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Automatic Clustering of VMs by Their Availability

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Abstract: **In rapid growth of cloud usage it is necessary to study the failures virtual machines that turn the VM un-available or violate the SLA (Service Level Agreement). The VM Presence discover in the cloud infrastructure is help full to the service provider for designing SLA guided services. In this paper we propose a simple but effective model to discover the presence of a large scale cloud infrastructure, here the failures are analyzed with the migration of machines across clusters of four-states :Hot (running), Warm (turned-on, but not ready), Cold (turned-off) and Busy (over-loaded). The real time classification of VMs by their current state, can implicitly replace the corrupted and busy VMs in request-resource mapping. Since it is necessary to use the presence information of the VMs in request mapping by keeping the computational overhead stable for large systems, to reduce the complexity and delay i-Markov chain is used. The four clusters are designed with the sub-groups. The results show that our approach can be recommended for very large Cloud Infrastructures.**

Keywords: **Virtual Machines, Availability, cloud computing, stochastic reward nets, Service Level Agreements (SLA).**

I. INTRODUCTION

Component failure in a huge distributed situation are quite common phenomena. Nevertheless, large service provider data centers should be designed to guaranty a certain level of availability to the User. Infrastructure-as-a-Service (IaaS) cloud provide computational funds, storage funds, and networking capacity that promise lofty availability in face of such collapse Service availability is usually speciefied in Service Level Agreements (SLAs) as down time in minutes per year or as the proportion of time the service will be up throughout the year. However, for a large Infrastructure-as-a-Service (IaaS) cloud, the model position space tends to be too huge massive or one-level Markov chains are a classic model formalism, delegate of the state-of-the-art in cloud availability model The growth of the state space as the model takes into account additional detail of the system is known as the extent trouble of Markov models [1]

II. EXISTING SYSTEM

It is a two-state hierarchical model, each system is model by a Markov chain and the system reliability is evaluated by the components of Markov chain recently some off the clustering techniques focusing loyalty issues were proposed in large-scale cloud infrastructure, but in these techniques do not consider scalability and largeness issues.

Limitations:

- Computational over head
- Complex
- Delayed because if the number of PMs to be repaired is higher than nr, failed PMs are put in a queue for repair.
- Two-state hierarchical model

III. PROPOSED SYSTEM

We propose a simple clustering technique with instant relocation of a VM from one cluster to another cluster based its state at no delay. In the paper, we introduce a high performance model with better accuracy and realistic. We find the issues of VM Presence in large –scale cloud infrastructure and propose an efficient and realistic model. The largeness problem is solved using interacting sub-models approach. The in general model is assured with fixed point iteration across every sub-model.

Advantages:

- Efficient clustering by revenue of three VM-states.
- High performance gain.

Algorithm:

VM _Scheduler Algorithm:

INPUT

Hpvm-> hot pool

Wpvm->warm pool

Bpvm-> busy pool

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Cpvm-> cold pool

OUTPUT

Result-> R

1.BEGIN

2.Hpvm allocate

3.If a>t then

4.Goto Bpvm

5.Else

6.Goto Wpvm

7.end if

8.If Hpvm IDLE then

9.Goto Wpvm

10.end if

11.If Hpvm ERROR then

12.Goto Cpvm

13.End if

14.Cpvm recovered

15.Display R

16.END

IV. IMPLEMENTATION

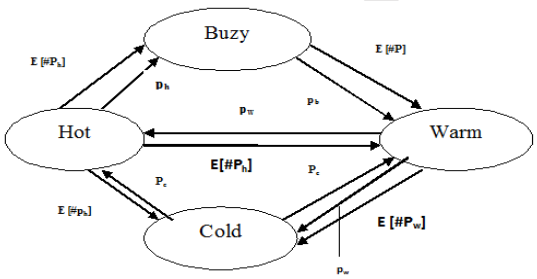

Fig 1: Architecture for Proposed System

In this section we describe the proposed methodology to automatic clustering of VMs by their availability on the basis of their availability. In this paper we propose a simple but effective model to discover the presence of a large scale cloud infrastructure, here the failures are analysed with the migration of machines across clusters of four-states: hot (running), warm (turned-on, but not ready), cold (turned-off) and busy (over-loaded).For each user request, we aim to group together VMs which are running to process the requests for resources, and allocating the requests based on the availability of clusters of four-states

The proposed methodology consists of the following steps, outlined also in Figure

- Clustering based on the availability of VMs.
- The failures are analyzed with the migration of machines across clusters of four-states.
- To use the presence information of the VMs in request mapping by keeping the computational overhead stable for large systems, to reduce the complexity and delay i-Markov chain is used.

