

# Implementation of Web Based DSS in Java EE for Selection of Best Cloud Service Provider and Migration

Chirantan P. Dixit, Prof. Dr. B. D. Phulpagar

Department of Computer Engineering, P.E.S.MCOE, Savitribai Phule Pune University, Maharashtra, India

**ABSTRACT:** The key issue in moving multi-part undertaking applications to Clouds is selecting the best mix of VM pictures and Cloud establishment affiliations. To beat this test, we exhibit the non-particular recommender structure CloudGenius and an execution that impact unmistakably got a handle on multi-criteria decision making system Analytic Hierarchy Process to robotize the decision method considering a model, portions, and QoS necessities related to colossal business applications. In particular, we exhibit a sorted out change process for multi-fragment undertaking applications, unmistakably see the most earnest criteria lucky to the decision issue and present a multi-criteria-based decision estimation. Tries unmistakable things with the thing display Cumulus Genius show time complexities. In the latest couple of years, streamed enlisting as another figuring perspective has encountered significant progress what's more opposes diverse issues. One of them is the cloud affiliation determination issue, taking after unendingly boosting cloud affiliations are asked for through the Internet, while some of them may be not dependable or even dangerous; accordingly how to pick proven cloud relationship for cloud customers is a basic test. In this paper, we propose a multi-dimensional trust-wary cloud affiliation decision structure considering Evidential Reasoning (ER) approach that wires both insight based trust worth and reputation based trust regard, which are gotten from smart and worsen trust demand individually, to see demonstrated affiliations.

**KEYWORDS:** Cloud migration, decision-making, Cloud Service Selection, Multi-dimensional Trust Evidence, Trust and Reputation Evaluation.

## I. INTRODUCTION

The rising of Cloud figuring [3] over the range recently years is possibly one of the bounce forward advances ever. Circled handling point of view is moving enrolling from physical apparatus and furtively oversaw programming drew in stages to virtualized Cloud-supported associations. Scattered figuring aggregates extensive structures of virtualized associations, equipment associations (process associations, stockpiling, and system) and framework associations (e.g., web server, databases, message lining structures, checking frameworks, and so forth.). Cloud suppliers including Amazon Web Services (AWS), Microsoft Azure, Rackspace, GoGrid, and others give clients the choice to send their application over a pool of in each pragmatic sense boundless assets with all around that truly matters no capital hypothesis and with subtle working expense in appreciation to the bona fide use. Flexibility, money saving purposes of premium, and plenitude of points of interest move different relationship to move their attempt applications to Clouds. [4] There are two application outlining layers for register advantages: an) item resource, where a creator shapes applications using APIs gave by the Cloud. An item resource (moreover implied as a mechanical assembly or VM picture) is a pre-outlined, virtualization-engaged, autonomous, and pre-built Virtual Machine (VM) picture that can be fused with other impeccable VM pictures for architecting complex applications. Genuine suppliers at this layer fuse the cloudmarket.com, 3Tera Applogic, and BitNami; and b) Infrastructure as a Service (IaaS) (hardware resources), where a fashioner runs programming applications on figure organizations, using the APIs provided for impact other base organizations. A VM event is essentially a touch of virtualization programming (e.g. Xen, KVM, etc.) running on physical Cloud servers. It is the most generally perceived framework for revealing the computational power (e.g. CPU focuses, physical memory, stockpiling point of confinement, etc.) to programming applications. Amazon EC2, GoGrid,

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

and Rackspace are among the huge suppliers of virtualized hardware resources as organizations. A web application is a PC programming application, which interfaces with customers through a frontend, altered using program based tongue, (for instance, JavaScript and HTML). Web applications are normally gotten to by a large number of customers over the web by method for an average web program programming (e.g., Internet explorer, Firefox, et cetera.). Essential web applications join webmail, online retail bargains, online trades, wikis et cetera. Circulated figuring is a gradually creating enlisting organization perspective where base and programming resources are given over the Internet as versatile and on interest (Web) organizations [5]. In a disseminated registering environment, there are a mass of organization suppliers that make and pass on organizations to external customers. With cloud environment ending up being more trapped and inconsistent, cloud organizations are not for the most part trustworthy, and the Service Level assertions (SLAs) may not satisfy customer's requirements. On the other hand, in a cloud space, it is truly required that customers surrender their physical control to their applications and the central operations may be clear to them. The previously stated issues brought on the genuine stresses of cloud organization customers, which can be done up as takes after: (1) whether the cloud organization suppliers, especially those new comers, can be trusted or not. Customers need to guarantee that the cloud suppliers won't see their data or offer them to their adversaries. In addition, the cloud organization suppliers should shield their data and applications from any technique for damage; (2) whether the organizations are available all the time or not, as customers typically consider the property of fitting and play, for the most part as the applications which are readied on close-by circles; and (3) whether other non-utilitarian requirements, for instance, Quality of Services (QoS), are given by cloud according to SLA. Thusly, customers will have a hard time believing a cloud advantage just considering one segment, however for a few properties they concern, that is, the trust affirmation should be multi-dimensional to react unmistakable parts of the execution of the cloud organizations.[7]

1. **Challenges of Traditional Application Deployment Practices**
  - a. Complex systems and ever growing business requirements
  - b. Ever growing datasets
  - c. Unpredictable traffic patterns
  - d. Faster response times
  - e. Provisioning for peak load leads to underutilization of the resources
  - f. Risk to loose opportunities to the competition
  
2. **Evolution of Application Deployment Practices**
  - a. Much evolved application deployment best practices over last decade
  - b. Highly scalable cloud solutions providing benefits like:
    1. Close to zero upfront infrastructure investment
    2. Just-in-time Infrastructure
    3. Efficient Resource Utilization
    4. Usage based costing
    5. Reduced time-to-market
    6. Programmable Infrastructure
    7. Auto-scaling
  
3. **Challenges of Evolved Application Deployment Practices**
  - a. Evaluation of ALL the options available from Cloud Service Providers
  - b. Determining the most fit option aligning with Business Goals
  - c. Multiple requirements & criteria contributing to the decision making
  - d. Evaluation of the options of cross provider cloud solution

## II. RELATED WORK

The CloudGenius recommender structures that progressions Cloud organization decision from manual repetitive scripting to a technique that is versatile, and to a generous intensify robotized. It gives a development process and tries application planners to pick best resource mix at both programming and IaaS layers over supplier limits. We assume

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

that CloudGenius framework leaves space for an extent of enhancements and, yet, gives an amiable approach. To the extent anybody is concerned no present technique has tended to the issue of between conditions trying to programming and IaaS layers while selecting programming and gear resources for Cloud-based working of huge business applications [4]. An essential issue in Cloud organization decision is the range of the chase space (i.e. the finish of VM pictures and Cloud organizations database), the criteria records, and the quality and precision of measured qualities.

To address these issues, we will concentrate on coordinating existing benchmarking administrations, for example, CloudHarmony [6] in the CloudGenius system. Business related to computerize benchmarking is now in advancement [6]. A minimum amount of information on VM pictures and IaaS level administrations may be picked up by incorporating existing databases, for example, thecloudmarket.com [7] or CloudHarmony [9]. Further, we go for settling on information choice and client particular, as e.g. idleness estimations. The paper investigated numerous essential issues that emerge when authorizing access control in a situation where information are put away and requested to customers by an outside server[10]. We then exhibited a novel information outsourcing access control engineering for supporting adaptable applications, protecting security and engaging the client.

We additionally portrayed a methodology for arrangement development that considers the fundamental components of the situation and can promise as rule secrecy of the data in the vicinity of significant strategy redesigns, plainly distinguishing the presentation to intrigue when this danger might emerge [9]. Other issues to be examined incorporate the reconciliation with the Web worldview, and the effective execution of questions. With the quick improvements happening in distributed computing and administrations, there has been a developing pattern to utilize the cloud for extensive scale information stockpiling. This has raised the imperative security issue of how to control and counteract unapproved access to information put away in the cloud. One understood access control model is the part based access control (RBAC), which gives adaptable controls and administration by having two mappings, clients to parts and parts to benefits on information objects[12]. In this paper, we propose a part based encryption (RBE) plan that incorporates the cryptographic strategies with RBAC. Our RBE plan permits RBAC strategies to be implemented for the scrambled information put away in broad daylight mists.

In view of the proposed plan, we display a safe RBE-based cross breed distributed storage design that permits an association to store information safely in an open cloud, while keeping up the touchy data identified with the association's structure in a private cloud.[14] We depict a down to earth usage of the proposed RBE-based engineering and talk about the execution results. We show that clients just need to keep a solitary key for decoding, and framework operations are proficient paying little respect to the many-sided quality of the part chain of importance and client enrollment in the system.[15] With the fast development in remote systems and sensor and cell phones, we are moving towards a period of pervasive registering. Access control is trying in these situations.

### III. EXISTING APPROACH

Clearly identifying the most important criteria relevant to the selection of the best Cloud Services from Provider(s), remains the biggest challenge to be addressed by the businesses.

Factors contribute to the magnitude of the above stated problem:

- a. Enormous options to find out best mix of VM Images and Computing Services from so many Providers
- b. Wide-spanned selection criteria, requiring order of significance, and weightages
- c. Complex dependencies of the components of the applications
- d. Compatibility of components and the solutions available

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

## IV. OBJECTIVES AND SCOPE

### OBJECTIVES-

To focus on the problem stated earlier and widen the applicability, this work proposes 'An approach for construction of the Selection Decision Support System (SDSS)' for Cloud Service Providers, in the context of Web Applications involving multiple connected Components.

### SCOPE-

Scope for devising an approach for SDSS for cloud service providers, applicable for Web Applications involving inter-connected components

1. Modeling the component requirements
2. Modeling the selection criteria and the attributes for comparisons
3. Selecting the best-fit mix of VM Images and Computing Services using
  - a. Multi-Criteria Comparison Method for Cloud Computing(MC<sup>2</sup>)<sup>2</sup> framework
  - b. Analytic Hierarchy Process(AHP)
4. Present the mathematical model and the appropriate algorithms in identifying the best-fit mix
5. Calculation of computational complexity
6. Optimizing the computation using Genetic Algorithm(GA)

## V. OVERALL APPROACH TO PROBLEM SOLUTION

**(MC<sup>2</sup>)<sup>2</sup> framework using AHP:** Translates cloud service selection steps into multi-criteria decision-making problems, which yields the most viable VM images and compatible compute services

**Genetic Algorithm (GA):** Optimizes the computational complexities in a growing market of cloud service offerings.

**Parallel Genetic Algorithm:** Addresses the challenge of approach becoming unsolvable, by AHP + GA together, with a potentially infinite number of alternatives.

