CriticalLink

For Data Center Professionals

$8,851/MIN
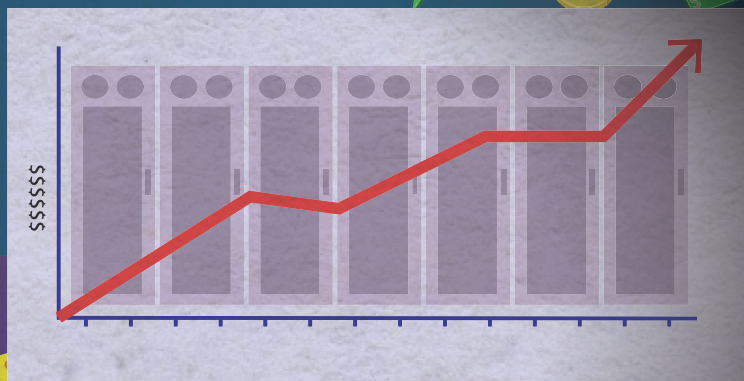
THE RISING
COST OF DOWNTIME

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Establishing Benchmarks to Improve Data Center Performance

Have you been wondering how your data center measures up to others in the industry?

Emerson Network Power has begun the work of establishing industry-wide metrics and benchmarks to allow data center operators to compare their performance to others, and use the knowledge to drive improvements.

We are happy to sponsor and launch our third Cost of Data Center Outages Report, independently conducted by the Ponemon Institute. But savvy data center personnel are also concerned with issues other than cost – which brings us to our Data Center Performance Benchmark Series.

In the coming months, look for additional reports that provide insight into the challenges of security, productivity, speed-of-deployment, and cost-to-support compute capacity.

Be sure to visit EmersonNetworkPower.com/Benchmarks to download the 2016 Cost of Data Center Outages Report and find new information about the series as it becomes available. And as always, please talk to your Local Business Partner or visit EmersonNetworkPower.com for support.

Steve Hassell
President, Data Center Solutions
Emerson Network Power

Data Has Never Been So Critical

The recent cyber-attack on London–based telecom provider TalkTalk made front page news in the UK and abroad. It reminded us just how vulnerable our precious data is without the **right safeguards in place.**

The attack, which put around 21,000 bank account numbers and sort codes, in addition to 1.2 million customer email addresses, names and phone numbers at risk, is sadly not a one-off – in fact, it is just the latest in a long line of purposeful hacking or security breaches. Equally, in 2014, the office supply retailer Staples said hackers had broken into the company's network and compromised the information of around 1.16 million credit cards, while earlier that year, JPMorgan Chase suffered attacks endangering the account information of 83 million households and small businesses.

Retail e-commerce sales increased 107% between 2010 and 2015.

These high-profile attacks gain blanket media coverage and bring the issue of data protection to the forefront, yet there are many more breaches incurred by less malicious motives, such as unauthorized use, disruption and even human error. On the other hand, we now produce

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more data than ever before; the connected world means that our personal data is listed and stored in hundreds, if not thousands, of places. The ability to pay on our phones, even our watches, on the go in any country in the world means that data has never been so critical and yet so at risk.

In an increasingly advanced and tech-savvy world, companies should work with legal counsel to define these five key areas to ensure that data is adequately protected:

- What kind of personal data is being collected and what is the purpose?

- Where is data stored and/or transferred?

- Which legal entities are involved, i.e. colocation companies, cloud providers, others?

- Is there an updated data protection and security policy in place?

- Are employees and IT managers trained and updated on data protection policies? Is there an appointed officer?

The number of smartphones shipped globally grew 300% between 2010 and 2015.

64% of U.S. adults owned a smartphone in 2015.

The amount of data we create and use will only continue to grow in the years ahead and with this comes increased risk of leakage. Coupled with this, hackers targeting this data for their own gain are also on the rise. Therefore we must do everything in our power to protect it today and in the future, with businesses taking greater responsibility for safeguarding the sensitive information they manage day by day.

CriticalLink for Data Center Professionals is a quarterly publication from Emerson Network Power with insights and information to help you make your data center as dynamic as your business.

We invite your feedback on the publication and your ideas for future articles.
Please contact us via email at: **MarketingHelp@Emerson.com**

To contact an Emerson Network Power representative

please go to: **www.EmersonNetworkPower.com/ContactUs**

The Rising Cost of Downtime: Tips to Protect Your Data Center From Expensive Outages

