

Incentive programs for data center thermal analysis, energy assessments and server consolidation projects

Reduce your data center power and cooling costs, demonstrate your commitment to the environment and possibly qualify for an incentive for your efforts.



Point of view

Technology advances in IT systems deliver more and more computing power for your dollar, but they can also stress your power and cooling infrastructures and, in some cases, your local utility grid. With virtualization offering increased performance per watt of power and advanced thermal diagnostics delivering pinpoint control for your cooling infrastructure, you can regain control of your energy and cooling requirements. And in addition to the reduction in operating costs you may achieve, your company may be eligible for an incentive from local utilities and/or state energy funds. As a result, you may be able to improve the efficiency of your business, free up data center space and increase capacity for future growth while maintaining current costs, reduce your cooling and take actions that demonstrate your company's commitment to a better environment.

Current focus and trends

Computing technologies are becoming increasingly powerful and power hungry. While the enhanced capabilities of new server, storage and networking equipment help you deliver bottom line results to your business, this new equipment can stress the power and cooling infrastructure of your data center and your utility company. This stress creates a range of potential demands for your data center operations:

- *Your data center may not be able accommodate new equipment due to power and cooling capacity limitations or space.*
- *Your data center may have hot spots that cause reliability issues.*
- *The cost of power and cooling for your data center is increasing.*
- *Your company may have made a commitment to reduce its carbon footprint, but increasing power demands in your data center(s) make it difficult to achieve this commitment.*
- *Your utility company is attempting to reduce existing demand to meet new service requirements and is actively seeking ways to make its current customers more efficient.*

An imposing list of concerns—yet solutions are readily available today that can help free up capacity and improve the efficiency of your data center operations. These solutions can deliver cost reductions through improved utilization of your space, higher productivity of your staff and decreased energy requirements. In addition, you may possibly qualify for project incentives or subsidies available through your state or utility energy efficiency fund.

The solution

Advanced computing capability and increased performance of next generation IT equipment offer significantly improved power efficiency and cooling capacity for your data center.

Generation to generation IT equipment requires more power and cooling per unit of space, but it delivers more computing power per unit of applied energy. Properly configured, new server equipment can help you to do more work on less equipment, reclaiming power and cooling capacity for your data center operation.

Industry figures show that many servers have low utilization rates. In x86-based server environments, Windows® and Linux® server utilization often falls below 15% of CPU resources¹. Many UNIX® servers are only 15 – 25% utilized². This means that your servers can be spending as much as 75 – 90% of their time consuming your power and cooling resources without delivering any work. Virtualization and consolidation capabilities enable you to consolidate the workload from multiple servers onto a single server, driving server utilization rates up to 50 to 70% and potentially delivering as much as four to six times the work on x86 and UNIX servers at reduced costs. For example, PG&E and IBM announced on May 10, 2007, that PG&E will consolidate nearly 300 UNIX servers onto 6 IBM System p5 servers, helping to reduce 80 percent of its energy and facilities consumption, and will use IBM virtualization technologies to boost utilization of the systems from 10 percent capacity to over 80 percent. This server consolidation project will result in \$25 Million payback over three years and includes savings in personnel, application maintenance, hardware support and energy. The energy savings alone are projected to be \$2.8 Million³.

IBM server virtualization solutions can support successful server virtualization by combining expertise, tools and methods for your workloads. Using a phased set of activities to build, pilot, deploy and validate business expectations along the way, our solutions tap into IBM technical and industry experience to help deliver a focused and responsive solution. IBM's expertise in virtualizing and consolidating IT infrastructures helps you to realize the benefits of aggregating and accessing underutilized computing power:

- *Reducing or eliminating unneeded equipment*
- *liberating power and cooling capacity and valuable floor space*
- *improving systems management*
- *reducing operating costs*

All of these benefits can help position your business to respond more quickly to new business demands and opportunities.

