

The Real Story series communicates topical news and views in the world of computing, providing fact-based content on the story behind the story.

The Real Story about HP Energy-Efficient Solutions for the Enterprise

HP power and cooling 'chip to chiller' solutions



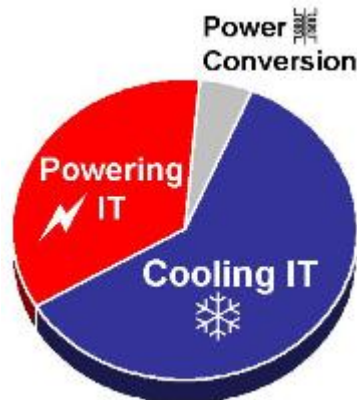
Overview:

October 2007 – Energy efficiency, power, and cooling is top of mind with enterprise customers. Rising energy costs – at a time when power consumption is also increasing – mean that energy outlays now consume a larger and larger portion of companies' IT budgets. Additionally, the global environmental impact of carbon emissions is an important aspect of any organization's environmental responsibility concerns. At the same time, worldwide regulatory and government legislation are becoming a more critical element of this power and cooling equation.

HP is addressing the energy efficiency challenge, holistically, with solutions that optimize energy use from the "chip to the chiller", across the entire data center:

THE FACTS

FACT 1: The power and associated costs to cool the data center can be as much or more than the cost of powering the IT equipment. A study by HP and The Uptime Institute suggests that in a majority of the world's data centers, 60-70% of a data center's power is associated with the power of cooling the IT equipment.¹



Power consumption in the data center

While many in the industry are narrowly focused on only one aspect of the problem – reducing the power of chips and other components – HP is also addressing the need to reduce the power requirements and costs associated with cooling the data centers themselves. HP's Dynamic Smart Cooling enables a computing infrastructure to interact intelligently with the facilities that support the datacenter, and thus greatly optimize its cooling capabilities.

FACT 2: A typical data center can achieve significant energy savings, and in some cases up to an approximate 60% reduction in the overall energy use (from chip to chiller), by optimally employing all of HP energy-efficient solutions below.²



[HP's Dynamic Smart Cooling](#) can reduce the energy associated with cooling the data center by 15 to 40%.³ And, adding HP's Thermal Zone Mapping can add to those savings.

[HP Thermal Assessment Services](#) can also provide significant savings for data center energy reduction when the findings are implemented properly.⁴



[HP's Modular Cooling System](#) can reduce the energy associated with cooling the data center by up to 15%, according to HP internal testing results.

Gartner recommends to, "Consider in-rack cooling where the row of racks exceeds an average 15kW per rack."

Source:	Gartner: "Meeting the Data Center Power and Cooling Challenge"
Author:	Michael A. Bell



Power capping of HP ProLiant and BladeSystem servers available through [HP's Insight Power Manager](#) can allow up to 40% more servers in the same power envelope.⁵ HP Power Regulator for ProLiant can save up to 10% of cooling and up to 10% of power costs.⁶



[Virtualization](#) of HP servers using VMware, Microsoft, or Xen for HP ProLiant, HP Virtual Server Environment for HP Integrity, and the virtualization of LAN and SAN connections with HP BladeSystem HP Virtual Connect can save up to 40% of energy costs for data centers.⁷



Storage consolidation through Thin Provisioning and [HP's Dynamic Capacity Management](#) saves up to 45% of power and cooling for Storage.⁸ Thin provisioning is available with the HP Storage Works XP24000, and Dynamic Capacity Management works similarly on the EVA 4100, 6100, and 8100 products.

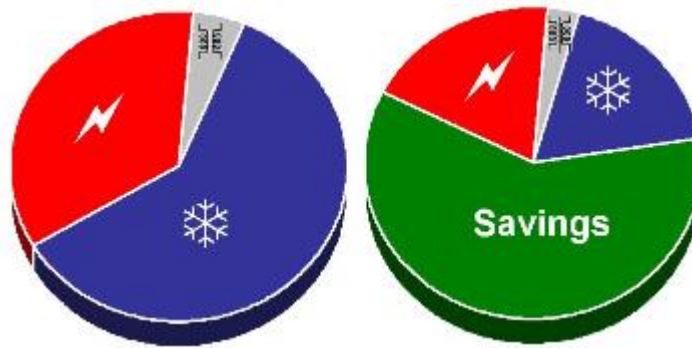


HP BladeSystem [Thermal Logic technology](#) reduces power, cooling, and space costs by 30%, according to a head-to-head comparison of an equivalent amount of compute power in a rack-mount configuration.⁹



[Energy optimized HP ProLiant servers](#) use 18% less power.¹⁰ Energy-optimized components such as power efficient processors from Intel and AMD, Small Form Factor drives, efficient power supplies, and low power memory lower the power consumption of all HP servers where deployed.

Each of these power saving solutions may have an affect on each other. However, by employing each of these solutions optimally together, customers can see up to 60% savings in total energy use of their data centers.



To learn more about HP and energy efficiency in the enterprise, please see: <http://www.hp.com/go/energyefficiency>

About the Real Story

The Real Story series communicates topical news and views in the world of computing, providing fact-based content on the story behind the story. For the latest Real Story, see: <http://www.hp.com/go/therealstory>

¹ HP, Christopher Malone, PhD, Christian Belady, P.E., "Metrics to Characterize Data Center & IT Equipment Energy Use", Digital Power Forum, Richardson, TX (September 2006), and "How to Minimize Data Center Utility Bills", HP C. Belady, P.E., Sept 2.

² 60% savings calculated using all of the HP energy efficient solutions in aggregate and does not constitute a guarantee. Not all data centers are the same; customer's actual savings may vary.

³ See <http://h71028.www7.hp.com/ERC/cache/438048-0-0-0-121.html?ERL=true>

⁴ See <http://h20219.www2.hp.com/services/cache/549230-0-0-225-121.html>

⁵ HP press outreach June 2007.

⁶ Power regulator 3rd edition Tech Brief Feb 2007, ISS Performance Testing Engineering assuming a 320watt server.

⁷ Computerworld, "Low Cost Data Center Locations, Sept 3, 2007

[http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=300809&pageNumber=3.](http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=300809&pageNumber=3)

⁸ Green storage from HP, [http://h20331.www2.hp.com/enterprise/cache/504592-0-0-0-121.html.](http://h20331.www2.hp.com/enterprise/cache/504592-0-0-0-121.html)

⁹ Report by SineNomine, [http://h71028.www7.hp.com/ERC/downloads/SNA_HP_Power_Cooling_Paper_FINAL-20070215.pdf.](http://h71028.www7.hp.com/ERC/downloads/SNA_HP_Power_Cooling_Paper_FINAL-20070215.pdf)

¹⁰ HP Power Calculator comparing power optimized DL380 G5 to a 100watt processor DL380 G5. Each server had 2 drives, 6 fans, and the same memory and PCI-Express cards.