Time is money. And data center downtime is A LOT of money. That's what the latest findings from the Ponemon Institute indicate in their most recent edition of the Cost of Data Center Outages report.
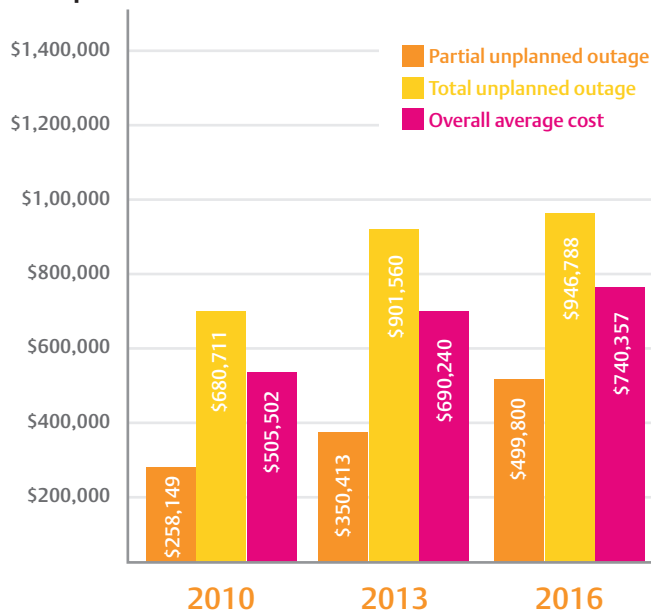
The average cost of a data center outage in 2016 now stands at $740,357, up 38% from when the report was first developed in 2010. That's $8,851 per minute of lost revenue, and unproductive employees ("e-mail's down, time for some minesweeper!").

So how did the **Ponemon Institute** come up with an average cost of $740,357 per unplanned outage? Well, to get that figure, the Ponemon Institute audited 63 data centers in North America that experienced an outage. Utilizing an activity-based costing model, they captured information about both direct and indirect costs including:

- Damage to mission-critical data
- Impact of downtime on organizational productivity
- Damages to equipment and other assets
- Cost to detect and remediate systems and core business processes
- Legal and regulatory impact, including litigation defense cost
- Lost confidence and trust among key stakeholders
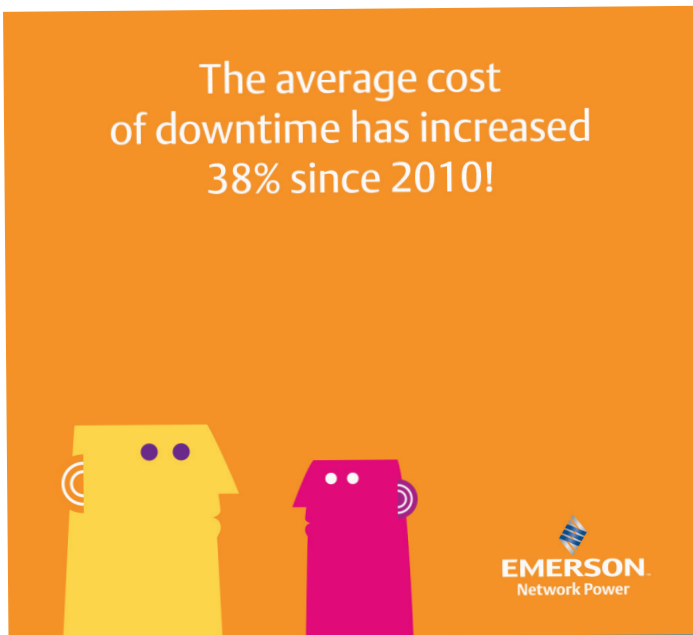- Diminishment of marketplace brand and reputation

Now back to the cost of downtime. Way back in 2010, the average cost of an outage was calculated at $505,502. So what explains the quarter of a million dollar increase in costs? Well, think back to 2010 and how much internet based technology we used (or didn't use as the case will show). In 2010, I had a Facebook account, as did 500 million others around the world, but now Facebook has 1.5 Billion profiles. 2010 was the year the first iPad came out. Cyber Monday accounted for less than a billion dollars in sales. Today, over $2 Billion of commerce happens online on just that one day. Cable cord cutters are growing and streaming media is quickly becoming mainstream in households all across the country.

Cost for Partial and Total Shutdown
Comparison of 2010, 2013 and 2016 results

Legend:
- Partial unplanned outage
- Total unplanned outage
- Overall average cost

2010: $258,149 (Partial), $680,711 (Total), $505,502 (Overall)
2013: $350,413 (Partial), $901,560 (Total), $690,240 (Overall)
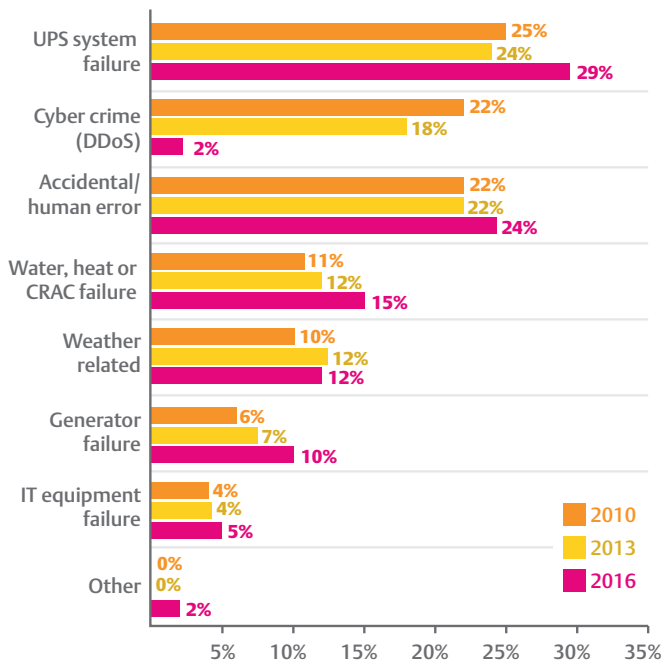2016: $499,800 (Partial), $946,788 (Total), $740,357 (Overall)

