IMPACT OF GRID BASED ORMT ON VARIOUS CASE STUDIES

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Abstract

Optimal Resource management Techniques (ORMT) will provide an efficient Grid Resource allocation automatically for a user who is submitting the job without grid knowledge, design a Grid service (portal) for selects the Best Fault tolerant Resource for a given task in a fast and efficient manner, and provide an Enhanced grid balancing system for multi-tasking. Best QOS (Quality of Service) parameters are important role in all RMT. Proposed ORMT use the greater number of QOS Parameters for better enhancement of existing RMT in the various Case studies or grid services.

***Keywords*: Grid computing; Optimal Resource management Technique (ORMT); Case studies; QOS Parameters.**

1. Introduction

List out the various Case studies based on Grid end user or Authorized Resource Requestor asks the Grid technique in Fig. 1. Here, Resources are services, software, platform, infrastructure, supercomputer, DB, storage space, virtual organization, virtual machine, cluster, server, personal computer, webcam, printer, scanner …etc. Registered service providers give a response to ORMT [Liang Hu et al. (2011)]. ORMT give response to requester based on high-level scheduling, allocation, monitoring and QOS (Quality of Service).

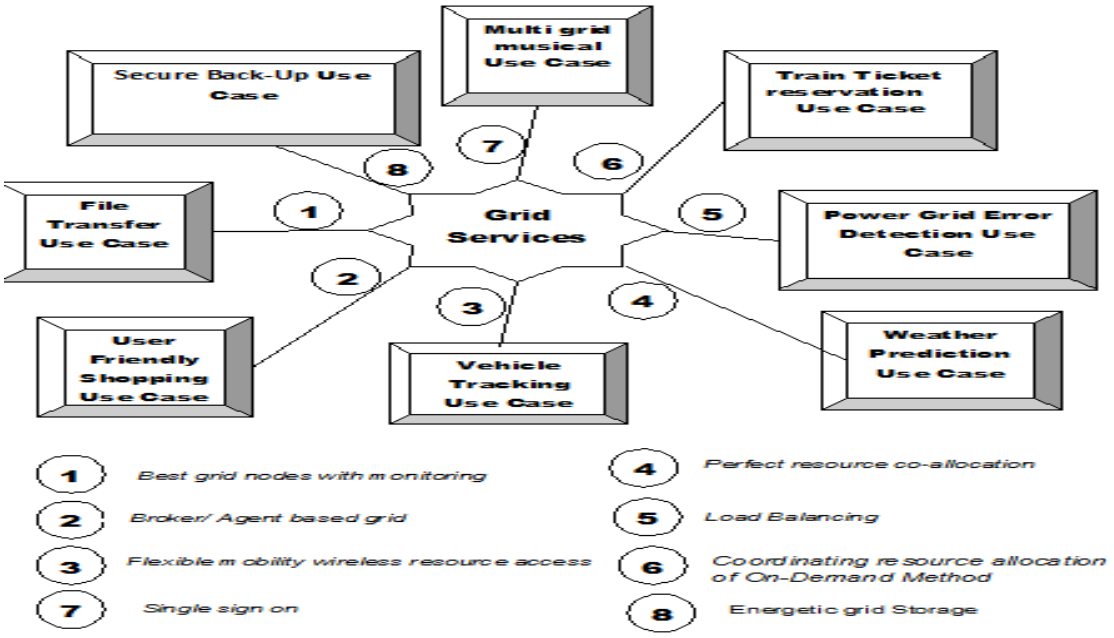

Fig.1. Various Case studies based on grid techniques

2. Impact of Grid Based ORMT to Various Sample Grid Service

2.1. *Case study 1: File Transfer Grid service via best grid nodes with monitoring*

Client-server computing or networking is a distributed application architecture that partitions tasks or workloads between service providers (servers) and service requesters, called as clients. In Fig. 2, often clients and servers operate over a computer network on separate hardware. A server machine is a high-performance host that is running one or more server programs which share its resources with clients. A client also shares any of its resources; Clients therefore initiate communication sessions with servers which await (listen to) incoming requests. Fig. 3 discusses the data flow diagram for file transfer based on ORMT. ORMT consists of

2.1.1 Elastic scheduling algorithm Module.

2.1.2 Finding the Best Grid node for a task prediction module.

2.1.3 Fault tolerance resource selection method.

2.1.4 Perfect resource co-allocation Module.

2.1.5 Grid balanced Resource matchmaking method

2.1.1 Elastic scheduling algorithm Module

An Elastic Scheduling based on Priority, System history, Grid Network capability, number of jobs with size, system generated prediction, Negotiation, and Co-scheduling. Client-server computing or networking is a distributed application architecture that partitions tasks or workloads between service providers (servers) and service requesters, called clients. Often clients and servers operate over a computer network on separate hardware. A server machine is a high-performance host that is running one or more server programs which share its resources with clients. A client also shares any of its resources; Clients therefore initiate communication sessions with servers which await (listen to) incoming requests.

2.1.2 Finding the Best Grid node for a task prediction module

Find the Best Grid Node based on GRP (Grid Resource Prediction pattern) – PSO (Particle Swarm Optimization) Algorithm [Liang Hu et al. (2011)]. Optimization algorithm presented and named as GRP-PSO. In tracking applications, when selecting the subset of sensor nodes to contribute to the global decision, we have to consider how informative the sensor nodes are about the state of the target.

