International Journal of Emerging Research in Management &Technology
ISSN: 2278-9359 (Volume-6, Issue-6)

Research Article | **June 2017**

Ecope: Task Aware Workload Elastic Scheduling and Customization for Infrastructure

Shifaliya Banu*
Mtch, CSE, REVA University,
Karnataka, India

Dr. M. Prabakar
Associate Professor, REVA University,
Karnataka, India

Abstract—

In the past several years, the development in non functional requirement such as CPU and memory has been done. Due to the workload characteristics the energy efficiency of non functional component has made a large coverage. We develop Ecope to attain energy proportionality for different methods of services of virtual machine in data centres' decrease non functional energy for servers in large data centers. Demonstrate three input methods to illustrate our concept to real world services such as file processing, backend services and content processing. These services are applying on virtual machine in large data centers. In short, our aim is to recognize the preeminent non functional configuration among various workloads.

Keywords— Energy proportional, file processing, content processing, virtual machine.

I. INTRODUCTION

Cloud computing is a form of internet based computing that can mutual computer component and data or routine that available to programs. Computer component such as computer networks, server, memory, application and services, which can be swiftly provisioned and with minimum management efforts. Cloud computing and data storage offer to users and enterprise in different capabilities to accumulate and process data and information by owned or third party in data centers that situated far away from the user or it can be range from city or across the real world. In 2009, Cloud computing can lead to development in the availability of huge network capacity , very low cost computing, memory devices and also in hardware utilization, service-oriented architecture and autonomic. If the computing requirements high then companies can scale up and scale down when computing requirements are low. In 2013,cloud computing became a huge demanded or usage services due to the huge power computing, low cost of services, huge performance, accessibility, availability and scalability.

About 50% per year of experiencing growth can make the cloud vendors. Cloud computing maintenance is easy because it cannot install in each user's computer and it can access various places for instance various places, travelling etc. It can share resources and cost across huge pool of users and also increase productivity when many users can access same data simultaneously.

II. OBJECTIVE

- **Energy proportionality**: Reducing energy consumption in large data centres' using three input techniques such as file processing, data base services and web content services.
- **Operational cost**: Due to the workload characteristic the energy proportionality is becoming more concern. If energy consumption is more as well as operational cost is more.
- The objective of this problem is to consider 'n' number of virtual machine and keep 'k' value constant as threshold value such that energy proportionality is decreased.

III. LITERATURE SURVEY

BYUNG-GON CHUN, SUNGHWAN IHM, PETROS MANIATIS, MAYUR NAIK, ASHWIN

In this paper, the authors proposed that mobile applications are big complicated and afford great functionality on android. Simultaneously the devices are connected with huge prevailing technology ranging from desktop to laptops to commercial cloud. In this paper they proposed and accomplished of clone cloud. It defines systems that routinely transfer from android application to help from the cloud. Cloning a server means to open a same machine to the inventive hardware.

CONGSHI, VASILEIOS, LAKAFOSIS, MOSTAFAH. AMMAR, ELLEN WZEGURA

In this paper, authors proposed that androids are progressively more on services that go away from easy connectivity and also required more sophisticated processing. Auspiciously, an android encounters erratically lending computational component. On other hand established cloud computing where an android can connect to the remote cloud components by which a service provider can maintain conventional relationship. In this article explained that a mobile device can associate with other mobile device.

JINOH KIM, JERRY CHOU

Due to the growing cost and scalability issues the energy proportionality in large data centers has became a great apprehension. The author discover that subset of nodes is a covering subset that can offer essential of data availability for a given set of blocks of data. In this concept they developed algorithm to retain energy consumption by extracting a covering set and insertion the left nodes in lower energy standby mode. Also they develop experiments considering with different parameters such as data transmit distribution and job arrival rate. Then result shows that energy management can drastically low energy proportionality up to 70% compare to non energy saving configuration.

ALEXANDROSG.DIMAKISKANNAN, RAMCHAND RANY, UNNANWU, HANGHOSUH,

To enhance reliability distributed storage space system can frequently commence redundancy and coding is used when repair problem takes place. When storing encoded information is fail, to make encoded data and information at new node then maintain the same reliability. The entire coding is focus on the complete improvement of the information encoded packets from subset, the restore network traffic give a advance design challenge. In recent times, network coding technique has been involved in addressing challenges; the guidelines of magnitude related to standard erasure codes can reduce the bandwidth. In this paper authors proposed a summary of the research results on this topic. In distributed storage the security and privacy are important concept and an error control mechanism and repair process are required when errors are propagated in many associate blocks.

IV. METHODOLOGY

To progress energy proportionality first we fix the workload in various non functional configurations that provide result in various energy behaviour.

Second, the optimal non functional configuration is different for different workload so must have elastic customization. In short, our aim is to recognize the good hardware configuration among various workloads.

