



Making Maintenance Matter





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Downtime - An Ounce of Prevention is Worth a Pound of Cure!

Have you ever heard of the old saying, "an ounce of prevention is worth a pound of cure?" This nugget of wisdom applies perfectly to your Data Centre - the heartbeat of your business!

Can you afford downtime? It's not just inaccessibility that you're looking at - downtime can lead to a chain reaction of negative events, lost customers, decreased employee productivity, data failure, and ultimately lost revenue.

In 2016, Amazon.com suffered a glitch leaving its website inaccessible for just 13 minutes. Based on net sales it was estimated that the outage cost was \$2.6 million!

Is it time you re-assess your maintenance strategy?

May 2017, British Airways saw massive disruption due to an IT outage that grounded flights leaving 75,000 flyers stranded with an estimated cost of £100 million in compensation not to mention the drop in their share price.

In the Summer of 2012 a major IT failure at RBS saw more than 6.5 million customers of Natwest, RBS and Ulster Bank experience problems with accessing their accounts over a two week period. RBS was hit with a £56 million fine from regulators and forced to pay around £70 million in customer compensation.

You cannot always avoid downtime, but if you fail to maintain your data centre you are certainly increasing the probability of becoming another case study like the aforementioned.

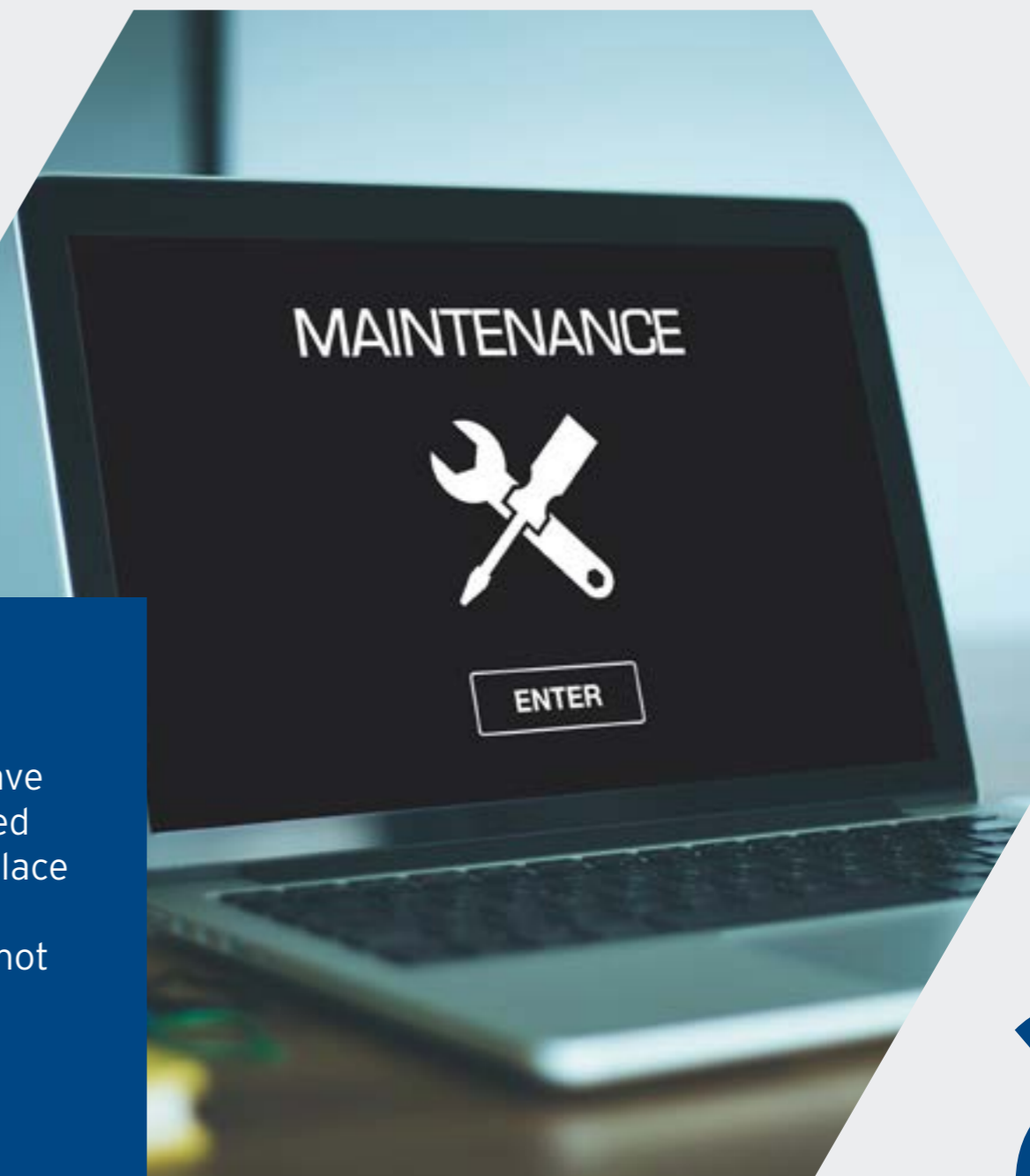
Everything within your data centre can be monitored by a centralised management system. By closely monitoring this data and applying monitoring analytics technology it becomes possible to perform condition-based maintenance.