2.1.3 Fault tolerance resource selection method

Perfect fault tolerant grid resource selection for multi task prediction is based on Hybrid GRP-PSO algorithm [Asgarali Bouyer and Mohd Noor MD SAP (2010)]. In Hybrid GRP- PSO, Particle Swarm optimization (PSO) algorithm and Grid Resource Prediction Pattern (GRP) from two or more grid networks, and task execution is perfect even if some failures occur [Dinda P.A. (2006)]. High user satisfaction and correct resource utilization based on dynamic Energy-Efficient grid balancing technique

2.1.4 Perfect resource co-allocation Module

Enhanced Resources Co-Allocation are use to allocate the multiple resources for different applications efficiently. Different resources are not available in an every working place that time co-Allocation help to access the all resources from anywhere at any time [Marco A. S. Netto and Rajkumar Buyya (2008)].

2.1.5 Grid balanced Resource matchmaking

The system generated predictions are better parameters than user runtime estimates for Resource Co-Allocation [D.Tsafrir et al. (2007)], Topological sorting technique use to sort the vertex in the DAG (Directed Acyclic Graph).Using this topological sorting technique we will represent the priority for the each resource requester. Scheduling, because System generated predictions reduce the scheduling time through proxy server & reduce number of scheduler and cost AP-centric method is dominant and provides nodes with more data.

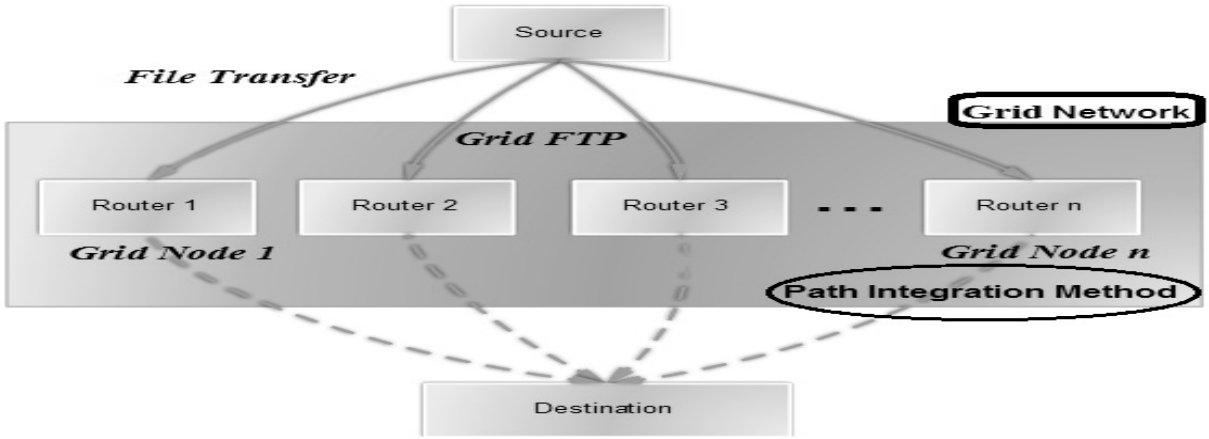

Fig.2. System Architecture for file transfer

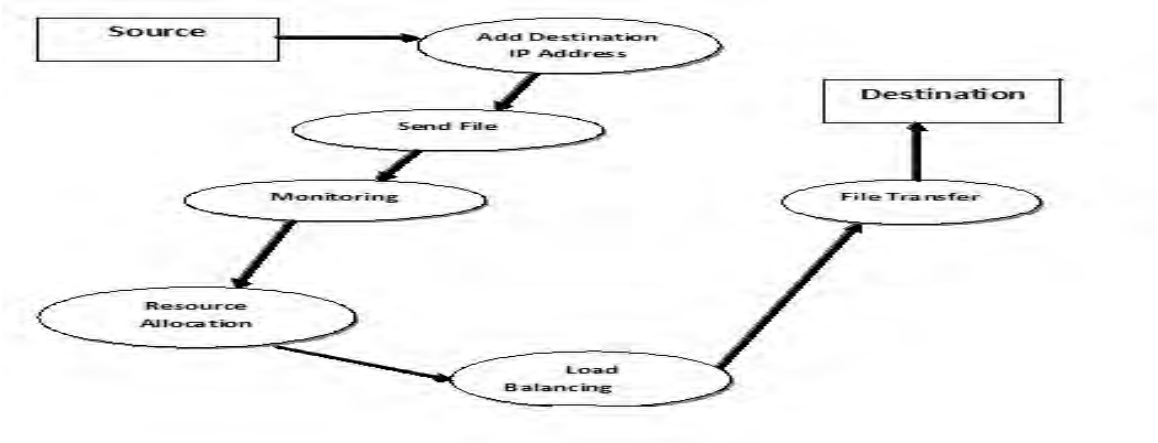

Fig.3. Data Flow Diagram

2.1.6 Path Prediction pseudo code

```
public void Routing()
    {
       int max; int min;
       int j = 0; int k = 0;
       int l = 0; int m = 0;
       //Part 1
       max = ShortNode[1, 0];
       min = ShortNode[1, 0];
       for (i = 1; i <= 3; i++)
       {
          if (ShortNode[i, 0] >= max)
          {
             max = ShortNode[i, 0];
             l = i;
          }
          if (ShortNode[i, 0] <= min)
          {
             min = ShortNode[i, 0];
             m = i;
          }
       }
       if (max > 100)
       {
```

```
        Reshinode[j] = ShortNode[l, 1];
        j++;
      }
      if (min < 100)
      {
        Reslonode[k] = ShortNode[m, 1];
        k++;
      }
```

```
//Part5
 }
```

