

Chapter 4

Green Computing: An Indian Perspective

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ABSTRACT

Information technology (IT) is playing an increasingly important role in both business and individuals' private lives. It is also consuming ever greater amounts of energy; therefore, it is a significant source of CO² emissions. Thus, environmental and energy conservation issues have gained attention in recent years. The reality of rising energy costs and their impact on international affairs coupled with the increased concern over the global warming climate crisis and other environmental issues have shifted the social and economic consciousness of modern society. This paper discusses different aspects of green computing and its impact in India.

1. INTRODUCTION

Green Computing, or Green IT, is the practice of implementing policies and procedures that improve the efficiency of computing resources by reducing the environmental impact of their utilization. Green Computing is founded on the “Triple Bottom Line (TBL)” principle which defines an enterprise’s success based on its economic,

environmental and social performance. This philosophy of TBL emphasizes on the minimal use of natural resources and decreases the dependence on those limited resources to ensure long-term economic viability. For example the logging industry in past learned that they need to plant a tree for each that they cut to maintain the eco system. So, today’s power consumption enterprises must maximize the conservation of energy until

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renewable forms become more readily available. This is often referred to as “sustainability”, i.e the ability of the planet to maintain a consistent level of resources to ensure the continuance of the existing level of society and commercial enterprise. Green Computing solutions address a broad set of environmental issues targeted at attaining sustainability. These solutions includes: power management, energy efficient computing, remediation of environmental pollutants, server virtualization, Sewage Treatment, Efficient Disposal/Waste Management, Efficient Recycling, Regulatory Compliance, Recycling and Water Purification, Green Metrics and Methodology, Renewable Resources, Eco-Labeling of IT Products and Thin Client Solutions etc .

Of all these, sustainability measure provides the greatest potential for quick return on investment, ease of implementation, and financial justification. Several commercial solutions for improving computing energy efficiency have recently become available and Environmental Management Accounting (EMA) strongly recommends the adoption of such a solution not only for its environmental implications, but also for its common-sense reduction on IT infrastructure costs.

The paper is organized as follows: Section 2 outlines the concept of green computing. Section 3 discusses different approaches for green computing. Some of the important steps taken in India towards the green computing are discussed in Section 4. Finally the paper is concluded in a conclusion in Section 5.

2. GREEN COMPUTING: A BACKGROUND

The first step towards the green computing movement was the commencement of the Energy Star programme in 1992 by US government. The major objective of the energy star programme is to assign a voluntary label to the computer products that

were successful in minimizing energy consumption while maximizing efficiency. This label was also awarded to monitors, refrigerators, television sets, air conditioners, etc. The first result of green computing research was resulted in the introduction of sleep mode function for the computer monitors. This function allows the computer to go standby mode after a pre-set period passes without any user activity. Concurrently, the Swedish organization (TCO Development) launched the TCO Certification program to promote low magnetic and electrical emissions from CRT-based computer displays. This program was later expanded to include criteria on energy consumption, ergonomics, and the use of hazardous materials in construction. Basically, the whole green aspect came about quite a few years back when the news that the environment is not a renewable resource. Then the people started realizing that they had to do their part to protect the environment. After this, various concepts like energy cost accounting, thin client solutions, e-Waste, virtualization, etc. were developed.

On the other hand, in Information Technology (IT) domain, the term “green computing” can be define as the efficient use of computers and computing environment. The triple bottom line is what is important when it comes to anything green and the same goes for green computing. This considers social responsibility, economic viability and the impact on the environment. But, when it comes to computers, many businesses simply focus on a bottom line, rather than a green triple bottom line due to the economic viability. But the whole idea is to make the whole process friendlier to the environment, economy, and society. This means manufacturers should create computers in a way that reflects the triple bottom line. So, once computers are sold, the businesses or people can use them in a greener way by reducing power consumption and finally disposing them properly. The idea is to make computers from beginning to the end a green product.

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