Data Centre Solutions...energy efficient by design

Mobile & Modular Data Centre Solutions

Agile, Scalable, High Performance Mobile and Modular DC solutions
Flexible, scalable high performance mobile & modular data centre solutions

It is important to ensure future data centre deployments support the ever increasing demands of virtualized, high density and cloud computing environments. The days of building large monolithic data centre are coming to an end. These enormous facilities that cost tens of millions of pounds to construct also take years to complete and therefore by the time these facilities are constructed and fully operational, the technology and equipment used within the data centre are obsolete.

Modularity is now at the forefront of contemporary data centre design. The ultimate goal is to build a dynamic data centre solution capable of rapid change to meet evolving market demands.

Workspace Technology’s Mobile & Modular Data Centre Solutions directly address the requirements of contemporary data centres. The Mobile & Modular Data Centre System provides customers with complete flexibility, delivering a scalable approach to data centre planning and design, as well as eliminating the need for traditional ‘bricks and mortar’ buildings.

Mobile & Modular Data Centre Architecture is an established alternative to conventional Data Centre Construction. This specialist scalable approach, delivered by Workspace Technology, reduces data centre deployment from years and months to weeks, providing pay as you grow infrastructure to match your compute deployment.

Typically a Modular Data Centre solution will reduce overall capital expenditure by over 40%.

Benefits of Mobile & Modular Data Centre Solutions

- Reduced Capital Outlay
- Rapid System Deployment
- Scalable Alternative to Traditional Large Scale Facility
- Pre Engineered Technology for ‘Plug and Play’ deployment
- Future Proofed ‘Pay as You Grow’ Infrastructure
- Creates an Environmentally Greener Data Centre Environment
Mobile & Modular Data Centre Architecture

Uniquely Workspace Technology provide modular designs to match any physical or technical requirement providing the most comprehensive range of Mobile & Modular Data Centre Pods available.

This agile approach ensures a modular design that will suit your requirements, and allows your organisation to closely couple data centre expansion and associated capital investment with ICT capacity.

MDC technology can also be deployed to support expansion to existing “bricks and mortar” data centre infrastructure.

Workspace Technology’s Modular Data Centre MDC architecture allows pods to be pre-engineered, tested and commissioned prior to delivery with final onsite commissioning.

Our Mobile & Modular Data Centre system can be deployed as standalone units or within existing buildings.

Data Centre Core Service Pods

Workspace Technology’s approach to modular data centre design is simple yet effective. We provide a selection of standalone core data centre infrastructure service pods that can be combined together to create a complete Shared Services Infrastructure System. Our core pod systems include the following:

- **Power Pod**
- **Mechanical Services Pod**
- **UPS Critical Power Pod**

Core data centre service pods can be deployed and interconnected in a number of topologies depending on the ‘Tier’ rating of the data centre facility. These can be scaled to meet data centre design demands with pod capacities ranging from 160kW, 250kW, 500kW to 1000kW. Additional core service pods can be installed in parallel or in an independent circuit to support any required expansion of the modular data centre installation.

Central Modular Data Centre Pod

Workspace Technology’s Central Modular Data Centre (MDC) pod is the fundamental building block for modular data centre deployments.

The Modular Data Centre System is designed specifically to support low, medium and high density rack applications. Typically each Central MDC Pod can support 10 to 12 equipment racks with design densities ranging from 5kW to 60kW, and by deploying multiple pods, the rack count can be scaled to suit individual data centre requirements.

Containerised & Modular Pod Formats

Where ongoing portability and flexible transportation is paramount, Workspace Technology’s 2.4m wide x ISO container format offers the ideal solution.

Alternatively where installations are ‘static’ and ease of serviceability is critical, custom manufactured modular pods offer a practical alternative to ISO containers, built with widths ranging from 3.0m to 3.6m. The custom MDC Pod offers flexible equipment rack access in a similar fashion to a conventional bricks & mortar data centre.
System Cooling Options

Workspace Technology offers a range of flexible cooling options, these include:

- **In-Row Modular Cooling**
- **Heat Exchange / Rear Rack Door Cooling**
- **Freecool® Direct Adiabatic Evaporative Free Air Cooling**
- **Indirect Adiabatic Evaporative Free Air Cooling**
- **Convectional Perimeter Cooling**

Cooling selection is based on the customer requirements and specification on equipment rack power density, environmental and energy efficiency.