The main aim of this project is to Schedule Grid essential to maintain quality of service provisioning as well as to efficient management of grid resources. Scheduling algorithm will also consider various factors like Priority, System history, Grid Network capability, number of jobs with size, system generated prediction, Negotiation, and Co-scheduling. Experimentally client selecting the path for file transfers using GFTP (Grid File Transfer Protocol). This scheduler is based on fuzzy optimization for dealing with uncertainties in application demands. The scheduler accepts as input as input a set of dependent tasks, described by Directed Acyclic Graphs (DAG). Fuzzy numbers represent application demands and fuzzy optimization techniques are employed to determine the schedule of tasks, found the values of shortest distance, population, individual, fittest, genome by using Genetic Algorithm and got the detection of Best Grid node. Iteratively predict the greater number of Best Grid Resources for job execution.

2.2. *Case study 2: User Friendly Shopping Grid Service Based on BRMT*

The main aim of this case study providing secure shopping service based on broker resource management technique. Designed a Grid service (portal) for User Friendly Shopping Application based on broker's Resource Management Technique (BRMT) with fast, secure and efficient manner. And hence resource management technique is used. Resource management technique (RMT) jointly works with grid broker for an elastic grid computing. Broker that acts as a middleware to the stock exchange and place trade on behalf of clients. Special care must be taken when using broker in shopping application. Broker based Resource Management (BRM) has a lot of intelligent techniques. The grid techniques used are

- Job scheduling
- Match-making
- Job migration
- Meta brokers

2.2.1Job scheduling

Broker schedule the requested product in friendly shopping based on the product availability. By first come first serve job is scheduled [Carsten Ernemann et al.(2002)]. The job scheduler is a service that resides in a user machine. Therefore, when the user creates a list of gridlets or jobs in the user machine, these jobs are sent to the job scheduler for scheduling arrangement. The job scheduler obtains information about the available resources from the Grid Information Service (GIS) [G.Sudha Sadasivam and Vijirajendran (2009)]. Based on the information, [Ng Wai Keat et al.(2006)] the job scheduling algorithm is used to determine the job grouping and resource selection for grouped jobs. Job scheduling is the mapping of jobs to specific physical resources, trying to minimize some cost function specified by the user.

2.2.2 Match making

Matchmaker agent matches the suitable resource for a task based on matchmaking algorithm [Guo Qiang et al. (2011)]. Matchmaking refers to capability matching which means to compare the requested service description with the advertised service descriptions [Jeong Woo Jo and Jin Suk Kim (2004)]. The degree of similarity is used to determine degrees of match between the advertised services descriptions takes all the inputs and the outputs into account.

2.2.3 Job migration

In some case buyers requested product not possible to buy means job migration is applied to solve the problem. Many reasons are applicable for job migration like user selected product at the same time purchased from

different user, failed transaction, and mismatch with broker selection from user selection. If the customer won't find the particular through job migration it automatically skip to other services.

2.2.4 Meta Broker

The users to access the resources of different grid network through their own broker [Attila Kertész and Péter Kacsuk (2007)]. In Online shopping service, discover the online catalog data from large number of web service, product category, models, prices, availability, payment gateway for online shopping, offers, configuration details, contact details, nearest showrooms, online query, registration of grid user, delivery details.

2.2.5 Advantages

- Match making which Match make the user request with discovery service
- Meta-Broker that enables the users to access resources of different grids through their own brokers
- Deploying and monitoring job execution is carried out by broker resources
- Job migration concept is used effectively, so that the customer can skip other broker service.
- Negotiate the cost of resources according to different criteria

2.2.6 Modules

User Friendly shopping application contains some special Methods [Surendran.R and B.Parvatha Varthini (2012)]. Such that

- Broker's suggestion based shopping application
- Location based shopping
- History of purchased product detail

2.2.6.1 Broker's suggestion based shopping application

Broker (agents) is processes that monitor the state of the system. Broker is an agent that manages the information, filters information for clients, or performs some action on behalf of a client [Junwei Cao (2001)]. Broker model their environment using an extensible set of Facts and act on their environment using a set of Tasks. Features are object model, more number of QoS (Quality of Service). Main advantage of suggestion based shopping service is, if the customer couldn't find the particular product which he expected through the concept Job Migration it migrate to other services. After that Meta Broker concept is used enables the users to access resources of different grids through their own brokers. From this the customer can purchase their expected product in an effective manner.

2.2.6.2 Location based shopping

Low Price and high quality are the benefits of Location based and suggestion based shopping service in this friendly shopping application. So through the respective location the customer can purchase the product in effective and in efficient way. By these they can reduce the travelling cost to that particular place. In online shopping they can order the product in which can get free shipping also.

2.2.6.3 History of purchased product detail

History of purchased product details are very important for their products own lifetime. Product details are stored in the grid resources storage space. Reason for this product History (database) is anytime and anywhere consumer access rate of the system can also be improved using available limit service lifetime and scope configurations. The entire shopping service is maintained in this homepage. The home page consists of broker, supporting partner, famous location, and history of the purchased product. So many important tasks is carried out in these service like job migration, Meta brokers, Match making. In Fig.4, the broker service contains different books so that the customer can purchase. They can give their suggestion. So based upon their expectation they can purchase the things which they needed.

