

2bm in partnership with

The National University Framework

Innovators in Data Centre Technology



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hello



We're 2bm, one of the fastest growing providers of data centre management solutions, with an extensive and ongoing experience of working with universities and colleges throughout the UK.

And we are proud to have been recently approved by the NEUPC for the framework agreement to supply and consult on the installation and maintenance of data centre management equipment specially

- Power and cooling
- Rack infrastructure and associated equipment
- Consultancy

This work transcends the full spectrum of projects from those where space is severely constrained but still requires a PUE of 1.2 or less; to a new-build scenario spanning multiple floors with the opportunity to be involved in the initial construction and layout stage.

We are here to help, listen, understand... and challenge.

Through 2bm, universities and colleges can benefit from the framework agreement for data centre equipment, infrastructure and consultancy, offering best value and impartial advice from our dedicated team.

With a one stop shop approach we are able to offer advice on a wide range of data centre / server room management issues. From racking solutions and environmental monitoring through to room builds and power management, we believe our levels of service are unparalleled.

The aim of this document is to introduce 2bm as a provider of your data centre needs. Highlighting some of our case studies and vast experience in delivering projects, on time, on budget whilst exceeding expectations. Combined with an introduction to the team, our Top Ten Tips for data efficiency and a glimpse into the products we can offer, you are sure to find this a useful insight.

“Having worked with numerous educational establishments, we have a great knowledge of this sector and we are able to provide a value-add service to Universities, helping them to reap the benefits of a leading edge data centre environment at a very competitive cost.”

Jason Preston, Director

meet our team

2bm's full service offering is enhanced by its dedicated team of installation engineers who ensure projects are delivered on time and on budget, with minimal disruption to day-to-day data centre operations.

As 2bm continues to grow, so does our team. We have some very talented and committed members of staff who have one thing in common – to deliver and exceed customer expectations.



Jason Preston
Director

Jason, with Mark, took the brave step to set up 2bm back in 2002 and has played a key role in driving the business forward to the position it finds itself in today. Jason is not afraid to challenge himself, his colleagues and even sometimes his clients with the constant aim of improving the service we offer.



Mark King
Director

With almost 20 years experience in the IT industry, Mark has an extensive knowledge of the world of data centres, focusing on how best to utilise new technologies to deliver greener and more efficient methods of working.

He is a strong advocate of investing time and effort to gain a clear understanding of all our clients, no matter their size, and is proud of the success 2bm has achieved since he, together with his business partner Jason spotted what they felt was a gap in the market.



Gordon Smith
Head of Design and Build

Gordon is our design and build guru! If there's anything you want to know about data centre infrastructure then he's your man. Not afraid to challenge traditional thinking, Gordon has an enviable track record of delivering innovative, space and energy efficient data centres of all shapes and sizes, across all sectors of business.

**Neil Roberts**

Northern Region Sales

Since joining 2bm Neil has played a key role in the development of our dedicated design and build team, working closely with the directors and key industry partners to establish our growing reputation for innovation and value for money.

**Richard Stanton**

Marketing Manager

Richard is the guardian of the 2bm brand, overseeing the company's marketing strategy with such wide ranging tasks as managing our PR and advertising campaigns to organising our annual golf day in September.

**Ted Pulfer**

Southern Region Sales

Ted may be the youngest member of the 2bm team, but what he lacks in years he makes up with energy and drive. Always prepared to go that extra mile he was a key member of the team that developed and delivered a state of art data centre for Birkbeck University of London.

**Lee Gattrell**

Installation Manager

Lee looks after our dedicated in-house team of installation engineers who travel the length and breadth of the UK offering a consistently high level of service and support. He also oversees our IT Support Team and is never happier when he is presented with a challenge.

**Jerry Skinner**

Contracts Manager

Jerry is our champion when it comes to quality control and ensuring we have the systems in place to maintain and improve on the high standards we have set ourselves as a company. He was integral to our ISO 9001 & 14001 accreditation and is also working closely with Notts Energy to reduce our carbon footprint.

**Jamie Clayton**

2bm iMeter Product Manager

If there is anything you want to know about power monitoring then Jamie is your man. Played a key role in the development of the 2bm iMeter and associated iMS software, liaising closely with our clients on both the installation and training.

university of nottingham

To implement power monitoring solutions that helped to reduce energy consumption, the University of Nottingham awarded 2bm a contract of over £50k.