By identifying patterns that indicate a system is in actual danger of failing, you can make proactive maintenance decisions, coupled with a preventive maintenance schedule you can save money by optimising the condition of your equipment and replacing components in advance of failure thus preventing the cost of downtime. Not only that it will ensure that your Data Centre is operating as energy efficiently as possible.



Maintenance: Think You Can Do It Yourself, Think Again!

Finding ways to cut costs seems to be priority for some companies, but does doing something on the cheap really save you money in the long term? How many times have you opted for a less expensive household appliance only to have to replace it less than 12 months later? Or decided to fix a problem yourself only to have to call in the experts afterwards to fix not only the initial problem but the additional damage you have inadvertently caused?





Data Centres are complex infrastructures, when they go down it can have drastic consequences. With a plethora of critical equipment that is interconnected, the complexity of understanding how to fix it is not for the faint hearted. Maintaining the equipment is also just as complex. A typical data centre will contain an air conditioning system, fire suppression system, UPSs, a generator and monitoring & management software. These all need to be regularly maintained, and on some occasions on a quarterly basis.

Sound simple?

Taking a typical data centre you would require at least five specialist suppliers to maintain all the equipment. That's five different maintenance regimes that you will have to manage, with each piece of equipment often requiring differing frequency of visits, add to that unforeseen remedial works, and you are lumbered with a whole lot of time consuming administration.

OK it might still seem manageable at this time. However, each visit needs a Risk Assessment & Method Statement creating for the engineers attending. That's more time that you need to allocate. Then just when you think you have got it all in hand the engineer coming to service the generator has called in sick and needs to rearrange another date and then the engineer for the UPS has been called out on an emergency and whilst all this is happening your boss is screaming for that report you promised him a week ago!



How are the stress levels now? Probably not that great.

After a relaxing weekend, you get to work at 9am on Monday and the air conditioning alarm is going off, the data centre is overheating, you need to get an engineer out fast. First you find the correct supplier's contact number and you wait for an operative to take your call. They'll get back to you with an ETA. They inform you of an ETA and you wait. They fix the problem, but more work is required. They'll send you the report and quote. You chase the report and quote whilst feeling the stress levels rising.

Now imagine that you are holiday and the above scenario happens. Do you really want a call from the office in panic when you are relaxing on a beach drinking your morning coffee on your balcony? Probably not!

There is of course a much easier and simpler solution, yes, it can appear, at first pass, to be more expensive than doing it yourself, but what cost do you put on your health and time? Workspace Technology offers Maintenance & Support Services providing a single point of call for all your data centre equipment. Your contract will be managed by a dedicated member of staff who will arrange all your maintenance visits, produce all the RAMS, take your emergency fault calls and ensure that you are kept informed of any remedial works required. Time has a habit of passing us by unnoticed and important tasks get missed, Workspace Technology will ensure that your data centre is kept in tip top condition reminding you of those all-important maintenance dates and outstanding remedial works.