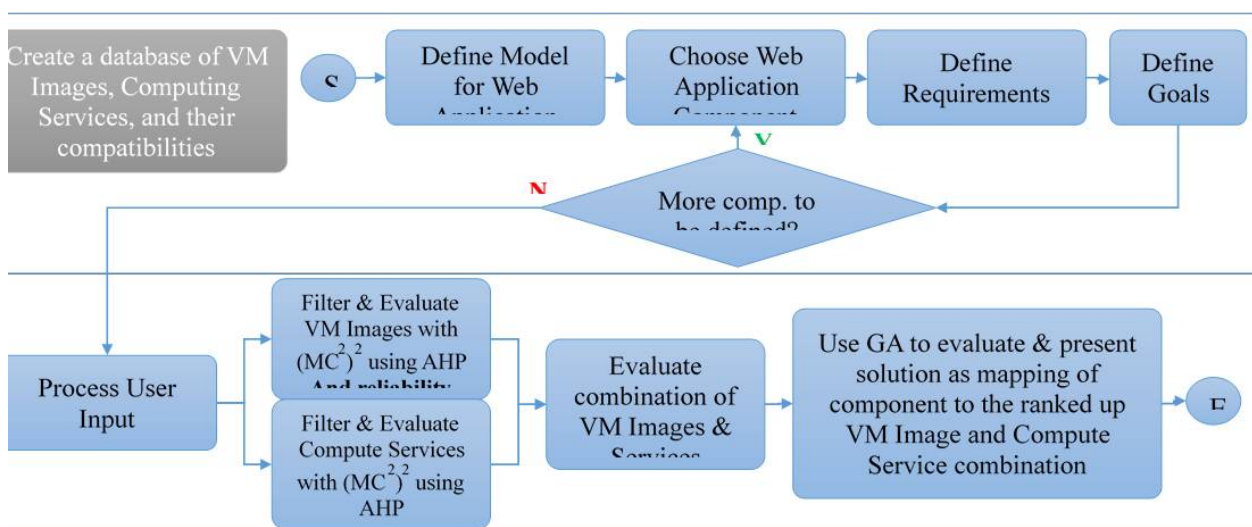


Fig No 01 OVERALL APPROACH TO PROBLEM SOLUTION

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

## I. EXSISTING SYSTEM ARCHITECTURE

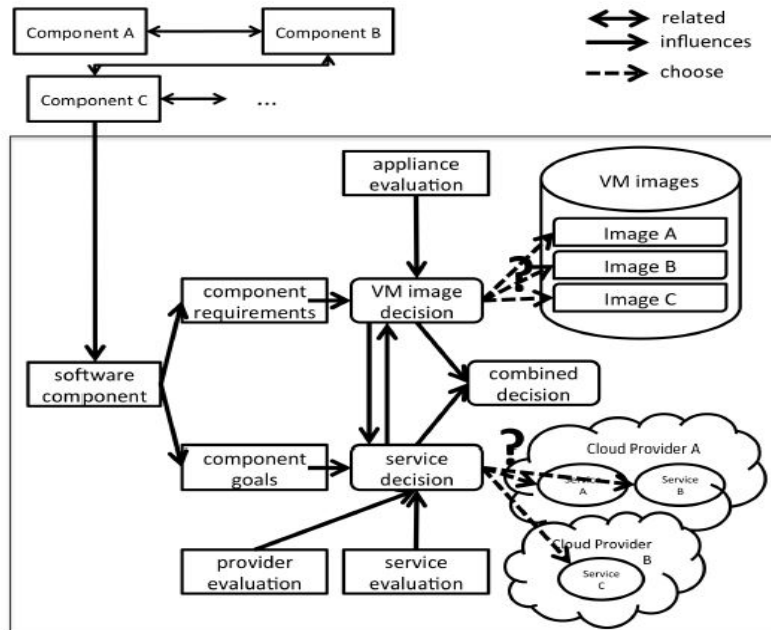


Fig No 02: Overview of the Selection Problem

## II. PROPOSED SYSTEM MECHANISM AND FLOW

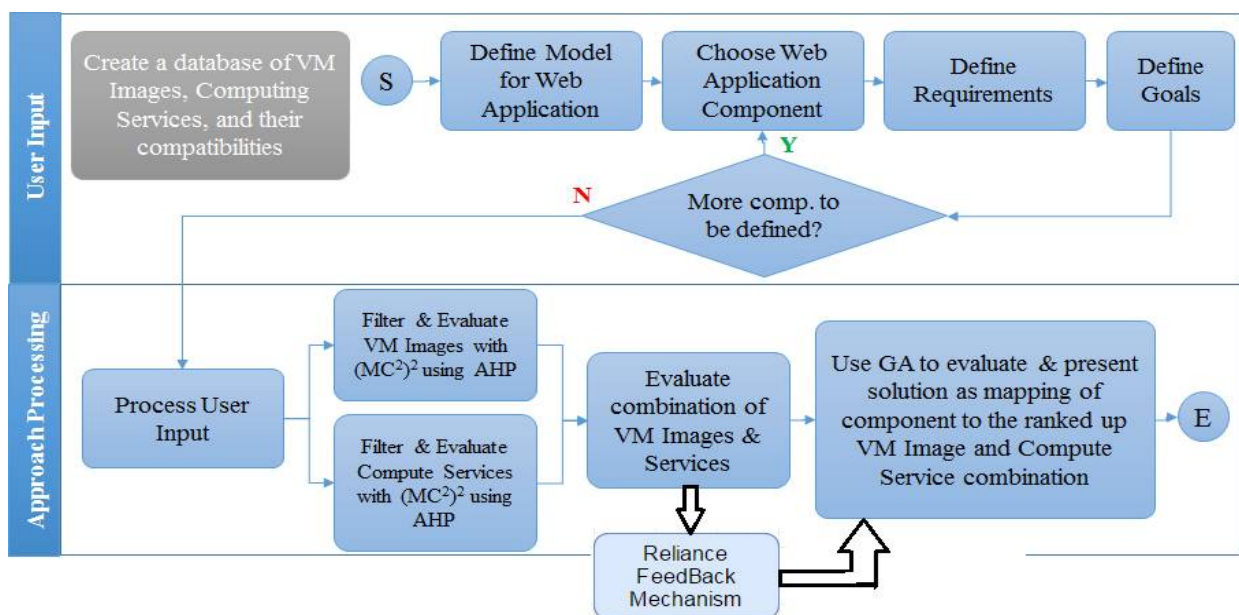


Fig No 03: Proposed system Flow

## International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

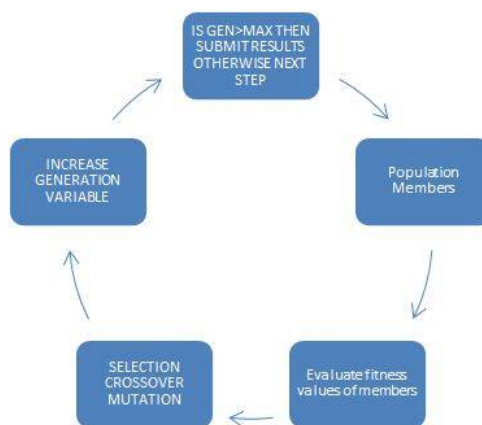
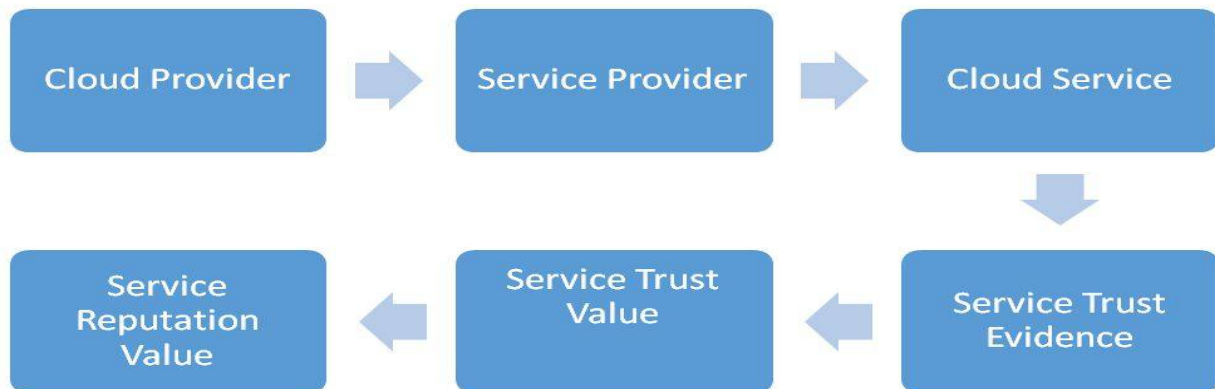


Figure 4: Overview of Reputation Feedback System

### CloudGenius Framework-

A migration of an IT system formation to Cloud infrastructures is complex and demands the choice of adequate Cloud infrastructure services and Cloud VM images for every component within the formation. We propose CloudGenius, a framework that guides through a Cloud migration process that provides methods that support multi-criteria-based

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

decisions on selecting a Cloud VM images and Cloud infrastructure services component-wise. In the following subsections we present the process and give details on the formal model of the selection problem, the required user input and flexibilities, and the selection and combination steps that choose an image and service from the abundance of offerings and find the best combination. Finally, an alternative evaluation variant is addressed.

## **a. MULTI-COMPONENT CLOUD MIGRATION PROCESS**

CloudGenius' is a migration process for IT system formations in Business Process Model and Notation (BPMN) 2.0. The process is divided in two lanes: (1)"user input" lane with domain experts such as application engineers providing input and (2)"CloudGenius" lane where steps are completed by an implementation of the framework. The process allows for a loop enabling a component-wise migration and cycles for step-wise, incremental improvements of every component's migration. Within the cycles engineers have to define requirements and preferences and CloudGenius applies the (MC2)2decision-making framework to recommend a ranked VM image and Cloud service combinations for a certain component.

## **b. FORMAL MODEL OF CLOUDGENIUS**

A formal mathematical model is introduced to formalize the problem addressed by the CloudGenius framework. The model defines all parameters involved in the problem which the evaluation is based on. Table 1 summarizes parameters of the model.

### **III. ALGORITHM USED**

#### **RELIANCE FEEDBACK ALGORITHM:**

1. User sends his/her service request to the cloud selection service application, which selects the services of which the type function meets the demands of the service user.
2. Elicit the active users nonfunctional requirements to the service, that is, the key attributes concerned by the user.
3. Elicit trust evidence of all the service.
4. Calculate the services reputation value.
5. Evaluate the services trust values by the active user.
6. Calculate the aggregated trustworthiness of services.
7. Select the optimal service.
8. Collect the feedback assessment from the user.

## International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

(3) Elicit trust	base. evidence of all the service FS <sub>j</sub> (1; ::; m) from evidence
There are two sources of trust evidence, i.e., direct evidence $\Phi_{i1}$ and indirect evi-	
(5) Evaluate the services trust values by the active user $c_j$ : based on the direct and indirect trust evidence, calculated.	
(5) Evaluate the services trust values by the active user	
$c_j$ : based on the direct and indirect trust evidence, calcu-	

Calculate the aggregated trustworthiness of services



# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

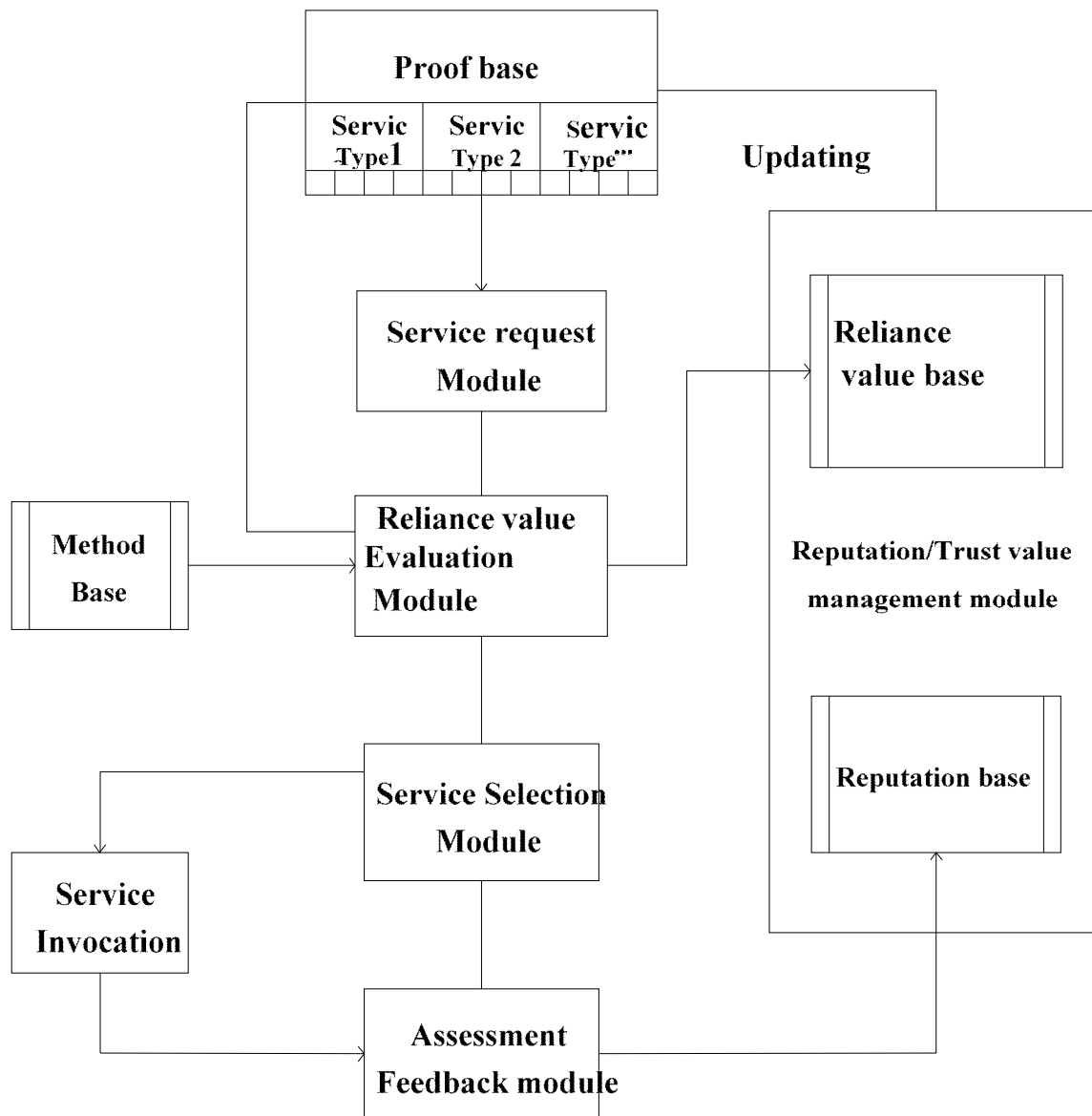


Figure 5: Overview of Algorithm

## IV. MATHEMATICAL MODEL

### Cluster Modeling:

1. Model Web Application as a Cluster
2. Add components of cluster setup,  $c_h$ , to set  $C$
3. Define components interconnections in set  $I$ , as component pairs
4. Collect the incoming and outgoing data in terms of bytes, in the sets  $N_{in}$  and  $N_{out}$  respectively, by discussing with domain experts
5. Add the components multiple times, if required, for scaling or distinct requirements and goals for fault tolerance

