Sustainable Computing – A New Pathway to Go with Green Computing

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Abstract- **Sustainable Computing (SC) is non-conventional computing for environment sustainability to use of computers and its peripheral devices like monitors, printer, storage devices, networking and communication systems – efficiently and effectively with eco friendly environment. The ultimate goal of Sustainable Computing are to reduce the use of hazardous materials, maximize energy efficiency during the product's lifetime, and promote the recyclability or biodegradability of defunct products and factory waste. Now a day's Computers are highly integrated with our daily life one can without computing life has no meaning. It is not only used in offices but also at homes. Due to rapid advancement in computing technologies the consumption of electricity produce very high amount of carbon in our ecosystem. This problem can minimize only by saving or spending minimum power flow to computing devices. This approach so called Sustainable Computing. Sustainable computing new way towards green computing it maintain all cost of ecofriendly environment to sustain our space with lesser emission of power. The broad scope of sustainable computing to achieve maximum benefit from the technology while reducing the wastes from power to emission. In this study we focus on Sustainable computing, its needs and steps toward Green computing. This paper also describes that modern generation computer and computing devices are highly integrated with human life. No one think without computer or life induced by computing devices, But common man need to aware how harmful such devices for our environment.**

Keywords- **Sustainable Computing, Green Computing, Eco-Friendly.**

1.INTRODUCTION

Modern digital generation needs more digital services without thinking aspect of digital emission takes place when uses heavily. Without any hesitation we can say that computing devices now a days are very much prone to produce thermionic emission due to massive computing. Now a day's people are more inclined towards digital devices considering the basic facts and emission of power from such electronic devices which certainly a global issue. One of the key challenges in green computing to maintain the eco-computing and achieve nonconventional path to counter balance the systematic computing. To maintain the Sustainability of this type of system is a daunting task. At present Green computing refers to economical use of computing resources get big attention from environmental engineers as well as from industries. Near years computing businesses believe doing green computing is best way to reduce several harmful effect from computing[1].

The Sustainable Computing, standards of Eco – Friendly Green Computing Definition (EFGCD). One can assume sustainable computing is platform where we can do green computing, or do green computing a pathway to reach peak of sustainable computing. Presently ICT industry is globally uses of 3% of the world's energy consumption. Annual rate of consumption gradually increasing by 20% a year, 2030 will be the year when the world's energy consumption will double because of the ICT industry. Sustainable Computing Lifecycle (SCLC) when designing and implementing green computing technologies. The five core green computing technologies advocated by GCI are Green Data Center, Virtualization, Cloud Computing, Power Optimization and Grid Computing[3].One can also add Sustainable cloud computing, processor optimization. Singapore based Company like Via Technology offer green PC's that are affordable, non- toxic and ultra low wattage. It take responsibility for their outdated products by offering a PC recycling service[2]. Minimum use of energy can bring us secondary deposit, but surely it may not be ultimate benefit. But if one can increases the power efficiency of back and front end of computing, we do not need to increase hardware resources as one can quickly thought, definitely it will save expenditure as well as cooling devices[4]. Sustainable computing eye opener as well provides better insight for business managers, academicians, environmental scientists and computer scientists to think off complex issues like reversing ecosystem, green computing strategy, green morphology, sustainable thoughts as well as bigger topic global warming. In our study we emphasize on sustainable computing future of computing informatics or sustainable reverse computing. So it time to think more realistic way to guide a people for saving of power consumption by their own efforts and save environment.

2. NEED OF SUSTAINABLE COMPUTING

Sustainable Computing is a new interdisciplinary field that aims to apply techniques from computer science and related fields, such as information science, operations research, applied mathematics, and statistics, to help manage the balance between environmental, economic, and societal needs for a sustainable computing[5]. The ultimate goal is on developing computational and mathematical models, methods, and tools for decision making and policy making concerning the management and allocation of resources for sustainable development which help us to reduce the massive

amount of power consumption and maximum uses of eco-friendly computing.

3. EMERGING FUTURE OF SUSTAINABLE COMPUTING

The term Sustainable computing is highly interdisciplinary or cross fertilize with other area like science, engineering and its application. In near future new trends in computing there are a increasing number of computing technology companies that have active and ongoing energy

Efficiency initiatives such as Microsoft , IBM , Cisco and HP to name but a few, which are driven by consumer and legislative demand. Given that the carbon output of computing technology is as high as aviation and rising at a faster rate, the efficacy of such consumption can be reduced only by sustainable way of computing. Ultimately need is to maintain our surroundings natural and hazardous free is whole sole motto of green computing. Future of Sustainable computing is to club other discipline and create new platform for computing devices. One can imagine new type of booting devices such as *eco-friendly booting or bio-friendly booting agent* can help to boost the booting process with the help of less power consumption. And also to counter balance the increasing temperature from computing devices for example CPU and power server etc. One can get familiar with new kind of devices or technologies which can take less power and produce maximum output, biodegradable computing devices might be helpful to achieve the goal of green computing to reach its destiny towards Sustainable computing.

4. CONCLUSION

This study shows the prime importance of Sustainable computing. We need to understand the basic thrust and ultimate need of Sustainable computing which is ultimate goal of green computing, and our focus mostly on environmental issues caused by computing devices. So keep in mind that with a great sense of understanding the importance and need of Sustainable computing we should take the steps from today or even from now. Now it is very clear mushrooming growth of ICT industries globally is rapidly poisoning the our environment. So ultimately this grave threat needs immediate attention and action. Our modern Societies need to become more energy conscious. Now its time for both governments and the corporate world to join hands in more Sustainable computing solutions to be able to build a Sustainable-globe or Sustainable-global cyber village. Modern techno-savvy or computer scientists need to think in more sophisticated way to invent new devices for Sustainable computing. In addition it's time to handshake with environment engineers and computer scientist to move ahead and conceptualized new ecofriendly computing paradigm to sustain our natural environment.

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