

Chapter 1.9

Sustaining the Green Information Technology Movement

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ABSTRACT

Green computing paradigm is a term used to describe a movement in the field of information technology whereby users and information technology professionals are adopting ‘less environmentally destructive’ practices to mitigate the detrimental effects of excessive computing to the environment. Environment friendly practices such as virtualization, cloud computing, greening of data centres, recycling, telecommuting, and

teleworking are discussed in this chapter. A summary of the initiatives undertaken by government agencies in various countries is also provided.

INTRODUCTION

The word ‘green’ has attained a new meaning in our vocabulary today. ‘Green’ connotes ‘less environmentally destructive’ practises that minimize the damage to the environment and decrease the side-effects of excessive computing. The excessive use of modern day appliances such as

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laptops and personal computers have contributed to environmental pollutants that are damaging the environment slowly but steadily. Carbon laden fumes emitted from countless automobiles and modern day factories have been polluting our environment making the air unbreathable in several cosmopolitan cities of the world. The extent of the damage from carbon emissions can be gauged from the subtle climate changes that are being experienced in recent years. *“Just days after experts warned the Arctic ice cap is melting faster than ever, a huge 30-sq-km sheet of ice has broken free near Canada”* (Noronha, 2008).

So what is the cause of these climatic changes? The answer lies right before our eyes in the form of the desktop personal computers, cars and buses we use to commute to our workplace and in fact modern day gizmo that consumes energy. The real culprit behind the use of this equipment is the carbon laden fumes that are being generated during the manufacture of these machines and the fumes emitted in the production of electricity that runs this equipment. Another source of environmental damage is the improper disposal of tonnes of non-degradable plastic used to manufacture these appliances.

Technology has overtaken our lives at break-neck speed. At home, labour saving devices such as washing machines, dishwashers, and microwave ovens are making processes more efficient replacing human effort. Computers and other machines are rapidly reducing the human interface within offices and institutional environments. In the place of a well-groomed receptionist answering queries, a sophisticated information kiosk with touch screen facilities provides information in the modern day office environment. LCD monitors, personal computers, laptops, hand held devices like PDAs and digital assistants, have become the norm in the business world today. Information is being stored in large data centres and servers. Entire operations depend on machines which serve as the backbone of the modern day organization.

In fact the information technology hardware and software expenditure of companies forms a major chunk of the total budget. Computers have overtaken the workspace, with at least one PC per worker. Laptops and personal digital assistants, other presentation hardware, storage devices such as data centres dominate the work place. Desktop computing has replaced the reams of paperwork and files that once characterized the workplace. While making office work more efficient and less labour intensive, personal computers contribute to the carbon footprint in several ways.

A carbon footprint is the impact on the environment of all the green house gases which are produced by the usage of energy consuming equipment in our day-to-day lives. A carbon footprint consists of a primary footprint and a secondary footprint. A primary footprint measures the direct emission of fuel gases produced by domestic consumption and transportation. Secondary footprint consists of emissions from the whole lifecycle of the products which we use- from the design of the product to its disposal (What is a Carbon Footprint? 2008). The manufacture of computers involves hundreds of raw materials like - plastics, semi conductor chips, batteries the manufacture, delivery and recycling of which consume energy and emits green house gases. For instance, semi-conductor chips used as computer memory involve the use of large quantities of potable water and toxic substances which may jeopardize the health of workers. The manufacturing of personal computers, semi conductors, batteries and micro electronics also generate toxic waste, effective disposal of which is rarely undertaken.

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