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

6. Assign a category to a software feature

### Component Requirements Modeling:

1. Requirements formulation comprises setting constraints on attributes of VM images and compute services. As a requirement, the attribute might be required to adhere to fixed value boundary  $v_r$ , or be included or excluded or compared with other component's attribute
2. Requirement type can be as shown in the table aside:
3. Requirements of VM image attributes need to be defined in a set  $R_{cb}A$ , for services in set  $R_{cb}S$  and for combinations in set  $R_{cb}X$ 
  1. Define goal hierarchy preferences, as required by AHP
  2. Define weight of the cloud VM image ( $w_a$ ), compute service ( $w_s$ ), and the combination ( $w_{attr}$ ), thereof in the total value of a solution.
  3. Define weights for the importance of a component within the cluster in  $w_{ch}$

### VM Image and Compute Service Attributes Modeling:

1. Attributes of VM images, compute services, and their combinations are applicable to filters for components of all feature categories
2. The attributes could be numerical or non-numerical and do correspond to the goal/criteria hierarchy
- 3.

### VM Image and Compute Service Attributes

#### VM Image Numerical Attributes

Name	Influence	Metric	Range
Hourly License Price	Negative	\$/h	0-∞ \$/h
Popularity	Positive	%	0-100 %
Age	Positive	Days	0-∞

#### VM image Non-numerical Attributes

Name	Example Values
Virtualization Format	Xen, VMWare, ...
Operating System (OS)	Linux, Windows, ...
OS Version	Ubuntu 10.4, ...
Software Feature	Application Server, Load Balancer, Database, ...
Software	JBoss, Nginx, MySQL, ...
Software Vers.	0.8-alpha, ...
Implementation Lang.	Java, Perl, Ruby, ...
Supported Impl. Lang.s	Java, Perl, Ruby, ...

## V. EXPERIMENTAL SET UP AND RESULTS

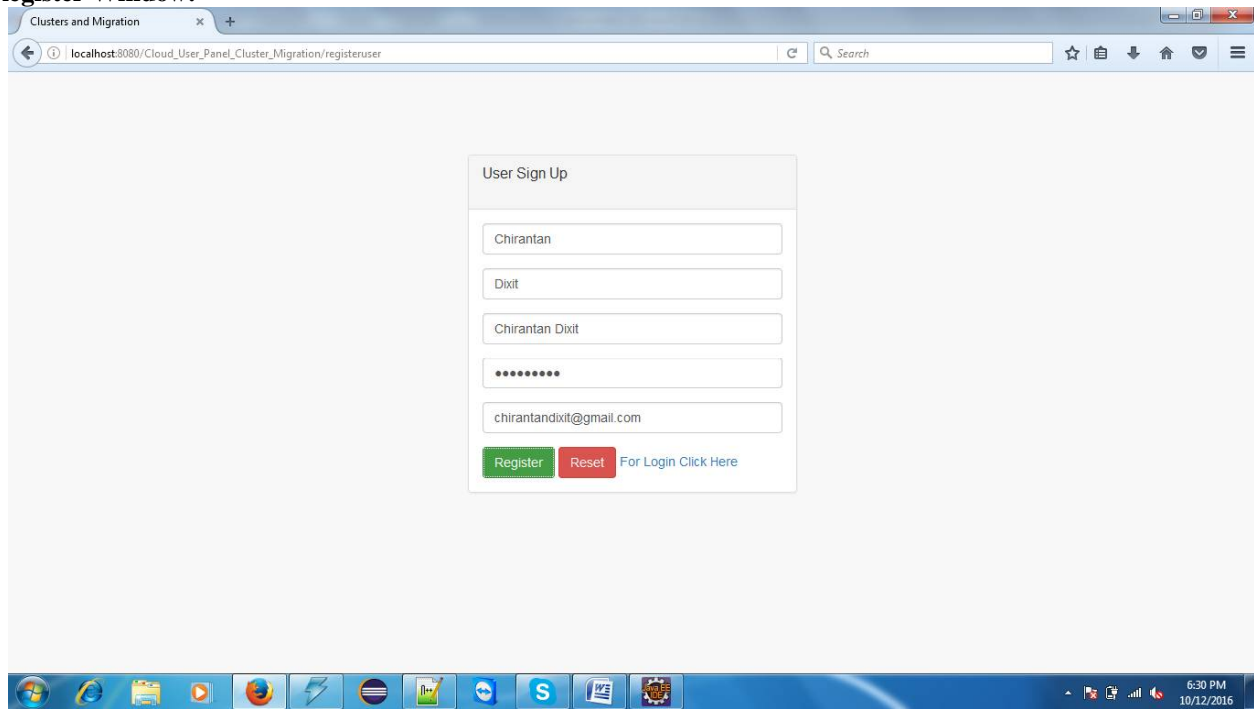
With Cumulus Genius [5] we display an execution of the decision making sponsorship of the structure. The Cumulus Genius java library offers a data model that engages the appraisal of VM pictures, Cloud structure organizations and best mixes naturally. A Web frontend that sponsorships the structure's technique and gives a database of VM pictures and Cloud organizations of the present Cloud supplier scene is starting now a work in advancement. We attempted our execution Cumulus Genius in trials on a test machine with Intel Core i7 2.7 Hz and 8 GB of RAM. The tests grant separating the ensuing time versatile nature of Cumulus Genius. The parameters of the investigations are the amount of VM pictures, organization and fragments. VM pictures and organizations are falsely created with all attributes having sporadic qualities. There is a fix number of three suppliers and no necessities are described to keep a full request space of solidified courses of action. Portions are discretionarily delegated to a supplier and all between joined with one another. Exactly when fragments are doled out to the same supplier low framework costs happen, in the occasion of different suppliers high web costs are acknowledged.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

## Register Window:-

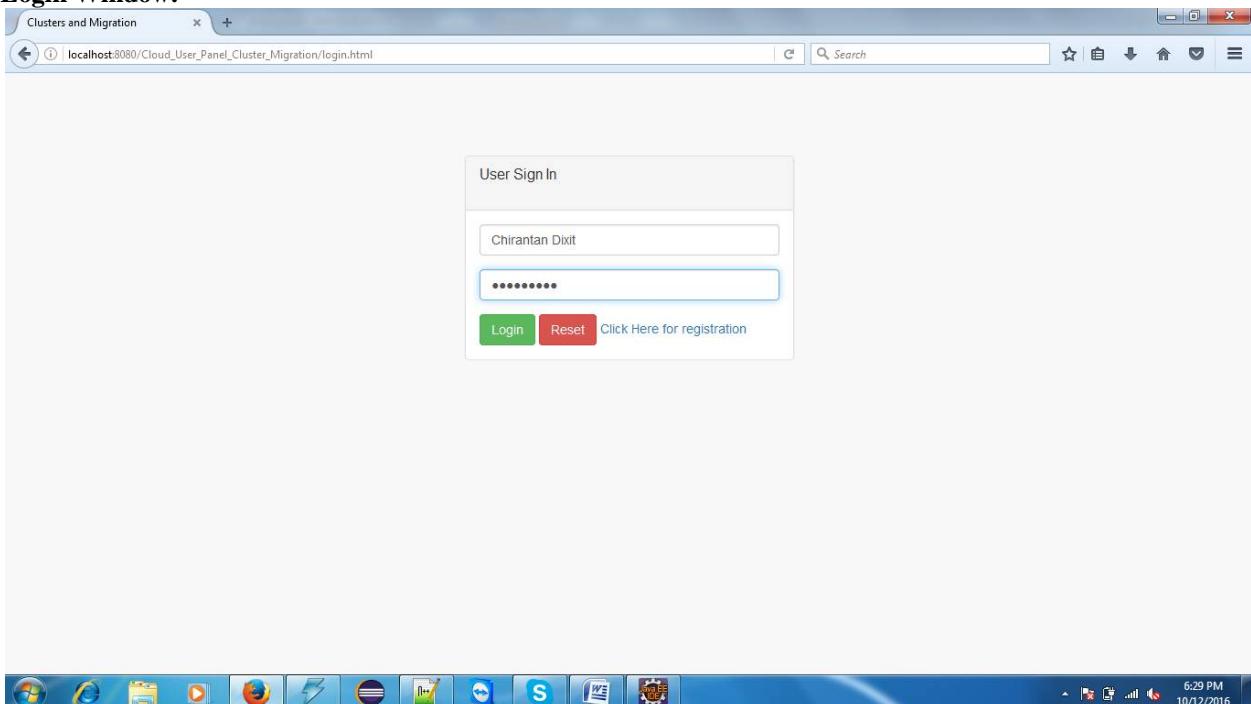


The screenshot shows a web browser window titled "Clusters and Migration" with the URL `localhost:8080/Cloud_User_Panel_Cluster_Migration/registeruser`. The main content area displays a "User Sign Up" form with the following fields and controls:

- Text input field containing "Chirantan"
- Text input field containing "Dixit"
- Text input field containing "Chirantan Dixit"
- Text input field containing "\*\*\*\*\*" (password)
- Text input field containing "chirantandixit@gmail.com"
- Buttons: "Register" (green), "Reset" (red), and "For Login Click Here" (blue)

The Windows taskbar at the bottom shows the time as 6:30 PM on 10/12/2016.

## Login Window:-



The screenshot shows a web browser window titled "Clusters and Migration" with the URL `localhost:8080/Cloud_User_Panel_Cluster_Migration/login.html`. The main content area displays a "User Sign In" form with the following fields and controls:

- Text input field containing "Chirantan Dixit"
- Text input field containing "\*\*\*\*\*" (password)
- Buttons: "Login" (green), "Reset" (red), and "Click Here for registration" (blue)

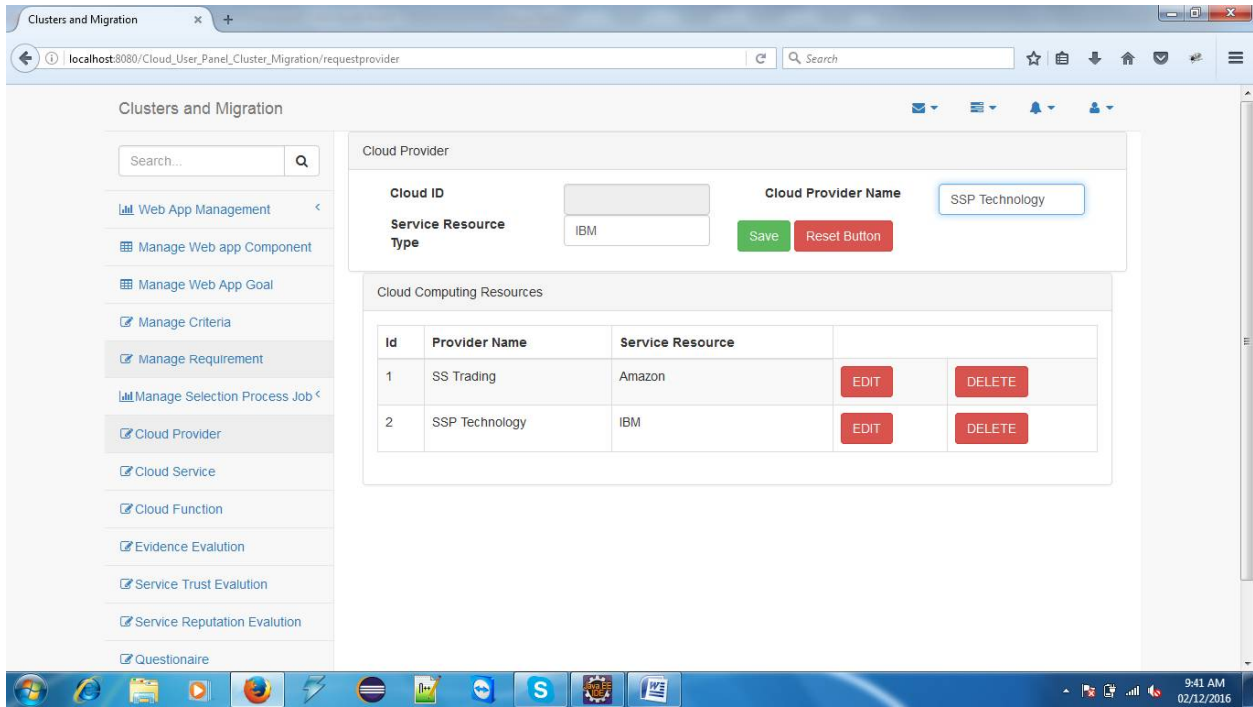
The Windows taskbar at the bottom shows the time as 6:29 PM on 10/12/2016.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

## Cloud Provider:-



Clouds and Migration

Search...

