



Triton's IT Sustainability Practice and the JouleX Energy Manager:

Implementing a Secure, Integrated Solution for Optimizing Energy Consumption and Reducing Total Cost of Ownership for Federal Data Centers

As federal agencies move to reduce energy usage, reduce costs, and create sustainable digital platforms for mission accomplishment, there is a demand for systems and services that squarely address federal sector needs. In order to meet the goals of Presidential directives, agencies must make critical decisions on how and where to strategically allocate resources and where to place their sustainability focus. In order to do this, mounds of data need to be organized and interpreted for efficient, intelligent decision-making. Triton Federal Solutions and JouleX have partnered to offer federal agencies an integrated solution for understanding and managing data center costs and environmental impact in order to develop projects for reducing them. The integrated offering features the JouleX Energy Manager and Triton's IT Sustainability Practice.

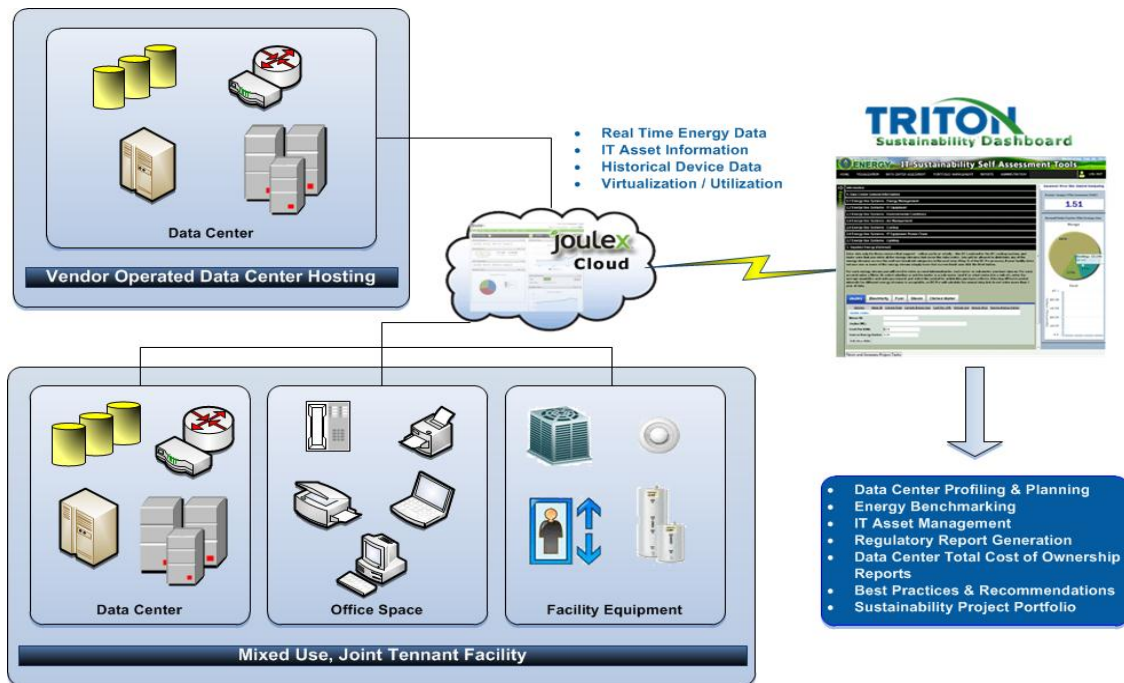
Over the last decade, companies worldwide have become interested in connecting their data centers to business objectives by optimizing energy and natural resource consumption and minimizing environmental impact. Some of this activity has been driven by compliance, some by savings that require little or no capital investment and can be harvested simply by operating the existing IT infrastructure more efficiently. Whether it is data centers, server rooms, or workspaces, the ability to pinpoint and quantify opportunities for efficiency savings has bottom-line benefits in the near term and transformational benefits in the long term. The Triton/JouleX partnership is aimed at helping overcome the challenges that organizations face in starting data center initiatives, to include:

- Large amounts of data (often redundant) that must be collected, tracked, shared and reported
- Mechanisms for automating the collection and aggregation of energy consumption and utilization data and for measuring it accurately
- Diverse set of stakeholders for assembling and acting upon the required data, such as Facility Managers, Data Center Operations Managers, and Sustainability Officers
- Reluctance to share requested data
- Lack of systems that reliably measure return on investment for sustainability projects (Environmental, Social, Economic dimensions)

