The Energy Efficiency Imperative for Data Storage

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FLASH MEMORY SUMMIT 2011

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The focus on data center and information technology energy efficiency has largely ignored data storage, despite ample opportunities.

The storage industry must "get into the game", accessing utility incentive programs, and engaging in the broader discussion.

Flash memory may have the most compelling engagement opportunity of all...

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Top Five Trends

- Data center energy use doubling every five years
- Capacity availability is a major problem
- Capital costs are huge: $20 million a MW
- Great energy efficiency opportunities in cooling and power infrastructure
- Rise of utility-scale data centers and cloud computing

Where is Data Storage?

- Doubling at even higher rate than IT in general – maybe doubling every eighteen months
- Half dozen efficiency opportunities, but next to no visibility
- Compelling cost-avoidance:
  - $20 per watt data center capex!
  - $1 to $2 per watt annual opex

Energy Efficient Storage Technologies

All are equally applicable to new installations and retrofits, because of regular refresh cycles

Several are eligible, or could be, for utility incentive programs

- Efficient equipment (power supplies, more TB per watt for each new generation of drive)
- Disk management (MAID, etc)
- Thin provisioning
- Virtualization/consolidation
- Data de-duplication
- Solid state drives (Tier zero and other apps)

SSDs May Be a Game-Changer

Three compelling advantages for use in on-board storage ("Tier 0")

1. Far more efficient than disk drives
2. Higher i/o yields better potential utilization
3. Can withstand higher heat!

A server that can live purely on ambient air is the holy grail

Utility Energy Efficiency Programs for Data Centers and IT

- Leading programs in California, Seattle area, Texas, and New York
- Annual spending on programs by US utilities is now over $5 Billion, and growing fast
- Utilities know they need to be in this market, if only to make goals

Call To Action

- Join SNIA and EnergyStar® efforts directed at data storage energy efficiency

- Participate at Green Grid, Uptime, Data Center Dynamics…

- Demonstrate benefits of flash memory through collaborative pilots with academia and industry players

- Get in the game!

Contact

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