- Web App Management
- Manage Web app Component
- Manage Web App Goal
- Manage Criteria
- Manage Requirement
- Manage Selection Process Job
- Cloud Provider**
- Cloud Service
- Cloud Function
- Evidence Evaluation
- Service Trust Evaluation
- Service Reputation Evaluation
- Questionnaire

Cloud Provider

Cloud ID:

Service Resource Type:

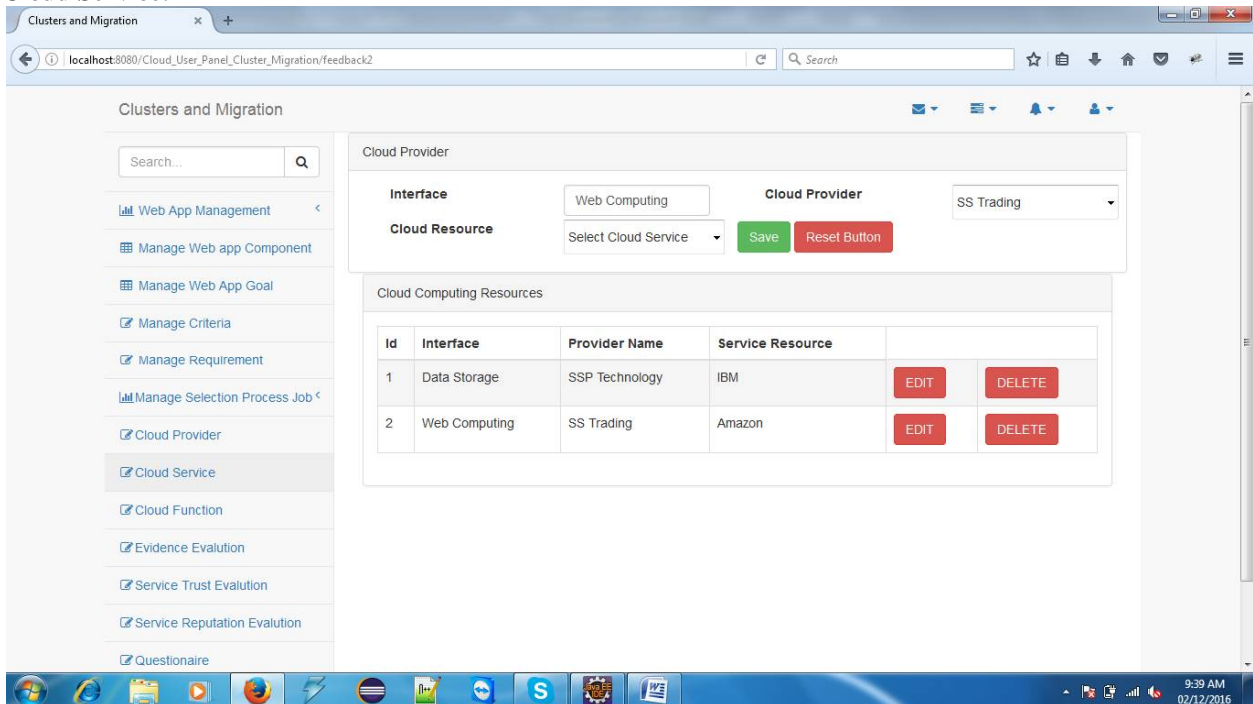
Cloud Provider Name:

Save Reset Button

Cloud Computing Resources

Id	Provider Name	Service Resource		
1	SS Trading	Amazon	EDIT	DELETE
2	SSP Technology	IBM	EDIT	DELETE

## Cloud Service:-



Clouds and Migration

Search...

- Web App Management
- Manage Web app Component
- Manage Web App Goal
- Manage Criteria
- Manage Requirement
- Manage Selection Process Job
- Cloud Provider
- Cloud Service**
- Cloud Function
- Evidence Evaluation
- Service Trust Evaluation
- Service Reputation Evaluation
- Questionnaire

Cloud Provider

Interface:

Cloud Resource:

Cloud Provider:

Save Reset Button

Cloud Computing Resources

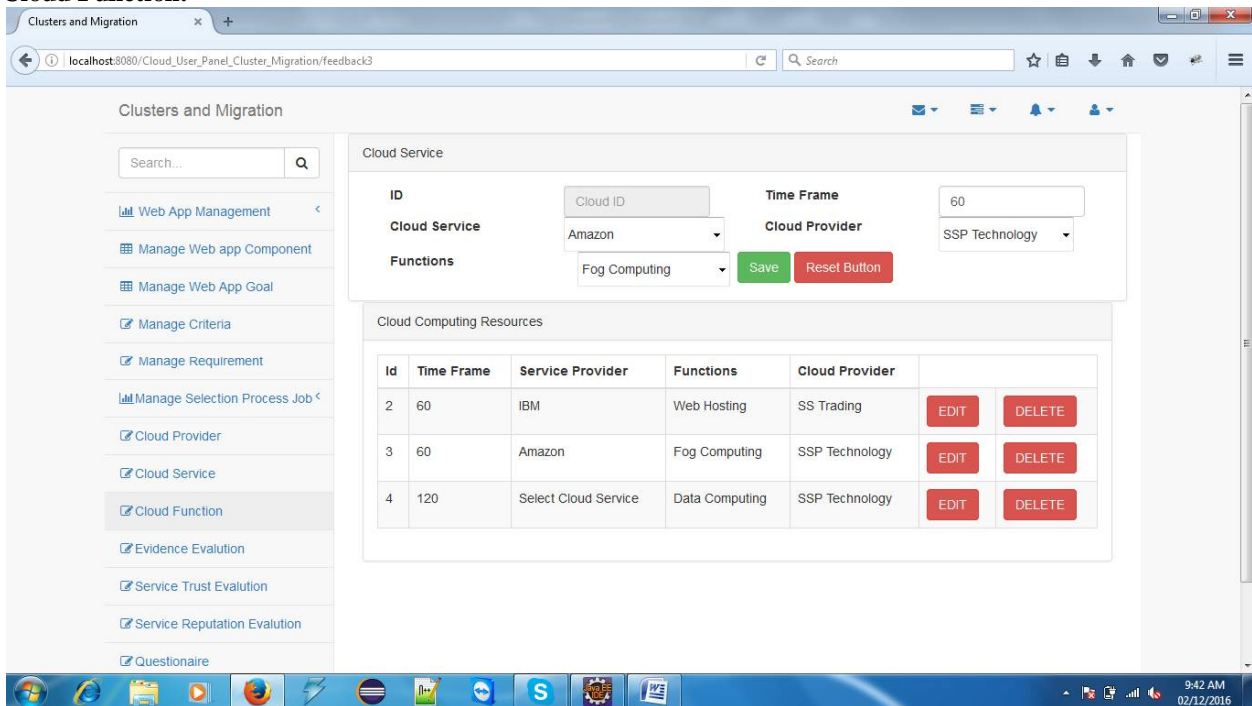
Id	Interface	Provider Name	Service Resource		
1	Data Storage	SSP Technology	IBM	EDIT	DELETE
2	Web Computing	SS Trading	Amazon	EDIT	DELETE

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

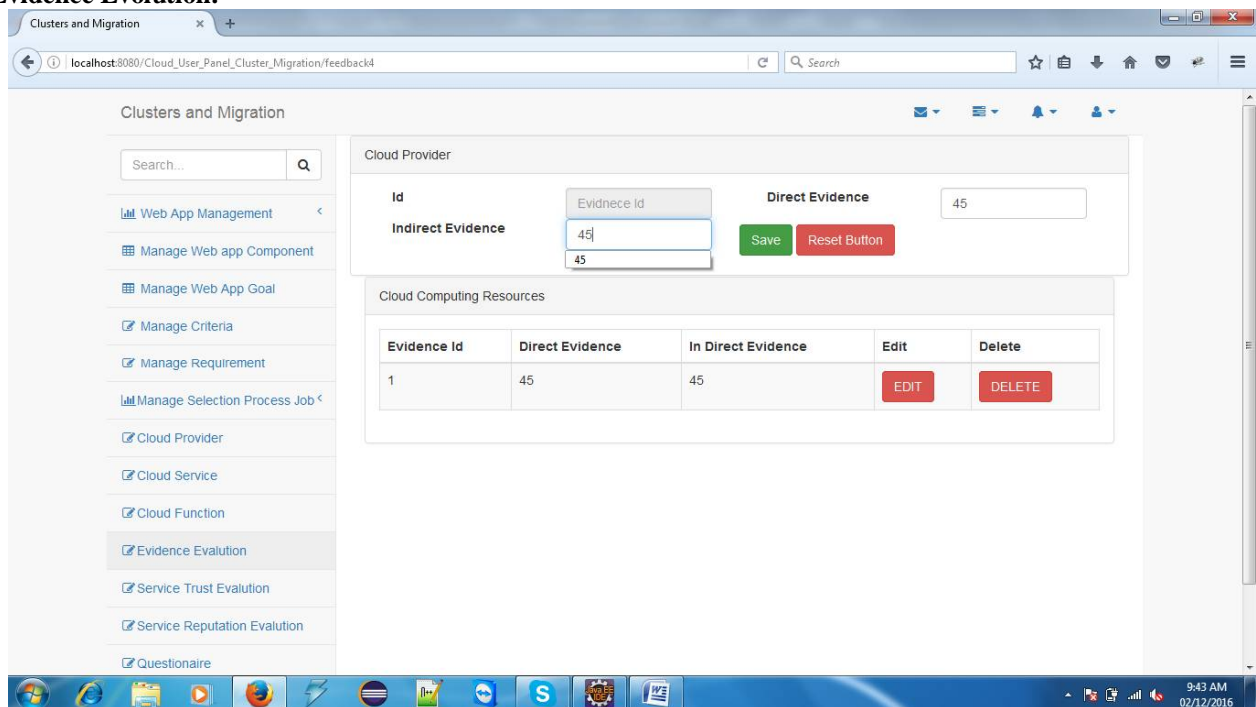
Vol. 5, Issue 12, December 2016

## Cloud Function:-



Id	Time Frame	Service Provider	Functions	Cloud Provider		
2	60	IBM	Web Hosting	SS Trading	EDIT	DELETE
3	60	Amazon	Fog Computing	SSP Technology	EDIT	DELETE
4	120	Select Cloud Service	Data Computing	SSP Technology	EDIT	DELETE

