REAL IT COOL PROJECT
Makes it possible Energy Saving
In IT Platform
Many losses in power delivery in Datacenter; Not only IT equipment itself, but also facility such as air conditioners and power.

By leveraging its expertise in building IT system, NEC can provide total solution to saving power consumption for IT equipment and facility.

Ratio of Power Consumption in Datacenter

- Air Conditioning: 44%
- CPU, Memory, HDD: 32%
- Power Supply: 13%
- Fans: 4%
- UPS/PDB*: 7%

*Power Distribution Board

Source: Based on “Powering Compute Platforms in High Efficiency Data Centers” (Intel Developer Forum, Fall 2006)
Power Saving Platform Line up

Intensive power saving, space saving, light weight by high density packaging and cooling based on experiences in Mainframe and Supercomputer development

- **Servers**
  Intensive power saving through advanced low-power technology

- **Storage system**
  Larger HDDs, Solid-state Disk and Power saving for archived data

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(1) Power Usage Control

Power consumption is controlled in accordance with the priority of operation and allowable amount.

- Forced power saving control
  Control by determining the upper limit of power consumption in accordance with the SLA of operation and virtual machine.

- SLA priority control
  Do not give more than necessary.

- Total power consumption limit control
  Excess of allowable amount of total power consumption in the specified range is prevented.

- Allowable amount priority control
  Keep upper limit of total amount.

- Control by power usage amount Specified by SLA

- Control by monitoring power by element

- Operation
  - Server
  - Cabinet
  - Rack

- Total amount of use

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(2) Excess Server Autonomous Power OFF Operation

Excess server is powered off by optimizing (gathering) the use rate of server.

Reallocate to keep appropriate load. Shut down the server deemed to be excess as a result of reallocation.

30% reduction

Appropriate load level
(3) Eliminating Hot Spot

Hot spot in machine room is detected and it is removed by appropriate allocation of operations and air conditioning. Power saving is implemented by the improvement of cooling efficiency.

Heat generation is equalized by reallocating high-temperature server.

Hot spot is detected by monitoring of temperature, humidity, and power.

Direction and amount of airflow is controlled to countermeasure hot spot.