Study and Development of "Digital Task Scheduling" at Hierarchical Level on Cloud as Per Demand

Mr. Adarsh Chittora
Student of Master of Technology
R. N. Modi Engineering College, Kota, Rajasthan
E-mail : adarshchittora@gmail.com

Mrs. Iti Sharma
Assistant Professor,
R.N. Modi Engineering College, Kota, Rajasthan

Abstract— Task Scheduling System is a system for maintaining and managing the schedules and related details about the employees work. To do so a computerized system is developed for scheduling the task of employees. Organization can covers internal functionality of task affectivity through existing system. But problem faced by the organization that once outsider comes for specific period the scheduling not happen up to mark. Every organization wants skilled people but in real it's not possible, the best way is share them with proper scheduling. To solve this problem it require to create a global task management system which is able to specify the work of each staff and indicate the responsibility to end user. After study the similar type of working organization I found that generic business model require to executing for organization, which helps to save money and cost and give quality work for organization.

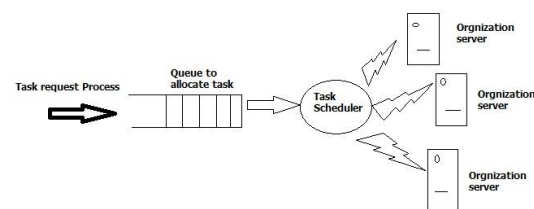*Keywords-* *Genetic Algorithm, Task scheduling, Cloud Computing,*

_____*****_____

I. INTRODUCTION

All My study is based on the problem faced by various employee working on different organization as well as for organization itself. Individually every organization doing their task scheduling[14] own way but for small or middle level organization it's a time and cost consuming work. As I travel and move to various organization I found that if any outsider come for a small task it make hectic to manage them.

If the work control to be done from one control point for only specific task or specific time it give healthy execution of work. As per the demand of task organization can set their proposal and get specific body to perform the task for specific time. By the help of forecasting step is determining the tasks to be done in a given period. When one can schedule time for tasks it's fairly easy to add these appointments to your calendar. Then you can literally see how long each task is going to take and how they fit into your day. It's extremely rewarding to look back at everything accomplished and this brings around a greater sense of personal productivity. Schedulers must perform a variety of tasks and use both formal and informal information to make scheduling decisions.[2]

Just to perform the task in various specific algorithm[12] use to perform task scheduling in various ways. As an example Directed Acyclic Graph represent the tasks and the edges represent the amount of data to be transferred from one task to another. Each task is labeled with a task number and the estimated computation time for execution utmost importance to manage these events in an organized way so as to ensure their smooth functioning[8].

Task Scheduler

The Genetic Algorithm (GA)[13] is the most widely studied guided random-search technique for task scheduling problem.

The objective of my work is to develop a comprehensive explanation related to task scheduling executed in various organization with implementation of a business model. Using the "SMART" [7] objective model is a best practice way of writing effective individual performance. As per implementation the distribution of task in global world it found to implemented through Cloud as per demand.

II. PROBLEM FORMULATION

My study is a step towards the problem solving of task scheduling to be done for various similar working organization in one central location. The task scheduling problem both in hotels and hospitals is typically characterized by the clock operation, 7 days per week and a fluctuating demand.[18] My study focus on necessity of indication related to use of generic task scheduling algorithm to minimize the energy consumption or schedule length. My business model provides the low cost and high performance computing in meeting the computational requirements of organization work as global way with the use of cloud.

A high level of complexity in scheduling results from attempting to address these needs. As a result, scheduling becomes a time-consuming process that has the potential for a multitude of errors[1].

Genetic algorithms are the most widely studied guided random search techniques for the task scheduling problems. Guided random search algorithms have been used extensively to solve very complex problems. It is able to explore the whole solution space that is independent from the initial starting point.

Task Matching and Scheduling using Genetic Approach

```
GA-Based-Task-Scheduling;
begin
      initial population generation;
      evaluation;
      while (stopping criteria not met)
do
      begin
              selection;
              crossover:
              mutation;
              evaluation;
      end:
output best solution;
end.
```