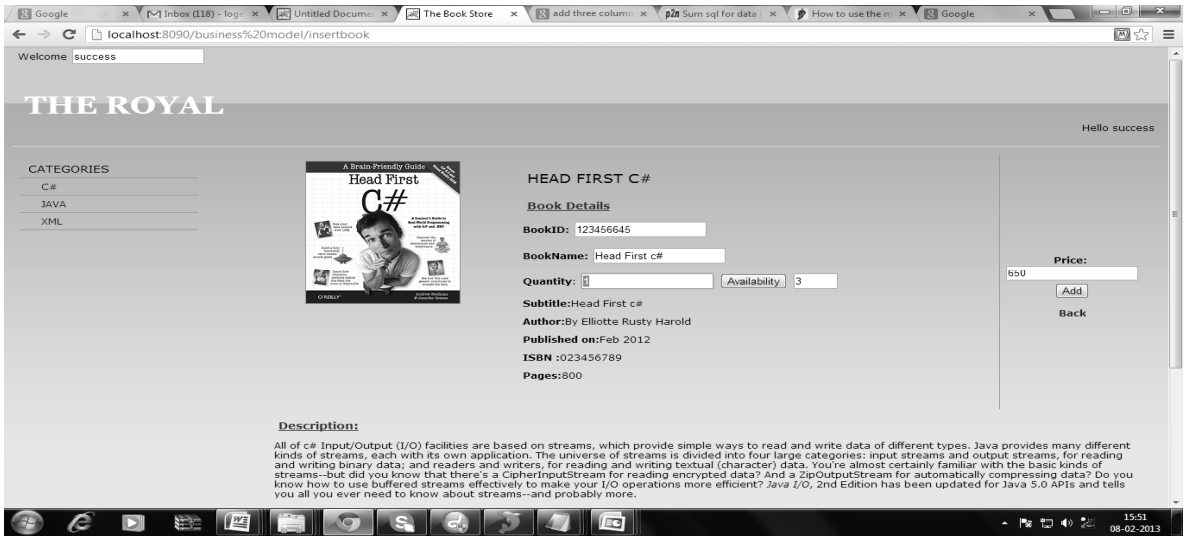

Fig.4. Suggestion based shopping

The customer can give complete suggestions about the product. Here the complete book details can be given and then can check the availability of the product. In Fig. 4, if the product is available they can add to their cart. If the available Product is not available in the particular service through job migration it skips to other supporting partner. This is the major advantage of using broker service. The customer can suggest for their product which they needed. It adds additional value to the broker service. It first match make with the data which they have then it will show the products available. Location based shopping service works from the product ranking. Every location some product is famous based on this logic product is purchased here with shipment cost comparison. Fig. 5 executes, History of purchased product details are very important for their products own lifetime. Reason for this product history (database) is anytime and anywhere consumer access information of purchased product. The customer can suggest much of their requirement which they needed. So based upon this so much information they can get from the products. These make the shopping friendly. In future design, increase the more QOS attributes of buyer and seller. In shopping grid service and also consider the more functional operation like increasing degrees of virtual organization, well defined negotiation techniques In future the broker can give more suggestion to the customer regarding their purchase.

The Book Store

Hello Guest, Sign In

YOUR CART

UserName	Item Id	Item name	price	Quantity	Sub Total	Time
sandy	352101020	Kenmore	13000	1	13000	17:29:25
sandy	352101021	Maytag	10000	1	10000	17:31:33
sandy	352101020	Kenmore	13000	1	13000	17:31:43
sandy	352101023	Alto	6000	1	6000	17:42:20
sandy	352101024	Justech	8000	1	8000	17:42:36
sandy	352101001	Absolute beginners guide to c	450	3	1350	17:45:55
sandy	352101019	whirlpool	15000	1	15000	21:23:45
sandy	352101022	Ousun Solar	7000	1	7000	21:25:12
sandy	352101025	suoer	14000	1	14000	21:26:13
sandy	352101028	Maytag	5000	1	5000	21:38:30
sandy	352101001	Absolute beginners guide to c	450	3	1350	21:42:01

Fig. 5. History Based shopping

2.3. *Case study 3: Vehicle Tracking Grid service based on Wireless mobility Resource Access*

Here resource is vehicle with smart device, resource monitoring.

2.3.1 Existing System

Most existing Systems are optimized to detect resources with high accuracy. However, they still have various disadvantages that have been outlined in a number of publications and a lot of work has been done to analyze system in WIFI network. RSSI is the most attractive because reading RSSI is economical and compatible with existing wireless network. System was not giving any internal process of resources, just track the resource.

2.3.2 Proposed System

This system was present the inclusive disjunction model so efficiently get the cleaned data and normal data. This system was present the distance calculation algorithm so easily predict the resource in wireless network.

2.4. *Case study 4: Weather Prediction Grid Service Based on Best node selection, Resource Allocation and Scheduling*

Main goal of this project is to achieve the resource allocation time and accuracy of the predicting data based on partitioning and cluster based approach. It also analyzes the location of tower and mobility node type users. This can be done by location based partitioning method and clustering tower based on its data efficiency. Here we implement partitioning based cluster approach, to predict the tower which one is nearest and having data efficiency. Analyzing this concept based on its mobility node dynamic creation. After creation of mobility node resources providers are direct the node request to process the resource allocation. To improve the time constraint we are using system generated predictions based on leach cluster algorithm. Scheduling is done by resource provider in monitoring approach [Waheed et al. (2000)]. Here main three asks going to be done. Resource broker made bridge between tower and mobility node.