V. SYSTEM ARCHITECTURE

System architecture diagram shows the working of ecope .It explains about the task assigning to different virtual machine, When user gives the request to allocate resources, three input backend services Such as file processing (docx, txt),data processing(storage ,memory)and web based processing(mail, video)these services are assigning to different virtual machine.

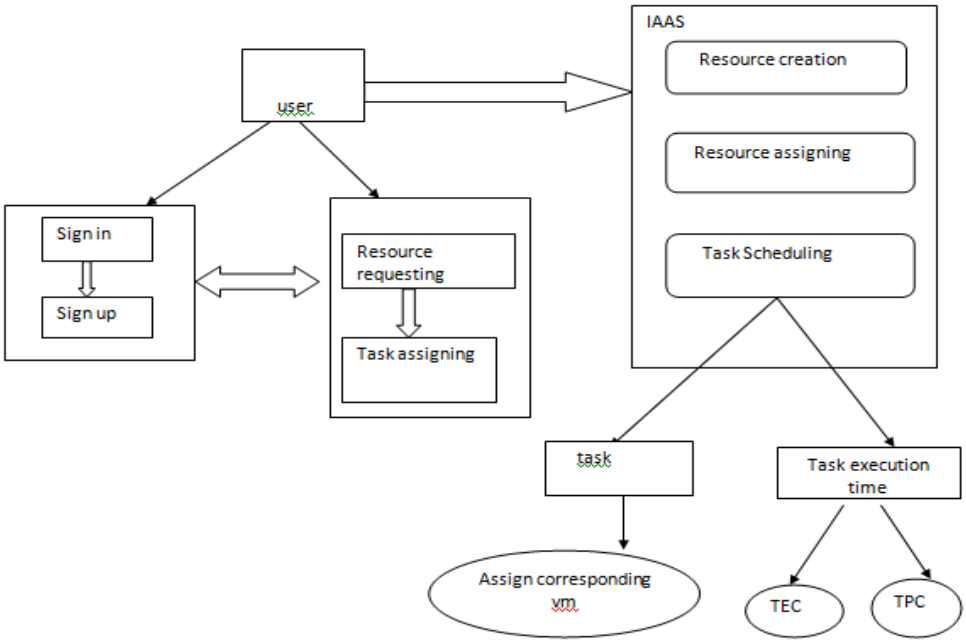

Fig1. Ecope system architecture

VI. CONCLUSION

In this paper, we develop a common method, eCope, to progress energy-proportionality by task aware workload elastic scheduling and customization in data centers, and we obtain the optimized configuration by using our optimized dynamic workload-power function. We implement eCope for simulation environment and MySQL, and applied a most precise and effectual method to obtain the optimized dynamic workload-energy function.

VII. FUTURE WORK

In next step, we will try to find our eCope to grouping or cluster level. We identify the workload-power relation for each server, we can make workload schedule based on the workload power relation to create complete rack or cluster or grouping energy proportional. We observe that presently the hardware configurable is not much accessible on the market; this is a drawback when applying the approach.

ACKNOWLEDGMENT

I would like to express my special gratitude to my guide Dr. M. Prabakar as well as my husband Mr Iftiqar Ahmed Shariff who gave me the golden opportunity and to do this wonderful project on the topic "Ecope: Task aware workload elastic scheduling and customization for infrastructure "which is also helped me in doing research so many things. Secondly I would like to thank my family who helped me a lot in finishing this project in limited time.

REFERENCES

[1] C. Hu, C. Wu, W. Xiong, B. Wang, J. Wu, and M. Jiang. On the design of green reconfigurable router toward energy efficient internet. Communications Magazine, IEEE, 49(6):83–87, June 2011.

[2] M. Kazandjieva, C. Shah, E. Cheslack-Postava, B. Mistree, and P. Levis. System Architecture Support for Green Enterprise Computing. In Proceedings 5th International Green Computing Conference (IGCC), November 2014.

[3] G. Kornaros and D. Pnevmatikatos. Hardware-assisted dynamic power and thermal management in multi-core socs. In Proceedings of the 21st Edition of the Great Lakes Symposium on Great Lakes Symposium on VLSI, GLSVLSI '11, pages 115–120, New York, NY,USA, 2011. ACM.

[4] K. Kumar, K. Doshi, M. Dimitrov, and Y.-H. Lu. Memory energy management for an enterprise decision support system.In Proceedings of the 17th IEEE/ACM International Symposium on Low-power Electronics and Design, ISLPED '11, pages 277–282, Piscataway, NJ, USA, 2011. IEEE Press.

[5] W. Lang, S. Harizopoulos, J. M. Patel, M. A. Shah, and D. Tsirogiannis. Towards energy-efficient database cluster design.Proc. VLDB Endow., 5(11):1684–1695, July 2012.

[6] V. Lari, S. Muddasani, S. Boppu, F. Hannig, M. Schmid, and J. Teich. Hierarchical power management for adaptive tightlycoupled processor arrays. ACM Trans. Des. Autom. Electron. Syst., 18(1):2:1–2:25, Jan. 2013.