Naturally Workspace Technology provides a comprehensive cooling design & installation service and our MDC installations include chilled water pipework and supporting mechanical services plant. Workspace Technology offers a range of high efficiency chillers with free cooling options ranging from adiabatic coolers, dry coolers and cooling tower systems.

The deployment of the Workspace Technology’s Freecool® evaporative free air cooling solution will reduce installation costs and power consumption delivering Power Usage Effectiveness (PUE) ratings of <1.09, significantly better than industry averages.

**Cooling Features**

- Supports 5kW to 60kW Equipment Rack Densities
- Complete Turnkey Design & Installation Service
- Low Energy Consumption
- N, N+1 and 2N System Resilience
Environmental Monitoring & Data Centre Management

As part of any data centre solution, Workspace Technology can deploy a wide range of monitoring and management technology to help protect IT assets.

Schneider Electric’s APC Netbotz technology supports extensive and flexible environmental monitoring configurations within MDC deployments.

When combined with Schneider Electric StruxureWare Data Centre Expert and StruxureWare Operations Data Centre Infrastructure Management (DCIM) software Workspace Technology are able to deliver holistic management solutions for the entire MDC ecosystem.

Modular Data Centre Application Summary

- Data Centre Deployment
- Disaster Recovery and Business Continuity
- Cost Effective Data Centre Expansion
- Mobile Data Centre and Server Room Facilities
- Excellent alternative to a bricks and mortar buildings

Workspace Technology’s Mobile & Modular Data Centre solution creates a true ‘Pay-as-you Grow’ model enabling global organisations to manage their data centre infrastructure costs in line with the growth of its compute real-estate.
Configuration Options

Workspace Technology’s Mobile & Modular Data Centre Systems are based on:

- Right Size Designs
- Hot and Cold Aisle Cabinet Arrangement
- Airflow Management
- Modular Power & Cooling Scalability

Our range of Mobile & Modular Data Centre sizes and power ratings ensure systems are configured to support individual customer requirements.

Typical MDC systems are delivered complete with a heavy grade raised access floors, cooling systems, fire suppression & detection, equipment cabinets, critical and standard power distribution, UPS systems, internal inter-cabinet Category 6/6A and Fibre Optical cabling, secure access control, environmental and DCIM management systems. Following positioning, connection to site services and commissioning the MDC is “server ready”.

