Collaboration Complexity Reducing Strategy in Cloud Computing

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Abstract— **Cloud computing is an innovative technology that has been applied to business. The cloud collaboration software industry is a rapidly developing sector with new key players breaking into the market each year looking to how we work and communicate. The project management process and its paradigm are changing. With Information and Communication Technologies it's possible to work together with heterogenic teams, geographically spread, using web-based project management software. In these teams, the most important are the process by which the project is carried out. The collaborative project is associated with a virtual team that is a team with a real distance between their members compelled by a purpose. But a good virtual team relies on the inputs brought, the results produced, and the process to pass from the first to the second ones. All the process is held with trust, cohesion, relationship, communication, and coordination. The management process can face difficulties. So to face the difficulty it's necessary to build trust between team members which rarely or never cross each other and consolidates all the tasks assigned to personally across projects and teams, and sorts them by priority. Hence the work based on multiple projects can be done easily without any collaboration complexities.**

INTRODUCTION

Due to the rapid success of internet and distribution of resource computing in last few years internet realized a new concept called cloud computing. Cloud computing is a new technique which put forward from industry circle and it is the development of parallel computing, distributed computing, and grid computing, and is the combination and evolution of virtualization, utility computing, and three aspects of computing such as Platform-as-a-Service(PaaS), Infrastructure-as-a-Service(IaaS), and Software-as-a-Service(SaaS).

To the users, cloud computing is a Pay-per-Use-On-Demand service that can conveniently access shared IT resources through the internet. Cloud computing environment causes traditional service providers to have two different ways they are service providers and infrastructure providers. The Business and industry owners are attracted to Cloud computing concept due to many features which have been given below.

Some of the features are as follows:

- Low initial investment
- Scalable
- Easy to manage
- Location independent
- Deploy faster
- Reliable and Security
- Device independent

Cloud computing is a traditional manner for using a lot of resources and IT services such as processing power, main memory, storage, bandwidth and software through sharing technique. Cloud computing is nothing but a collection of computing software and services available from a decentralized network of servers.

Then instead of buying, installing and maintaining all the physical infrastructure and software, that you spent more money, particularly in cases that you don't need them continuously, you can use other person resources.

Cloud computing is typically classified in two ways: One is Location based classification and the other is Type of services based classification. Cloud computing via location is usually classified into following types such as public cloud, private cloud, hybrid cloud and community cloud. Where private cloud means the cloud infrastructure is owned or leased by only one organization, and also the management of the infrastructure is also done by the same organization only.
Public cloud is where the cloud infrastructure is carried by a cloud service sales organization who tries to sell cloud computing services to the public or industry circle and the Hybrid cloud means that the cloud infrastructure consists of more than two kinds of cloud such as private cloud and public cloud in which each kind of cloud keep independent, though they are combined with some standards or special techniques and data and applications that are a transplant.

Based upon the services that they offer they can be classified into the following types: Platform-as-a-Service (PaaS), Infrastructure-as-a-Service (IaaS), and Software-as-a-Service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models.

CHARACTERISTICS

1. On-demand self-service is one of an increasingly popular enterprise resource where the consumer can unalterably provision computing capabilities such as network storage and server time as needed automatically without requiring any other human interaction with each service provider.

2. Broad network access, here the resource and capabilities are hosted in the network and accessed through standard mechanisms which promote use by heterogeneous thin or thick client platforms such as mobile phones, tablets, laptops, and workstations.

3. Resource pooling is where the provider's computing resources are pooled to serve multiple consumers or tenants using a multitenant model, with different physical and virtual resources dynamically assigned and reassigned according to the consumer demand.

4. Rapid elasticity is the term for scalable provisioning where capabilities can be elastically supplied and released, in some cases automatically, to scale rapidly inward and outward compatible with demand.

5. Measured service, where the cloud systems can automatically control and optimize resource use by averaging a metering capability at some level of abstraction which is appropriate to the type of services such as bandwidth, storage, processing, and active user accounts.

CHALLENGES

Cloud Security: To attack the three parties of cloud computing there are many security threats at different levels, such as threats at CSP level which stands for Cloud Service Provider, network Level and user/host level.

Downtime: As three parties of cloud computing there are many security threats at different levels, such as threats at Cloud Service Provider level (CSP), network Level, and the user or host level. These threats must be handled with since it is necessary to keep the cloud up and make them run continuously.

Security: Although cloud service providers implement the best security standards, storing data and important files on external service providers always opens up some risk and using cloud-powered technologies means you have to provide your service provider with access to important business data.