Ponemon Study 2016

The average cost
of downtime has increased
38% since 2010!

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More and more commerce and communication is happening through the web each day, and the importance of networks and data centers is higher than ever before. So what can we do to make sure data center owners and operators aren't losing money (and more importantly, creating unhappy customers)? Well, let take a look at the root causes of these outages from the audited facilities:

Root Causes of Unplanned Outages
Comparison of 2010, 2013 and 2016 results

Category	2010	2013	2016
UPS system failure	25%	24%	29%
Cyber crime (DDoS)	22%	18%	2%
Accidental/human error	22%	22%	24%
Water, heat or CRAC failure	11%	12%	15%
Weather related	10%	12%	12%
Generator failure	6%	7%	10%
IT equipment failure	4%	4%	5%
Other	0%	0%	2%

Ponemon Study 2016

 UPS system failure (which includes batteries), cyber attacks and the dreaded "human error" account for 70% of the outages. Most all of these outages were completely preventable and in many cases, the cost to prevent the problem was insignificant compared to the direct and indirect cost of the outage.

Generally speaking, here are some of the most basic tips to keep downtime from bringing you down:

1. **Monitor UPS Batteries** – Batteries are the weak link in the UPS system. Use remote battery monitoring to identify battery problems before they impact operations.

2. **Use Intelligent Thermal controls with Cooling Units** – These controls improve protection by monitoring component data points, providing unit-to-unit communications, matching airflow and capacity to room loads, automating self-healing routines, providing faster restarts and preventing hot/cold air mixing during low load conditions.

3. P**erform Preventive Maintenance** – An increase in the number of annual preventive maintenance visits correlates directly with an increase in UPS MTBF. Going from zero to one preventive maintenance visit a year creates a 10x improvement; going from zero to two visits a year creates a 23x improvement.

4. **Strengthen Policies and Training** - Make sure the EPO button is clearly labeled and shielded from accidental shut off. Document and communicate policies and conduct regular training.

5. **Standardize and Automate Security Management** – Use console servers to provide secure, remote access to servers to simplify patch management and provide early detection of attacks.

Cost of Downtime is a popular number and a useful metric to have when making the case for additional resources (human and equipment) to make sure your facility is always on, but it's not the only metric that IT and Facility professionals should think about.

Watch for upcoming Benchmark Series reports for security, productivity, speed-of-deployment and cost-to-support compute capacity.

See the trends in cost and causes of data center downtime

Learn More:
EmersonNetworkPower.com/Benchmarks

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DCIM Scalability Creates
Opportunity for Growing Organizations

There was a time when **Data Center Infrastructure Management** (DCIM) was considered a luxury reserved for large enterprise data centers and megascale facilities. The tight integration between the IT and critical infrastructure stacks provides unprecedented visibility and control across the physical and virtual layers of the network and the benefits were clear and unquestioned, even if the early adopters largely were big, traditional data centers.

Those early DCIM customers enjoy higher energy efficiency, more effective resource utilization and management and improved availability. As DCIM platforms become more sophisticated and the benefits become more pronounced, more and more data center and IT managers are investigating DCIM for their networks—even if they don't fit the big, enterprise data center model.

What those curious companies are discovering is a changing DCIM landscape, with scalable options allowing organizations to build a DCIM solution that fits their data center and can grow as the business grows.

That capability is one of the key reasons Emerson Network Power earned leadership positioning in a pair of recent analyst reports on the DCIM market—Gartner's DCIM Tools Magic Quadrant and the IDC MarketScape: Worldwide Data Center Infrastructure Management 2015 Vendor Analysis.

Both reports reference the scalable nature of Emerson Network Power's DCIM portfolio—including its flagship solution, the *Trellis™* **platform**. The approach allows businesses to choose DCIM bundles that meet immediate needs while allowing for future growth, thus ensuring IT remains a critical business asset.

And that's the key—finding a DCIM solution that helps the data center become a business differentiator instead of a business expense.

DCIM technologies aren't one-size-fits-all solutions to whatever is ailing the data center. Right-sizing is important, and finding a vendor capable of matching the right solution to your data center is critical to optimizing your IT investment. Choosing a vendor that has the right fit today but no option for growth is as inefficient as choosing one who only offers large, enterprise solutions that you hope to grow into—someday. Investigate scalability before you make the DCIM leap.