Importance of Data Centre Room Integrity Testing

As the population increases its demand for data availability at the touch of a button in real time, we see the reliability upon our data centres intensify, but the complexity of these challenging mission critical infrastructures can often be underestimated until disaster strikes.

Of the myriad of threats facing data centre operators, perhaps none is as damaging as a fire. A blaze can spread quickly and annihilate operations in very little time.

Ensuring that adequate fire suppression is installed within the data centre will assist in reducing the effects of a fire should one break out and with 33% of all unplanned outages caused by thermal issues a fire suppression system is a must have for data centre operators.

On 12th September 2016 Dutch banking giant, ING saw their gas-based fire suppression system mistakenly discharge resulting in an emergency shutdown denying customers access to their money for almost 24 hours.

Although this was a false alarm it demonstrates the importance of such a system and the need for them to be reliable, which the likes of BT know only too well when in June 2015 they lost service for a day when the data centre operated by a company in Belfast caught fire.

Choosing the correct fire suppression system should be given careful attention so that it can alert you to an incident and have the capability to suppress a fire before it has taken hold, maintaining it is just as important which includes undertaking Room Integrity testing and sealing on a regular basis.



If a room is inadequately sealed this can allow the fire suppression gas agent to dissipate too quickly and not extinguish the fire, and if the room is not equipped with a fire damper activation of the gas suppression system may cause internal structural damage to the building with the possibility of causing the extinguishant to escape, before it has dealt with the fire. Both scenarios being ineffective in distinguishing a fire and preventing a disaster occurring.

Before you think to ignore the warning, consider how much it costs to undertake a Room Integrity Test, on average less than £800, compared to the cost of downtime.

The Poneman Institute and Emerson Network Power study shows that the average cost of a data centre outage has steadily increased from \$502,502 in 2010 to \$740,357 in 2016 (38% net change). This cost will, and has no doubt, continued to increase over the past three years.

Workspace Technology offers Room Integrity Testing and Room Sealing services at a competitive cost. Prevention is always better than cure and when it comes to your data centre protection can you really afford not to act?

A photograph of a server room aisle. On the right, a Riello UPS unit is visible, featuring a small screen and the brand name. The aisle is lined with server racks, and overhead cable trays are visible. The lighting is bright, and the overall environment is clean and organized.

Breathe New Life Into Your UPS

When was the last time that your Uninterrupted Power Supply (UPS) had an overhaul?

Your UPS is crucial to ensuring that your mission critical infrastructure and equipment doesn't suffer any downtime in event of a power failure. Take lifesaving medical equipment for example which relies upon UPS systems across hospitals to keep them operating or the clearing process by Universities whom rely heavily upon their IT equipment to be up and running to ensure data and systems are available. Both have devastating consequences if they fail. One is fatal and the other costly.



Like any piece of critical equipment, your UPS needs to be maintained. Even the most superior quality UPS won't last indefinitely, everyday use will eventually take its toll on its performance and reliability. Don't forget that an UPS is also a significant investment and therefore ensuring that the lifespan is maximised will provide greater Return on Investment. To ensure that you; minimise your risk of downtime caused by system failure, optimise the performance through enhanced efficiency and extend the UPS' life, it is important to enlist a reputable supplier to undertake an overhaul.

Experienced engineers will efficiently exchange any fans or capacitors that need to be replaced. The fans work hard to keep parts in the rectifier and inverter cool enough to operate safely and efficiently, without them the parts are exposed to higher temperatures resulting in them deteriorating quicker.

Capacitors work together to improve the power quality of the UPS, as they approach end of life they start to add unnecessary stress to the system whilst affecting harmonics leaving you with higher energy bills and damage to battery strings.

Ultimately by not ensuring that your UPS is working efficiently it will result in higher costs in the long-term. Workspace Technology provides a UPS Overhaul Service across the UK for a variety of industry sectors including Healthcare, Education, Local Authority, Retail, Blue Light and Defence.

Old Can Be Beautiful Too

It appears that we are living within a throwaway society, where it seems that the cost of buying new outweighs the time and investment of renovating the old; a case of 'out with the old, and in with the new'. Not to mention the negative impact this social mentality is having on the environment with the increase in landfill demand, it is also not always easy to dispose of everything due to potential chemical pollution.