## Evidence Evolution:-



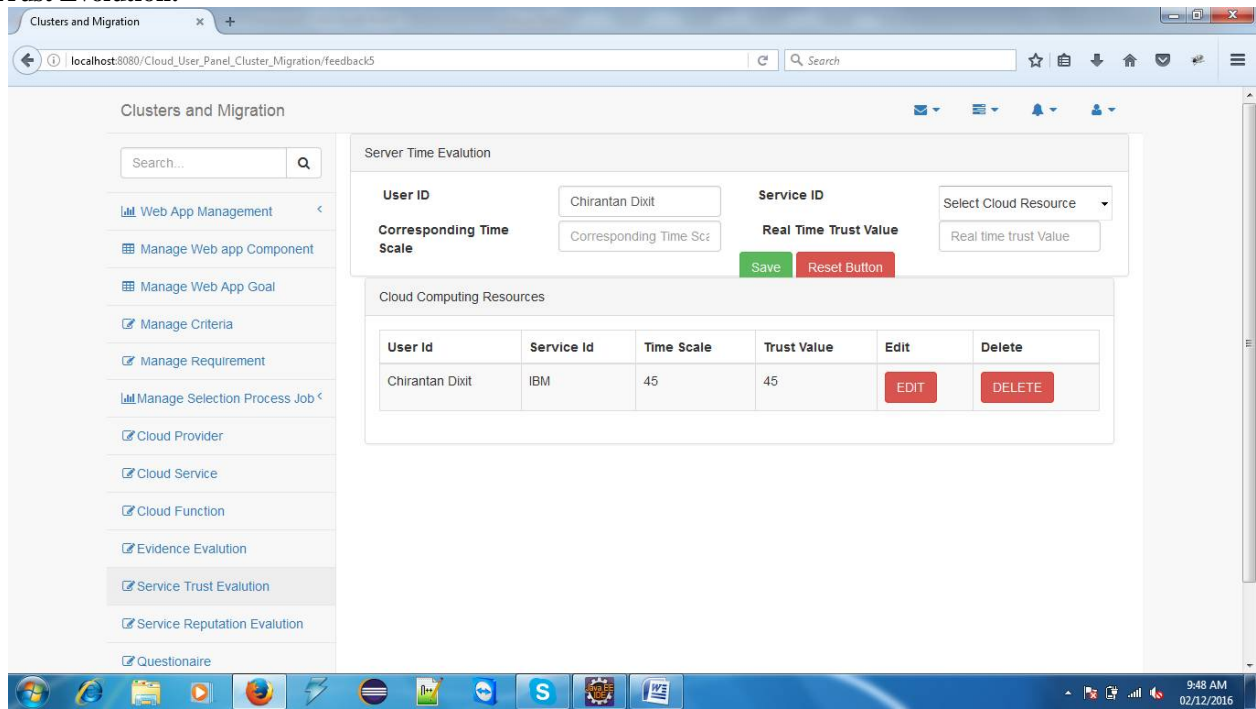
Evidence Id	Direct Evidence	In Direct Evidence	Edit	Delete
1	45	45	EDIT	DELETE

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

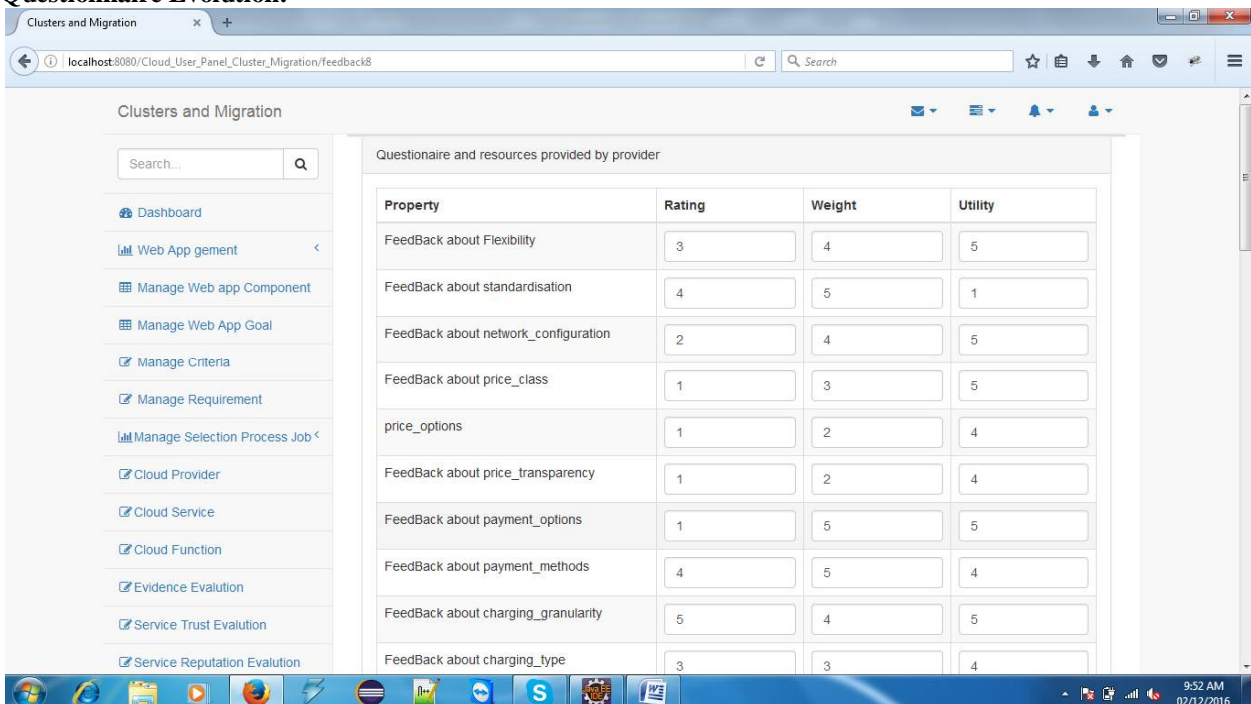
Vol. 5, Issue 12, December 2016

## Trust Evolution:-



User Id	Service Id	Time Scale	Trust Value	Edit	Delete
Chirantan Dixit	IBM	45	45	EDIT	DELETE

## Questionnaire Evolution:-



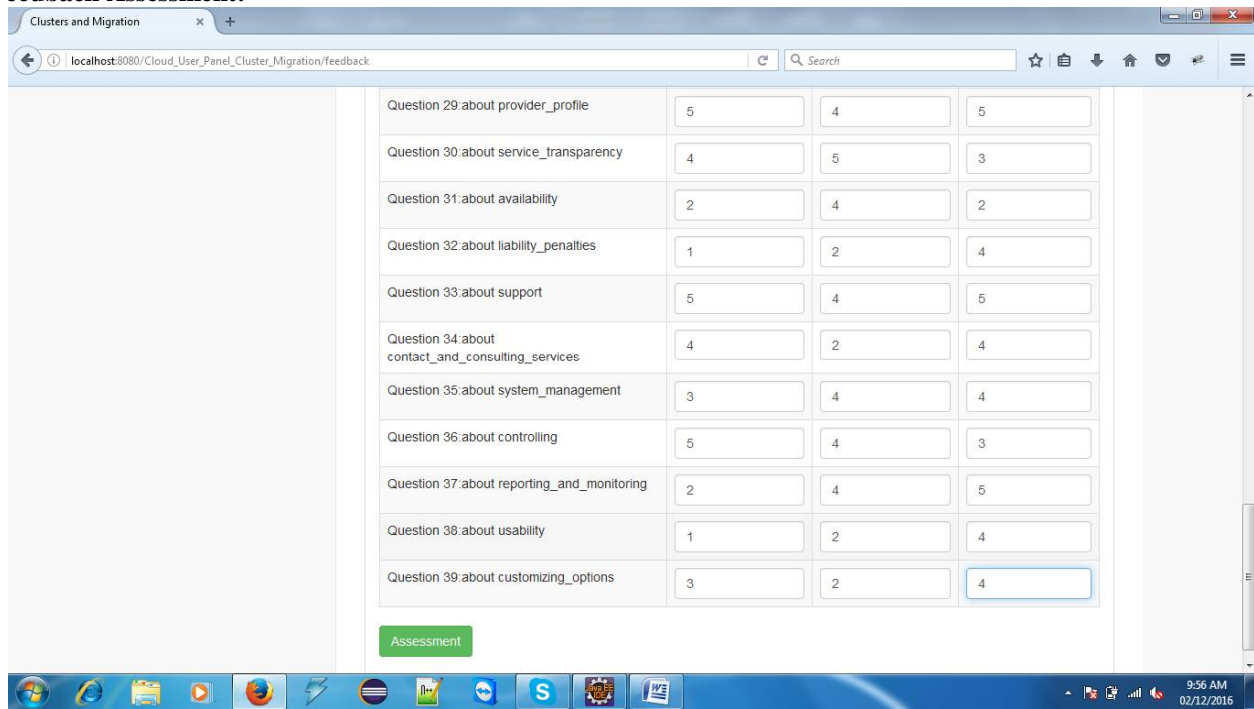
Property	Rating	Weight	Utility
FeedBack about Flexibility	3	4	5
FeedBack about standardisation	4	5	1
FeedBack about network_configuration	2	4	5
FeedBack about price_class	1	3	5
price_options	1	2	4
FeedBack about price_transparency	1	2	4
FeedBack about payment_options	1	5	5
FeedBack about payment_methods	4	5	4
FeedBack about charging_granularity	5	4	5
FeedBack about charging_type	3	3	4

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

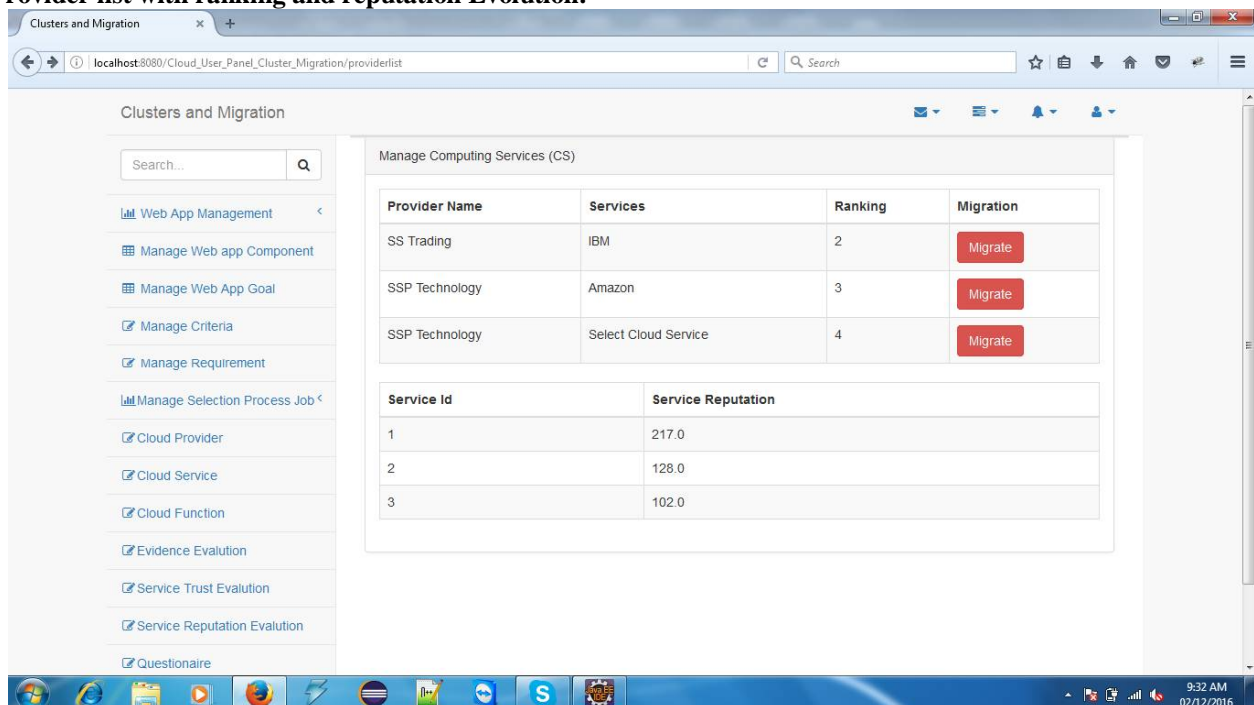
Vol. 5, Issue 12, December 2016

## Feedback Assessment:-



Question	Rating 1	Rating 2	Rating 3
Question 29: about provider_profile	5	4	5
Question 30: about service_transparency	4	5	3
Question 31: about availability	2	4	2
Question 32: about liability_penalties	1	2	4
Question 33: about support	5	4	5
Question 34: about contact_and_consulting_services	4	2	4
Question 35: about system_management	3	4	4
Question 36: about controlling	5	4	3
Question 37: about reporting_and_monitoring	2	4	5
Question 38: about usability	1	2	4
Question 39: about customizing_options	3	2	4

## Provider list with ranking and reputation Evolution:-



Provider Name	Services	Ranking	Migration
SS Trading	IBM	2	Migrate
SSP Technology	Amazon	3	Migrate
SSP Technology	Select Cloud Service	4	Migrate