The JouleX Energy Manager (JEM) enables organizations to monitor, analyze and manage energy consumption and utilization for a broad category of devices to include servers, cooling and humidity control units as well as phones, printers, elevators and any device drawing power that can be connected to the network. The system provides the ability to slice and dice energy data in many new ways. Such as providing the granularity of specific device energy readings to show where top consumers lie, but also group devices by rack, row, or data centers themselves which in essence provides a "virtual power meter" that users can configure and query on the fly. JEM's automated collection and population of energy values into Triton's IT Sustainability Dashboard provides an accelerated time to value with low overhead and more accuracy for customers.

The Triton IT Sustainability Dashboard extends JEM’s capability to provide full data center energy benchmarking, performance modeling, and industry best practice evaluations that can be quantified and ‘projectized’ for reporting and tracking against compliance objectives. Triton helps customers to interpret the information to make decisions and to take specific actions that make the agency and their Data Centers more sustainable and efficient. The combined solution offers immediate, deep insight on the performance of your data center and shaves weeks off data calls, data center audits, and IT asset inventories. The end result is immediate bottom line benefits that encourage more efficient behavior across the organization with minimal investment. The solution is perfect for those agencies and organizations looking embarking on data center optimization, data center consolidation or cloud initiatives, as well as those simply looking to reduce energy consumption, costs and demonstrate compliance with sustainability mandates and objectives.

The JouleX / Triton solution was deployed at the facilities of the AEA group, a global sustainability consultancy organization, and helped identify energy cost savings and a 22 percent reduction in greenhouse emissions over the first one-year period. The deployment solidified the value proposition of the unified offering and demonstrated actionable results in less than a day.



Capability	JouleX Energy Manager	Triton IT Sustainability Dashboard
Automatically discover and measure energy consumption on all networked devices in a secure environment	☑	
Network-based, agentless architecture	☑	

Establish policies and control energy use across your enterprise including your distributed office, pc environment, data center and facilities	<input checked="" type="checkbox"/>	
Measure & track carbon emissions	<input checked="" type="checkbox"/>	
View energy usage across distributed office network, data center & facilities	<input checked="" type="checkbox"/>	
Analyze energy consumption, energy savings, energy costs & carbon emissions by device, location, cost center, business unit	<input checked="" type="checkbox"/>	
Simulate policies using scenarios	<input checked="" type="checkbox"/>	
Energy cost & savings, consumption, carbon emissions and real-time drill-down reporting	<input checked="" type="checkbox"/>	
Directly import IT asset and energy use data into DC Pro to benchmark data center energy efficiency		<input checked="" type="checkbox"/>
Conduct self-assessment of a data center's implementation of sustainability best practices associated with IT life-cycle management, policies & procedures and energy management		<input checked="" type="checkbox"/>
Project portfolio management capability to document, track and report on the status of sustainability projects or data center energy conservation measures		<input checked="" type="checkbox"/>
Performance tracking against Strategic Sustainability Performance Plans goals and objectives		<input checked="" type="checkbox"/>
Generate a report "roll-up" that will allow a Sustainability Program Office to provide status to OMB and other agencies as required		<input checked="" type="checkbox"/>

In 2008 the Data Center Energy Profiler, or DC Pro, was created for the U.S. Department of Energy (DOE) Industrial Technologies Program (ITP). Working in conjunction with data center experts from Lawrence Berkley National Labs, Triton engineers built DC Pro to model baseline energy use and identify key energy and cost savings opportunities in a simple manner. Since its emergence in 2008, DC

Pro has been sanctioned by the U.S. Environmental Protection Agency, Green Grid, and the European Union (EU) and has been used by thousands of organizations for benchmarking data center energy utilization, conducting energy audits and tracking Power Usage Efficiency (PUE) improvements.

Over the last three years, the combination of ‘lessons learned’ with DC Pro and the introduction of additional federal directives have necessitated an augmented set of capabilities to support efficient data gathering, analysis and reporting. The Department of Energy, maintaining its leadership role in sustainability and energy management, has sanctioned the creation of an IT Sustainability Dashboard that leverages DC Pro and provides an enhanced set of capabilities as represented in the table above.