Nothing unfortunately lasts forever and that then lends us to ask the question to replace or repair, but how about upgrade? That could be an option when it comes to your outdated data centre with its end of life equipment.

The data centre market is booming with the UK being forecasted as the biggest market in Europe by 2020 according to a report from Tariff Consultancy Ltd, which also predicts that data centre space and power in Europe will increase by almost 20 percent from 2015 to 2020. Feeding this demand can seem like an impossible task, whilst the industry is concentrating on building new facilities what about the sites that could be upgraded.

All I.T equipment within a data centre has a definitive lifespan and requires an asset management schedule to be adhered to if unplanned downtime is to be avoided. The lifespan of individual pieces of equipment can vary from every three to perhaps ten years, but they will also need regular maintenance during this time to ensure that they perform to their full potential.



Building a new data centre can sometimes feel like the ideal solution when equipment starts coming to end of life, but this is subject to space and money therefore data centres situated in large cities are more likely to have upgrades due to the lack of available space. A new build would need to be completed in parallel to the operation of the existing data centre. It is likely that the existing data centre is live and therefore must be kept online, 24/7/365 so to completely shut down a data centre is not advisable and not possible. Upgrading a live site comes with its own set of challenges due to active power systems being worked on and the risk to human life.

However, updating pieces of equipment following a planned asset management schedule with the utilisation of temporary equipment enables your existing equipment to be either upgraded or replaced in stages. This provides minimum disruption to operation and enables a company to spread the cost of the upkeep of their existing data centre over a period of years rather than a single one-off CapEx investment into a new facility.



By upgrading equipment, it is likely that it will benefit from modern technological advancements which could result in lower energy costs helping to offset the cost of the upgrade over time. It is hopeful that the data centres built today will be more upgradable in the future. An old, outdated data centre can be brought back to life, it doesn't necessarily have to be decommissioned. By putting into a place an upgrade schedule, it can continue to operate effectively, taking advantage of new energy efficient equipment for many years to come.

Workspace Technology offers data centre upgrades and proactively alerts clients to end of life equipment so that they can budget accordingly and ensure that payments are spread out in a manageable way. More importantly the regular programme of upgrading prevents unplanned downtime!



When was Your Fuel Last Polished?

It's reassuring to know that if your mains power was to cut out that you have a back-up supply via a generator, but how reliable is it?

Diesel fuel that is stored in fuel tanks for long periods of time will deteriorate and become contaminated by water, solids and bacteria. This contaminated fuel will reduce the output power of diesel generators and in some cases cause it to fail, thus resulting in costly repairs. Where contamination is extreme, fuel can be rendered unusable and would need replacing entirely!

The Solution?

The solution is Fuel Polishing. Fuel Polishing can be undertaken without any interruption to the operation of the generator meaning that business can go on as normal. Regardless of the make or size of the fuel tank, it can be polished.

What is Fuel Polishing?

The process removes all traces of contamination present in the generator fuel and re-optimises it leaving the fuel in its optimum condition by removing water, biomass, solids and any bacterial growth.

How Does it Work?

The process of Fuel Polishing involves pumping the fuel from the bottom of the tank passing it through a series of special elements which include a magnetic plate 'conditioner', a powerful centrifuge and fine but heavy-duty filter system and then back into the top of the tank. After the Polishing process the diesel is treated with a chemical biocide to delay the future growth of bacterial contamination.

How Regularly Should Fuel be Polished?

It is recommended that Fuel Polishing is undertaken every 12-18 months.

Time to Book in a Fuel Polish?

Don't neglect your generator, when you experience a mains power cut you will be relying on it to kick in and keep your data centre operating. You might not be able to see the contamination within the fuel looking in from the outside, but it will be lurking there waiting to cause equipment failure at the most crucial moment.

Remember prevention is always better than cure. Replacing the fuel completely and repairing a broken generator will be more costly than a regular fuel polishing service.