III. THEORETICAL MODELING

Scheduling is a task required at all levels in organization, from employee scheduling to equipment and material scheduling. This task may be time consuming as well as inefficient, keeping managers from other tasks in which their involvement is more necessary. The logistical efforts of assembling necessary resources so the job is ready to be scheduled[4]. My module focuses on developing a solution that will improve the current process. Later a successful project can be developed incurring little to no cost to implement, showing a decrease in process time, and will have high stakeholder satisfaction, the primary stakeholders being the scheduler and employees. Specifically, this project will be evaluated based on processing time, cost, flexibility, ease of implementation, required knowledge on the user's part, and the amount of scheduling errors.
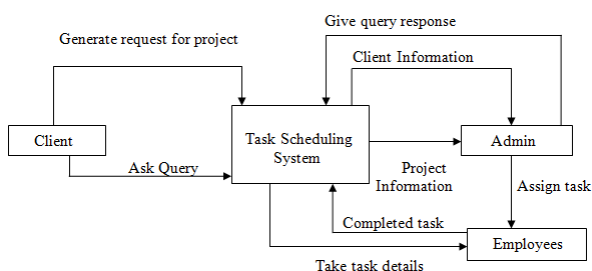
According to the users need system can be designs. Deploy the application on a single system and make is available on all

the systems through cloud reducing the maintenance cost of created project later on.

Cloud Computing refers to manipulating, configuring, and accessing the applications online. The working model of cloud with the help of service models define the access of Software as a Service (SaaS)[5] which allow to use software applications as a service to end users. Cloud Computing on demand self-service allows the users to use web services and resources on demand on which one can logon to a website at any time from any where

IV. RESULTS - PRESENTATION AND DISCUSSION

From the administrative side, maintaining a global task schedule management is not as simple as making for only one organization. A system must be managed[10]. Organization staff task need[11] to be scheduled throughout the day (24x7). It's enough to make you go to recess and never come back. Scheduling Software[3] for any organization have require an interactive calendar for community users to view and request facility bookings. An organization runs on schedules and a predetermined vision. Scheduling tasks ensure the productivity and optimum management. The schedules were strongly interconnected[17] with each other. One organization task scheduling consumes a whole lot of time and resources involve individually. The workforce scheduling involves putting the right people on the right jobs at the right times[15].

The task scheduling software consists of various features like assigning rights and permissions to various department and employees. You can assign a specific set of authorities beyond which the employee would not be able to manipulate the data. Schedule control is something that typically is managed at the project level by the Project Manager[16].

The management can easily track the employee workflow using the insights and graphical representation of scheduled tasks. It helps in improving the employee efficiency and implementing disciplinary policies for smooth work culture. Data insights can also help in identifying the causes of growth and loss to the organization, and this can be used to set future goals and strategies.

Sample of Cost/Benefit Analysis

| Coaching Center Example in respect to Task management							
A)Manual	Present	Year 1	Year 2	Year 3	Year 4	Year 5	Total 1-5 year
Personal	480000	528000	552000	576000	552000	576000	2784000
Operational	240000	264000	252000	264000	252000	264000	1296000
Total	720000	792000	804000	840000	804000	840000	4080000
B)Own cumputrarisation							
Personal	240000	504000	240000	504000	240000	504000	1992000
Operation	88000	48000	50400	92800	50400	52800	294400
Total	328000	552000	290400	596800	290400	556800	2286400
C)Using Cloude Digitalization							
Personal	0	0	0	0	0	0	0
Operational	0	10000	10000	15000	20000	25000	80000
Total	0	10000	10000	15000	20000	25000	80000
Total Net Benefit(B-C)	328000	542000	280400	581800	270400	531800	**2206400**
Return of Inverstment:	Before the first Year Ending of First Month						

Sample of Graph reprentation
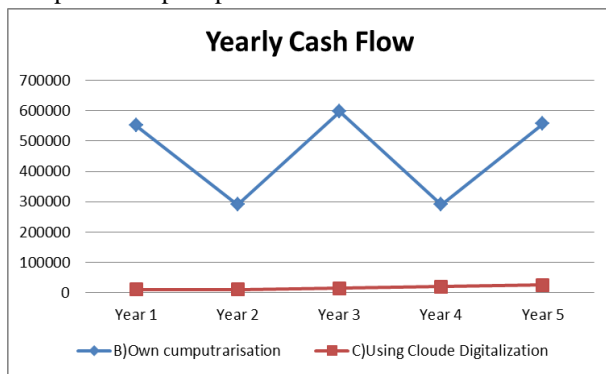
Development of a bussiness model or a formulation, a thorough testing phase in which they illustrate the applicability of my research. [6] Example Screen of Bussiness Model
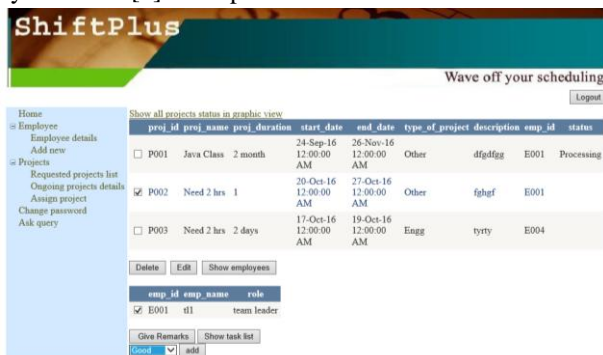
If the task is divided using the Work Breakdown Structure Separate the project into phases composed of steps Subdivide steps into activities as needed. As per the visualisation it found that the planned cost by any organization to schedule their work is actualy done in less time and less cost effectivily.
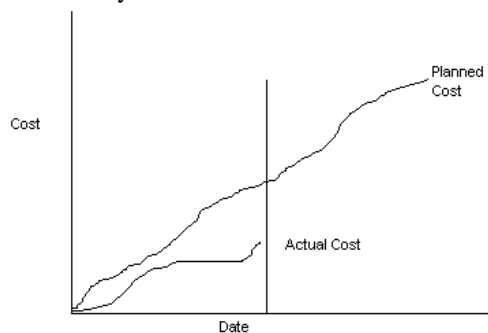
V. CONCLUSION AND SCOPE OF FUTURE WORK

