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A Rising Technology-Survey on Green Computing

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Abstract— *Nowadays computer are not only used in work places but also used at home. As the need of computers are increasing day by day the energy consumption also increasing rapidly , which in turns increase the carbon content in atmosphere. Mainly IT industries are responsible for 3% of the worlds. Energy consumption with the increase of 20% in the year. So in this decade green computing is the most raising topic today. The main goal of green computing is to raise the efficiency of IT products and support the recycling of unused goods and factory waste. In this Paper we discussed about some energy efficient ways to use green computing in upcoming days.*

Keywords— *Green Computing, cloud computing, Advantage, Computing.*

I. INTRODUCTION

The term "GREEN COMPUTING" the study and practices of designing IT equipment and their safe disposal well and successfully with insignificant or no impact on the environment [1]. It shows that Carbon Dioxide (Co_2) and other emissions are causing global climate and environmental damage [2]. The need of modern age is that can reduces the overall energy consumption of computation, storage and communications. Company like Via Technology offer green PC's that are inexpensive, safe and ultra low wattage. It takes responsibility of their outdated products by offering a PC recycling service. The goals of green computing are quite similar to green chemistry which are to reduce the use of harmful materials, take advantage of energy efficiency during the product's lifetime, and promote the recyclability or biodegradability of outdated products and factory waste [3].

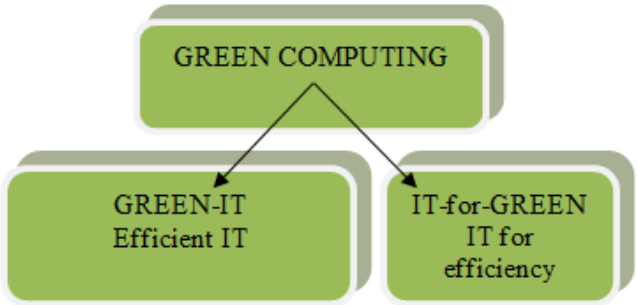

Fig. 1. Classification of green computing.

II. GREEN COMPUTING

There are two classifications of green computing. It has two factors "GREEN-IT" means well organized IT and "IT for GREEN" means use of IT in professional way [2].

This technology is beneficial as:

- Reduce energy consumption of computing resources during peak operation.
- Save energy during inactive operation.
- Use eco-friendly sources of energy.
- Reduce destructive effects of computing resources.
- Reduce computing wastes.

Necessity of Green Computing:

The growth of computer system and IT services had made a person's life easier and more comfortable. The use of computer system increases the processing speed but also increases the power consumption. The emission of green house gases occurs due to large power consumption. Thus it needs to the pollution as well. So green computing deals with the concept of reducing energy consumption recycling eliminates hazardous elements but it also deals with the reducing the business travel sharing the resources and optimization.

2.1 Fundamental Aspects of Green Computing:

- Energy consumption
- E-waste recycling
- Virtualization
- Cloud as a green computing

Energy consumption:

An environmental production agency says 30%-40% computers are kept on during the weekends and even after office hours. Most of the computers remain inactive. Using green computing environment we can develop any application for using optimal physical resources.

E-Waste recycling:

In many developed countries many computer systems and related products are discarded every day. These products are sold out to many developing countries. In this way recycling electronic products are archived. The reuse of such equipments allow saving energy and reducing impact on environment.

Virtualization:

Using virtualization a system administrator can combine several physical systems into virtual machines on one single server to run multiple operating systems and make it more powerful. By this energy efficiency can be achieved with less physical equipment plugged in which reduces power and consume electricity.

Cloud as green computing:

Nowadays businesses are rapidly moving to cloud based system from traditional system due to its faster scale-up/scale-down capacity, pay-per-use and access to cloud-based services without buying and managing on-premises infrastructure.

IT organization can achieve energy efficiency and grows by moving the datum from ordinary servers to cloud servers.

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III. Developing a Green Machine

Computer system saves energy and money by power management feature. SLEEP and HIBERNATE settings can be used to make a computer environment friendly. These functions can be activated either by manually or by power management settings of Operating Systems.

3.1 Sleep mode: When a computer system is idle for some time then system automatically switches to lower power state. This state is called sleep mode. This preserves energy by cutting power, display, hard drive and peripherals. This mode mainly saves battery power in a laptop computer.

3.2 Hibernate mode: In this mode, first data moved to hard disk and completely switched off. When the system is switched on all files and documents appears as it is as they were before.

Advantages of Green Computing:

Energy star qualified products can be used for energy conservation. Organic LED used instead of regular monitors. Green computing provides the benefit to cut off the power of peripheral devices when the computers are turned off.

IV. Conclusion

To make the computer system green follow upcoming ways, when the computer components are not used by us. It should be donated who are not having those components. GO-GREEN is a concept which is used in few organizations but everyone uses its components then it could be beneficial for everyone.

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