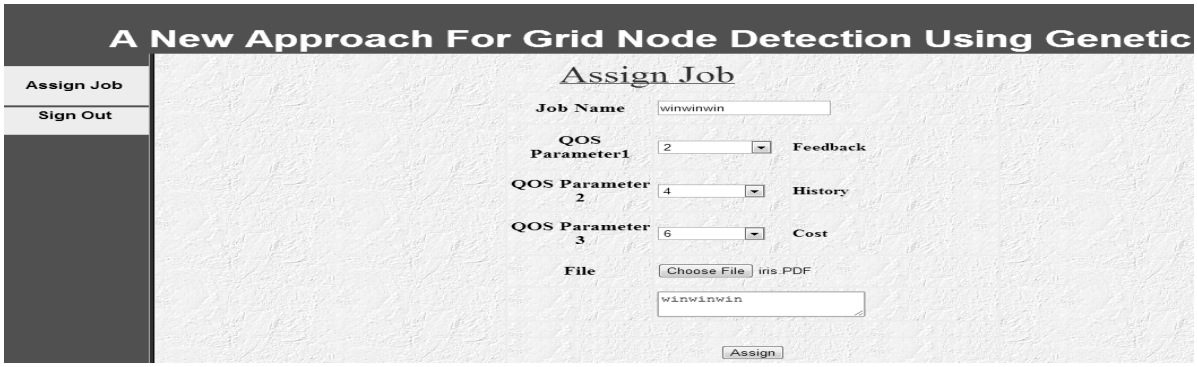

Fig. 6. Job Assigned

Mobility node can represent as users. Resource provider can allocate the tower to process the users' request. Thus the values are assigned for job Name, QOS parameters (feedback, history, and cost) and file. Here we are going to give job name, value for QOS parameters named as feedback, history, cost, then choose the file from your system and also give the type of the file. In Fig. 6, after that click the assign button for registering the job. Fig. 7 screen shows the registered jobs of job description. The job description contains job Name, feedback, history, cost, file, type of the document. By using the find grid and delete button we can find the best grid Node and also delete the registered jobs. Now we can click the find grid for finding the best grid using Genetic Algorithm. Resource Provider implements three major tasks in its design module. Such as, Data Storage, Monitoring and Executer. Data storage maintains centralized server to store all the tower details, locations, information about the tower and mobility nodes. Executer can handle conversion operation. Monitoring can execute scheduling, resource co allocation. Here we process this approach via leach cluster partitioning based approach. In this technique same type of nearest location towers are maintained in one group, which also group by availability of data present in the tower.

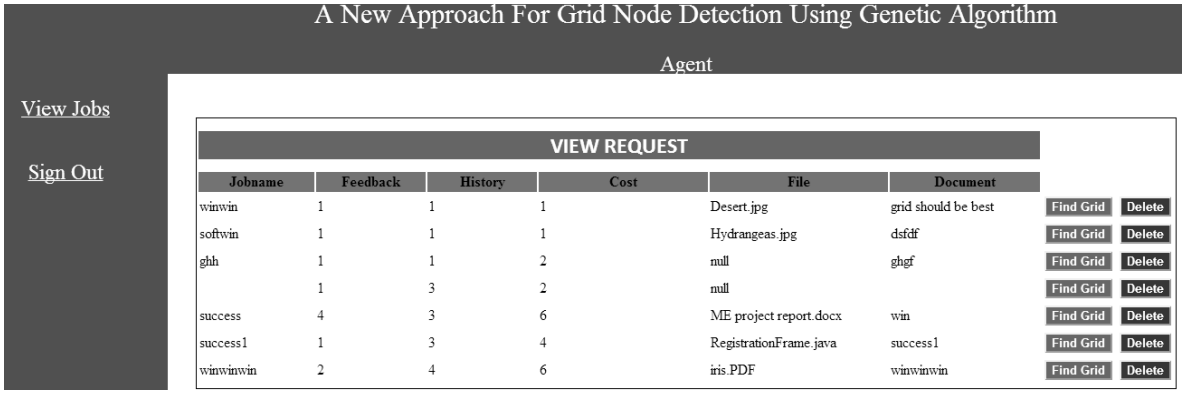

Fig. 7. Job Viewing

If suppose one tower in nearest group but which is not containing users requested data means database can forward the request to next nearest tower to retrieve the specified data.

Meteorological tower application consists of following three modules.

2.4.1 Resource Requisition or Job Submission

In this Module, User can submit the job to Resource Broker (it is responsible for accessing Resources through Resource Provider simultaneously). Resource Broker sends a request to Resource Provider (will provide the requirements necessary for end user community). Here we want initialize the resource requestor in mobility node structure. It will be placed in Dynamic manner approach .Resource Broker made Bridge between resource requestor and resource provider. Resource requestor act as a user. Resource requestor can select any tower to access and retrieve data via resource broker. Resource Broker can direct the user query to resource provider.