The process of clusters of four states:

a) Hot cluster Stochastic Reward Net (SRN) sub-model:

All VMs in active state, executing the tasks or in ideal state, but it can still accept some more requests are said to be in this cluster. The resource – allocation algorithm will use only this cluster as VM availability

b) Worm cluster Stochastic Reward Net (SRN) sub-model:

All VMs in semi-active state / ideal state, VMs in worm cluster replace the failure VMs of Hot Cluster. And assure the Scalable availability of VMs in resource-allocation.

c) Cold Cluster Stochastic Reward Net (SRN) sub-model:

A failure may occur in the VM infrastructure / software; it takes time to recover from failure. Such inactive VMs are considered to be in cold cluster.

d) Busy pool Stochastic Reward Net (SRN) Sub-Model:

The VM has already busy, i.e. its allocation reached its capacity and it can't accept any more requests until it completes some of the assigned tasks. As it is freed it is migrated to the hot cluster automatically.

V. RESULT ANALYSIS

Here X-axis represents Solution times of the four approaches availability. Y-axis represents solution time for request processing.

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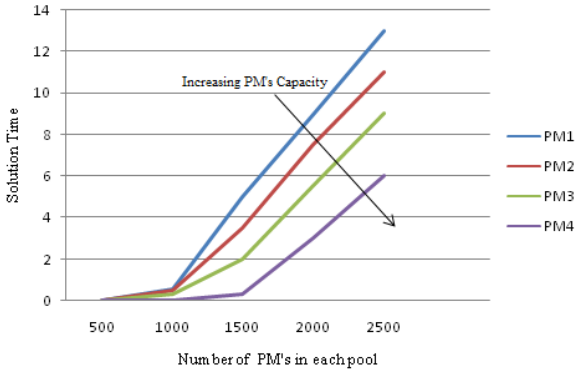

Fig 2: Performance Graph

VI. CONCLUSION

Modern data centers supporting Iaas cloud present major challenges in trams of scalability issues for the monitoring & managing of the system resource.

In this paper we propose the methodology for Automatic clustering of VMs by their availability with migration of clusters of four states to maintain the availability across the large scale cloud infrastructure .we introduced four clusters of the virtual machines namely Hot, Busy, Cold, Warm all the virtual machines ready for use are pooled in hot cluster, error clusters are pooled in cold cluster , repaired / recovered clusters are pooled into warm cluster and the busy VMs are pooled into busy cluster. This will keep the availability of no of virtual machines scalable Stochastic sculpt move toward for ease of use scrutiny of bulky (large) IaaS shade coordination.

REFERENCES

[1] K.S. Trivedi, Probability and Statistics with Reliability, Queuing and Computer Science Applications. Second ed., John Wiley & Sons, 2001.
[2] F. Longo, R. Ghosh, V.K. Naik, and K.S. Trivedi, "A Scalable Availability model for Infrastructure-as-a-Service Cloud," Proc.Int'l Conf. Dependable Systems and Networks, pp. 335-346, 2011.
[3] G. Ciardo et al., "Automated Generation and Analysis of MarkovReward Models Using Stochastic Reward Nets," Mathematics andIts Applications: Linear Algebra, Markov Chains and Queueing Models,vol. 48, pp. 145-191, Springer, 1993.
[4] K.S. Trivedi, R. Vasireddy, D. Trindade, S. Nathan, and R. Castro,"Modeling High Availability System," Proc. 12th Pacific Rim Int'lSymp. Dependable Computing, 2006.
[5] D. Kim, F. Machida, and K.S. Trivedi, "Availability Modeling and Analysis of a Virtualized System," Proc. 15th IEEE Pacific Rim Int'lSymp. Dependable Computing, 2009.