STUDY AND ANALYSIS FOR MOBILE CLOUD COMPUTING ON ENERGY SAVING APPROACHES

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Abstract—In mobile phone, efficiency of battery is the great challenge that every mobile organization faces, in order to compromise their clients to achieve great success. In this paper, we investigate the various strategies adopted and propose a technique that might help the organization to deal with the challenge. Hardware and applications are the vital energy shoppers. In Proposed technique, servers locate the user with GPS and migrate the data with migrating tools in data center according to user in order to enhance the efficiency.

Index Terms— HEFT, EEMSS, SAN, GPS, Network allocation storage.

I. INTRODUCTION

Mobile cloud computing comprises of three heterogeneous domains: cloud computing, mobile computing, wireless networks aiming at enhancing the computational capabilities of resource constrained mobile device towards richer user experience.[10]Cloud computing is very beneficial for the application which is for sharing their resources on different nodes.FeiFei Chen [1] states Energy consumption modeling and analysis approaches stating process, their size and data. Cloud computing platform serves millions of people by their powerful computing power, processing, memory and storage, this is combined to form mobile cloud. Smart phones have become rulers of the world, many new applications are created targeting to make the users job done effectively, which consume more battery energy.

Applications like voice recognition system, image verification. As said, expenditure of energy is the screen. It is very costly proposition to keep that screen brightly lit for an extended period of time. If the level of the brightness in screen will be the same then battery will die than the expected.Screen is the main source of consuming energy in applications and we support a technology that automatically reduces screen brightness regularly so that user might not be affected by change for a sudden and propose a technique which will regularly check the internet connectivity, if it is not used then it will off temporarily and refresh itself after a period of time for any messages or updates.

Load balancing in cloud Virtual machine by using ant colony optimization, this approach has made load balancing effective one [3].Workload allocation and

strategies involving packet arrival, service rate and other factors are considered to enhance the performance of the system[11]. We compare the approaches that are used to minimize energy consumption in hardware, software and cloud architecture. Applications that use more energy will be immediately closed after their use. Further study on task scheduling algorithm of mobile cloud gives detail methodology.

II. ENERGY SAVING AND CONSUMPTION MECHANISM

Generally hardware based, software based and cloud based technologies are the main factors which are to be considered to improve energy in mobile cloud computing. These factors are the root causes that are to be improved in order to provide energy efficient mobile cloud computing.

A. Software Based Energy Improvements

Applications which consume more power should be routinely in close proximity whenever the job is completed, automatic adjustment connected with settings in recurrent period will not have an effect on the people who watch over for the performance in the mobile. Source code changes are allowed pertaining to software engineers to complete that efficiently just in open source operating system and vitality is assessed simply by instrumentation manually. Power consumption framework allows measurement simply by sensing strength by means of a shunt resistor.

Dynamic backlight scaling support supplies the end user device to routinely spend less the power by simply decreasing the actual backlight regarding device for every timeframe with no affecting an individual application. Screen may be the main cause of eating power within programs and also many of us assistance some sort of technology that lowers the screen brightness frequently to ensure that end user most likely are not suffering from a quick adjust and also suggest a strategy that will frequently verify the internet connectivity, if it is not really utilized and then it is to go down in the short

term and also refreshes by itself soon after a period of time for any emails or updates.

Task Scheduling Algorithm

HEFT algorithmic program is initially taken to be effective for the joint programing of tasks and includes assigning these tasks to cloud, prioritizing them and executing these applications [8]. Minimum delay scheduling subsequently along with linear time rescheduling algorithm is followed by migrating tasks among the native servers and the cloud.

B. Hardware Based Energy Improvements

Mobile ram memory along with phase change memory space is normal memory space technology found in mobile phones. In mobile ram, power management unit maintains multiple power states like self-refresh and power all the way down to minimize power consumption. It has 3 states on, off and I/O to simulate energy economical knowledge storage. In off state the energy consumption is 0mw and in on state the energy consumption is 74mw.

Dynamic voltage and also frequency scaling is often a components approach that is helpful to reduce energy consumption throughout computing methods. While processor is busy, that consists of increase throughout time and supply voltage and also diminishes them to most competitive achievable levels any time when processor is in idle mode. Idle mode condition uses energy and therefore sleep method gives that alternative.

EEMSS [7] is a framework proposed that provides energy efficient sensors and manages sensors that detect the user states. It automatically records users daily activities on the shelf high end smart phone including walking, background environment. The state descriptor is taken as system input and used by our sensor assignment functional block to control sensors. They classify users based on application requirements to achieve minimum energy; it also assigns minimum sensors at a particular time and invokes new sensors during transition. It acts as a middleware to conduct sensor operation and provide information to higher layer applications. EEMSS utilizes accelerometer, Wi-Fi locator, GPS and amplifier that are manufactured in sensors of the majority of the mobile phones. The framework gives productive grouping calculations to continuous user characterization which distinguishes the user states and characterizes them as walking,vehicle,resting,home meeting, quiet spot indicated by combination of features acquired by distinctive sensor readings. This system shows battery lifetime improvement by 75%.

C. Cloud Based Energy Improvements

Cloud framework and their components are vital for the data productivity at minimum cost efficiently. Existing framework provides user data from main server to their local server directly, when required to the user. This incurs a higher cost of transfer. Architecture is proposed which locates the user through GPS and data partioning is done according to its processing capabilities. Data Migration will be performed with respective migrating tools based on the user location which has been retrieved from the Information Center. Frequently used data and also a copy of all the data will be cached up to a certain amount of time. When requested for the same data again, this cached data can be used for a faster retrieval.

III. CLOUD ARCHITECTURE WITH MIGRATION OF DATA
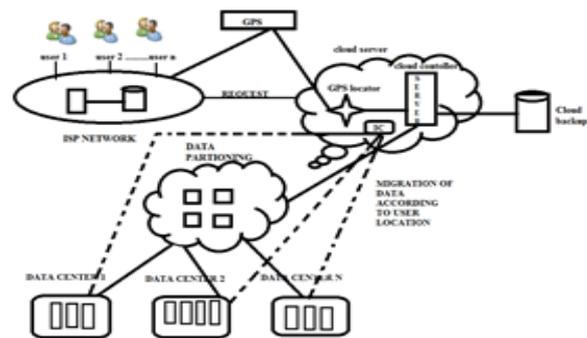
Tool Based Migration of Data

To migrate information in one storage array to a new array, **host based migration tool** is utilized which is a functionality of operating system. NAS virtualization can be utilized in information path concerning server as well as data array for non-disruptive migration. Network based migration (Storage Area Network) is used to route data from servers to disks. Brocade's data migration manager is a heterogeneous migration tool that utilizes the SAN system.

Efficient Server Allocation

For managing the network resources efficiently an algorithm is used which involves allocating workload as a function application traffic according to the speed of the server that has minimized the packet loss and use residual capacity according to the traffic patterns. It chooses the server that can prepare the workloads at rate coordinating the packets arrival rate

IV. CONCLUSION

Examining about a variety of methods which are helpful to make use of power effectively throughout hardware, software program as well as cloud. Hardware pattern can be examined as well as thought to be effective to be used by the mobile company's .Use of applications that will consume more power are automatically closed by the design of application and hardware. Effective strength providing architecture regarding migration of facts based on users is offered which may be applied down the road being a model.

V. FUTURE WORK

The calculation utilized for distinguishing the client area   is little prolonged and future works can be centered on   enhancing this. The   framework   encouraged possesses   some advancement to get completed   with long term   that   may boost   the electrical power protecting features   connected with mobile.

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