The IDC MarketScape evaluated leading DCIM vendors on 30 specific elements of capabilities and strategy, while Gartner's evaluation was based on vendors'

completeness of vision and ability to execute their DCIM strategy. Both reports are good resources for organizations considering a DCIM implementation.

The data center is an increasingly complicated, and critical environment. DCIM can be a valuable tool to optimize that environment, but only if the right solution is deployed effectively.

Learn about the *Trellis* platform scalable DCIM solutions:
EmersonNetworkPower.com/TrellisSolutions

Reduce your Data Center's Energy Use Through Server Power Management

Server power management remains an untapped opportunity for reducing data center use because most data centers rarely run at full capacity. This is a problem because, consequently, a facility operating at just 20 percent capacity may use 80 percent of the energy as the same facility operating at 100 percent capacity.

Server power management can significantly reduce the energy consumption of idle servers, but is not utilized in the typical data center because of concerns about response times for "waking" an idle server using power management.

The Green Grid, an industry consortium focused on improving data center resource efficiency, has conducted a research into server power management to identify the chief obstacles to adoption and is developing materials to help educate data center managers on server power management and increase utilization of this technology.
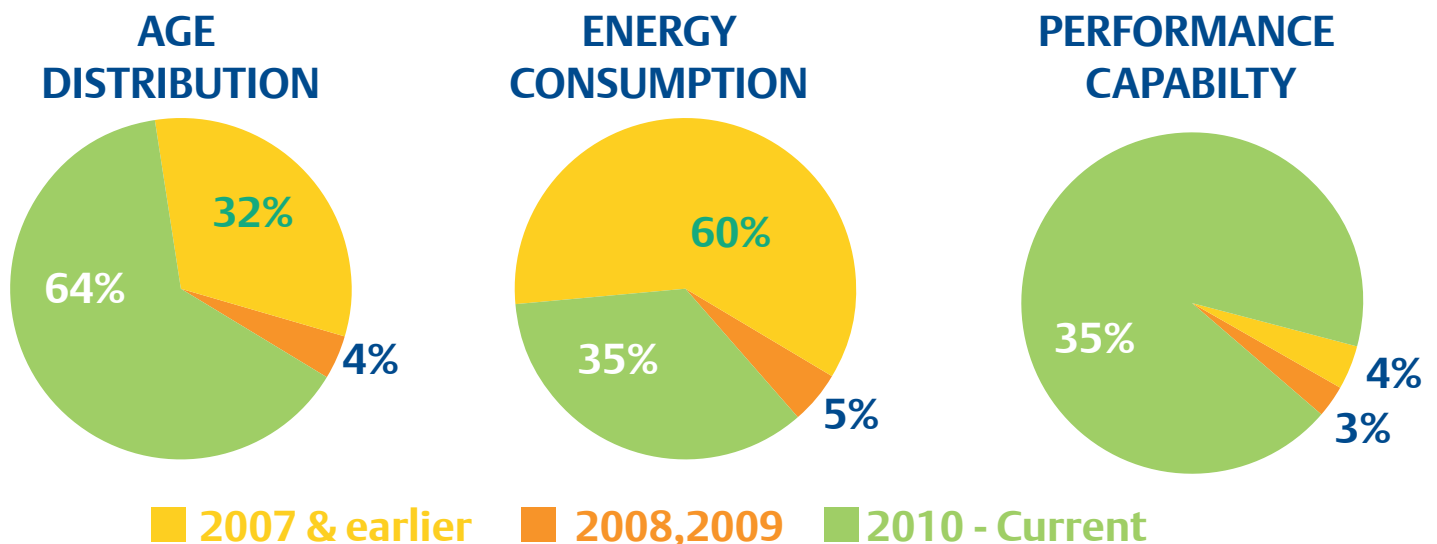
In addition, research has revealed that the risks of applying power management to older servers may be very low, as these servers contribute little to data center performance. In a presentation at AFCOM Data Center World in 2011, Intel presented an analysis of server utilization at one enterprise data center and found that servers installed before 2008 accounted for 60 percent of energy consumption, but only delivered 4 percent of relative performance capability.

Long-term, older servers that contribute little to data center performance need to be identified and consolidated into newer servers; however, power management represents a powerful interim solution to cut server power consumption without additional technology investment. It also represents an ideal long-term strategy for enabling server power consumption to adapt dynamically to changes in data center load.

Data center infrastructure management systems that can collect real-time operating data from rack power distribution systems and consolidate this data with server utilization data provide the visibility to identify stranded capacity and enable safe and effective use of server power management.

Implementing power management, and also adopting low-power components and high-efficiency power supplies, can reduce total data center energy consumption by 10 percent.

To learn more, read Energy Logic 2.0, the detailed plan developed by Emerson Network Power for optimizing the data center efficiency.