2.4.2 Scheduling

This system uses cluster based priority scheduling for providing information to the users based on the user quires. Now scheduling will process by cluster mechanism. Here two techniques will involve predicting the towers. Resource broker sent user query to resource provider to select the tower to respond. Scheduling will start by the resource provider to predict tower by Monitoring Environment. Monitoring approach done by system generated prediction technique. This technique will implement by shortest energy path prediction in clustering approach. Resource requestor will submit the user query, now resource provider will redirect the query to selected tower. This will identify by clustering approach..In our module we took tower coordinates and mobility node coordinates to predict shortest energy path. Now requestor will negotiate which data want to access from the tower, system generated perdition technique will resolve this problem to process the query.

2.4.3 Resource co allocation

Each user is assigned a nearest Metro Tower, from which the specific data is sent to the user. In some cases the exact data is not available at the assigned Tower. A Co-Allocation process is carried out between the assigned Tower and the Tower that contains the exact information [Ammar H et al.(2000)]. This ensures the user always receives the data that is meant for the user. Resource co allocation is mentioned here to direct the requestor via resource provider when the tower in busy status. Also it will process when the specified tower indicates no data found it will allocate the job to next of nearest tower. Busy status meant by ,when the tower is processing one user query that same time another person want to access the data from the same tower means, this resource co allocation inducing the resource provider to direct the user , to select next priority of tower to retrieve data. If user wants to see temperature of the particular day means, executor can handle conversion operation to process the query. Example, Celsius to Fahrenheit.

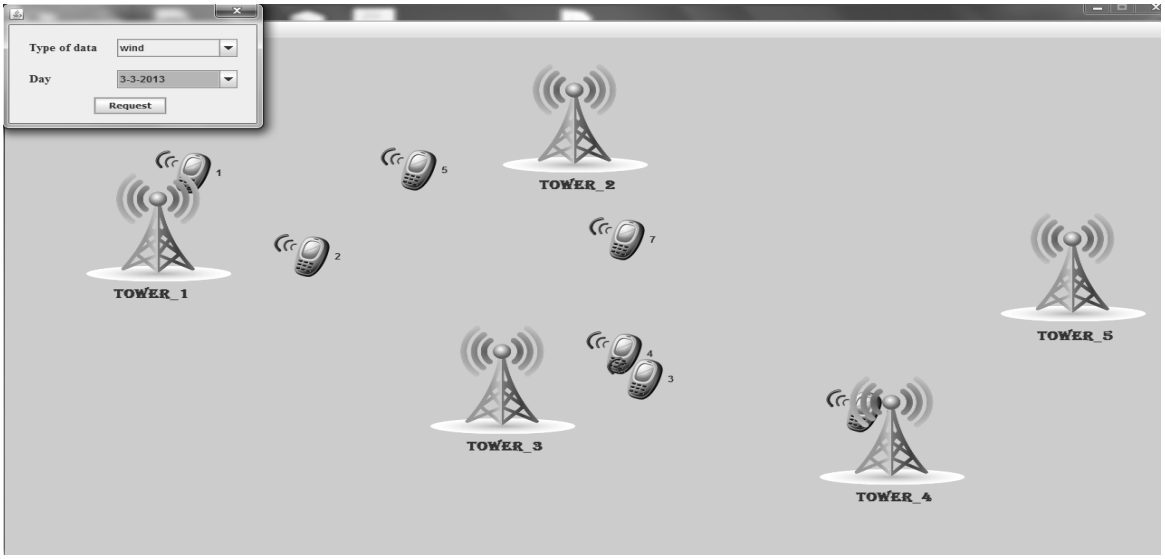

Fig. 8. Select Data to retrieve

In Fig. 8, Resource requester can select the data to retrieve. Choose which day data want to retrieve. This process implemented by resource Broker to communicate both tower and mobility node. Example, Access wind data Here Resource Provider processes the Query and identifies which tower is nearest one to access the data. This shortest energy path implementation done by monitoring technique, which one is under the part of resource provider? Tower 3 is shortest one to respond from three resource requester. In practice, we utilize meteorological data, obtained from leach cluster partitioning algorithm, to retrieve the data in cluster technique. We can practice this approach in real time environment to share the tower (Location based) data in centralized server mechanism. This can updated every hour per day. It's more useful to retrieve the data in Time consumption. In our test results can resolve to allocate resources in clustering based approach. While giving constraints to group the tower in partitioning based technique. Here we can combine advanced reservation technique with leach cluster approach. So we improve efficiency of the time to access data from tower. We can apply partitioning implementation in centralized server; easily resource provider will direct the user to get data. Through this we can reduce the time constraint to allocate and co allocation will be taken in process.

2.5. *Case study 5: Power Grid Error Detection Grid service based on Load balancing*

In dynamic grid computing, Load or Grid balancing process based on greedy method for ORMT named as Grid balanced Greedy method [Ramesh.D and A. Krishnan (2012)]. It was helped for an optimal solution in job execution stages. Grid balancing is not only load balancing it balance the many Quality of Service (QoS) like balance the dynamic price, resource energy, balance the execution time, balanced space, balance the job's workload… etc.

2.5.1 Algorithm

Here fuzzy if-then rule is used like this way,

1. IF (load is more than too-high) THEN command is fault.

2. IF (load is too-high) THEN command is Reduce the Load.

3. IF (load is Normal) THEN command is no-change.

2.5.2 Membership function

This is fully automated power failure Detection Grid service access from anywhere at any time through grid portal [Jaw-Shyang Wu et al. (1997)].

