Seminar *Presentation on* Status of Green Data Centers in India

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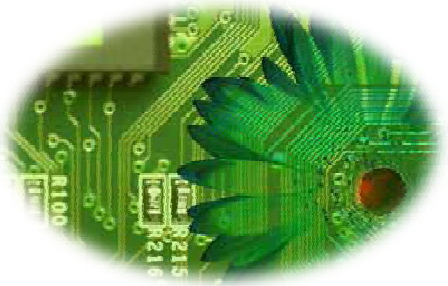
Background

- Green initiatives at data centers save power, improve energy efficiency and can open new business opportunities

Initiatives towards Green



- **CII** organized a two day conference on **'Green Data Centers 2011'** with **'Making Data Centers Green'** as the theme.
- The **India Data Center Infratech Conference** - September 27th–28th, **2012 in Mumbai**. Event endeavored to bring together major players in the industry to discuss critical topics including power availability, cooling solutions, **green IT**, and operation maintenance that confronts the day to day actions of the data center operators.
- **CII** under the guidance of Bureau of Energy Efficiency (**BEE**) developed a **manual on "Energy efficiency guidelines and best practices in Indian Datacenter"**
- The report consists of the Best Practices and case studies with high replication potential for Energy Efficiency in Datacenter.
- **CII** organized conference on **Green datacenters** on 22nd June **2010 in Bangalore**

Why Go Green

- A Green Datacenter provides increased efficiency in terms of energy usage, power consumption, space utilization and reduction in polluting energy sources.
- However, there is no mechanism to identify datacenter elements that are under-utilized, generate more heat, consume more power, etc.
- Further, there is a need for automated, real-time, dynamic decision-making capabilities to optimize energy usage.
- Most big data centers, the global backbone of the internet, could slash their greenhouse gas emissions by 88% by switching to efficient, off-the-shelf equipment and improving energy management.

Why Go Green Contd..

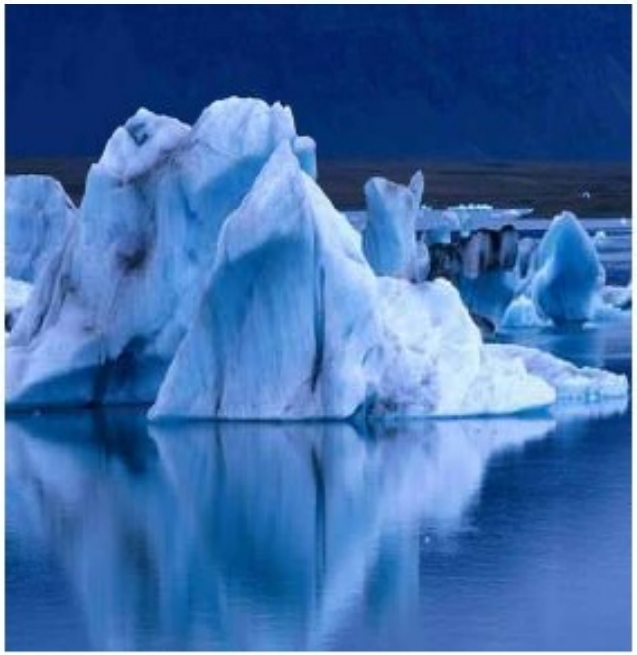
- The carbon emissions generated by a search on Google or a post on Facebook are related mostly to three things: the ***computing efficiency of data center equipment, like servers, storage and network switches***
- The amount of electricity a data center's building uses for things other than computing, primarily cooling; and how much of the center's electricity comes from renewable or low-carbon sources.
- Adding renewable power to the mix can help reduce a data center's overall emissions by 98% when combined with other strategies

Steps to a Green Data Center

- A green data center can be achieved by incorporating the following
  - Alternative sources of power like wind, solar energy, etc.
  - **Virtualization, consolidation**
  - **Efficient Floor Layout**
  - Recycling of waste material
  - Using environment friendly material, Paints, etc
  - **Using green rated power equipment**
  - Incorporating wireless heat sensors
    - Supply cooling to only that position where ever required
  - **Using weather changes for increased power efficiency**

Data Center in Cold Place !!!

- Big data centers exploring opportunity of setting up data center in cold places like Iceland
  - Companies like Google, Yahoo & Microsoft have already made site visits.
- Data centers would get advantages like
  - Cheap Geothermal energy (Green Energy)
  - Chilly climate makes cooling data center cheaper.
    - Techniques like pulling cool air from outside & cold air from ice have already been used for existing data centers.
- A Company has already announced a $306 million data center in Iceland set to open in 2009.



WIPRO INITIATIVES

- Wipro Energy Optimizer (WEO), a Green Datacenter solution, developed by the Computing and Storage Center of Excellence at Wipro
- **E**nables datacenters to be intelligently monitored and managed to optimize their energy usage.
- WEO cuts across servers, networks, storage equipment, cooling and UPS in a non-intrusive and scalable manner.
- The solution complies with the SNIA and Green Grid industry standards.
- **P**rovides an energy profile of up to 85% of the datacenter components (both IT and non-IT) that utilize energy.
- **P**roven solution tested and implemented in our Wipro's datacenter.
- **E**nabled consolidation of 55% servers resulted in 49% reduction in power usage month-on-month.
- **W**ipro launched energy star compliant products, adopted structured e-waste management programs, created public awareness on e-waste management and usage of recycled plastics in new production.

HCL Ecosafe

Green Datacenter Services:

- HCL's Green DC Services helped organizations reduce their companies' environmental impact by assessing, planning, & implementing initiatives around their DC environment
- HCL's Green Datacenter Services framework has capability to deliver cost benefits to the customers, such as:

  Around 15-40% savings through **DC Consolidation** & **Virtualization**

  10-15% savings from Datacenter Asset re-build & buy out

  10-15% savings due to Rack Optimization in DC

  4-10% savings by installing best-in class power equipments in DC

  7-15% savings due to efficient Air conditioning architecture within the DC
- HCL has also been recognized among the Top 10 Green IT vendors by "Black Book of Outsourcing"

Press Releases

- IDFC Data Center FIRST IN INDIA TO BE Certified Energy Efficient 'green' Data Centre by TÜV Rheinland :: *Mumbai;* February 17, 2011

- ABS offers a state-of-art, ISO 27001 certified, carrier-neutral Green Data Center, strategically located in the IT Hub of North India, Gurgaon to service your business continuity and connectivity requirements

The Barriers

- Pretty much every organization whose main job is not computing has done a poor job of improving efficiency
- Some have made progress, but nowhere near what's possible.
- Most can't even tell you how many servers they have, let alone the servers' utilization.
- Department heads at such organizations typically want to keep control of their servers rather than centralize, which eliminates most potential optimization.
- Managers who order and operate the equipment are often **not** accountable for energy costs or efficiency - a major institutional barrier to sustainable computing.

The Barriers Contd..

- The utilities and IT departments have separate budgets, and neither operates with the goal of saving the company money overall
- The IT people don't care about putting in an efficient server, because they don't pay the electric bill.

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THANK YOU