

DATA CENTER OPTIMIZATION THROUGH AN ENERGY SMART ASSESSMENT



OVERVIEW

Many organizations today are tasked with boosting computing capacity to meet growing business requirements. But this increase in power often leads to an increase in energy consumption, which in turn can result in greater cooling demands and cost. Our Data Center Optimization - Energy Smart Assessment uses infrastructure and thermal analysis to provide a thorough diagnosis and recommendations, designed to help you to maximize the efficiency of your data center and potentially lower cooling costs in the process. Our recommendations can help you achieve your computing capacity expansion plans without exceeding existing power and cooling limitations, or right-size cooling and power consumption for your current infrastructure.

Dell's Energy Smart Data Center Assessment can assist you with the reduction of energy usage and help contribute to the lowering of cooling costs in your data center. The purpose of the assessment is to note deficiencies, assess system capacities and develop recommendations for improvements (power and cooling, data cabling, cable management, floor plan/space utilization, flooring as well as high-level architecture guidance) in current data centers.

DELL CAN HELP YOU ADDRESS YOUR DATA CENTER CHALLENGES

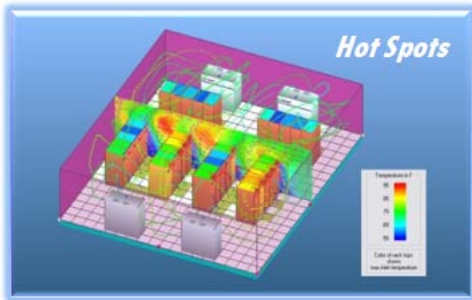
- There is no space for additional servers or storage.
- Your data center is either too hot or cold.
- You are faced with steadily increasing data center electrical bills.
- You will shortly be planning for an HPCC or blade server installation.
- You are planning the implementation of a significant number of new servers into the data center over the coming year.
- You are considering server virtualization to optimize on space but have density heating/cooling concerns.
- You are considering the build of a new data center to extend the space of the existing data center due to space and power and cooling limitations, but reviewing alternative options available.
- You have experienced data center outages.

POTENTIAL BENEFITS

Using a combination of on-site assessments and thermal analysis, the Energy Smart Data Center Assessment can help you address issues concerning space, computing capacity and energy savings. The potential benefits include:

- **Efficiency:** More efficient utilization of data center resources, including power, cooling, space, servers, storage and communications equipment.
- **Risk Reduction:** Reduce the chance of power outages or hardware failure due to overheating.
- **Cost Reduction:** Reduce energy expense by implementing our recommended best practice.
- **Optimization:** When combined with virtualization or consolidation we can help you identify further opportunities to optimize your data center.

DATA CENTER OPTIMIZATION - ENERGY SMART ASSESSMENT



WHY ENERGY SMART?

The Dell Global Infrastructure Consulting team can help you determine data center infrastructure and system capacity, identify problems with power and cooling and develop practical recommendations for improvement. Computational Fluid Dynamic (CFD Modeling) provides a visual display of temperature and air flow.

We engineer our products for efficiency and provide advice to help optimize data centers.

ASSESSMENT

We analyze your existing data center to help you make informed decisions on how to improve energy efficiency. You will receive:

- A review of existing power and cooling capacity and practices with the assessment of current state of your data center infrastructure layout.
- If required, a facility verification and CFD modeling to determine the optimal placement of racks, hot/cold aisles and vents together with cooling requirements.
- Recommendations for environmental enhancements to cover current and future growth needs.
- A measure of the Green Grid PUE and DCIE metrics for your data center.

COMPUTATIONAL FLUID DYNAMICS MODELING

Optionally Dell can perform Computational Fluid Dynamics to model the airflow and thermal characteristics of your data center. This yields models to highlight problem areas, as well as areas with sufficient space or capacity for additional equipment. This helps you to:

- Identify the optimal configuration for your specific needs.
- Determine the best placement of racks, hot/cold aisles and vents.

RECOMMENDATIONS

After analyzing your current environment, we provide a set of recommendations that can increase efficiency today, scale to meet your future needs and are designed to:

- Help you expand capacity without exceeding existing heating and cooling limitations.
- Identify the power and cooling required to support capacity expansion plans.
- Right-size cooling and power consumption for your current infrastructure.
- Reconfigure your infrastructure to avoid potential heat-induced outages.
- Incorporate power and cooling technologies that can expand your existing capacity without taking up additional space.



DATA CENTER OPTIMIZATION - ENERGY SMART ASSESSMENT

APPROACH

- An estimated 1 - 4 week onsite assessment.
- The determination of space, power, cooling limitations.
- The identification of data center risks associated with construction or operational practices.

RESPONSIBILITIES

- Dell - The provision of assessment reports as well as the measurement of data center capacity.
- Customer – Ensure that the Dell Consultant has access to current IT assets, existing equipment layout and one-line drawings, if available.

REVEAL YOUR HIDDEN DATA CENTER WITH DELL

DELL'S COMMITMENT TO ENERGY EFFICIENCY

We believe that the technology industry today has a major responsibility to lead the movement on energy efficiency. So we design our products and services to help our customers achieve greater levels of energy efficiency.

The Dell Energy Smart Research Center in Austin, Texas is a research facility dedicated to the creation of industry-standard solutions to today's energy efficiency challenges. By partnering with leading companies like APC®, Liebert®, Rittal® and others, Dell is working to address data center inefficiency end-to-end.

Energy efficiency is a fundamental design criterion for all PowerEdge™ servers.

- **New Intel™ Xeon Low Voltage Processors:** New Quad-Core low voltage processors designed to increase performance per watt.
- **Dell “Low-Flow” Fan Technology:** Controls fan speed based on the thermal requirements of the system.
- **High Efficiency Power Supplies:** Designed to draw significantly less energy, helping to maintain cooler internal temperatures.
- **AMD High Efficiency Dual-Core Processors:** Designed to increase performance per watt.

SHIFT YOUR IT RESOURCES FROM MAINTENANCE TO MOMENTUM

Dell Global Services simplifies the management of your IT environment so you can get up and running quickly, with lower deployment costs, fewer hassles, and less time spent on non-strategic tasks. You pay only for the services you need, gain instant access to the latest innovations without additional infrastructure investment, and take your business from maintenance to momentum. Dell offers services to help you address the full lifecycle of your IT infrastructure — including planning, implementation, maintenance and ongoing support.

DELL HAS NO LIABILITY FOR LOSS OR RECOVERY OF DATA OR PROGRAMS

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