2.6. *Case study: 6. Train Ticket reservation Grid service based on reservation and on-demand Method*

The main objectives of this project is to minimize total cost of resource provisioning in grid computing environments and to reduce below provisioning and over provisioning complexity based on coordinating resource allocation through dynamic cost and Optimal cloud resource provisioning (OCRP) algorithm [Sivadon Chaisiri et al. (2012)].

2.6.1 Existing System

The condition plan, the price to make use of capital is cheaper than that of the on-demand plan. In this method, the user can reduce the price of compute resource provisioning by using the condition plan. The condition plan, the grid clients a priori reserve the resources in advance. Workflow technologies have become a major vehicle for the easy and efficient development of science applications. When integrating the workflow technology with the state-of-art resource provisioning technology, the challenge is to determine the amount of resources necessary for the execution of workflow. The cost savings of grid computing primarily occur when a business first starts using it.

2.6.3 Proposed System

In provisioning trouble can be solved by provisioning more resources with on-demand plan to fit the extra demand, the high cost will be incurred due to more expensive price of resource provisioning with on-demand plan.

Fig. 9. Use Case Diagram

The grid consumer is to minimize the total cost of resource provisioning by reducing the on-demand cost and oversubscribed cost of under provisioning and over provisioning based on Fig.9 and Fig. 10.

User Name	Train Number	Train Name	From Station	To Station	Cost	Credit Card Number	Credit Password	Date of Birth	Age	Gender	Marital Status	Address	City	State	Phone Number
ss	1122	chiranjeevi Express	ss	ss	10	ss	ss	11/08/2012	22	Male	Married	ss	ss	ss	ss

Fig. 10. To View On-Demand Details

In this on-demand detail is to view the no of users booking tickets on-demand and only grid broker can view the details of the user. The Broker only can view the on demand Details. After the Reservation time if any tickets are in reservation that tickets are added into on demand ticket then only the ticket cost reduced in the on demand.

2.7. *Case study 7: Musical and chat application via single sign on (SSO)*

Requestor holds the multiple accounts with the service providers based on single sign on authentication. The main aim of the case study is to provide an efficient identity management and access control, as well as dynamic, autonomic, and user-centric system for better scalability in grid computing services from the single sign on technique. On all subsequent logins, if the user has already logged into their corporate network, they will experience seamless single sign-on into the relying party from then on forward. Fig.11 show the Sequence diagram for multi grid based on SSO.

2.7.1 Grid Service Provider Modules

The Grid Service Provider (GSP) is a web application which resides in grid server. It is responsible for providing service to users and accept SSO login to its website. GSP1: Online music shop which resides in grid server and also enables secure SSO to its website. It also interacts with ECP. GSP2: Online chat application which resides in grid server and also enables secure SSO to its website. It also interacts with ECP.

2.7.2 Identity Provider Modules

The Identity Provider (IdP) is responsible for providing user's identity to CSPs [Rosa Sanchez et al. (2012)]. IdM Layer, they contribute to manage sessions, user profiles, as well as issue and processing of requests and responses of authentication and authorization. In this sense, our system supports multiple authentication mechanisms (e.g. username/passwords, digital certificates, or delegated credentials) and flexible user profile management, which enables to facilitate for instance, service personalization in a robust and flexible manner. IDP1: This module is responsible for implementing identity provider web site. It also responsible for secure

communications and exchange of needed metadata in the SAML dialogue between the SP and the IdP about the user. IDP2: This module is responsible for implementing identity provider web site. It also responsible for secure communications and exchange of needed metadata in the SAML dialogue between the SP and the IdP about the user.

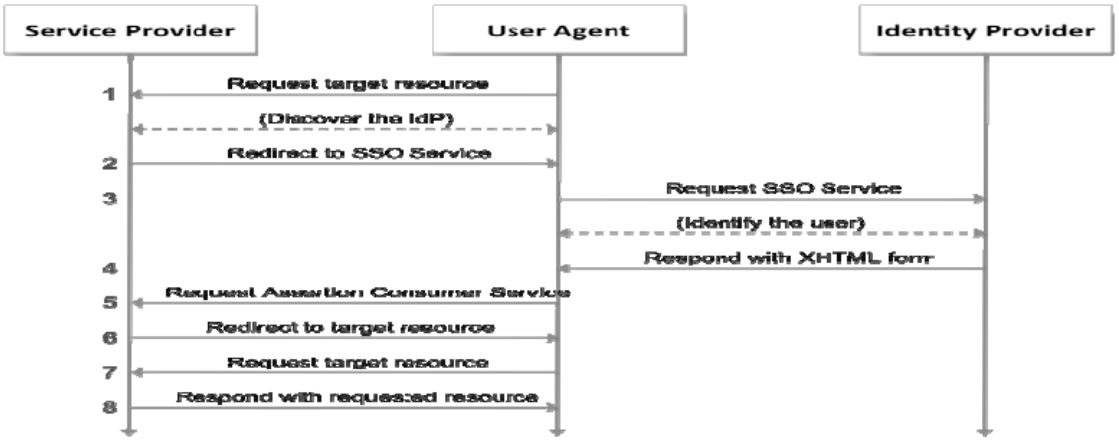

Fig. 11. Sequence diagram based on SSO

2.7.3 Enhanced Client Profile Modules

The ECP (Enhanced Users) enables to minimize direct interactions between SPs and IdPs, and provide full control to users over their identities, thereby improving mainly privacy. Session Management (SM): Session Management is responsible for managing user identifiers, as well as the session data of those users accessing CSPs or IdPs services. User Management (UM): User Management is in charge of dealing with credential storage, management users' profiles according to their preferences and policy enforcement. IdP Management: IdPM is coordinated with the trust layer to configure trust relationships with the IdPs in a dynamic and secure manner. Request-Response Manager: It receives authentication, authorization or attribute requests from the applications. It is the interface between Authn and Authz Service and applications. The users who are all accessing the grid will register in grid Service Provider. Grid user creates a new account for online musical application and also online chat application via single sign on. Same thing happen for online music shop application. The user who is all accessing the grid will register in Identity Provider and get a Unique ID.

