PowerEdge Product Group

Direct from Development

OpenManage Enterprise Power Manager

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SUMMARY

OpenManage Enterprise Power Manager monitors, reports, alerts and caps power consumption in data centers of all sizes.

Power Manager 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.

Useful for both IT- and Facilities administrators, Power Manager helps to reduce energy footprint and brings greater energy efficiency to the data center.

Measure and manage power utilization

OpenManage Enterprise Power Manager is a product for power monitoring, alerting, reporting and capping in the data center, for users of all sizes. Power Manager provides accurate, real-time power and thermal monitoring and management of servers, racks, and IT equipment such as PDU's, USP's and non-Dell EMC servers as well. It thus gives a consolidated view of the data center at the level of the server, the rack, the row, or the entire room, allowing users to gain greater insight into energy usage throughout the data center.

Users of Power Manager can measure and manage the power consumption of up to 6,000 servers and devices, and track both short-term and long-term historical data. Its capabilities are useful for both IT- and Facilities Administrators and allows them to work jointly to bring greater energy efficiency to the data center, to reduce energy footprint and make the data center "green".

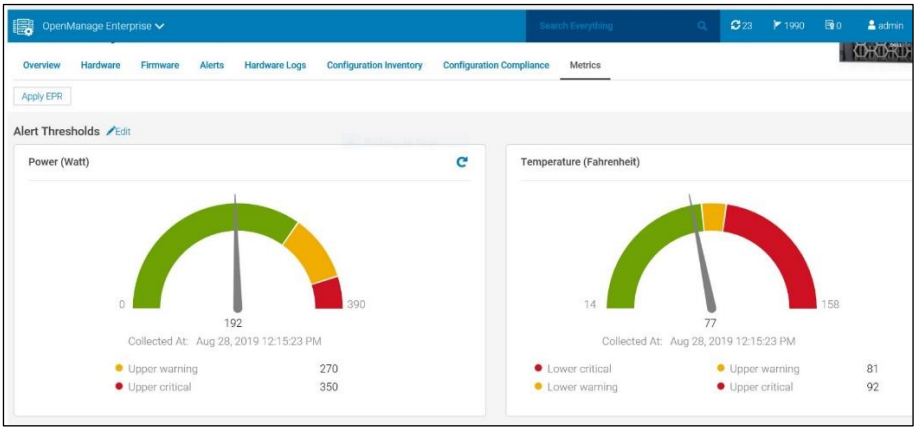

Image 1: The Power Manager GUI is intuitive and easy to use. This partial screen view shows warning thresholds set by the IT Admin (yellow and red) while the needle indicates current status, giving the Admin immediate, at-a-glance information.

Beyond helping to reduce power consumption, Power Manager:

- Allows users to set *pre-defined power policies* can help mitigate operational risks
- Provides users with a single-click *Emergency Power Reduction (EPR)* command that cuts power to a predetermined minimum level
- Simplifies *cost itemization and chargeback*, to improve allocation of power costs to business units, locations, or specific functions.

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, Power Manager 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.

Create and implement multiple usage policies.
Power Manager can simplify implementation of power 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
By using actual power and thermal data of servers or groups of servers, IT Admins can accomplish more accurate and more efficient capacity planning and provisioning, enabling an increase in 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%.

Identify "Power Zombies"
Using Power Manager to track short-term or long-term power data at the server level allows IT Admins to uncover servers that are consuming a disproportionate amount for power compared to processor, memory, and I/O activity. These servers (with high power consumption but low activity) are known as "power zombies", "comatose servers", and a couple other unprintable names. Power Manager produces graphs that provide immediate, at-a-glance notice that the server is not behaving properly. Maintenance can then be scheduled to e.g. repair the server or remove it from the IT infrastructure. For a brief explanation, see the tech talk video, "*Finding (Power) Zombies in Your Data Center*" at https://www.youtube.com/watch?v=CFALwM7oVtc&feature=youtu.be .

Image 2: Power Zombie revealed! This Power Manager graph uncovers a comatose server, i.e. one with high power consumption but disproportionately low activity.

Mitigate risks from power and cooling events
OME Power Manager 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 Power Manager 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. In the event of an urgent situation, the Emergency Power Reduction (EPR) feature of Power Manager can reduce power consumption and heat generation. In a few seconds, users can easily invoke EPR (In Image 1 above, note the "Apply EPR" button in the upper left of the image) and continue server operation with minimal power. That is, rather than shutting down the server(s) and invoking a full power outage, IT Admins can drop power to the server(s) to a minimal level so they remain in operation while the situation is resolved. The situation thus becomes a *degraded service* event rather than a full *downtime* event. Once the disruptive event is resolved, Power Manager allows users to return to previous power levels.

Any IT Admin who has had to do an emergency shutdown of servers, and then had to re-start applications and workloads, recover transactions logs, or re-build a database, intuitively understands the value of this Emergency Power Reduction (EPR) capability.

Moreover, EPR can help to satisfy requirements that many data centers have for a comprehensive **business continuity plan** for unpredictable events: In addition to emergency actions, setting ***pre-defined* 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.

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.

Integrated with the OpenManage Enterprise console
The Power Manager plugin is included with the OpenManage Enterprise Advanced License. After OpenManage Enterprise is installed, the Power Manager plugin can be easily activated by hitting "Install" on the Consoles and Extensions page of OpenManage Enterprise.

- Once the Power Manager plug-in is installed, users can view power and thermal ***status*** directly from the OpenManage Enterprise interface.
- Users can also view power and thermal ***alerts*** on the main OpenManage Enterprise dashboard.
- Finally, when the Power Manager plug-in is enabled, it also enables power and thermal ***reports*** in the OpenManage Enterprise reports list.

Conclusion
OpenManage Enterprise Power Manager gives IT Administrators control over power consumption, anomalies, and utilization through fine grained instrumentation. Power Manager monitors and alerts power and thermal irregularities, which enable 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.

Notes:

- For more information on Power Manager, see https://www.dellemc.com/solutions/openmanage/power-management.htm
- The brief tech talk video, "*OpenManage Enterprise Power Manager Overview*"**,** available at https://www.youtube.com/watch?v=NX27nJDGmYg&feature=youtu.be , gives a good summary of OpenManage Enterprise Power Manager and its capabilities.
- For an explanation of how Power Manager can help to identify "power zombies" or "comatose servers" in the data center, see the brief tech talk video, "*Finding (Power) Zombies in Your Data Center*" at https://www.youtube.com/watch?v=CFALwM7oVtc&feature=youtu.be