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Cloud Migration Using Metacloud To Overcome Vendor Lock In

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Abstract: ***We wish to create system that will gather information related to cloud technologies and performs the analysis on the cloud status which will be useful in the cloud migration. We discuss our proposal for such a meta cloud, and explain how it solves the data lock-in problems that current users of public and hybrid clouds face. We try to introduce the idea of a meta cloud that can incorporates runtime as well as design time components. This meta cloud is different from existing systems technical incompatibilities, and thus handles vendor lock-in problem very well. It helps a user find the right combination of cloud services for a particular task and supports initial deployment and runtime migration issues of an application.***

Keywords: Cloud computing, cloud migration, meta cloud, cloud service provider.

I. INTRODUCTION

Cloud computing is typically defined as a type of computing that relies on sharing computing resources rather than having local servers. The phrase cloud computing means “a type of internet-based computing” .The Cloud Service Provider defines that a service provider offers customers storage or software services available via a private (private cloud) or public network (cloud). Cloud services allow individual users and businesses to use software and hardware that are managed by third parties at remote locations[4]. It means the storage and software is available for the access via the Internet.

The Cloud Migration defines that the process of transitioning all or part of data, applications and services from on-site premises behind the firewall to the cloud, where the information can be provided over the Internet.

The Meta Cloud would abstract from existing offers of the particular Cloud Service Provider technical incompatibilities, thus it lessens vendor lock-in. We can identify a necessity for businesses to monitor and migrate to a different cloud if they discover issues or if their prediction on future problems. We tend to introduce the thought of a meta cloud that consist of runtime parts. It helps users realize the correct set of cloud services for a particular use case and supports an application’s initial readying and runtime migration.

II. LITERATURE SURVEY

Cloud services allow individuals and businesses to use software and hardware that are managed by third parties at remote locations. Examples of cloud services include online file storage, social networking sites, webmail, and online business applications. The cloud computing model allows access to information and computer resources from anywhere that a network connection is available.

If the amount of data you have in the cloud is small, and your corporate network is large, you can bring the data back on premise and then send it to the new cloud of your choice. For some organizations, an on-premise transfer is unnecessary. Some of our customers keep a full copy of everything they have in the cloud in their local cache. If you're accessing the cloud through a cloud gateway, you should be able to just repoint the cache to the new provider, thereby limiting the impact on your network to just outgoing traffic.

The final option is limited to those customers who use cloud storage to back up their on-premise data. A small number of organizations with which we've worked have elected to start fresh with a new cloud provider by copying their on-premise backups to the new cloud, Once it is safely migrated, they can then delete the data from their existing cloud

III. PROPOSED SCHEME

Besides the resource service templates, the automated setup, formation and resource provisioning of cloud applications are expected in the meta cloud. Predictable outcomes and controlled automated smooth application deployment is a central issue for cost-effective and efficient deployments in normal cloud, and even more so for a meta cloud. Several application resource provisioning solutions that are used today can be extended to Meta clouds too.

At runtime, one important criteria expected of the meta cloud is application monitoring. Because it enables meta cloud to decide whether new instance of the application should be queued and provisioned, or to initiate entire application migration. However, the meta cloud requires more advanced monitoring techniques, especially for making automated provisioning decision at runtime based on context and total number of clients using the applications currently.

Cloud computing provides a shared pool of resources, including data storage space, networks, computer processing power, and specialized corporate and user applications.

IV. ARCHITECTURE

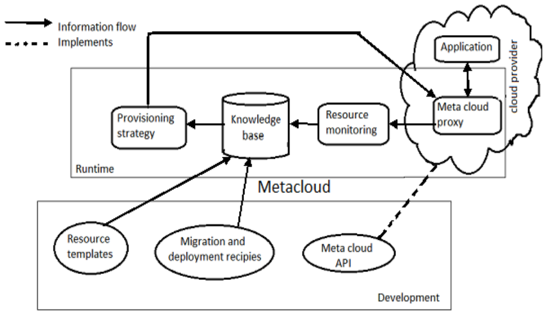

Figure 1: concept of Metacloud

METACLOUD API

The meta cloud API provides a unified programming interface to abstract the supplier API implementations for purchasers, using this API prevents their application from being stick to a particular cloud service. The meta cloud API will repose on available cloud supplier abstraction APIs, as mentioned. Although these deal largely with key value stores and work out services in principle.

