GREEN COMPUTING

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Abstract :- Green Computing is a powerful methodology towards structuring,discarding and assembling PCs also, its assets no effect on condition. The term Green computing appeared with the dispatch of Energy Star program in 1992 by U.S natural insurance organization. It points towards power sparing and less measure of warmth created by the PCs. Across the board utilization of PCs and related IT items has an exceptionally awful impact on the condition. PCs are terrible for condition since they are not biodegradable and the parts and pieces will be around perpetually and are once in a while recyclable. Condition contamination could be a result of the imperfections in assembling procedures, removal systems for PCs and segments.

1. Introduction

Green Computing can be defined as using the computing resources while considering the environmental responsibility. The Technology is Advancing day by day and passing into various sectors and business organisations, the need of computing resources is increasing which is indirectly causing harm to the environment in different ways. This increase in Computing resources are due to its ubiquitous nature resulting in development of various applications based on those resources for our utilities. The rise in infrastructure is emitting Green House Gases (GHG), this is due to power consumption of those resources. To solve this problem various research and educational organisations setup a new area, which is termed as green computing. There will be a great future if we use green computing for cloud computing with minimal impact to the environment.

2. Need for Green Computing

As there is increase in number of users using IT infrastructure and Computing resources there is increase in risk due to its emission of carbon dioxide in huge amounts by their power consumption. Green computing works with principles of increasing the energy efficiency and manging to reduce the power consumption. Power optimisation is one of the major challenges faced by the reputed organisations which we can solve using green computing. Green computing is a computing which manufacturing, designing and disposal of the physical hardware like printers, monitors, storage devices more efficiently so that there can be a chance to reduce emission of Green House gases.

3. Measures to Control Power Consumption

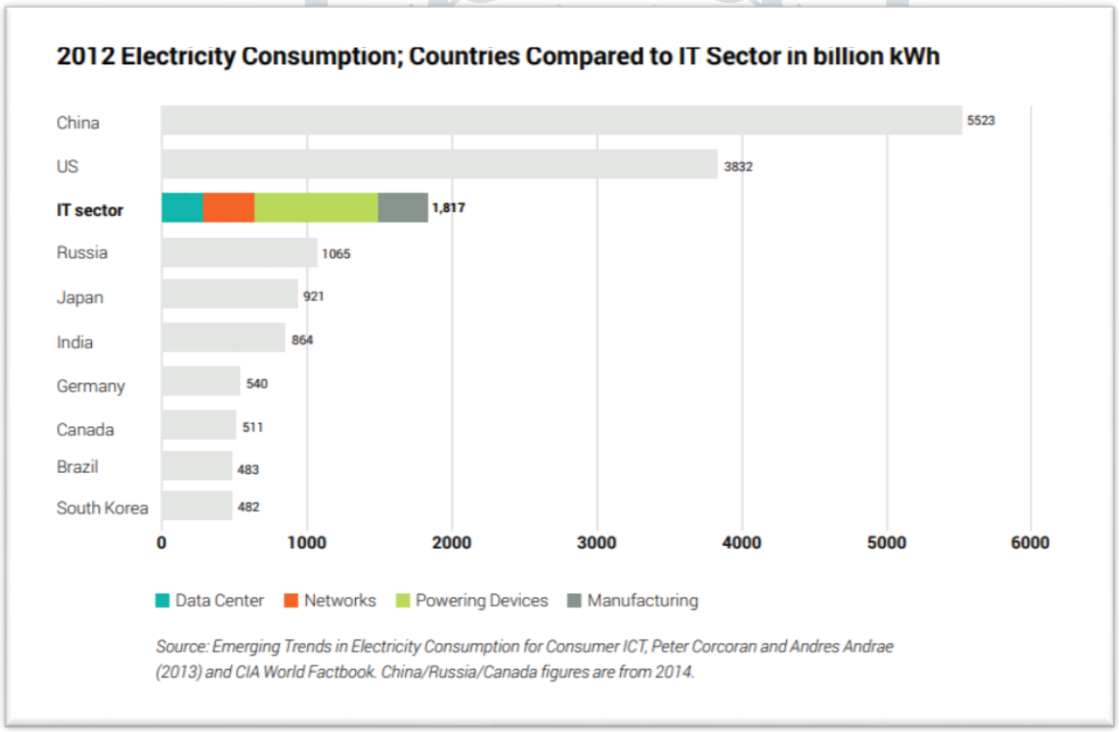
There are several ways to control the power consumption of the IT resources