2.8. ***Case study 8: Energetic Storage Back Up***

Today, most of the grid vendors provide Database as a service to store our application data in their server. Now grid computing meets the problem in data backup. The data backup is necessity when there is network or grid service vendor failure. Grid computing is migration our data from one grid vendor to another. To changing the grid vendor user needs data backup. Most of the grid vendors providing these backup services at high cost, but it is more expensive for the users and IT organizations. The need of data backup services is growing rapidly and it requires a powerful data backup technique. In this paper, we explore a technique for "Data Backup and Recovery". This technique reduces the cost of the solution and not only data protection from service failure but also makes the process of migration, much simpler. This approach eliminate the grid vendor dependency and also avoid data backup cost. Internal drives of a legacy machine do all these at very low cost.

2.8.1 Literature Survey

Title: Backup for Cloud and Disaster Recovery for Consumers and SMBs

Most grid service providers offer data backup at their premises at premium cost which might not be affordable by consumers and SMB's. Here we introduce a simple solution for this complex problem in the form of a mechanism for online data backup for grid along with disaster recovery. This approach reduces the cost of the solution and not only protects data from disaster but also makes the process of migration from one grid service provider to another, much simpler.

Title: Online Data Back-up and Disaster Recovery Techniques in Grid Computing

Today, in electronic format data has been generated in large amount that required the data recovery services. This type of computing will generates a large amount of private data on main grid. Therefore, the necessity of data recovery services are growing day-by-day and it requires a development of an efficient and effective data recovery technique.

2.8.3 Field API Technique for Integration

The format of this coding is used by an application program to communicate with the systems using communication protocols. APIs are implemented by writing member functions in the program, which makes the connection for routine execution. API is a module is available in the system to perform the function or that application program must be linked into the new program to perform the operations. Understanding an API is a major part for linking the application there are more than a thousand API to integrate OS like windows, Mac etc., Before implementing the backup technique we need to make a connection between grid vendor and our legacy machine DB .API (Application programming interface) is provided by most of the grid vendors to the users. By getting the API from the grid vendor the connection can be made between legacy machines with grid server. There are different types of API provided by different grid vendor's .The following are some of API provided by service providers SOAP API, REST API, Bulk API, Metadata API, and WEB API. Field API provides information about your model, data objects, and fields to your development environment, allowing for a tightly coupled integration between grid server and legacy machine [27].

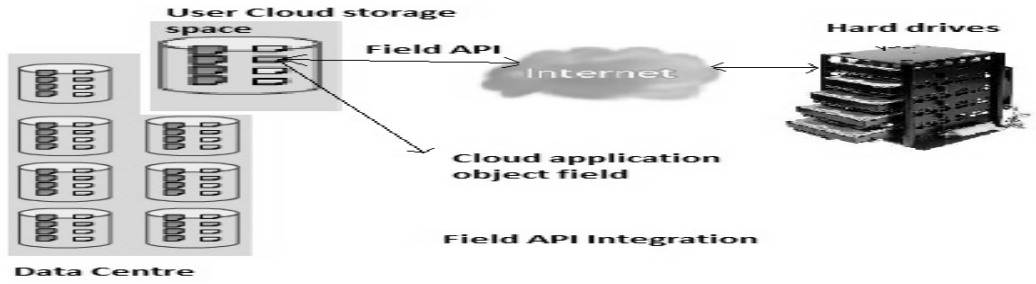

Fig.12. Grid Storage Structure of Field API Integration

Tightly coupled integration means each and every field used in the grid application based on Fig.12. This API provides direct connection between the grid application object fields not to the grid storage space. There are no limitations for this Field API, infinity no of field API can be formed and used for integration. Grid vendors providing unique API name for every grid application .By using same technique vendors can also provides unique Field API. While creating each field or an object in grid application the unique API should be generated. APIs are implemented by writing member functions in the program, which makes the connection for routine execution. API is a module is available in the system to perform the function or that application program must be linked into the new program to perform the operations. Understanding an API is a major part for linking the application. Now the grid vendors are providing the API for entire grid space allocated to user. By using those types of API we can integrate and make the backup for total grid storage space. To implement this we need huge internal drive which equals to grid space .It is a main drawback of other API integration method. Now we introducing API technique called Field API. This API is for most enterprise users who are developing client applications in grid vendors. The enterprise WSDL file is a strongly typed representation of your organization's data. This API technique does not represent the entire grid storage it represents only the field of which data is enrolled.

3. Conclusions and Future Work

This paper is introduced an elastic level for RMT (Resource Management Technique) in grid computing. ORMT applied in a various case studies to achieve a higher range of customer satisfaction based on greater number of QoS (Quality of Service).

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