A CONCEPTUAL FRAMEWORK FOR RESOURCE UTILIZATION IN CLOUD USING MAPREDUCE SCHEDULER

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Abstract: Today's world, the word Cloud computing can hear everywhere. It shows that Cloud is more popular and important than any other technologies. The main goal of Cloud is to provide resources (CPU, network, storage, software application and so on) through the Internet by Pay-per-Use manner. The client can access the resources as per their requirements. Many researchers propose their own algorithm for provisioning resources in the Cloud. This paper proposes a new framework for Resource provisioning in the Cloud. This approach uses a Map Reduce Scheduler technique for task scheduling in Cloud Resource Provisioning. This will implement in Cloud Sim which is a simulation tool in the Cloud. The goal of this approach is to reduce execution cost and delays.

Keywords: Cloud Computing; Resource Provisioning; Map Reduce; Task Schedule; Cloud Sim.

1. INTRODUCTION:

Utility processing was a dream began over 40 year's back [9]. It alludes to the yearning that registering assets and administrations be conveyed, used, and paid for as utilities, for example, water or power. The current development of distributed computing is making this vision feasible. Examples of efforts in this here incorporate Infrastructure as a Service (IaaS) suppliers like Amazon EC2 [10] and Software as a Service (SaaS) suppliers like Google App Engine [12] and Microsoft Azure [11]. For some little and new organizations, this approach has the upside of a low or no underlying expense, when contrasted with acquiring and oversee equipment. Likewise, a key preferred standpoint of this model is the dynamic scalability of resources and services, with a pay-as-you-go model, consistent with the vision of utility computing. The versatility offered by the distributed computing model dodges both under-provisioning and over-provisioning of resources, which have been common issues with a model where a settled arrangement of resources were managed by a company or a user. As it were, changing provisioning of registering and storage resources is conceivable in distributed computing. With a pay-asvou-go model, resource provisioning ought to be performed precisely, to keep the resource budget to a minimum, while addressing an application's needs. Current cloud specialist co-ops have made a few strides towards supporting the genuine pay-as-you-go or a utility-like evaluating the model. For instance, Amazon EC2 clients pay on the premise of various sorts of occurrences they utilize, where an example is described (and price) on the premise of parameters like CPU family/centers, memory, and circle limit. The progressing research here is indicating towards the likelihood of supporting all the more fine grained assignment and estimating of resources [5], [6]. In this way, we can expect cloud conditions where CPU allotment in a virtual situation can be changed on-thefly, with related changes in cost for each unit of time. In such cloud conditions, resource provisioning turns into a testing issue. There is different existing advancements are accessible This paper proposes a new approach for resource provisioning in the Cloud. It uses Map Reduce technique for task scheduling to reduce execution in Cloud [4].

2. BACKGROUND: CLOUD COMPUTING AND MAPREDUCE MODEL:

This section gives the definition of Cloud, Map Reduce model and Cloud Sim get a prior idea about the proposed methodology.

2.1 Cloud Computing:

A basic meaning of cloud may express that "Cloud Computing is a model for enabling convenient, universal and on-demand network access to a shared pool of configurable computing resources (network, server, storage, application and services) that can rapidly provision and released with minimum management effort or service provider interaction"[7]. Cloud processing is that each kind of calculation can be conveyed to general society by means of the web. It is changing the situation and furthermore influences the everyday life of a person. Any stuff can be shared over any gadget by clients by means of distributed computing with no issue. Organize transfer speed, programming, handling force and capacity are spoken to as the figuring assets to clients as the openly available utility administrations [1].

2.2 Map Reduce Model:

Map Reduce is a disseminated processing model. As of late, there is an assortment of engine motor receiving Map Reduce. Be that as it may, with their distinction lying generally in (if not by any means) outer parts, for example, schedulers, an uncovered bone Map Reduce structure can be viewed as indistinguishable [8].

As of late, there is an assortment of Map Reduce is suited for embarrassingly parallel or disseminated issues, since its operations are totally free on different documents. The structure of Map Reduce calculation will be talked about as we portray the proposed display.

2.3 Cloud Sim:

Cloud Sim is an open source simulator developed by clouds LAB in Melbourne University. Beside Cloud Sim core functions, there are two main parts in a Cloud Sim simulation: Entiy and Event [3].

2.3.1 Entity:

Simulation entities represent the physical hardware part of a cloud network each entity can send/receive messages to/from other entities. In every simulation, entities are set up in the beginning and shut down at the end. Since entities represent hardware, creating an entity during a simulation is restricted.

Simulation entities are: Data Center, Data Center Broker, Cloud Information Service Net Data Center Broker, and Switch.

2.3.2 Event:

Since Cloud Sim is an event driven simulator, every incident is represented by an event. Every time an event sent to an entity, the entity adds the event to the event queue of the Cloud Sim core. The queue is consistently sorted by the incident time of each event, and the Cloud Sim runs the events consecutively.

Although Cloud Sim only provides a skeleton structure of cloud networks, it covers a wide range of

the features; processing, data storage, Datacenter power, etc. while incomplete; Cloud sim can give a good perspective to Cloud networks. With the right type of addition and modification, Cloud Sim can be a powerful to analyze any Cloud service infra and validate any research on the infra [2].

3. IMPLEMENTATION OF RESOURCE PROVISIONING APPROACH

As mentioned before, implementing Map Reduce Scheduler in Cloud is an efficient and cheaper way.



Figure 1: Proposed Framework for Resource Provisioning

The above mentioned figure explains the proposed framework for Resource Provisioning. Phase-I demonstrates Creation of Cloud Environment using Cloud Sim. In Cloud Sim, We can create No.of Datacenter, No.of Virtual Machines and Cloudlets as per the Client request. Phase- II explains the task scheduler using Map Reduce technique. For Provisioning the resources for the larger applications, there may be an execution delay will occur. So the task scheduler using Map Reduce will help for reduce execution delays in the Cloud. Phase- III explains the resource Provisioning policy as per the client needs. The Policy contains Service Level Agreement between Client and Cloud Provider.

In simulation there is no user defined function, no actual input files; though Cloud Sim does provide a toolkit for actual file processing, purpose of simulation, efficient in time and cost, is lost by doing so. Virtual data and workload are sent and processed, which makes the operation for key generation unnecessary. The basic structure for implementing the model as below:



Figure 2: A structure of proposed model

4. CONCLUSION:

Cloud computing is a very popular technology in today's world and many of them come across Cloud technology unknowingly if they have mail account. The growth of data is increasing drastically. Thus, most of the organization moving their data into the Cloud for unlimited storage. For many users, resource provisioning is a crucial task in the Cloud. There is a many existing approaches were used for resource provisioning. This proposed framework is too useful for whom needs resources for their large scale organizations. It uses Map Reduce technique for task scheduling and it saves execution time as well as speed up the response time.

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