AGE DISTRIBUTION

32%
64%
4%

ENERGY CONSUMPTION

60%
35%
5%

PERFORMANCE CAPABILTY

35%
4%
3%

■ 2007 & earlier   ■ 2008, 2009   ■ 2010 - Current

Is Your Legacy UPS Wasting Energy or Risking Availability?

It might be time for an upgrade.

Many data centers have UPS systems that are approaching an end of useful life status. If your facility is powered by a "legacy" UPS system, you may still be operating reliably, but the system may be on the path of diminishing returns. Owners of older UPS systems may realize the benefits of efficiency and viable protection by upgrading to a modern UPS.

Here are some guidelines for considering a UPS upgrade.

■ **Is your UPS system graying?**
A 12-15 year old system may not include modern components such as (insert technologies/features here) that impact efficiency. Is your UPS optimized to support your current IT load, or for your IT load 12-15 years ago?

■ **If the system efficiency is less than 93%, you are probably overspending on energy costs.** Many older UPS systems operate at less than 90 percent efficiency. Some newer technologies can operate at up to 99% efficiency, while also offering high reliability and flexibility - including options for transformer-free or transformer-based configurations.

■ **Hace you researched critical parts availability?**
Some legacy UPS systems may use parts that require lead times or are subject to shortages.

■ **Has servicing of your system become more difficult and costly?** As systems age, maintenance and service take more time, and therefore more money.

■ **Is the UPS running at your desired utilization rate?** Low utilization can mean inefficient operation, while a very high utilization can mean that you might not be able to meet future capacity needs.

If you answered "yes" to one or more of these questions, then you owe it to your organization to start investigating the cost/benefit relationship of new UPS technologies. You may be surprised at the operating savings a new system could provide.   Jim Greene, UPS strategic sales manager at Emerson Network Power, says, "We talk to owners of legacy systems every day. We estimate they could save over $150,000 over 15 years (assuming a power capacity of under 400kW with an efficiency gain of just 3%)."

HOW'S THAT EFFICIENCY LEVEL?

OVER 92%?
Not bad, but it could be better.

⚠

Less than 92%?
Cha-ching.
You're wasting money.

Consider:
A 200kW system which increases efficiency from 92 to 97% can save up to $10,000/yr at $.10 kWh.

A PROVEN UPGRADE PROCESS TO:

Prevent downtime and minimize business disruption

Keep IT systems online during upgrade

Deliver positive ROI

A good transition plan can include the UPS and transfer switches to minimize disruption.

TCO should consider utility, maintenance and potential cost of downtime.

If you decide to replace your legacy equipment with a modern UPS system, remember that any upgrade requires expertise in planning and installing. Make sure you are partnering with proven technical professionals trained to help in the proper selection, transition and deployment of your power systems, and look for procedures that can eliminate or reduce migration disruptions.

To start evaluating whether your data center would benefit from a UPS upgrade, visit http://info.emersonnetworkpower.com/upsgrade and look at the ROI and Process brochures. Be sure to research utility rebates, for even greater savings.

http://info.emersonnetworkpower.com/upsgrade

IS YOUR UPS GRAYING?

UNDER 12 YEARS OLD
You probably have life left in those electronic bones.

Over 12?
It maybe time to hang it up and retire from:

Component fatigue

Parts shortage

Higher service costs

Downtime risk

WHAT'S YOUR UPS OPERATING CAPACITY?

BETWEEN 25-85%
No big worries, but stay diligent.

Over 85%
Careful, you might run out of capacity.

Under 25%
Ouch, you are wasting energy & money.

You want efficiency and cost control in a UPS.

And you need the flexibility to fit many applications.

Choose Liebert ® eXM™ UPS , and meet your efficiency, cost and flexibility goals. UL924 models available.

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Selecting The Right Economizer For Your Data Center Cooling

You can say what you want about mink farms, but one thing is certain: They stink! That can be a problem if you're operating a data center near one and trying to use economizers to bring in fresh outside air forfree cooling.

There are many efficiency benefits to utilizing outside for economization, but not every situation is right for bringing outside air into a data center. Each type of economizer has its own advantages and challenges depending on data center goals, site requirements, geography and climate (see chart).

In recent visits to four data centers from Canada to Utah, including one near a mink farm, David Klusas, Emerson Network Power Director of Marketing for large thermal systems, found multiple occasions where airside economization was not the ideal solution, despite its energy savings.

"One data center in Canada was near a heavily forested area, and the company was concerned about smoke from forest fires entering the facility. A data center in Washington was next to an apple orchard, which creates a lot of dust during harvest," Klusas said. "Another is using 100 percent outside air for economization, but has an 8MW chiller plant for backup, in case they ever need to close the outside air dampers and recirculate the indoor air. That's a HUGE initial investment for only a backup system."