MIGRATION AND DEPLOYMENT RECIPES

Sending formulas are imperative elements for computerization in metacloud base. Such formulas take into account controlled arrangement of the application, including introducing bundles, beginning obliged administrations, overseeing bundle and application parameters, and making connections between related segments. Computerization devices, for example, Opscode Chef give a far reaching set of functionalities that are specifically coordinated into the meta nature's domain. Relocation formulas go above and beyond and portray how to relocate an application amid runtime — for instance, move stockpiling usefulness starting with one administration supplier then onto the next. Formulas just portray starting arrangement and relocation; the provisioning methodology and the meta cloud substitute execute the genuine procedure utilizing the previously stated computerization instrument

META CLOUD PROXY

The meta cloud serve as middleware between the application and the cloud supplier and gives substitute items, which are sent with the application and run on the provisioned cloud assets. These substitutes presents the meta cloud API to the application, change application demands into cloud-supplier particular areas, and forward them to the individual cloud administrations. Substitutes give an easy approach to implement sending and relocation tactics given by the meta cloud's provisioning methods. Additionally, substitute items send quantifiable facts to the asset checking segment running inside the meta cloud. The meta cloud gets the information by blocking the application's calls to the underlying cloud administrations and measuring their preparing time, or by executing short benchmark programs.

KNOWLEDGE BASE

The knowledge base serves as store area for data about cloud provider services , information necessary to estimate migration costs ,their pricing and QoS. In the knowledge base, Customer provided resource templates and migration recipes are stored. Also, the knowledge base indicates eligibility of cloud providers for a certain customer. These usually comprise all providers the customer has an account with and providers that over possibilities to create accounts. A number of different information sources contribute to the knowledge base. Pricing and capabilities of cloud service providers may be either added manually or by some specific techniques able to get this information automatically.

RESOURCE MONITORING

The resource monitoring component is responsible for receiving data collected by meta cloud proxies about the resources they are using, on application's request. These data are preprocessed, altered and, and then stored to the knowledge base for further processing. This helps to generate reliable QoS information of cloud service providers and the particular services they are availability, providing and including response time, and more service specific quality statements.

PROVISIONING STRATEGY

The provisioning strategy component is primarily to match an application's cloud service requirements to actual cloud service providers. Based on data in the knowledge base it is able to find and rank cloud services. The initial deployment decision is based on the resource templates, specifying the resource requirements of an application, together with QoS and pricing information about service providers. The result is a sorted list of possible combinations of cloud services regarding expected QoS and costs. Migration of a resource to another resource provider is beneficial based on new insights into the application's behavior and updated cloud provider QoS or pricing data. Decisions of the provisioning strategy result in executing customers defined deployment or migration scripts.

V. RESOURCE TEMPLATES

Resource templates are important as for developers cloud services are necessary to run applications. They specify service sorts with extra proper ties, and a graph model expresses the relation and functional dependencies between services. Developers produce the meta cloud resource templates employing a simple domain-specific language (DSL). Resource definitions are actually composition model; so developers can produce configurable and reusable template elements, that modify them and their groups to share and reuse common resource templates in different comes. Targeting the phone line, developers model their application components and their basic runtime requirements, like computer hardware, memory, and I/O capacities, as well as dependencies and weighted communication relations between these elements.

VI. CONCLUSION

To deploy and to manage application instances is a crucial factor on the best platform available with increasing number of cloud service providers. This may not always produce reliable results, so our paper discusses the problem caused during cloud migration mainly due to vendor lock-in. We proposed a high level comprehensive cross platform architecture intended to ease various difficulties involved in application stages. The meta cloud which has been implemented can help mitigate vendor lock-in and promises transparent use of cloud computing services. Most of the recent technologies realize that meta cloud already exists but they lack integration. For avoiding vendor lock-in it is important that the cloud community drives these ideas, to create a truly open meta cloud interface with added utility for all customers with broad support from different providers and implementation technologies.

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