The innovative 2bm iMeter system – an advanced environmental and power monitoring solution – which allows the user to monitor and helps reduce power consumption in data centres. In this scenario the 2bm iMeter will be used to monitor power across the University's two sites, providing invaluable data on energy consumption down to individual rack level.

We will install 200 IntelliAmps, all linked back to 2bm's iMeter Management Software (iMS), a data collection, analytical and reporting software suite. This enables IT and Facilities personnel within the University to view and analyse both power and environmental data in meaningful and intuitive formats so that decisions aimed at reducing power costs and improving operational efficiency can be made quickly and easily.

“The reduction of excessive power consumption is now a major government initiative and the University of Nottingham is fully committed to creating an energy-efficient data centre environment. The 2bm iMeter solution provides us with real-time accurate power metering and monitoring capabilities enabling us to track energy usage right down to individual rack level and improve our Power Usage Effectiveness rating.”

Chris Tadman, Data Centres Team Leader

Implementation of the iMeter solution has taken place at one of the University's busiest times of the year, with clearing and registration for new students currently taking place. It was therefore critical that the iMeter could be installed without system downtime. Tadman explains “It was essential that we could implement the iMeter with minimum disruption to the business as we were working within a very tight time-frame. If we had not been able to install the iMeter solution this summer then we would have to wait almost another year due to the academic calendar and exams. Our engineering team has worked very closely with 2bm on the installation and we have found the process to be relatively straight-forward and hassle-free as the iMeter solution can be implemented whilst still allowing normal, uninterrupted operation.”

Commenting on the partnership with 2bm, Tadman says: “We have an excellent working relationship with 2bm as they have provided us with IT services on previous data centre projects within the University, most recently the refurbishment of our secondary data centre. We have always found 2bm to be reliable, knowledgeable and very proactive and we also like the fact that they are based in Nottingham as it means we have fast, easy access to their consultants and it enables us to support the local economy.”



The University of
Nottingham

Will you measure up?

Make sure you do with the 2bm iMeter.

The **2bm iMeter** accurately measures energy consumption, but more than that, it analyses how and where your energy is being used and helps all businesses decide where to save energy in the future. Part of the big picture.

With the recent changes to the CRC Energy Efficiency Scheme, a mandate to save energy and affect climate change, there has never been a more important time to monitor power. **2bm iMeter** can save you money and minimise the impact of the new 'Green Tax'.

The **2bm iMeter** is a small, intelligent piece of kit that is simple to use. The power clamp can be precisely positioned on the cable to derive the correct current values, requiring no downtime.

2bm believe in making a difference. A small part of the big picture.



TOP TEN TIPS

Few Universities or Colleges have the luxury of tearing down their existing data centre and building a new one from scratch. The good news is that there are ten steps that can be taken to improve the performance within the existing set up and maximise efficiency – from considering how air comes into the data centre to how it is cooled, how racks are arranged and where cables are run.

But before any investment is made, organisations must understand the current levels of performance. Adopting data centre power monitoring is essential to this and can now be implemented without a complete re-fit and whilst allowing normal, uninterrupted IT operations.

This will provide a baseline upon which incremental changes to design and investment in new technologies can be measured. Having done that, here's ten areas you should be able to realise immediate benefits.

1

Aisle Management



The most obvious step – although one that still has not been taken by a disconcerting number of organisations – is to configure cabinets in hot and cold aisles.

If you haven't got your racks into cold and hot aisle configurations, we can advise ways in which you can achieve improved airflow performance.

2

Air Supply



Avoid the mixing of cold air supplied from the air conditioning systems with hot return air from the IT equipment

We can look at how the cooling is performing within the data centre and look at ways to improve this.

3

Air Management

Fit blanking panels to any cabinet free U space and fit brush sealed grommets or blanks to any holes within a raised access floor, if it is being used as a supply air plenum.



We can look at air leakages within the floor and racks and provide ideas on how best to manage these.

5

Temperature Management

Increase the room (or cold aisle) temperature to between 24°C and 27°C. Many data centre managers still think that their room should be set at a temperature of below 19°C.