Data centers have made cutting energy consumption a priority to save money and meet government regulations. Cooling accounts for almost 40 percent of data center energy usage, so it's a main focal point for driving energy savings. More recently, water conservation has become a priority in the selection of cooling systems and economization strategies. At the same time, relative cost and the payback period remains key factors in selecting these large, expensive systems.

Outside Air or No Outside Air

All economizer systems use either outside air and/or water to reduce or eliminate mechanical cooling in data center cooling units. These economizer systems generate significant energy savings of up to 50 percent, compared to legacy systems. The first decision most data center managers make in selecting an economization strategy is the type of data center environment they want to operate, which naturally then leads to a decision on whether or not to bring outside air into the data center. As a result, there are two primary economizer designs typically deployed in data centers: direct and indirect.

Direct economization brings outside air into the data center using a system of ductwork, dampers, and sensors. These systems usually have lower capital costs than other forms of economization and work well in moderate climates. In the right climate, direct outside air economizers can be very efficient and an effective economization strategy, but do introduce the risk for contaminants and wide humidity swings into the data center. For maximum annual savings, a wide acceptable supply air temperaturt and humidity window needs to be implemented in the data center. For highly critical data centers, the risk of outdoor contaminants and wide temperature and humidity swings is sometimes too significant for comfort.

Indirect economizers do not bring outside air into the data center, but instead use an indirect method to transfer heat from the data center to outside the building. There are primarily three types of indirect economizer technologies:

■ **Air-to-air heat exchangers, or heat wheels, in a wet or dry state.** Sensible air-to-air plate frame heat exchangers transfer heat between two air streams, but maintain a complete separation, thus eliminating the opportunity for contamination and transfer of humidity into the data center space. These units can be operated in a dry state, or can be sprayed with water to increase their effectiveness and hours of economization. Heat wheels offer similar qualities to air-to-air plate frame heat exchangers, but have a higher air leakage rates and require additional maintenance to maintain their performance.

■ **Pumped refrigerant economizers, such as the Liebert® DSE™ system economizer.** The Liebert DSE system is a direct-expansion (DX) system that utilizes an integrated pumped refrigerant economizer to maximize annual energy savings and provide superior availability without the need for separate economization coils. When outdoor ambient temperatures are low enough, the integrated refrigerant pump is used to circulate the refrigerant in lieu of the compressor to maintain the desired supply air temperature. The refrigerant pump uses a fraction of the energy used by the compressor. As the outdoor ambient temperatures rise, the Liebert DSE system automatically transitions on compressors to maintain the desired supply air temperature. Its integrated Liebert iCOM™ thermal controls work to automatically optimize the entire system to provide more free-cooling throughout the year.

■ **Cooling towers for chilled water systems.** Initial installation costs for any of these economizer options can be affected by how well the technology under consideration fits into the overall design of the existing facility. The amount of indoor, outd or or rooftop space required for situating the units will affect the selection decision. Chilled wate r systems with cooling towers tend to be the most costly, because of the high system first cost, use of water and a higher maintenance burden relating to their complexity.

Emerson Network Power offers options for all of these economizer technologies.

"There is no single economizer technology that fits every situation. Each has its own strengths based on location and application, and each has its challenges," Klusas said. "Fortunately, there's an economization option for virtually every location – even next to a mink farm."

"Because of its efficiency advantages, the Liebert DSE system was recently approved for use in California data centers under Title 24. Its economizer was shown to reduce time dependent valuation (TDV) by 8-10 percent and, since it uses no water, save around 4 million gallons of water annually in a 1MW data center, compared to water economizers."

For more information on data center economization, visit **EmersonNetworkPower.com**

	DIRECT ECONOMIZATION Mix outdoor and indoor air		INDIRECT ECONOMIZATION No Outside air into Data Center			
	Outside Air Economization with Direct Evaporative Media	Outside Air Economization	Wetted Air to Air Heat Exchanger	Pumped Refrigerant Economizer	Dry Air to Air Heat Exchanger	Chilled Water Using Cooling Tower
Annual Energy Usage (1=Low)	1	3	2	3	3	4
Equipment + Installation cost (1=Low)	2	1	4	5	3	6
ADVANTAGES						
Large economization window of use	■					
Reduces peak power consumption	■		■			
No outside air in data center			■	■	■	■
No water usage, treatment, storage		■		■	■	
Economization at very low ambient temperatures			■	■	■	■
Close coupling of heat rejection and heat source				■		■
Integrated economizer without additional cost				■		
Suitable for modular buildouts	■	■	■	■	■	
Instant economization transitions			■	■	■	
CHALLENGES						
Risk of contamination in data center	■	■				
Complex controls integrations	■	■				■
Typically requires duct work	■	■		■	■	
Wide ranges of supply air temperature and humidity for best results	■	■				
Requires water usage, treatment, storage	■		■			■
Requires indoor footprint				■		■
Higher maintenance burden	■		■			■
Impacted by sudden changes in outdoor conditions	■	■				

Making Transportation Control Rooms Run On Time
How to Achieve Peak Performance

According to AAA, an estimated 46.9 million travelers journeyed by automobile, airplane, train or cruise ship for the Thanksgiving holiday. Transportation systems helped secure and move these travelers to their destination amidst heightened security concerns, road construction and unpredictable weather patterns. These systems are so integrated into daily life, that most travelers have no idea of all the behind the scenes effort required to make it all work.