MDC Key Features

- Server Ready – pre-engineered, and wired ready, for instant deployment of servers.
- Self-Contained System – complete with cabinets, cooling, Green Gas Fire Suppression, UPS and power distribution.
- Energy and Environmentally Efficient – designed using Workspace Technology’s “EcoDesign” best practice principles to reduce carbon emissions through design and technology.
- Rapid Deployment – quick and simple with minimum onsite preparation needed, for immediate functionality.
- Scalable – Modular ‘right size’ designs and configuration.
- Resilient – N+1 and 2N design implementation options.
<table>
<thead>
<tr>
<th>Sub Systems</th>
<th>Options and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Constructed from 100 x 50 x 3 RHS with 4.5 O/P durbar plate floor, fully insulated 100mm thick mineral wool fill walls, pre-finished internal white, external colour coat plastersol pre-finished surface.</td>
</tr>
<tr>
<td>Floor Finish</td>
<td>Standard - Tread Plate with Antistatic Polyflor Antistatic Vinyl Enhanced - Heavy Duty (4.2KN point load), 600 x 600 tile format complete with bonded antistatic vinyl finish.</td>
</tr>
</tbody>
</table>
| Dimension/Weight     | Standards Sizes include:                                                                                                           *Modular 20 foot 8m(L) x 3.4m (H) x 3.5m (W) - 10,000KG to 20,000KG*
                                          *Modular 30 foot 9m(L) x 3.4m (H) x 3.5m (W) - 20,000KG to 30,000KG*
                                          *Modular 40 foot 12m(L) x 3.4m (H) x 3.5m (W) - 30,000KG to 40,000KG* Note - Containerised version all 2.4m (W). * Estimated Fully load Weights Only. |
<p>| Cooling              | Schneider Electric / APC InRow rack mounted format 300mm/ 600mm Wide x 1070mm Deep x 42U, 18Kw to 60kW Cooling Capacity.                                                                                         |
|                      | U Systems Rear Door Systems 10kW to 60kW Per Rack                                                                                     |
|                      | GEA Heat Exchangers Perimeter Cooling 20kW to 100kW Per CRAC Unit                                                                     |
|                      | Freecool® Evaporative Direct Free Air Cooling 30kW to 120kW per pod                                                                |
|                      | Excool Indirect Evaporative Free Air Cooling 60kW to 200kW per pod                                                                  |
|                      | Where Chilled Water Systems are deployed Workspace Technology can provide a choice of Chillers, Adiabatic and Drycoolers or Cooling Tower Technology.        |
| Airflow              | Full Aisle Containment systems to suit cooling.                                                                                       |
|                      | Rack Blanking Panels.                                                                                                                 |
|                      | Koldlok Brush Sealing Systems.                                                                                                        |
| UPS                  | Schneider Electric / APC Symmetra PX48 / 96 /160 modular 42U rack mounted UPS configurable in 16kW increments plus battery autonomy to suit.                |
|                      | APC Symmetra PX250/600 / modular 42U rack mounted UPS configurable in 25kW increments, plus battery autonomy to suit. N+1 Power Modules Available.          |
| By-Pass Switch       | Integrated UPS External Bypass Switch. Custom Switchgear Bypass.                                                                     |
| Critical Power       | Dual resilient Form 4 Type 2 Three Phase Power Distribution Board (PDU) to rated to match UPS complete with 16A and 32A Single or Three phase commando sockets to suit client requirements. |
|                      | End of Aisle or In-Row Optional Available.                                                                                             |
| Pod LV Distribution Board | Schneider Electric Form 4 Type 2/6 - 125kW / 250kW / 500kW / 750kW / 1000kW LV Three Phase distribution boards to suit kW capacity. Boars fitted with PM750 full function Modbus Meter Systems. Optional Power Quality ION Meters fitted. |
| General Power        | Cleaners Sockets 4 to 6 per Pod. General Power. T5 or LED Low Energy Lighting Systems with PIR Operation.                                                                                                        |
| Cabinets             | Schneider Electric / APC SX 42U to 48U 750mm or 600mm wide by 1070mm deep server grade meshed front and meshed split rear doors. Full set of Cable and Rack Management Accessories. Schneider Electric Rack HID Kit Options. |</p>
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<tr>
<td>PDU’s</td>
<td>Schneider Electric/ APC Zero U Single Phase or Three Phase 16A or 32A. Basic, Metered or Switched Configurations Available.</td>
</tr>
<tr>
<td>DCIM</td>
<td>Schneider Electric / APC StruxureWare Data Centre Expert Base Platform. DCIM S/W Modules include Operations, Capacity, Change, Energy &amp; Optimization. 10 / 100 / 200 User Granular License Options.</td>
</tr>
<tr>
<td>Energy Monitoring</td>
<td>Schneider Electric StruxureWare Power Monitoring Expert. LV Panels fitted with Schneider Electric PM750 and ION Meters to suit design.</td>
</tr>
<tr>
<td>Internal Comms Links</td>
<td>Cat6/6A 24 or 48 Port RJ45 panel to panel link wired between comms and rear of server cabinets. 8 / 16 / 32 / 48 / 96 MM or SM Fibre panel to panel link wired between comms and rear of server cabinets. All System are Designed to Suit.</td>
</tr>
<tr>
<td>External Comms Links</td>
<td>Example Arrangement 10 Pair Voice Cable, 8 core 50/125 MM OM3 grade fibre SC connections. All System are Designed to Suit.</td>
</tr>
<tr>
<td>Tier Rating</td>
<td>All System are Designed to Suit. Base Configuration Tier 2. Enhanced Configuration Tier 3.</td>
</tr>
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Mobile Data Centre Deployment Services

All of our modular Mobile Data Centre MDC systems are manufactured to order at our UK build facility. All systems are pre-tested and commissioned so they are fully “Server Ready” when delivered to site.

