



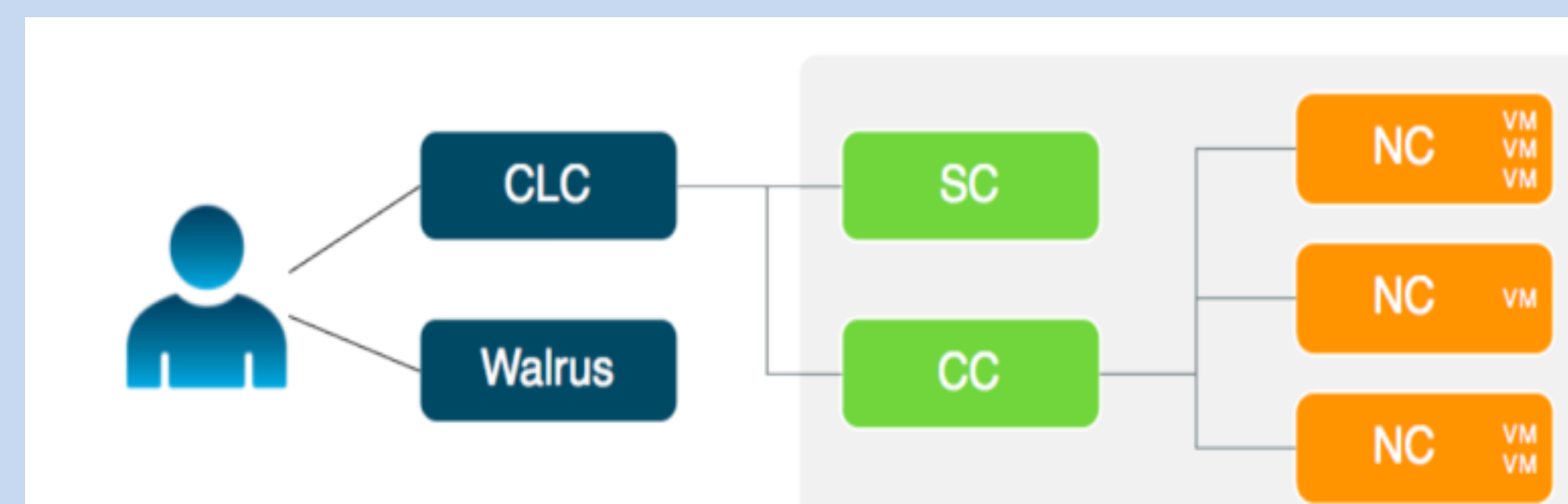
Cloud Management Platform with Performance Monitoring

ABSTRACT

Cloud Computing is the hottest trend in the IT World and each and every company is slowly but surely getting engrossed and migrating to this big thing. In this project we have understood the basic concepts related to Cloud Computing and its types. Further we have explored private cloud in detail by providing Eucalyptus as an example. To utilize its benefits and to observe its working, we have setup a private cloud in our laboratory connecting all the terminals following the architecture of the Eucalyptus Platform. By exploring its architecture and functioning in detail, we observed a lack of interface for the management of private cloud and thus we have made a cloud management platform that manages the cloud in the best possible manner considering client's experience. It will incorporate many features including performance monitoring tool which is one of its kind that considers dynamic resource allocation based on our various proposed parameters.