Energy Efficiency and Data Center Optimization, Virtualization and the Cloud

Whenever groups are looking into data center optimization, data center consolidation, or even moving services to the cloud, energy is a significant metric to consider. With the JouleX-Triton solution, energy and utilization analytics can be easily understood to really know if energy significantly impacts these projects. Questions such as, “Are we going to save money and resources if we virtualize these older servers? How much? Is it worth it?” But the real advantage is that you can answer these questions quickly and accurately, as you do not have to manually measure energy and utilization of the devices to get your answers.

Data center optimization can be difficult. With as many as 30% of data servers just running idle processes, data center managers are afraid to turn them off. Why? Because until recently, most IT organizations are based on five 9’s of reliability. Turning them off **might** decrease those five 9’s, so why risk it? By identifying these servers automatically, managers now know which servers are being utilized and can safely provide a constructive way to optimize their data centers.

Another way to increase data center efficiency is by virtualizing servers. But without measuring the power that was put into virtual machines, there’s no way to really know if you saved energy or not. There are many reasons to virtualize servers, but here we are focused on the energy savings. Virtualizing a dead server is not such a bad thing really. It will allow the data center manager to “leave it on” without actually have it pull 100% power from a piece of idle hardware. But the key here is that we can measure the savings allowing an organization to report on these savings. This can provide the ability to purchase hardware that will not only increase productivity, but also reduce operation costs at the same time.

So why not move to the cloud? That would give us even more savings, right? While there is a benefit to off loading services to a more centralized and less fragments environment, without the ability to measure these savings is wasteful. The JouleX-Triton solution can provide an analysis of not only the savings the but also the energy being used by the equipment, virtual machines, and devices in the cloud itself. We do this by leveraging network layer calls that can provide the necessary information to calculate energy use and utilization of these devices.

Organizations need to be deliberate about optimizing the performance of their IT investments, particularly data center projects. Downward pressure on discretionary IT spending will continue, forcing organizations to decrease their investments in IT infrastructure (data centers, storage and networks). The Triton/JouleX solution offers a unique value proposition: the ability to capture a real-time picture of energy use within data centers and corporate facilities in order to generate a roadmap that directs business managers to specific, targeted ways to save energy and money.

About Triton Federal Solutions

Triton is a PPC company, formed to help sensitive and classified customers conceive, build, and run their IT systems. Our focus is sustainable IT: strategically driving operational IT costs downward while

driving responsible innovation. PPC was founded in 1991 in support of DOE's nuclear waste clean-up program and is now part of a 1,200-person multi-disciplinary team providing fully integrated and business-oriented environment, energy, and climate solutions enhanced by state-of-the-art technology for data management and reporting. For 20 years, PPC has been a trusted advisor to customers needing analytical support pertaining to a scientific mission. We have a long history of support to our nation's nuclear and renewable energy programs. Triton/PPC has the certifications, clearances, and experience necessary to manage complex environmental programs and projects in accordance with best practices and relevant regulations. Our team has provided years of continuing research and analysis support to EPA in key areas such as emerging contaminants, air quality, water quality, and sediments. We have provided years of mission support to many NRC offices, developing a New Reactor Licensing Program Plan, modernizing of the Emergency Response Data System (ERDS), and configuring and deploying an EPM solution for managing the schedules of the building of nuclear reactors. For more information visit Triton at <http://www.tritonfsi.com/> or send an email to Neiland.Wright@tritonfsi.com.

About JouleX

JouleX is the leading innovator in sustainable energy management systems for the enterprise. Its flagship solution, the JouleX Energy Manager (JEM), provides the Global 2000 and government agencies with the ability to monitor, analyze and control energy usage for all network-connected devices and systems across the enterprise, including in distributed offices, data centers and facilities. Importantly, JEM works *without* the use of software agents, dramatically reducing installation time and removing the maintenance burden associated with similar technologies. JEM decreases energy costs by up to 60 percent while ensuring availability and provides robust reporting that enables compliance with emerging carbon monitoring requirements.

JouleX was founded in 2009 and since has been distinguished with recent awards and accolades including [Gartner Cool Vendor in Green IT and Sustainability](#), [GE Ecomagination Award](#), [BT Green Economy Success for Future Award](#) and [Clean Tech Media Award](#). The company is headquartered in Atlanta with worldwide offices located in Tokyo, Paris, Munich and Kassel, Germany. For more information, please visit www.joulex.net, call (404) 567-4445 or send an email to Scott.Paisley@joulex.net.

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