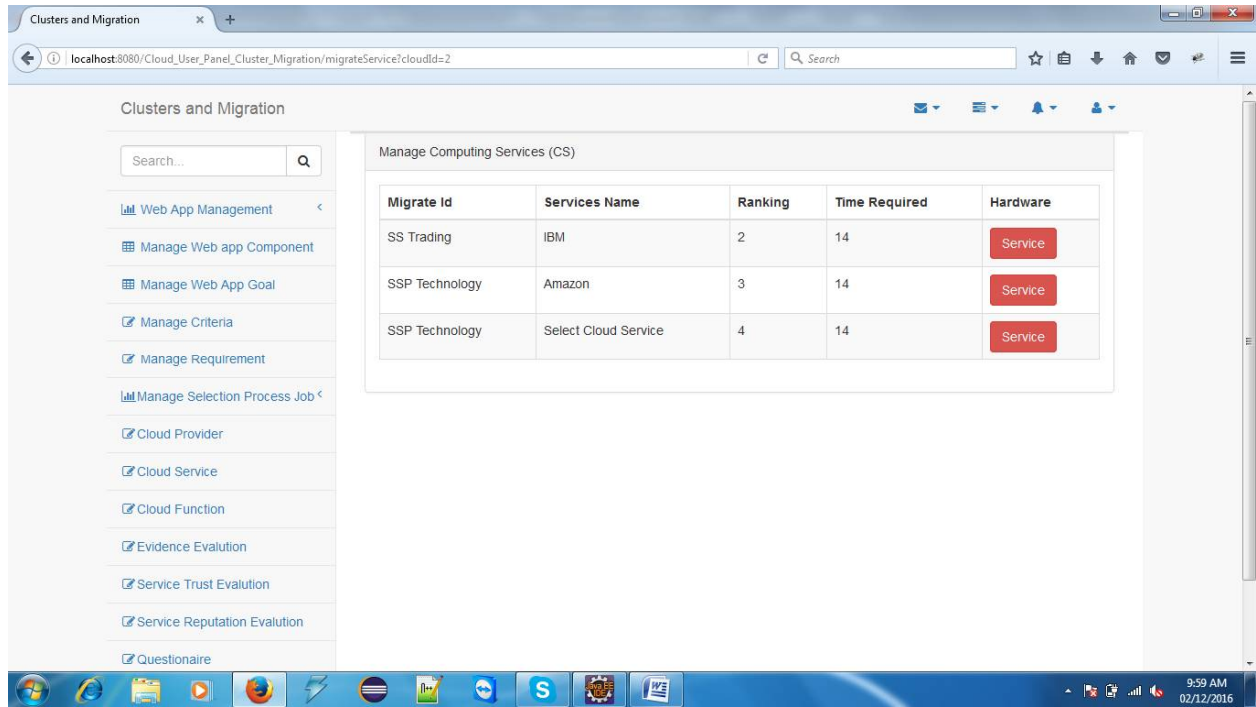
Service Id	Service Reputation
1	217.0
2	128.0
3	102.0

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

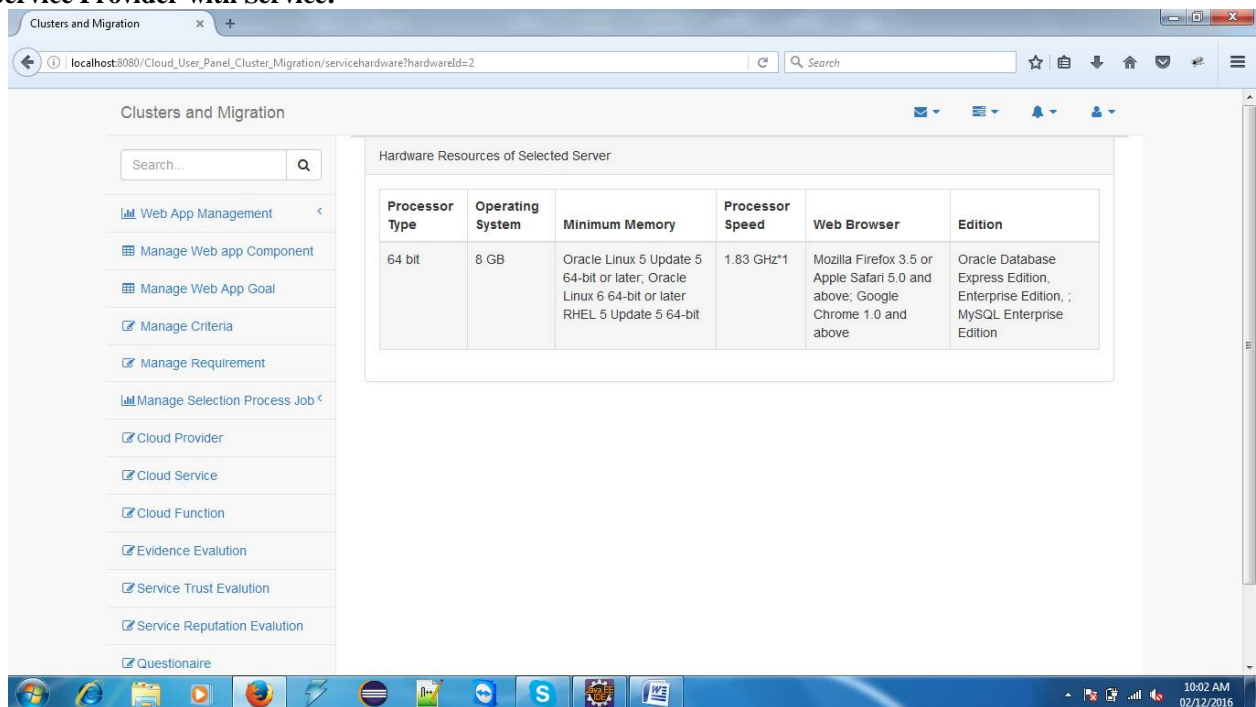
## Service Id:-



The screenshot shows a web browser window with the URL `localhost:8080/Cloud_User_Panel_Cluster_Migration/migrateService?cloudId=2`. The page title is "Clusters and Migration". On the left, there is a sidebar menu with various options like "Web App Management", "Manage Web app Component", "Manage Web App Goal", "Manage Criteria", "Manage Requirement", "Manage Selection Process Job", "Cloud Provider", "Cloud Service", "Cloud Function", "Evidence Evaluation", "Service Trust Evaluation", "Service Reputation Evaluation", and "Questionnaire". The main content area is titled "Manage Computing Services (CS)" and contains a table with the following data:

Migrate Id	Services Name	Ranking	Time Required	Hardware
SS Trading	IBM	2	14	Service
SSP Technology	Amazon	3	14	Service
SSP Technology	Select Cloud Service	4	14	Service

## Service Provider with Service:-



The screenshot shows a web browser window with the URL `localhost:8080/Cloud_User_Panel_Cluster_Migration/servicehardware?hardwareId=2`. The page title is "Clusters and Migration". The sidebar menu is identical to the previous screenshot. The main content area is titled "Hardware Resources of Selected Server" and contains a table with the following data:

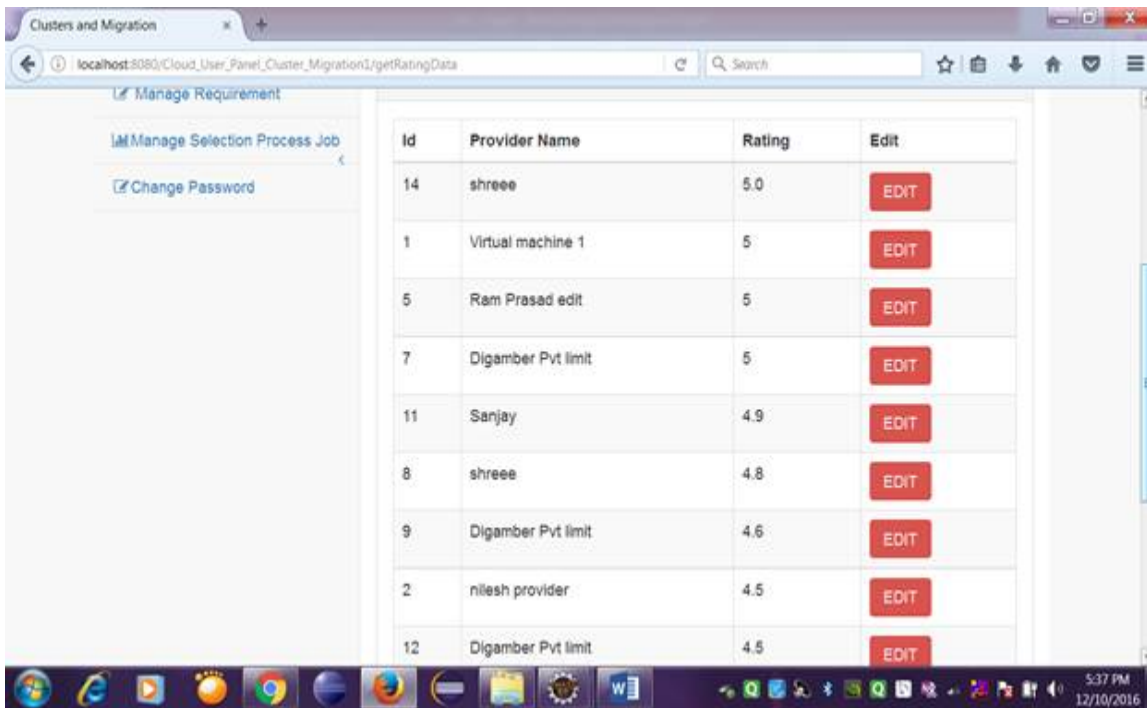
Processor Type	Operating System	Minimum Memory	Processor Speed	Web Browser	Edition
64 bit	8 GB	Oracle Linux 5 Update 5 64-bit or later; Oracle Linux 6 64-bit or later RHEL 5 Update 5 64-bit	1.83 GHz*1	Mozilla Firefox 3.5 or Apple Safari 5.0 and above; Google Chrome 1.0 and above	Oracle Database Express Edition, Enterprise Edition, ; MySQL Enterprise Edition



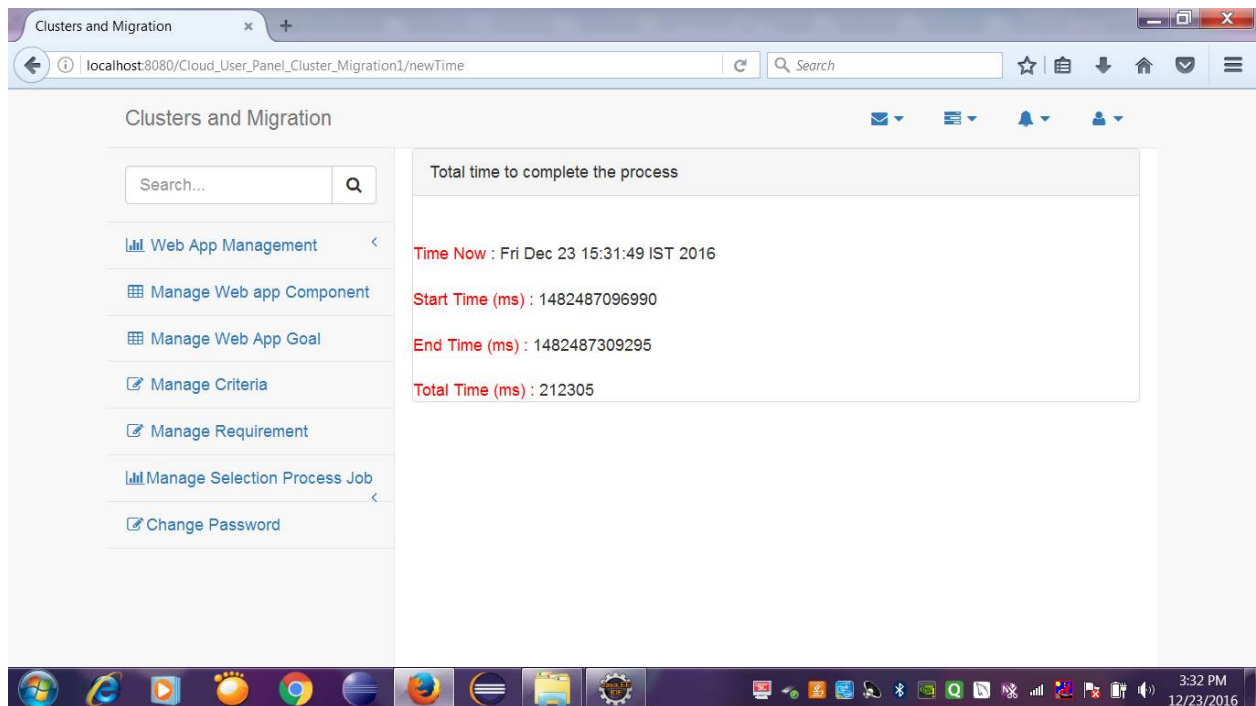
# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016



Id	Provider Name	Rating	Edit
14	shreee	5.0	EDIT
1	Virtual machine 1	5	EDIT
5	Ram Prasad edit	5	EDIT
7	Digamber Pvt limit	5	EDIT
11	Sanjay	4.9	EDIT
8	shreee	4.8	EDIT
9	Digamber Pvt limit	4.6	EDIT
2	nilesh provider	4.5	EDIT
12	Digamber Pvt limit	4.5	EDIT



Clusters and Migration

Search...