In this my dissertation work it has focused on the making a global task scheduling for any similar type of working organization. My thesis helps in only the better understanding of the complexity of the task, but tension free short scheduling process require in any organization. In a first look if someone seen my work he/she found that a large amount of work has already been done in the area of task scheduling. But after study and understanding the approach adopted by me is the unique and needed requirement for every similar type of

working organization to come on one place saving time and money. The successful scheduler considers availability of both labor and non-labor resources.[9]

The important area requiring further work is generalization of models and methods. Currently using models and algorithms often require significant modification when they are to be transferred to a global application area for making a accommodate changes implemented on cloud.

The basic idea is that since people closest to the work are likely to know the most about solving problems in their areas, they should be involved in the decisions concerning those areas. An added benefit is that they are more motivated if they have some control over their work and over their own destinies.

REFERENCES

[1] Matthew Cameron and Yuriy Goldman,(2013) DESIGN OF AN AUTOMATED EMPLOYEE SCHEDULING SYSTEM pg 8

[2] Jeffrey W. Herrmann Improving Production Scheduling: Integrating Organizational, Decision-Making and ProblemSolving Perspectives pg 2

[3] Dr Yannis Bakouros, Dr Vassilis Kelessidis (2000) PROJECT MANAGEMENT ; INNOREGIO: dissemination of innovation and knowledge management techniques pg 12

[4] MATT MIDAS BEST PRACTICES OF MAINTENANCE PLANNING & SCHEDULING, VOLUME 21, ISSUE 2

[5] Jasmeen KaurA Novel Approach of Task Scheduling for Cloud Computing using Adaptive Firefly pg 1

[6] Brecht Cardoen, Erik Demeulemeester, Jeroen BeliÄen; Operating room planning and scheduling: A literature review,, pg 26

[7] University of Missouri Performance Management: A Tool For Employee Success Guidelines, Process and Useful Hints for Supervisors and Staff pg 23

[8] Anish Narkhede; Design of Task Scheduling System for Conference Management Application

[9] Project Management Planning, Development of a Project Schedule pg 5

[10] Kenneth A. Potocki and Richard C. Brocato, A System of Management for Organizational Improvement, JOHNS

HOPKINS APL TECHNICAL DIGEST, VOLUME 16, pg 3

[11] A.T. Ernst, H. Jiang, M. Krishnamoorthy , D. Sier; (2004) Staff scheduling and rostering: A review of applications, methods and models

[12] Pirtpal Singh, (2016)A Review: Cloud Computing using Various Task Scheduling Algorithms

[13] E. ILAVARASAN (2007)TASK SCHEDULING ALGORITHMS FOR DISTRIBUTED HETEROGENEOUS COMPUTING SYSTEMS pg 65

[14] Vijayalakshmi A. Lepakshi, Dr. Prashanth C S R(2013); A Study on Task Scheduling Algorithms in Cloud Computing

[15] Gary M. Thompson Ph.D.(2004) Workforce Scheduling: A Guide for the Hospitality Industry. pg 11

[16] University of North Carolina at Greensboro,(2016) Project Management Methodology pg 18

[17] Cees de Snoo;(2011) Coordination in Planning and Scheduling An Organizational and Behavioral Perspective

[18] Marta Soares Ferreira da Silva Rocha; (2013) The staff scheduling problem: a general model and applications