LITERATURE REVIEW

1. Jing Xiao and Zhiyuan Wang have proposed a priority based algorithm for scheduling virtual machines on physical hosts in cloud computing environment. The object is to increase the benefits of the service providers when the current resources are not sufficient to process all the requests in time. The requests have been ranked according to the profits they can bring. They have compared their performance with the first-come-first-serve strategy.

2. Hu baofang have proposed an improved adaptive genetic algorithm (PAGA) based on priority mechanism. This approach for job scheduling looks at the combination of least execution time together with Quality of service requirement of customer jobs. An integrated fitness function based on priority is designed to indicate the optimized object. It overcomes the drawbacks of traditional Adaptive Geometric algorithm and performance has been compared with other relative genetic algorithms. Rakesh Kumar Mishra has proposed a round-robin algorithm based on the priority which distributes the requests of data centers, which gives better performance in comparison with the conventional random job selection algorithm.

3. Brighten proposed an algorithm for load balancing in a dynamic peer-to-peer system and other hybrid environments. In the most peer-to-peer system, the non-uniform objects and the load of the node can be changed continuously due to the various operation such as insertion and deletion. This will leads to decrease the performance of the system. So the concept of a virtual server can be introduced. In this proposed load balancing algorithm, the load information of the peer nodes is stored in different directories. These directories help to schedule reassignment of the virtual servers to develop a better balance. The greedy heuristic algorithm used to find out a better solution for the proper utilization of the nodes. The huge number of virtual servers helps to increase the utilization and various load information into the corresponding pool and then the virtual server assignments are to be done. This algorithm should be applied to the following resources like bandwidth and storage. It was designed to handle the various situations like varying load of the node, node capacity, entering and leaving of nodes and also insertion and deletion of the nodes. Advantages are high node utilization will be done and scalability will be increased and disadvantage is the reassignment of the virtual server is difficult.

EXISTING SYSTEM

Improved and increased usability will lead to companies not only purchasing online collaboration software but also an increased number of co-workers who actually using the software and therefore achieving the benefit of a larger productivity. Intuitive user interfaces and user flows will make

the activation and continuous use as easy as possible. Mobile will help companies to support their co-workers to indicate the task for the people those who are not in the office to work efficiently with those in the office. Vertical solutions will enable businesses to choose the best collaboration software for their use case, which in turn will make their working partners more efficient at what they do by using feature such as chat, hangouts, comments and other software that promote collaboration will be modelled, so that the project members will not have to physically meet in order to complete a group project. Here all collaboration happens online. If some started the project while living in 3 different countries, and all this time they have to manage to work together perfectly, even without seeing each other for a long time. The members of the group may have two or more projects assigned individually so they cannot relate to the others project completion time. So there may be project delay and some collaboration problems will also occur.

PROPOSED SYSTEM

Cloud load balancing- **IT** is the process of distributing workloads and **computing** resources in a **cloud computing** environment. **Load balancing** allows enterprises to manage **application** or workload requirements by allocating resources among various **computers**, networks, and servers. Cloud load balancing involves hosting the distribution of workload traffic and demands that reside over the Internet. Priority based Job Scheduling- It is used to allocate certain jobs to particular resources in particular time. In cloud computing, job scheduling problem is a biggest and challenging issue. So the job scheduler should be in dynamic. Job scheduling in cloud computing environment is mainly focused on improving the efficient utilization of all the resource such as bandwidth, memory and reduction in completion time. A well-organized job scheduling strategy must aim to yield lower response time so that the execution of submitted jobs takes place within a possible minimum time and there will be a transaction of in time where resources are reallocated. Because of this, less repudiation of several jobs takes place and number of jobs can be submitted to the cloud by the various users which conclusively show increasing results in exhilarating the business performance of the cloud.

PROPOSED MODEL

Our proposed model is based on collaborating with clients that have number resources and need to other resources. This model is suitable for heavy processing computing that they couldn't execute on a single personal computer alone. In this model person resource subscribing is done via the internet. This model is described as follows:

1. Each user (client) does resource registering via the internet. The project members will get their task to complete the particular project.
2. Based on their workload the task will be split and assigned to everyone using load balancing.