- Web App Management
- Manage Web app Component
- Manage Web App Goal
- Manage Criteria
- Manage Requirement
- Manage Selection Process Job
- Change Password

Total time to complete the process

**Time Now** : Fri Dec 23 15:31:49 IST 2016

**Start Time (ms)** : 1482487096990

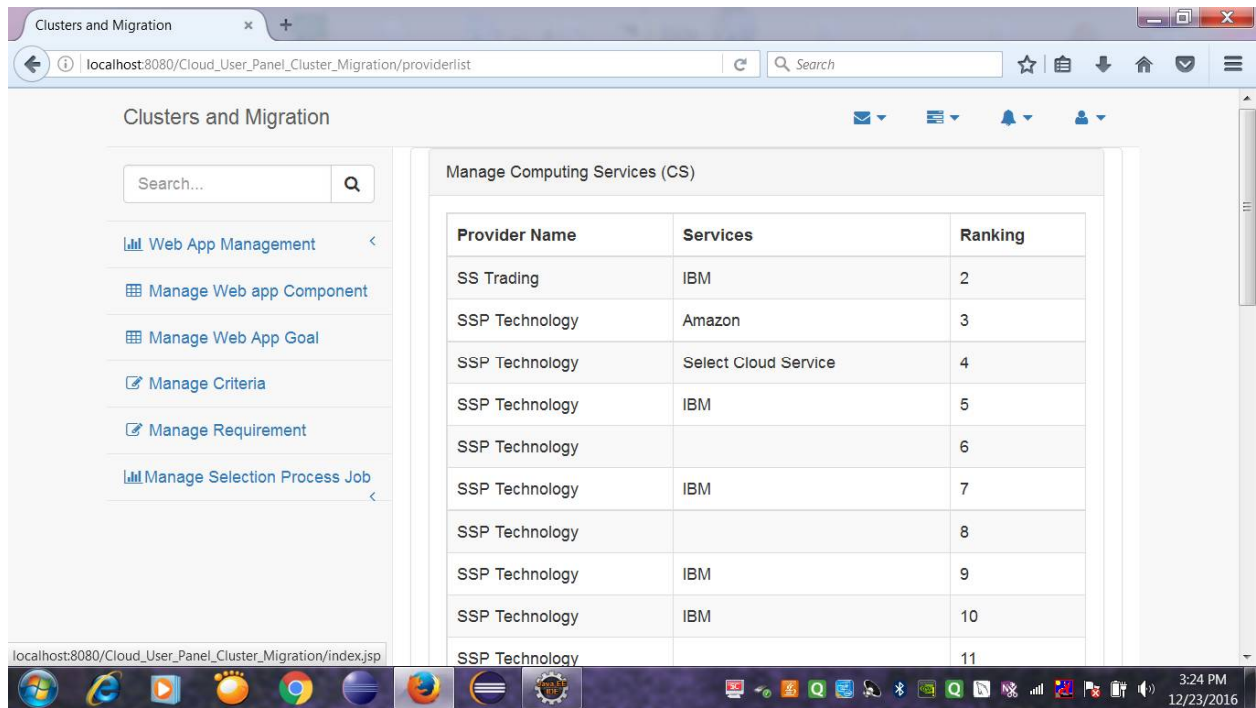
**End Time (ms)** : 1482487309295

**Total Time (ms)** : 212305

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016



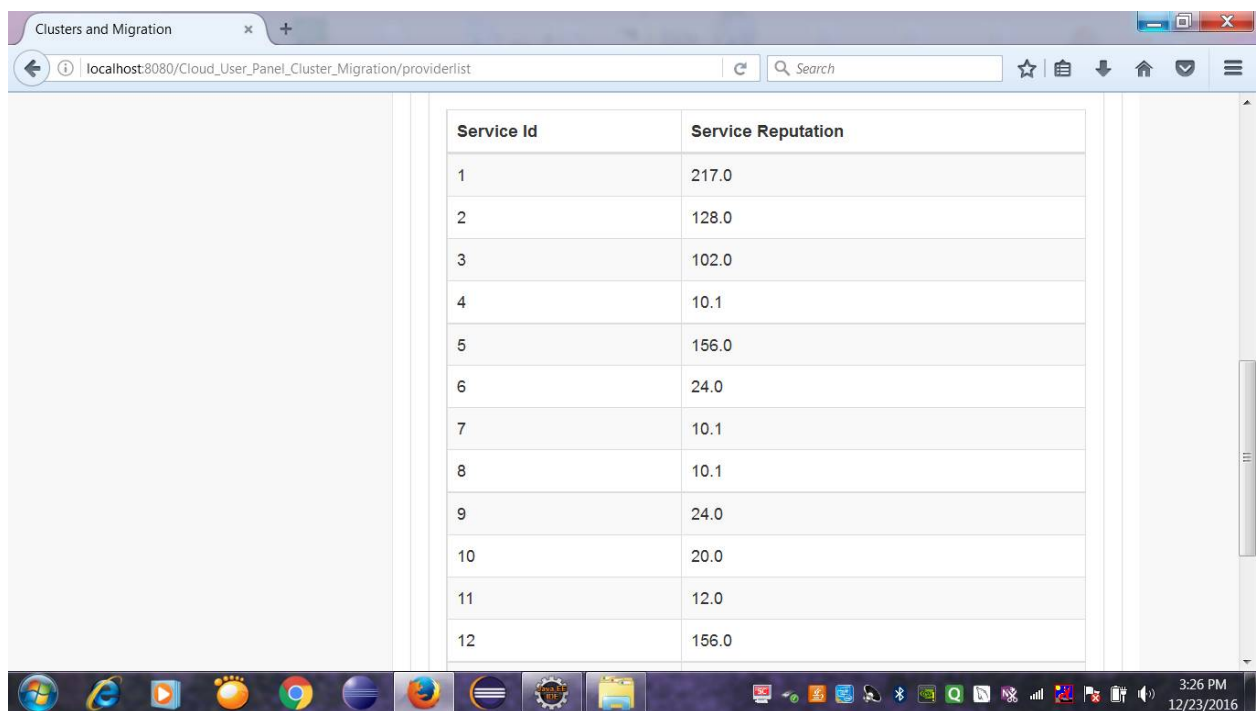
Clusters and Migration

Search...

- Web App Management
- Manage Web app Component
- Manage Web App Goal
- Manage Criteria
- Manage Requirement
- Manage Selection Process Job

Manage Computing Services (CS)

Provider Name	Services	Ranking
SS Trading	IBM	2
SSP Technology	Amazon	3
SSP Technology	Select Cloud Service	4
SSP Technology	IBM	5
SSP Technology		6
SSP Technology	IBM	7
SSP Technology		8
SSP Technology	IBM	9
SSP Technology	IBM	10
SSP Technology		11



Clusters and Migration

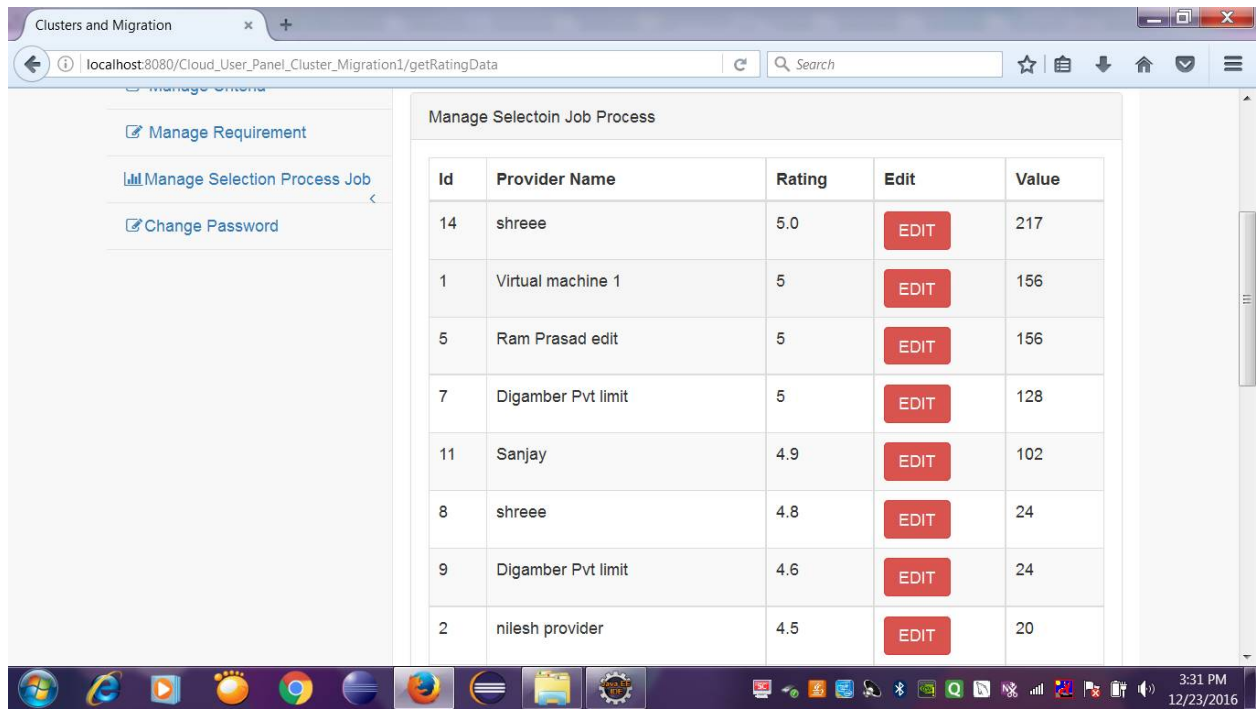
Search

Service Id	Service Reputation
1	217.0
2	128.0
3	102.0
4	10.1
5	156.0
6	24.0
7	10.1
8	10.1
9	24.0
10	20.0
11	12.0
12	156.0

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016



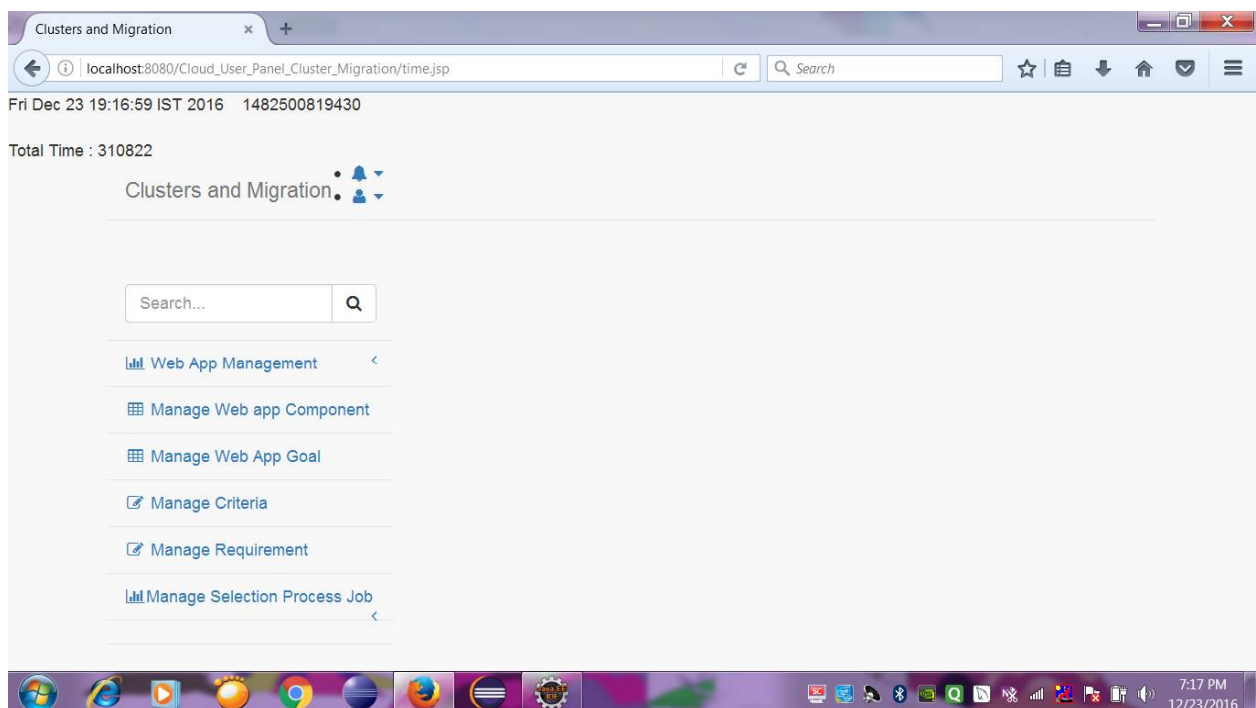
Clusters and Migration

localhost:8080/Cloud\_User\_Panel\_Cluster\_Migration1/getRatingData

Manage Selectoin Job Process

Id	Provider Name	Rating	Edit	Value
14	shreee	5.0	EDIT	217
1	Virtual machine 1	5	EDIT	156
5	Ram Prasad edit	5	EDIT	156
7	Digamber Pvt limit	5	EDIT	128
11	Sanjay	4.9	EDIT	102
8	shreee	4.8	EDIT	24
9	Digamber Pvt limit	4.6	EDIT	24
2	nilesh provider	4.5	EDIT	20

3:31 PM  
12/23/2016



Clusters and Migration

localhost:8080/Cloud\_User\_Panel\_Cluster\_Migration/time.jsp

Fri Dec 23 19:16:59 IST 2016 1482500819430

Total Time : 310822

Clusters and Migration

Search...

