



Dell OpenManage Power Center (OMPC)

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SUMMARY

OpenManage Power Center (OMPC) monitors, reports, alerts and caps power consumption in the data center, for users of all sizes.

OMPC enables better visibility, improved control, greater rack density, faster power capping, and greater accuracy, all of which leads to better decision making for data center operators.

OMPC is useful for both IT- and facilities administrators, bringing greater efficiency to the data center and helping to reduce energy footprint.

Dell OpenManage™ Power Center (OMPC) is a product for power monitoring, alerting, reporting and capping in the data center, for users of all sizes. OMPC provides accurate, real-time power and thermal monitoring and management of servers, racks, and IT equipment such as PDU's. Developed using Intel's Data Center Manager (DCM) technology, OMPC capabilities are useful for both IT and facilities administrators and allow them to work jointly to bring greater energy efficiency to the data center and to reduce the energy footprint.

Measure and manage your power usage

OpenManage Power Center allows IT Administrators and facilities managers to gain greater insight into energy usage throughout the data center, through detailed measurement of power consumption. OMPC gives users the ability to measure and manage the power consumption of up to 6,000 servers and track both short-term and long-term historical data. OMPC can also monitor devices such as PDU's, UPS's, and non-Dell servers, thus giving a consolidated view of the data center at the level of the rack, the row, or the entire room.

Reduce consumption during low-load hours

Users can identify energy savings opportunities through management of their data center according to business needs. For example, if demands on systems are lower overnight or during weekends, OMPC allows users to implement policies that throttle back power consumption during those hours, and/or assign maximum possible power to those servers running the most important applications.



Figure 1: The OpenManage Power Center GUI is intuitive and easy to use

Create and implement multiple usage policies.

OMPC utilizes Intel® Node Manager to simplify implementation of management policies across the data center. When utilized with PowerEdge servers with iDRAC Enterprise licenses, IT Administrators can segment control across physical levels of the data center, according to each individual server or each row, rack or group of servers. In addition, users can create custom logical groups of servers and monitor energy usage and costs on a group-by-group basis.

Maximize data center density

Monitoring actual energy usage and costs of an individual server or group of servers with OMPC can help IT Administrators to increase data center density. That is, IT Administrators can identify servers not fully utilizing their allocated power, and reassign that power to new servers. The result is more servers installed in each rack or row or data center, increasing compute capacity by 10% - 20% - 30%. See the short video **“OpenManage Power Center: Optimizing Rack Provisioning and Capacity”** at <http://dell.to/1U7EioQ> for a description and example. By using actual power and thermal data, IT Admins can accomplish more accurate and more efficient capacity planning and provisioning.

Mitigate risks from power and cooling events

OMPC measures and manages not only power consumption, but thermal status as well. This power/thermal combination helps IT Admins mitigate risk by eliminating the guesswork around temperature management and helps maintain uptime during thermal events. The OMPC management console allows users to centralize control, monitor server temperatures, and easily respond to thermal anomalies with rapid power adjustments. For example, users can respond to temperature spikes with a single-click Emergency Power Reduction (EPR) command that cuts power to a predetermined minimum level.

Moreover, setting predefined power policies can help mitigate operational risks and ensure that your servers, applications and business continue to operate: Users can establish pre-defined group policies for throttling performance (thereby reducing requirements for cooling) of all servers, or throttling down non-essential servers, when temperatures rise beyond optimal levels. This can help to extend the uptime of business critical applications in the event of a power or thermal issue, caused by e.g. brown-outs, rolling black-outs, or data center cooling equipment failure.

Critical data, applications and systems and also be protected by implementing rack-level power-capping policies to prevent tripped circuit breakers, and/or by ensuring power availability by maximizing Uninterruptible Power Supply (UPS) uptime during a power outage.

Simplify cost itemization and chargeback

Monitoring energy usage and costs at the level of an individual server or on a group-by-group basis also improves allocation of power costs to business units, locations, or specific functions. IT Administrators can allocate accurate costs associated with server usage to the entities using the servers: Users can be charged for actual consumption, rather than a simple average division of the power bill. Since OMPC can monitor and manage power at the level of individual VM's, cost allocation can be very detailed and accurate. OMPC's VM Power Mapping feature:

- discovers the hypervisors
- enumerates the virtual machines on the discovered hypervisor
- evaluates CPU utilization percentage by the virtual machine
- proportionately reports power consumed by the server to the virtual machine
- reports power consumption by VM, making chargeback accurate and easy

For more information about OMPC VM Power Mapping, see the 2-page Tech Note **“Direct from PowerEdge Development - VM Power Mapping with OpenManage Power Center (OMPC) 4.0”** at http://en.community.dell.com/techcenter/extras/m/white_papers/20444058.

Find the best location for a new server in the data center

IT Administrators are oftentimes required to add new servers to their infrastructure, but not given much time to do it. OMPC can quickly help to find the best location to install new servers in order to deliver increased application performance, without tripping a circuit breaker, or creating a thermal “hot area”. With its ability to view rack, row, and room levels, OMPC can identify available space and power. Once installed, the IT Admin can establish policies that set power limits for the new server or group of servers, at the rack/row/room level, enabling the utilization of the full capacity of the IT infrastructure.

“Our conclusion is that this solution, even when implemented in a small scale, offers us the potential of monitoring energy consumption and temperature dissipation, allows us to control energy use and prepares us for the future: We can limit the overall energy consumption of the equipment at certain critical periods, for example”.

Rogério Gelamo, technology division manager for Telefônica/Vivo

Conclusion

Dell’s OpenManage Power Center (OMPC) management console gives IT Administrators control over power consumption, anomalies, and utilization through fine grained instrumentation. OMPC monitors and alerts power and thermal irregularities and when combined with power management, enables better visibility, improved control, greater rack density, faster power-capping, and greater accuracy, all of which leads to better decision-making for data center operators. OpenManage Power Center is the most robust power monitoring and reporting product available today and is a free download at <https://marketing.dell.com/open-manage-power-center>. An optional OMPC Power Capping license on 14th generation PowerEdge servers is available and is used to set a budget cap with millisecond-fast power capping to prevent tripping a circuit breaker. With this ability, OMPC allows IT Administrators to set policies that dictate automated responses when power or temperature events occur. Pricing in the United States is \$20 for each managed node.

For more information about OpenManage Power Center, visit the Dell EMC TechCenter page:
<http://en.community.dell.com/techcenter/power-cooling/w/wiki/3534.dell-openmanage-power-center>