3. Based on completion status and time each and every project of a particular project member will get sorted using priority scheduling.
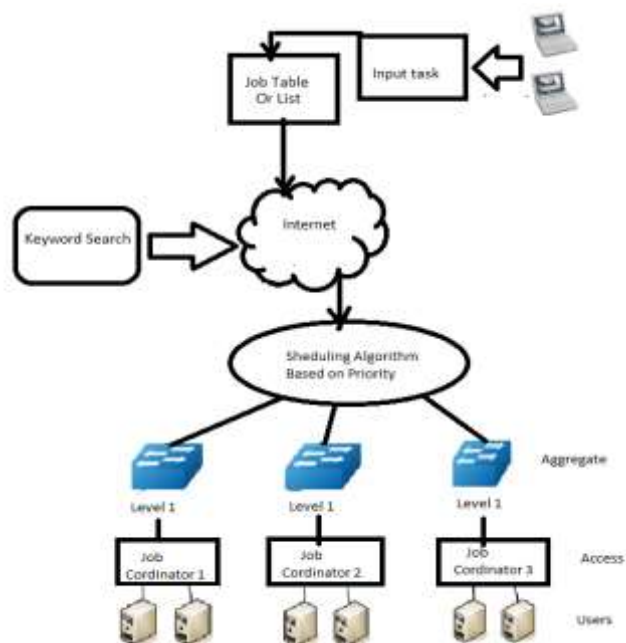

Fig 1. Proposed Design

HARDWARE AND SOFTWARE REQUIREMENTS

Google docs- This tool allows you to create online documents, presentations, and spreadsheets.

Trello- You can create custom columns like "To-Do" or "In Progress" which you will use to organize individual tasks.
Dropbox- Dropbox is probably one tool that we use most for collaboration. With this little software, we are able to have access to all our documents, files, articles and everything else.
Producteev- is a social task management solution for teams. Create as many projects as you like, across any number of teams and participants. Coordinate and complete tasks with your colleagues. Assign tasks to colleagues. Add due dates, and notes. Follow tasks, track progress and measure the output. Keep all team members in the know and up-to-the-minute with activity streams. Ensure that everyone's in sync and on task.
Podio- is an online work platform for users to create workspaces and collaborate. You decide how to structure your projects, teams by creating your own workspaces and sharing them with related people. You also decide how to structure, create and present content by choosing from hundreds of Podio's important work apps or creating your own. Podio has a wide range of project management and related apps and app packs.
Concept board is a virtual online collaboration tool which provides centralized whiteboards for groups to collaborate on multiple ideas. With the location option, you directly know where all project members are located on the board and to see

what screen part they are currently using. Concept board works with Word, Excel, PDF files, Photoshop, and more.
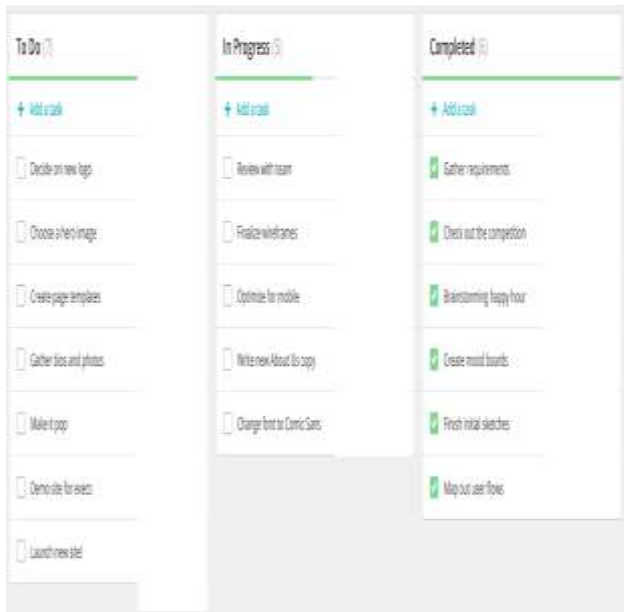
PREDICTED OUTPUT

Fig 2. Predicted Output

FUTURE WORK

The load will be balanced and based on the completion status and completion time of each group members the task will be prioritized and scheduled. So that the collaboration complexity between the project members can be handled. Without any manual work, all will do in a manual way.

CONCLUSION

This project will provide a variety of strategies of how to create group projects that utilize all of the software programs in creative and instructional ways and demonstrate most of the software found on Google Drive, such as Documents, Forms Presentations, Spreadsheets as well as Drawings and how to share them. Features such as chat, hangouts, and comments that promote collaboration will be modeled so that members will not have to physically meet in order to complete a group project. The strategies shared will be applicable to Secondary and Higher Education faculty who are looking to increase their technology integration and are seeking ways to improve their group assignments. Instructors teaching on-line who are looking for some fresh ideas and ways to increase commitment and teamwork can also benefit from this method. Participants will learn that with a Cloud Drive, they can create successful collaborative projects in any curriculum.

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