- Virtualization: virtualization can be defined as a technique, which allows a single physical instance to share among multiple users or multiple organisations. It can be implemented by assigning a logical name to the physical storage& providing a pointer to that physical resource when demanded. Multiple organisations can merge together on different areas to save on hardware and to conserve energy by reducing power usage and cooling requirements.

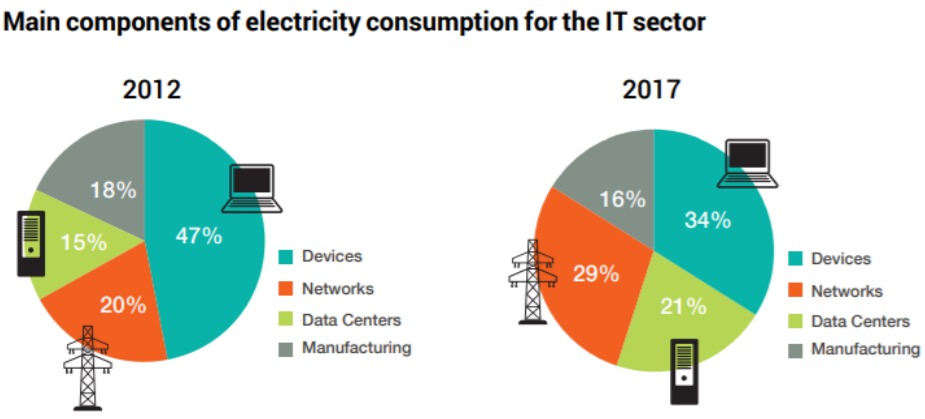
- Cloud computing: It is service which enables to use the features of the virtualisation. Many users can access the resources required for us using the cloud. This can save a lot of power because we are using those resources which is required for us and for only particular amount of time only which leads to less power consumption than the normal scenario.
- Low power hardware: computer is a combination of lot of different hardware resources like fans, Random Access Memory(RAM), Read only memory(ROM), hard disk, Network interface card and graphic card. If we can make those resources which will consume less power the overall power usage will be reduced automatically.
- Alternative storage methods: we can use the storage devices which have large capacity enough to meet the organisation storage needs rather than using multiple hard drives which consumes lot of power. We also can perform data center audits to eliminate redundancies in the system.
- Using Thin Clients: with thin clients, user has a virtual Desktop that includes a keyboard, mouse and screen. Rest of the units are shared by all from a central location.
- There are some other ways by which you can be a part of saving the environment, by shifting from normal users to cloud users .
- By doing online shopping, there is no need to use the vehicles to reach particular location which can reduce the emission of Green House Gases

4. Conclusion

- The Energy footprint of IT sector is already estimated to consume approximately &% of the global Electricity.



- According to the statistics from the 2012, IT sector crossed the Electric power consumptions of the countries like Russia, India and Japan etc.
- We also can see the main components of the electric consumption for the IT sector in 2012 and 2017 through a survey done by organisation called Green Peace.



Main components of electricity consumption for the IT sector, 2012. From "Emerging Trends in Electricity Consumption for Consumer ICT"

- This organisation states that Hydro Power is the most established baseload clean energy source among different power resources like Nuclear power,Geothermal,Biogas.
- There is a need for cloud computing to use green computing Methodologies which leads to conservation of energy resources and saves our environment.
- Green computing will be the driving force for the future computing as it is very useful. There is a need for researchers to work in finding some power saving methods which lead to the betterment in optimising the Power resources.

5. References

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