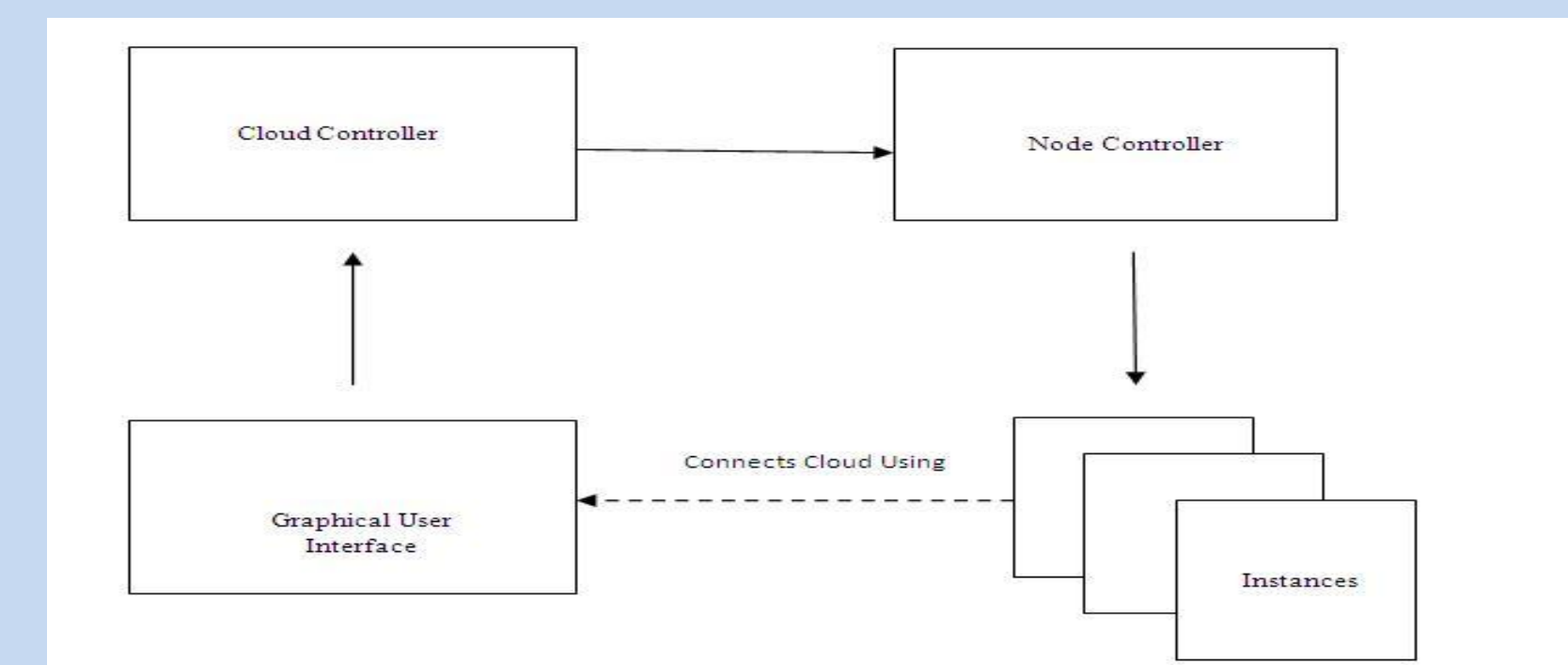
EUCALYPTUS ARCHITECTURE

The cloud components, Cloud Controller (CLC) and Walrus, communicate with cluster components, the Cluster Controllers (CCs) and Storage Controllers (SCs). The CCs and SCs, in turn, communicate with the Node Controllers (NCs). The networks between machines hosting these components must be able to allow TCP connections between them. However, if the CCs are on separate network interfaces (one for the network on which the cloud components are hosted and another for the network that NCs use) the CCs will act as software routers between these networks in some networking configurations.



PROPOSED ARCHITECTURE

In this architecture, our GUI will connect to the cloud controller whenever the instance tries to use it for any of the functionalities. Then the cloud controller will check the authenticate client's instance id and check his data in the Walrus. After executing these steps successfully the cloud controller will direct the node controller to make an instance for a new client or open an instance for the existing client.



CLOUD MANAGEMENT PLATFORM

Cloud Management Platform provides a transparent "single pane of glass" view into your entire cloud infrastructure. The client can conveniently access his private cloud and resource pools from one Dashboard. Here the client can provision entire server deployments in minutes and then automate and govern them over their lifetimes. Everything is visible, organized, and controlled.



Our Cloud Management Platform bridges the gap between your applications and your cloud infrastructure. The Automation Engine feature gives you the power to provision, monitor, scale, and manage entire server deployments efficiently and reliably. But if automation isn't done properly it will actually result in more work for IT staff and thus would hamper their growth.

PERFORMANCE MONITORING

Since we have various types of IT Components in a cloud, the traditional performance management which focuses on specific components will not work for cloud. They are not well equipped to provide a more holistic view of the cloud environment. More than independent management of physical and virtual infrastructure elements, focus should be on how they perform to deliver the Business Service to the User. Service Level Agreements (SLAs) are very important in a Cloud environment. Since the Customer pays for the services infrastructure he uses, customer needs to be assured of a level of service at any time. As the key feature of cloud computing is scalability and elasticity, the clients should not suffer from slow performances. Thus we need a fully functional, well-equipped system that can take care of each and every scenario and thus provide the client with the required resources at the right time for excellent performance.

Some of the parameters to be monitored are as follows

- 1) CPU Usage
- 2) Percentage Busy
- 3) Percentage Ready
- 4) Memory
- 5) Disk Latency
- 6) Network Bytes In and Out
- 7) Host System State
- 8) Virtual Machine Configuration
- 9) Host System Resource Usage

TOOLS USED

- 1) Ubuntu Natty Version 11.04
- 2) Eucalyptus Package
- 3) Python-Boto
- 4) Putty
- 5) TightVNC

CONCLUSION

Private cloud is a next big thing in IT World because of all the advantages and the flexibility it offers. Thus it generates the necessity for having a cloud management platform that can efficiently manage the cloud and even enhance the user experience since it shields the user from the complicated private cloud architecture and also from performance monitoring.

FUTURE SCOPE

We will make a database of all the proposed parameters and will check each of their values in each and every possible scenario to explore each and every possibility after installing the cloud in our private network. In the future for extreme efficiency and accuracy, we would give the values of database to the associative rule data mining technique which would assess each of the cases and would give the most optimum result or solution in case of some problem. In case any scenario exceeds the threshold decided by the data mining technique it will suggest or throw a warning to the admin to take the required actions to solve it.

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THANK YOU