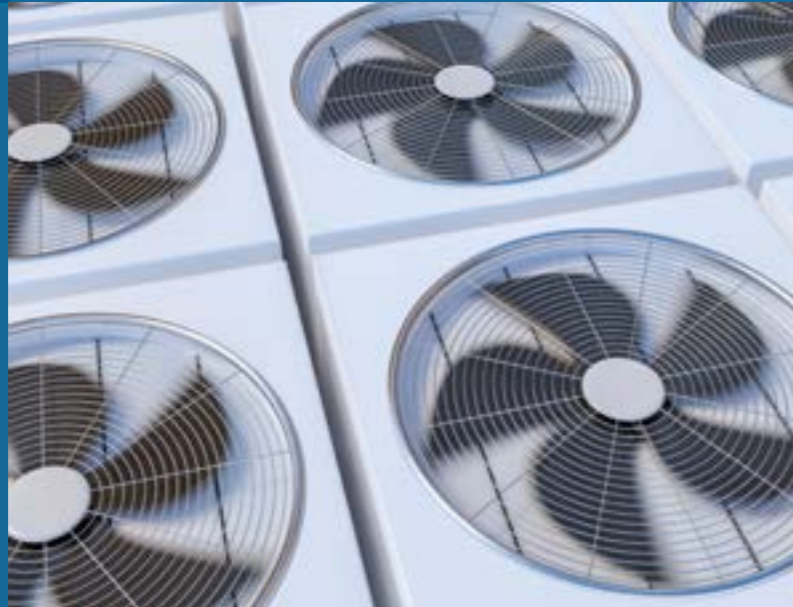


Legionnaires' Disease: A Real Killer!

When did you last have your Evaporative Cooling equipment serviced? It may be working fine, but some things can't always be seen by the naked eye.

Operationally your air-conditioning unit is fine ensuring that your data centre is maintained at the correct temperature, but unfortunately you could be putting your staff and customers at risk without even knowing.

In full accordance with ACOP L8 for the prevention of Legionnaires' Disease the certification will only remain valid if the Evaporative Cooling System continues to comply with the following key areas;



- **Avoidance of stagnant water**
- **Continues to use low water operation temperature**
- **Avoids corrosion and scaling and is regularly cleaned**
- **Continues to prevent the production of aerosols (spray)**
- **Has been regularly inspected and correctly maintained by a qualified agent**

Failure to regularly inspect and maintain the installation will result in the invalidation of the ACOP L8 installation certification. If one or more of the above issues occur and goes unnoticed the Health and Safety of building users will be put at risk.

The maintenance frequency of an Evaporative Cooling System is determined by the water quality, air quality and usage. An element of self-cleaning is incorporated as part of the drain and scale control cycle. A routine maintenance programme, typically every six months, involving inspection, cleaning and validation of operation and control parameters will ensure a hygienic and efficient cooler.

Can't remember when you last had your Evaporative Cooling System serviced? Time to call the experts or face the wrath of the HSE!

According to Public Health England there were 730 recorded cases of Legionnaires' disease in 2018. With news headlines like 'With one man dead, 12 critically ill and 19 suspected new cases... Is penny pinching in your building putting you at risk of Legionnaires'? from 2012 in Edinburgh. Or In 2018 a case of Legionnaires' disease in the UK saw healthcare giant Bupa being fined £3 million over a pensioner's death at a nursing home in Essex, posing real ethical and commercial concerns for organisations that deploy Evaporative Cooling systems.

Workspace Technology can provide a Maintenance & Support contract, is it time to put your mind at rest?

Our range of expertise enables us to offer our unrivalled Pentagon 360 service providing Consultancy, Design, Build, Maintenance & Support completely 100% in-house across the UK.

Quality is key to our success therefore we only utilise innovative and proven technology from reputable manufacturing partners to ensure that our data centres run as efficiently as possible, helping to achieve your sustainability targets by reducing your carbon footprint.

Our professional team of engineers are committed to service excellence and our Maintenance & Support Services deliver a comprehensive range of expert 24/7 planned preventative maintenance & emergency callout, remote monitoring, optimisation and facilities management services.

At Workspace Technology, our vision is clear; 'to be your trusted partner for the delivery of mission critical infrastructure through the expert design of contemporary data centre solutions'.

Simply contact us today to find out more about our data centre services and see how we can support you with your mission critical infrastructure and put you ahead of the game.



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