Do you currently monitor temperature in the racks? We can show you ways in which monitoring can help.

4

Free Cooling

Install indirect or direct free cooling. It could save you as much as 90% compared to traditional cooling costs.



It may be possible to introduce FREE cooling into your data centre – allow us to survey your existing cooling as we may be able to recommend more energy efficient cooling methods.

6

Containment

Install hot or cold aisle containment systems.



Let 2bm survey your data centre using industry experts to see how aisle containment can improve energy efficiency.

7

UPS Systems

Install high efficiency UPS systems and consider using UPSs in smart or line interactive modes. These are generally 96% efficient in online mode with output power factors of 0.9, and in some cases 1.

Depending on the age of your UPS systems, we can advise on the latest more efficient UPS systems.



9

Lighting

Although lighting might not provide the large energy efficiency gains that can be achieved in other areas, the lights in a data centre will only need to be on for limited periods.

Proximity lighting is the best form of energy efficient lighting. Light coloured racks also improve the overall LUX performance.



8

Power Management

Install voltage regulators and/or power factor correction equipment.

We can audit your existing power infrastructure and recommend ways to improve it.



10

Virtualisation

Replace legacy servers and storage with new high efficiency equipment; for example, leverage virtualisation to maximise performance of the equipment you already have.

We have partnered with industry experts to provide a complete Virtualisation implementation programme.



A data centre for today, tomorrow and the future.

Our dedicated team of specialists understand the evolving needs of both new and legacy data centres.

We have range of innovative products and services that reduce energy consumption, improve space utilisation, and increase efficiency.

Our end to end service delivers design and build solutions along with:

- Power management and monitoring
- Airflow management
- Innovative racking
- Capacity planning tools
- Data centre audits and consultancy
- Clinical cleaning
- Energy efficient cooling
- Environmental monitoring
- Access control

birkbeck university of london

Birkbeck University of London's decision to consolidate four equipment rooms into one data centre was prompted by a significant rebuilding and redevelopment programme and led to 2bm being awarded a £700,000+ contract to build an innovative data centre.

However, the University's decision to work with us has resulted in a dedicated, state-of-the-art space with a predicted Power Usage Effectiveness (PUE) rating of just 1.3.

Our combination of innovative cooling solutions and tailored power infrastructure within a very tight space, has enabled Birkbeck to create a flexible data centre that will continue to support the IT requirements of diverse teaching and research staff and facilitate ongoing innovation, including desktop virtualisation.

In common with many educational establishments, the college's IT development has often been led by academic departments. As a result, in 2008, Birkbeck found itself with four, separate, small equipment rooms with their own cooling and UPS, each providing services to specific college departments. One of the other rooms was also no longer fit for purpose; it had evolved over time and was beyond its sell by date. There was a clear opportunity to rationalise, consolidate and create a single, state-of-the-art data centre to support Birkbeck's future IT requirements.

The university also wanted to take the opportunity to improve data centre efficiency and drive down energy consumption as

far as possible. "Birkbeck has a responsibility to act with due diligence and with an eye to carbon reduction commitments," David Willcox says. "The development of this new data centre would have happened anyway; but it also provided an opportunity to exploit innovative data centre designs wherever possible with a view to maximising efficiency and reducing energy usage."

However, while the university has, for the first time, a single dedicated space in which to create a state-of-the-art data centre, the project was far from straightforward. The new space is fairly small for the number of racks required; and it is also in the centre of the building, surrounded by other space that was undergoing redevelopment. Willcox continues, "This was a complex project, not least because the vacation of the building meant there was a deadline for the first phase of July 2010."

It was therefore essential for Birkbeck to work with a data centre provider that could guarantee to deliver the project on time. Birkbeck turned to data centre expert 2bm on the basis of a strong track record in delivering diverse data centre requirements.

"Birkbeck had already worked with 2bm – the college uses the company's monitoring software... following an extensive tender process it was clear that 2bm was the only company willing and able to take in to account the specific challenges associated with this data centre space."

David Willcox, IT Infrastructure Manager

“It was not simply a process of handing over a room and saying, ‘there you go’ to a supplier. This project required a lot of interaction with the other building work that was going on so required a supplier capable of being extremely flexible and totally committed to meeting our unmissable deadline. Birkbeck was happy to put its faith in 2bm.”

