingent on additional monthly fees – the shopping cart software is a prime example. It is powerful, convenient and attractive, but you'll have to pay extra, and there is a cap on the number of items you can store in the inventory. If you want to expand, you'll have to pay more.The email and database features are likewise capped. If you want unlimited everything, the price tag might get a little bit steep. On the other hand, if you only purchase the services you will actually use, Go Daddy can be an economical service.

Go Daddy doesn't offer much in terms of storage space with their entry-level Economy Plan. Most small business websites aren't likely to outgrow the 10GB allotment, but more ambitious pursuits will require an upgrade. The Deluxe Plan offers much more as far as features go, but there are still limits when it comes to storage space (150GB). Even the Unlimited Plan is a bit of a misnomer – you get as much storage and bandwidth as you want, but the databases are still limited to 1GB each and you only get 1,000 email addresses. In other words, Go Daddy is great for small to mid-sized ventures, but it might get a little tight if fortune smiles on your web property.

Fig. 3: Representing the Hosing Abilities of Go Daddy

The above image shows the hosting capabilities of the go daddy cloud platform.

C. RACK SPACE

RACKSPACE is known for its on line solutions to the user's queries regarding anything. It has a huge storage service to go through and a bunch of good services to offer. Following is list of the features of the rackspace cloud model.

Fig. 4: Rackspace Architecture

The above figure represents the RACKSPCAE online cloud server for the end users. In the support and documentation section of this web portal, the user can easily analyze the services and the products of this web cloud service portal.

1. 100% SSD
RACK SPACE all data center-grade SSD-only design delivers 59x more disks I/O than our previous Cloud Servers (based on internal benchmarks). This level of extreme disk performance nearly eliminates disk contention, one of the most common bottlenecks for many web scale applications.

2. Extreme Networking
Every host receives 40Gbps to fuel high-bandwidth applications and blazing-fast Cloud Block Storage performance. Cloud Servers and Cloud Block Storage traffic don't compete, as RACKSPACE allocate each 20Gbps. Plus, the completely redundant design means we can still deliver a full 10Gbps each to Cloud Servers and Cloud Block Storage, even in the event of an upstream switch failure.

3. Up to 120GB RAM
Flavors range from 1GB to 120GB RAM, to power workloads from basic web servers to high-performance No SQL data stores like Mongo DB and Cassandra. With RACK SPACE 120GB RAM flavor, you get a single-tenant system that offers consistent, predictable performance.

III. Job Scheduling Ethical Models

A. FCFS
FCFS stands for" First Come First Serve ".In this algorithm the first data which reaches to the queue first gets executed first. This algorithm is time consuming and does not perform quite efficiently when there is a case of priority in the segmentation

B. Round Robin Algorithm
The round robin algorithm has an edge over the FCFS algorithm. It allocates each process or task with a time slot and after the time slot the job gets change and next jobs comes into execution. The execution results of this algorithm are better than the FCFS algorithm

There are lots of other scheduling algorithms also based on the research models. Enhancing the current scenario our proposed model goes as follows

C. Priority Scheduling Algorithm
This algorithm discards the disadvantages of FCFS and round robin algorithm. In this algorithm a priority of each job is decided on the basis of the properties of the tasks. The priority of the task may be judged on the basis of the time consumption of the tasks or CPU scheduling burst time of the tasks

D. Hybrid Algorithm (FCFS + Priority)
A previous approach called the hybrid algorithm is already presented using the FCFS and the priority algorithm. In this algorithm if the job queue has only one algorithm to be done, then it goes for FCFS algorithm but as soon as next algorithm reaches into the queue, it checks the priority of the jobs and reschedules the tasks accordingly.

E. Critical Path Algorithm
In this algorithm any dependent task is executed first.

IV. Conclusion
This paper concludes the abilities of different cloud platforms like Window's Azure, Go Daddy & Rackspace. This paper also discusses about the features of the different cloud computing platforms and the advantages of using the cloud networks. This paper also discusses about the scheduling algorithms like FCFS, ROUND ROBIN, Critical Path Algorithms and others in the same scenario. This paper also discusses about the pros and cons of various scheduling algorithms.

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