The Mobile & Modular Data Centre system is designed with a simple arrangement for connection to power and water.

Within the “hook up” enclosure there is a three phase connection point for power, copper and fibre ports for I.T and water/waste for AC systems.

Workspace Technology Data Centre Solutions team provides holistic installation services incorporating site civil works including structural design, base structure construction, security fencing and installation of service ducts as well as electrical and I.T cabling and associated mechanical services pipework and plant.

Workspace Technology’s delivery team’s implement a strict design, review, and agreement regime to ensure first time success. Workspace Technology Data Centre Solutions team provide deliver engineering excellence and innovation for all of our MDC customers.

Service & Support

Workspace Technology is committed to service excellence and will support your mission critical infrastructure throughout its lifetime.

Workspace Technology is dedicated to delivering industry-leading service, support & optimisation for our customers across the UK. We draw on our significant knowledge and experience of mission critical power & data centre technology and operations to provide a partnership approach throughout the lifetime of the infrastructure.

Engineering & Support Services

Workspace Technology’s Engineering & Support Services division delivers a comprehensive range of expert 24/7 service, support & optimisation plans. Our strategic service goals include:

- Delivery of Holistic Mission Critical & Data Centre Support Services
- To Improve Operational Efficiencies and Reduce Risk
- Maximise Customer Assets
- Provide Effective Change Management
- Fulfil Service Level Objectives
- Optimise Data Centre & Power Performance

Supported technology includes a wide range of Mechanical Cooling, Air Conditioning, UPS, Generator & Fuel Systems, Fire Suppression, Environmental Monitoring, DCIM and associated mission critical infrastructure.
Support... planned and contract maintenance services

To ensure that mission-critical power & data centre infrastructure is operating to its full potential Workspace Technology’s Support services deliver a range of planned preventative maintenance, 24/7 emergency callout and site facilities engineers.

Planned Maintenance Overview
Planned Preventative Maintenance (‘PPM’) delivers a range of scheduled maintenance services to installed equipment. All Planned Maintenance is carried out by competent and fully trained engineers, to ensure that equipment is operating correctly helping to avoid unscheduled breakdowns.

Planned maintenance benefits include:
- Easier planning of maintenance and ordering of scheduled replacement parts
- Service costs are distributed more evenly
- Helps identify problems before they occur
- Increases equipment availability

Contract Overview
Workspace Technology provides a comprehensive break fix callout service for all critical equipment.

* Equipment replacement costs when within their warranty period are inclusive. This excludes consumables, batteries and lamps/bulbs.
** Excludes consumables, batteries and lamps/bulbs
*** Excludes failures where the system has been damaged by users or third parties or has a call out due to customer mis-operation. Damage due to poor quality water, fire, storm, flood or act of nature will be chargeable. Full details are in the contract terms and conditions
Making the difference

Connecting with our clients

The value that Workspace Technology can deliver to the customer experience is our complete understanding of data centre infrastructure including its products and services.

By engaging with you and taking the time to understand your business and performance related issues, Workspace Technology is able to effectively address the demands of your business.

Workspace Technology welcomes this opportunity to connect with you as a valued customer. We would like to share our vision and expertise through a partnership approach. Our ability to deliver integrated, scalable, energy efficient solutions has made us the preferred choice for many public sector and commercial businesses today.

Operating throughout the UK, Workspace Technology offers clients an enthusiastic and refreshing approach, combined with teamwork that takes performance and service to new levels of excellence.

Further details of Workspace Technology’s products and services can be found at www.workspace-technology.com or visit www.mobiledatacentre.com

Approved “Endorser” EU “Code of Conduct on Data Centre Efficiency”

APC Elite Partner
Data Centre Certified

Workspace Technology’s “Commitment to help clients reduce their carbon footprint through the deployment of energy efficient technology and design”.

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