David Willcox, IT Infrastructure Manager

The primary challenge for 2bm was the delivery of 56 cabinets with a design of 240kW technical load, together with all the facilities support infrastructure required within a miniscule 180m² of floor space, and a low floor to ceiling height of 3.1m. This was achieved by the use of 2bm’s innovative ‘overhead conditioned air delivery system’ which forms a major component of the contained cold aisle pods.

2bm also took the opportunity to introduce a range of energy saving techniques to the data centre design. These include reflective wall surfaces, white powder coated racks with compliant contrasting hinges, hinges and door leading edges, low energy luminaries with proximity switching, and blanking panels to seal unused ‘U’ space in the cabinets.

Throughout the project, 2bm and Birkbeck had regular progress meetings both to ensure it was on track and to provide the university with the information it required to plan its equipment migration. The initial phase was completed on time in July 2010, enabling Birkbeck to start migrating equipment while 2bm carried on with the second phase of the project.

“Throughout the process, 2bm has been flexible and has taken a constructive approach to any challenges, while introducing innovative designs where possible.” Willcox confirmed.

The result of this focus on energy efficiency has been an overall reduction in power consumption. Indeed, this new data centre is projected to have a Power Usage Effectiveness (PUE) rating in the region of 1.3 compared to a typical industry standard of 2.5 PUE.



the university of warwick

The University of Warwick has selected the 2bm iMeter to monitor power consumption in one of the University's main data centres, with the aim to drive down energy costs and meet the government's CRC energy efficiency targets.

The 2bm iMeter will act as a capacity planning tool providing vital information to the University to help manage power usage and reduce energy consumption in the data centre as part of the Government's CRC Energy Efficiency scheme.

The University of Warwick has two main data centres at its Coventry Campus. Following an electrical upgrade in one of the main data centre halls, the University saw the need to monitor the power supply to each individual rack within the data centre. Following a competitive review of the marketplace, the University decided to trial the 2bm iMeter as it was the only product that could guarantee accurate meter readings.

Within a matter of days of using the 2bm iMeter the University was so pleased with the results that a further order was placed with 2bm for another 97 sensors to fit the entire data centre.

Steve Silver, Infrastructure Owner at The University of Warwick explains: "In order to stay at the forefront of the higher education sector, it is essential for the University to have first-class IT facilities available to both staff and students. However, we also have a commitment to reduce power consumption in the data centre in line with the CRC Energy Efficiency Scheme requirements outlined by the Government. 2bm are one

of our existing IT partners so they were an obvious choice when we were looking for a power monitoring solution."

"Following a review of the market, we quickly discovered that the 2bm iMeter is the best power monitoring solution in terms of speed of implementation, ease of use, reliability and cost."

Steve Silver, Infrastructure Owner

Silver continues: "The reporting information is also excellent which means that we now have information available at our fingertips allowing us to analyse energy usage every hour, day, week and month at rack level. This provides clear trends in energy consumption and allows us to effectively manage power usage by setting alarms based on predetermined thresholds"

"We also now have the ability to evaluate power consumption at departmental level meaning that we can allocate energy costs against departmental budgets if necessary depending on how much power is being consumed. Having set up the thresholds on the 2bm iMeter just below the maximum capacity, we are able to highlight any potential problems on a piece of equipment in the data centre before they happen. The ability to have this information sent to us via email alerts is extremely useful, and engineers also receive alerts on their pagers meaning that any issues can be dealt with immediately without causing any disruption to the business."

THE UNIVERSITY OF
WARWICK

How do you rack up?

With more and more attention paid to power distribution, cooling and cable management, choosing the right rack for your business is one of the most important decisions faced by data centre managers.

Choosing the right rack

At 2bm we believe racks should be flexible and scalable to address both your current needs and those of the future.

Our range of racks have been developed with this in mind, setting new standards in cabinet design, 2bm offer:

- Various cable management solutions to suit your requirements
- Power Management options depending on the type of kit being housed
- Locking options including the latest electronic locks
- Thermal management to provide sufficient cooling
- A range of accessories including shelves



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