

A Framework for Portability Service in Cloud Computing Environment

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Abstract: *In this paper we propose a framework that not only monitors the Service level agreement signed between the customer and cloud service provider on quality of services but also gives the flexibility of changing the cloud service provider through cloud portability service provider. The model is dynamic in the sense that the quality of service can be prioritize again and again as per the requirement of the service. In this model we also give the opportunity to cloud service provider to surrender its services and so the transfer of service can be done to another service provider through CPSP. There are to say 10 to 15 quality of service attributes that will be prioritize by the customer as per its need and as the things go on the priority may change. If the cloud provider does not go as per the requirement the CPSP can change the provider on the customer request. Some quality of services are quantifiable and some are not but it is the responsibility of SLA monitoring agency to give the report about the performance of cloud service provider. We will discuss some key attributes of quality of service in this issue and elaborate some inner side views about it.*

Keywords and Abbreviations: Service Level Monitoring(SLA) Monitoring Agency, Cloud Portability Service Provider(CPSP), Quality of attributes(QoS)

Introduction: With the advent rising of the cloud computing environment many

companies are willing to collaborate with third party cloud managers instead of private data owned centres due to incurring cost of switching the application from one cloud provider to another. Keeping this in view some standards are being adopted for the clouds to reach a mature state. There are two standard approaches for portability of clouds standardization and Intermediation. Standardization has not only remove vendor lock in issues but is also generating models whereby consumers can use multiple cloud providers simultaneously whereas Intermediation is something accessing the cloud API through middleware layer that is compatible with other layers. Not going into the detail working of CPSP the model or approach is discussed in the next section.

Proposed Approach:

Entities:

1. Customer
2. Cloud Provider (X,Y,Z)
3. SLA Monitoring Agency
4. Cloud Portability Service Provider

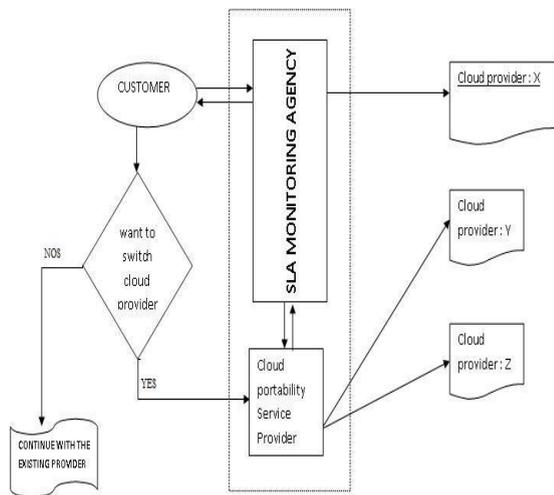
Relationship:

1. Customer and cloud provider X will have SLA for the required QoS under the guidance of SLA monitoring agency.

2. SLA Monitoring Agency will monitor the services of cloud provider X and if the services get deteriorated for the particular time period or for some number of times then will ask customer to switch over the cloud provider and if it agrees to do so it will go to CPSP for portability.

3. SLA Monitoring Agency will contact Cloud provider Y or cloud provider Z

based on its past experiences and will deploy it for further services.



In this framework we have customer who wants to have the cloud services, then there are certain cloud providers who wish to serve the customer. There is SLA monitoring agency to monitor the QOS requirement undersigned in the SLA agreement between customer and cloud service provider. And we have the cloud portability service provider which helps the customer to switch from one service provider to another.

This framework is based on the service level agreement between the customer and the cloud service provider for quality of services that needs to be maintained.

The framework goes dynamic in the sense that customer can reprioritize the QoS as per the requirement. Prioritizing the requirement can be done by assigning binary codes, the two most needed quality of service can be assigned binary code 0 or

1, the next important can be assigned binary code 10 or 11, the next needed could be 100,101... and so on.

Sl.no	Quality of service attributes	Binary Codes
1.	Service Response Time	0
2.	Accuracy	1
3.	Sustainability	10
4.	Availability	11
5.	Interoperability	100
6.	Reliability	101

The SLA Monitoring agency continuously monitors the quality of service attributes . Some QOS are quantifiable and some are not but without going into the internal abstraction of SLA monitoring agency we will imply on the overall working of the framework. As soon as SLA monitoring agency realizes that the cloud service provider is not able to serve as per the agreement it informs it to the customer and at the same time files the complain to the cloud service provider.. And if after certain time it realizes that cloud provider say X is not able to improve its services and going below mark it provides the choice to the customer for switching to the another cloud service provider. If the customer does not want to switch then the services continues as usual otherwise the customer makes a request to cloud portability service provider to change its service provider. Now it is responsibility of CPSP to save the states of currently running processes and provide the data or the metadata required to another cloud service provider say Y. There are many

issues needs to be discussed and implemented about CPSP but here we only give the abstracted view without giving the internal details.

There could be another possibility of cloud provider surrendering its services due to unusual reasons. In that case it may request to cloud portability service provider to render its request and transfer the service and the data required to another cloud provider.

Conclusion: The Proposed Model has the look on service level agreement where the deviation from the agreement leads to change in the service provider. The Model is dynamic in the sense that we can prioritize the quality of service attributes many times. Cloud Portability Service Provider changes the provider if the service level agreement is violated or the service provider itself wants to surrender due to some unwanted reasons. In future we can have description about the CPSP internal architecture.

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