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Green IT: A Key to a Better Future

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ABSTRACT

Green IT is an effective approach to the practice and procedures of using computer resources in an environment friendly way while maintaining overall computing performance. The paper is going to describe the hazards causes by the computer and about the safety measures by which we can save our environment from those. Green IT is a well balanced and sustainable approach towards the achievement of a healthier, greener and safer environment. With Green IT we can build an energy efficient computer system and the other hand we can also reduce energy consumption by using IT. Green IT is comprised of initiatives and strategies that reduce the environmental footprints of technology. Green IT initiative also produces cost savings in energy use, purchase, management and support in addition to environmental benefits. Proper implementations of Green Computing or Green IT an individual and or a organization can reduce almost fifty percent of energy consumption per year, by which a organization not only save the energy but also produce more products with lower cost.

Keywords: Environment friendly, Energy consumption, Green IT, Safety measures.

I. Introduction

Green IT is a concept with which we can create a better IT environment by saving energy for future use and recycling the IT product in an environment friendly way. It also innovates the future generation to use ICT for their brighter future. It is the study of efficient and eco-friendly computing resources and now under the attention of not only environmental organizations, but also business from the other industries. Many business houses in the computer industry have come to realize that going green is in their best interest for reducing cost and increasing public relation. Green IT is concerned with the manufacturing, using and disposing of computers with no impact on environment. We can save energy by designing energy efficient and environmentally sound components, computers, servers and cooling equipments. Now a day, various IT companies of many corporate are investing both time and money in green IT initiatives to reduce the environmental impact of their IT operations. The amount of energy savings by IT use will exceed that of energy consumption of IT devices and it can contribute the reduction of energy consumption of whole society if Green IT is actively promoted.

The present scenario has needed more energy for electronic equipments, but in India or some other 3rd world country cannot produce the same. Green IT is one of most efficient technique to reduce energy consumption to save energy. It is very much important to know that IT industry is too harming the environment of the earth. Ignorance is a curse and awareness is a blessing, because if we don't know the problem, we can't find the

solution. So we have to first identify the problem. We have to see, where the problem exists and how an IT organization is discharging pollution in the environment. All computer switches in the organization need electricity to run. The electricity not only result in huge bills but it also result in the use of more fossil fuels to generate electricity, which means more green house gases in the environment.

II. Literature Review

The term Green IT or Green Computing came in to existence with the launch of Energy Star Program in 1992 by U.S. environmental protection agency. It promotes and recognizes energy efficient computer monitors, climate control equipments and other technological gadgets. In October 2006, the energy star program included stricter efficiency requirements for computers and a tired ranking system for approval. The European Union s directives 2002/95/EC and 2002/96/EC specified reduction in hazardous substances of heavy metals and flame, making the manufacturer undertake responsibility of collecting and recycling of their dysfunctional equipment. In 2010, the American Recovery and Reinvestment Act (ARRA) was signed and in 2010, U.S. Energy Department granted ARRA money with the aim of improving energy efficiency in data centers.

Manufacturing computers and their components consumes electricity, raw materials, and harmful chemicals which generates hazardous waste. These should increase carbon dioxide every year as it contains lot of toxic materials. Lacs of computers are discarding every year and most of this ends up in landfills. It polluting the earth and contaminating water due to presence of various toxic materials in the electronic components. There are some recycle techniques, but the cost of recycling prevents people to do so. As the increasing number of computers and its equipments causes environmental damages, we the people and organizations certainly go through the proper recycling processes to make our globe a proper place to live for future generation.

III. Need of Green IT

As the findings revealed that many components in a computer are found not only harmful to the earth, but also harmful to human beings. So the Green IT is needed in many ways as-

a. It reduces harmful effect of computing resources.
b. It reduces e-waste or computing waste.
c. It uses eco friendly source of energy like solar energy.
d. Saving energy and resources saves money.
e. Reducing the heat generation of electronic devices by preventing the emission of CO2.
f. Greening the nature by reducing hard copies of document.

IV. Efforts towards Green IT

The Green IT is towards efficient utilization of resources. Energy is choosing as the main resource and the carbon footprints are considered to be the major threat to environment. So the main focus is to reduce the energy utilization and carbon footprints with increasing performance of computing.

There are a lot of fundamental steps that can be taken to significantly decrease the power consumption and impact on environment.

a. The computer system hardware's should be consuming less power. Power management by A.C.P.I. (Advanced Configuration and Power Interface), an open industry standard, allows an operating system to directly control the power saving aspects of its underlying hardware.
b. Virtualization technique should decrease the involvement of actual hardware.
c. We can use cloud computing to enables anybody to obtain environmental benefits of virtualization.
d. Recycling can reduce the environmental pollution.
e. Turning off the monitor when it's not in use or using more energy efficient monitors like L.C.Ds and L.E.Ds instead of C.R.T. monitors.
f. Using liquid cooling system instead of the conventional heat sinks and fans.
g. Temperature maintenance and regulation to reduce thermal shock wear and tear to computer parts.
h. Increase only security measures through the use of firewalls, anti spyware and antivirus programs to reduce the increasing amount of e-waste on the Internet and other networks.
i. ENERGY STAR Certified computer deliver substantial savings over standard models. EPA has strengthened the requirements for computers earning the ENERGY STAR in version 6.0. For desktop, integrated desktops, thin clients and notebook computers, products must meet stringent TEC (Typical Energy Consumption) requirements for estimated annual energy consumption.
j. The use of Internet can do our job without printed paper, which helps the trees being cut. We can also reuse the printed paper as it has a blank side in many time or we have to keep a habit of printing in the both side of a paper.

V. Conclusion and Future Work

I am motivated to doing this paper by the increasing cost of electricity in many colleges or institution, which runs technology or IT based courses. The College/ Institution save more energy and cost using LED and LCD monitor rather than CRT monitor. In the other hand the same thing is happened with the light bulbs too. The energy star rating electronic equipments used by the institution save much more energy than the conventional one.

In recent years, companies in the computer industry have come to realize that going green is in their best interest; both in terms of reduce cost and public relation. There is a compelling need for applications to take environmental factors in to account in their design , driven by the need to align with organizational environmental policies, reduce power and infrastructure cost and to reduce current or future carbon costs. Use of toxic materials like lead can be replaced by silver and copper making recycling of computers more effective by recycling computer parts separately with an option of reuse.

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