- Web App Management
- Manage Web app Component
- Manage Web App Goal
- Manage Criteria
- Manage Requirement
- Manage Selection Process Job

7:17 PM  
12/23/2016

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

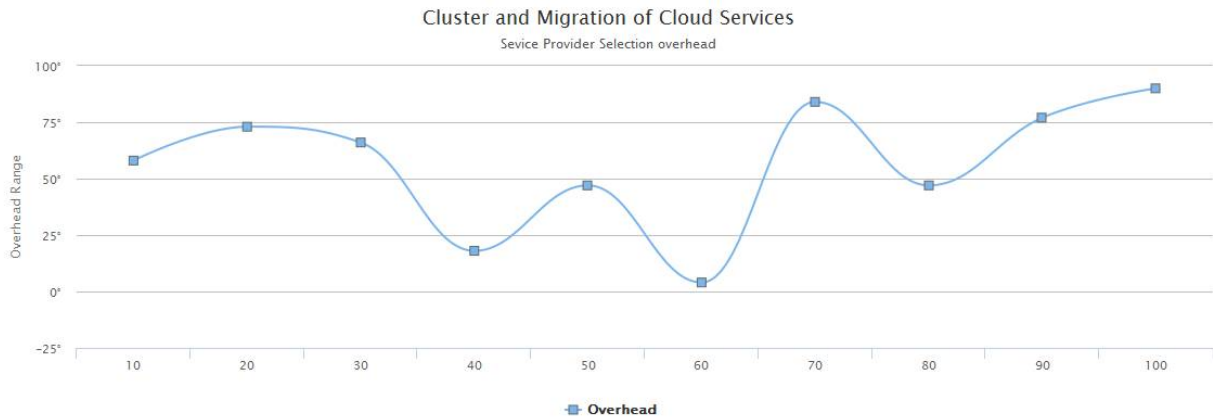
Vol. 5, Issue 12, December 2016

## RESULT

WORKLOADS	WRITABLE WORKING SET(MB)		
	WEB VM	APP VM	DD VM
S & L	63	96	502
D & H	166	212	818
L & SW	92	134	616

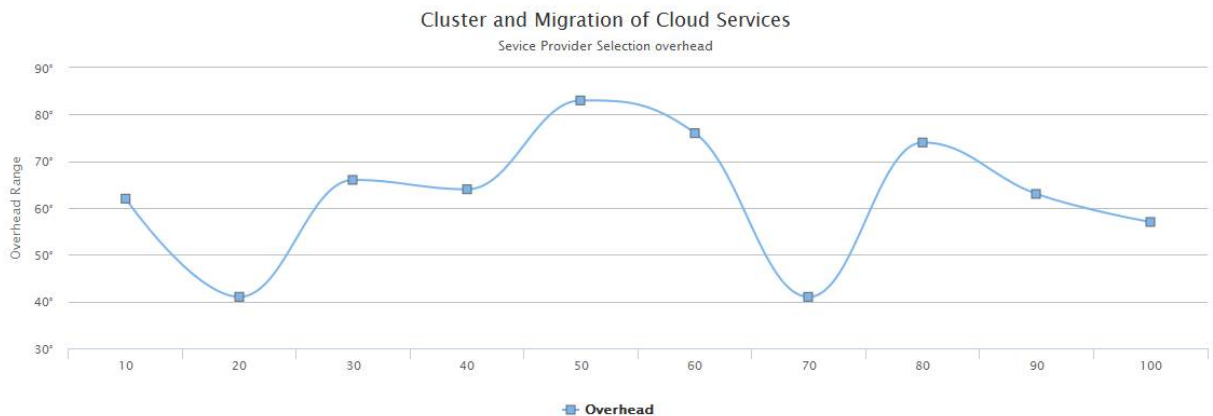
### Existing System Cloud Service selection Overhead:-

Cluster Verification Chart



### Proposed System Cloud Service selection Overhead:-

Cluster Verification Chart

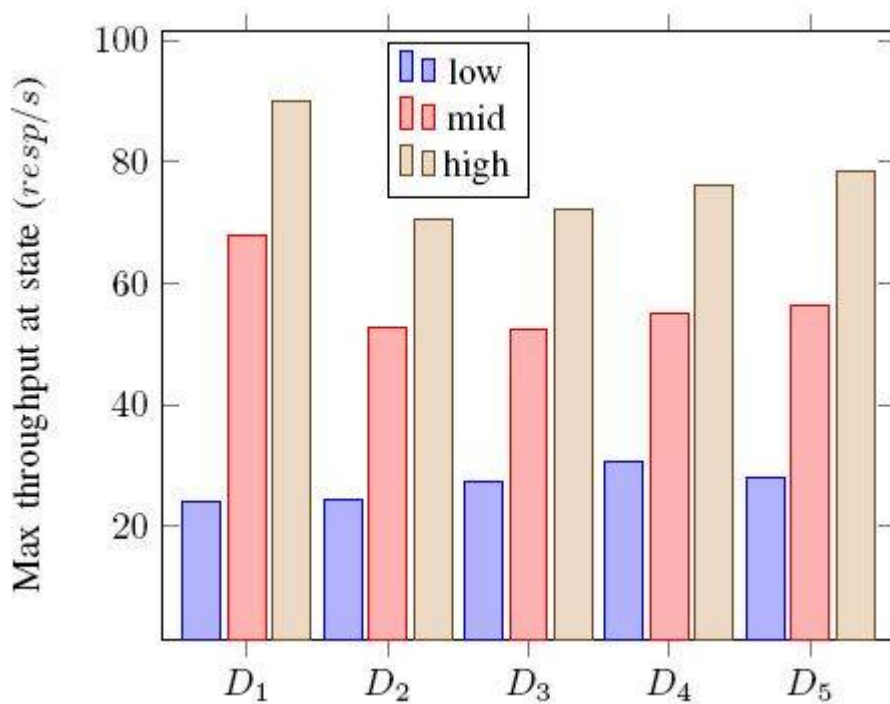
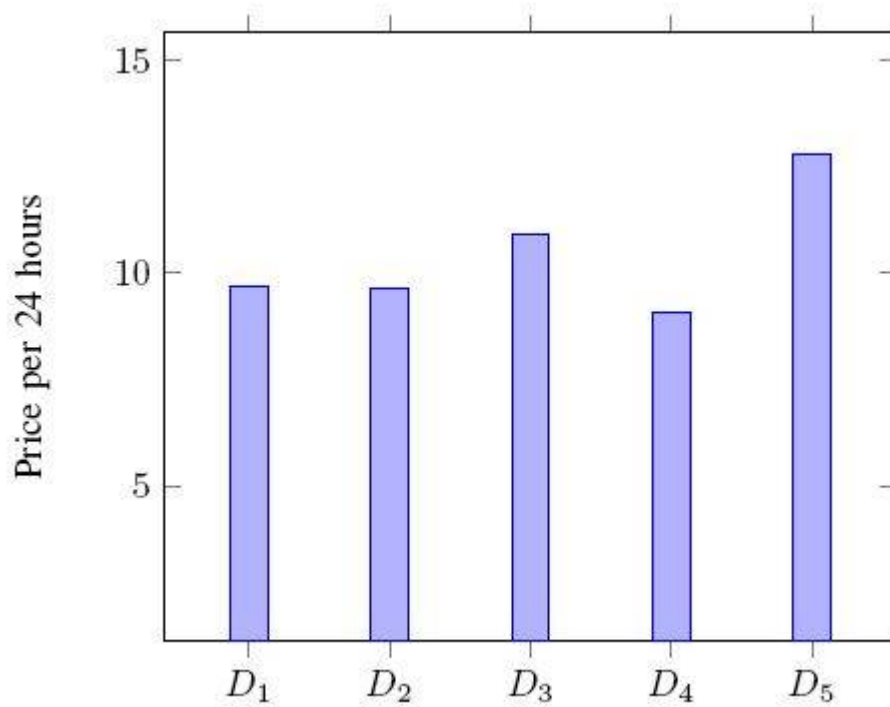


## International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

**Comparison of price for each 24-hour deployment and performance in each deploymentvariant**



# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 12, December 2016

## VI. FUTURE SCOPE

1. Database building for decision making can be enhanced with integration of cloud benchmarking approaches, and existing databases such as CloudHarmony, bitnami, and thecloudmarket.com can be done.
2. Improvements in the implementation of GA and Hadoop setup might reduce computation times and increase solution quality to a yet unknown degree.

## VII. CONCLUSION

From the Consideration of all the above points we conclude that, we showed the CloudGenius recommender structure that progressions Cloud organization determination from manual dull scripting to a technique that is versatile, and to a far reaching create motorized. It gives a development process and offers undertaking application engineers to pick best resource some assistance with blending at both programming and IaaS layers over supplier limits. We assume that CloudGenius structure leaves space for an extent of upgrades and, yet, gives a warm procedure. To the extent anybody is concerned no present strategy has tended to the issue of between conditions really busy programming and IaaS layers while selecting programming and gear resources for Cloud-based planning of enormous business applications.

## REFERENCES

- [1] Michael Menzel "CloudGenius: Automated Decision Support for Migrating Multi-Component Enterprise Applications to Clouds" Information Engineering Lab, CSIRO ICT Center Canberra, Australia rajiv.ranjan@csiro.au February 7, 2012
- [2] Sabrina De Capitani di Vimercati "A Data Outsourcing Architecture Combining Cryptography and Access Control" ACM, (2007). Fairfax, Virginia, USA, November 2, <http://doi.acm.org/10.1145/1314466.1314477>.
- [3] Lan Zhou "Achieving Secure Role-Based Access Control on Encrypted Data in Cloud Storage" IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY, VOL. 8, NO. 12, DECEMBER 2013
- [4] Manachai Toahchoodee, "A Trust-Based Access Control Model for Pervasive Computing Applications" Department of Computer Science Colorado State University Fort Collins CO 80523-1873.
- [5] Fan, Wenjuan "A Multi-dimensional trust-aware cloud service selection mechanism based on Evidential Reasoning Approach" International Journal of Automation and Computing 2013.
- [6] D. Mosberger and T. Jin, "httperf - A tool for measuring web server performance," ACM SIGMETRICS Perform. Eval. Rev. vol. 26, no. 3, pp. 31-37, 1998.
- [7] D. Menasce, "TPC-W: A benchmark for E-commerce," IEEE Internet Comput., vol. 6, no. 3, pp. 83-87, May/Jun. 2002.
- [8] Mahout-based CumulusGenius Implementation [Online]. Available: <https://github.com/mugglmenzel/CumulusGeniusOnMahout>
- [9] The Apache Mahout Project [Online]. Available: <http://mahout.apache.org>.
- [10] Watchmaker Framework [Online]. Available: <http://watchmaker.uncommons.org>.
- [11] The Apache Hadoop Project [Online]. Available: <http://hadoop.apache.org>
- [12] Clouds Multi-Cloud Library [Online]. Available: <http://codegoogle.com/p/jclouds>
- [13] Haak and M. Menzel, "Autonomic benchmarking for cloud infrastructures: A economic optimization model," in Proc. 1st ACM/IEEE Workshop Auton. Comput. Economics, 2011, pp. 27
- [14] CloudHarmony [Online]. Available: <http://cloudharmony.com>.
- [15] M. Menzel, M. Klems, H. A. L<sup>^</sup>e, and S. Tai, "A configuration crawler for virtual appliances in compute clouds," in Proc. Int. Conf. Cloud Eng., 2013, pp. 201-209.