But when these systems stop working, people take notice. Recently, for example, worldwide headlines trumpeted the computer glitch that brought a major U.S. airline to a dead halt. With the upcoming Christmas holiday season, transportation operators cannot afford the risk to travelers, the lost revenue or the bad publicity that comes with service disruptions.

Using KVMs to share systems is a great way to reduce costs as well. Not only can users perform their daily tasks more efficiently, but the number of primary and active standby systems needed to support operations can be reduced.

To keep a transportation system moving, it is necessary for operations personnel to rapidly access, view, and aggregate data maintained in multiple operational systems. This data also needs to be delivered in many formats, such as video feeds, teleconferencing sessions, maps, and more. Given this complexity, it can be a tall order for control rooms to operate efficiently, ensure systems are running smoothly and keep costs under control.

There are two key technologies that can help control rooms operate at peak performance. The first is high-performance KVM systems, which offer a quick, simple way to provide access to an unlimited number of operational systems.

Using the right KVM technology, operators can securely switch between these systems in seconds from their workstations, eliminating the need to move from place to place to gain access. Both local and remote users can shift instantly between systems to share screens, sessions and data.

KVM switches can go a long way in helping keep operations running smoothly even when a server goes down. They also eliminate any single point of failure. You can direct each user to a different hardware target so that if the target fails, only one user needs to switch to a hot standby machine.

A real world example: a major international airport decided to consolidate five control rooms into a single command and control center. Using KVM switches, the airport consolidated 29 dispersed departments into one centralized control room, and users can now share desk information with video

walls in real time, for smooth distribution of information and incident knowledge transfer. KVMs have also helped the airport increase resilience – simply by swapping out transmitter and receiver units, users are back online instantly and with no single point of failure. The airport has taken advantage of the remote capabilities as well, securely back-racking all systems in a communications room.

The second key technology is centralized remote management, which can simplify the job of IT management by enabling automatic location, connection and administration of systems from a single console. This enables real-time status information and instant diagnostics, giving the IT administrators the tools to diagnose problems and forestall downtime.

Using KVMs to share systems is a great way to reduce costs as well. Not only can users perform their daily tasks more efficiently, but the number of primary and active standby systems needed to support operations can be reduced. This can add up to significant capital cost savings and even eliminate the need to build multiple control rooms.

An in depth review of Emerson solutions for transportation control rooms is available for **download**. If you have determined that KVM switches and remote centralized management are the right solution for your control room, seek out a vendor with a broad set of options, allowing you to correctly size your control room solution to deliver an operating environment that matches your business requirements.

Do You Need IT Where The Users Are?
Flip Any Room Into a Micro Data Center

T he age of big data is causing an explosion of new IT deployments, as well as changing the geographical distribution and types of locations where these systems are deployed.

This new generation of business requirements is creating new challenges for the IT organization. This IT infrastructure, which can now be located just about anywhere, needs to be deployed faster than ever to support business applications in industries such as banking, healthcare, education, manufacturing and retail, as well as many others. Now morethan ever, IT infrastructure needs to be reliable, flexible, secure and operationally economical.

When you start your search for an Infrastructure solution to support remote or edge IT, look for these features:

Rapidly deployable and scalable
- Reduce time and cost of implementation through an integrated design.
- Optimize space eficency

Intelligent and self optimizing
- Infrastructure management
- Flexible rack PDU
- Industry Leading iCom control system

Resillient and highly available
- Prepacked design enable easier expansion to ensure future felibility, easier moves, adds ands and changes
- Emergency backup ventilation

Economical and efficient
- Save up yo 30% on anual energy costs
- Save up to 28%

Secure and Safe
- Increase physiscal security and equipment protectionwith lockable cabinet
- Integrated dry agent fire suppression

SmartCabinet™ Solution
This enclosure solution provides industry leading power protection, while giving you the out-of-band maintenance and troubleshooting access that will allow your IT staff to remotely manage many issues without ever leaving the office.

SmartRow™ Infrastructure
This micro-datacenter is a simple, fully integrated row-based infrastructure combining up to ten racks with precision cooling, UPS, power management, monitoring/control technologies, and fire suppression - all in an enclosed system.

In the News

North American Data Centers Save Over 1 Billion Gallons of Water Using Emerson Network Power Cooling System

Deployment of the Liebert® DSE pumped refrigerant economization system in North America has saved over 1.4 billion gallons of water in the last 36 months, compared to using data center chilled water cooling systems, and is expected to save an additional 1 billion gallons of water in 2016.

EmersonNetworkPower.com/DSEWater

Emerson Network Power Study Says Unplanned Data Center Outages Cost Companies Nearly $9,000 Per Minute

Emerson Network Power, in conjunction with the Ponemon Institute, released the 2016 Cost of Data Center Outages report that estimates the full costs associated with unplanned outages at data centers. Emerson and the Ponemon Institute polled 63 data center organizations in the U.S. that had experienced an outage in the past 12 months. The average total cost per minute of an unplanned outage increased from $5,617 in 2010 to $7,908 in 2013 to $8,851 in this report.

EmersonNetworkPower.com/Outages

Visualization, Scalability and Thermal Management Capabilities added to *Trellis*™ Platform DCIM

New capabilities and modules were added to the *Trellis*™ platform— including *Trellis* Thermal System Manager, a comprehensive environmental monitoring and management module that tracks the data center's thermal profile to the device level. *Trellis* Thermal System Manager offers time savings on equipment installation, enables increased cooling efficiency, and helps to identify and eradicate hot spots.

EmersonNetworkPower.com/Trellis-Enhance

Emerson Network Power Survey Shows 50 Percent of U.S. Data Centers Upgrading Thermal Systems

New research from Emerson Network Power reports that half of all data center cooling systems will be upgraded before the end of 2016. The survey of IT, facilities and data center managers in the United States and Canada, conducted by Emerson Network Power, reveals that while 40 percent of data centers have been upgraded in the past five years, nearly 20 percent are in process and about 31 percent will be upgraded in the next 12 months.

EmersonNetworkPower.com/ThermalUpgrade

Emerson Network Power Positioned as DCIM Tools Magic Quadrant Leader for Second Year

For the second straight year, Gartner, Inc., has positioned Emerson Network Power, a business of Emerson (NYSE: EMR) and the world's leading provider of critical infrastructure for information and communications technology systems, in the "Leaders" quadrant of its Data Center Infrastructure Management (DCIM) Tools Magic Quadrant (MQ). Emerson Network Power improved its placement from last year's inaugural DCIM Tools MQ.

EmersonNetworkPower.com/DCIMLeader

IDC MarketScape Names Emerson Network Power a Leader Again in Analysis of Data Center Infrastructure Management Vendor

Emerson Network Power has been recognized for the second time as a leader in data center infrastructure management (DCIM) according to the IDC MarketScape: Worldwide Data Center Infrastructure Management 2015 Vendor Analysis. The IDC MarketScape evaluated leading DCIM vendors on 30 specific elements of capabilities and strategy. Emerson Network Power's DCIM offerings, including flagship solution, the *Trellis* platform, led for functionality, integration capabilities, scalability, innovation, cost management strategy, customer service strategy and pricing model.

EmersonNetworkPower.com/TrellisPlatform

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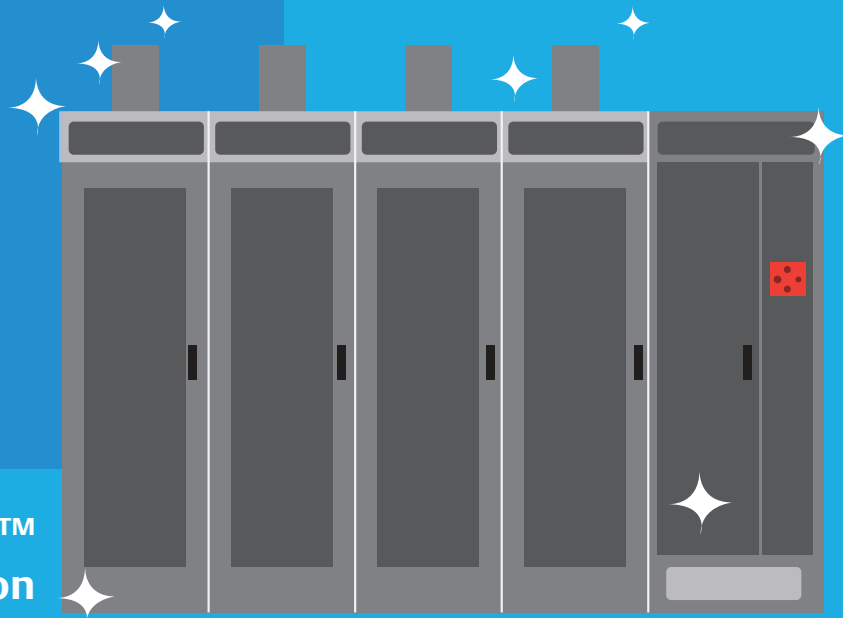
YouTube   www.YouTube.com/EmersonNetworkPower

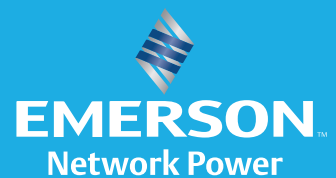Do you need to deploy IT in small existing spaces?

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