

APC by Schneider Electric enables Domicilium to offer customers flexibility, choice and rapid deployment with In-Row® Cooling Methodology

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*Andy Swearman
Managing Director
Domicilium*

Domicilium Limited was formed in 1991 as Advanced Systems Consultants Ltd. Originally one of the first thirty Internet Service Providers in Europe and the first on the Isle of Man, the company has provided high availability and highly secure hosting services for over a decade. Domicilium’s core business has traditionally been the provision of upper quartile technical services, resilient WAN connectivity and hosting.

It became clear that considerable opportunity existed for formulating, communicating and deploying a set of services to meet an increasingly sophisticated market for hosted services and outsourcing. Based on extensive industry consultation and segmentation Domicilium’s proposition is therefore concise and relevant to 21st century needs, offering the market a modern Tier 3+ facility. Perhaps more critically, rather than take a ‘one size fits all’ approach, Domicilium offers its customers a high degree of customisable options.

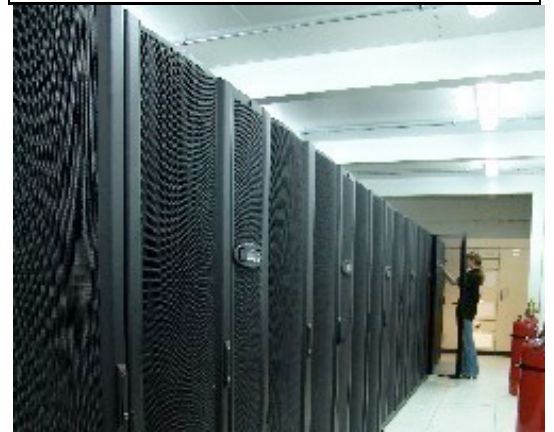
The first stage of the project entailed the construction of a 21000 square foot data centre at Castletown on the Isle of Man. Broadly the available space was planned in two sections, a shared hosting environment coupled with an area to facilitate customised modular hosting facilities with the capability of adapting space in either section as demand dictates. Andrew Cairns explains:

“It was evident from an early stage that in order to cement our position as leaders in the field, we would need to offer options both for shared or custom spaces. This is a powerful incentive for companies looking to outsource infrastructure because in addition to providing a clear upgrade path for the foreseeable future, it allows the actual space to be tailored to the specific needs of the IT equipment as well as to the preferences of the customer.”

As a key component, Domicilium developed a concept called “Rapid Deployment” which allows customers to create its own bespoke data room within an eight-week time period.

The importance of ensuring certainty of power and cooling is not just restricted to the financial

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penalties attached to service level agreements offered by Domicilium. The relationship that Domicilium has cultivated with its clients is based on the flexible integration of its services with internal client operations. Andy Swearman, Domicilium Managing Director sees downtime as disrupting this relationship:

“Domicilium operates at the higher end of the market where we help ensure resilient IT services to our customers’ organisations. Our clients tend to be very risk averse so any downtime would be a major issue. Since a lot of organisations we deal with treat us as if we were just another internal department we have to adapt to the business model of the client.”

A further consideration when specifying the facility cooling solution was its impact upon floor space coupled with the need to avoid space-inefficient cooling devices that reduce the amount of space available for servers and hence income generation.

The problem that Domicilium faced during the early stages of development was that of translating the business proposition into an engineered reality. Two key concepts were central to developing the facility in a way that would meet both Domicilium’s vision and their clients’ requirements. The first was that of modular infrastructure sufficiently flexible to meet differing and growing client requirements.

The second critical concept was the use of chilled water-based cooling. Originally, Domicilium had considered a traditional approach to data centre cooling design. However, this approach did not instil confidence that the proposed air cooling systems could cope with the power demands that would accompany growth. Says Andy Swearman, managing director, Domicilium:

“We started with a traditional design, but there are a number of problems with this approach, the sheer noise for one. It’s also a black art - we could never be confident that it would cool all the racks effectively; We decided that we needed to take a modular approach for deployment and rapid growth. In other words, we needed to design a system that allowed us to add new devices without compromising the integrity of installed systems. It was a planning nightmare”.

In designing its new facility, Domicilium carefully considered various methodologies being deployed in Europe, with a view to making theirs best in class. As part of this exercise, the company visited numerous sites. The decision to adopt In-Row® water-based cooling system was taken after a visit to the APC Solutions Centre in Galway by Phil Adcock, Domicilium’s Chief Technical Officer. Having previously occupied a stance that had been firmly against water anywhere near the data centre, Adcock now describes the APC In-Row™ cooling solution as *“the best thing since sliced bread, the missing piece of the jigsaw!”*

The basis for selecting APC In-Row® cooling was that it overcame the problems of reliability and

predictability. According to Andy Swearman, *“APC solutions could demonstrate the consistent cooling of high density blades throughout the data centre and not just success with the odd rack. Our belief was that just ‘squirting air’ is not going to be an effective long-term solution – you need to bring in something that can change in response to what’s going on in the rack, a system that responds to what’s going on in the environment.”*

This decision ensured a standardised and modular data centre built almost entirely from APC, MGE and Schneider Electric group solutions including MGE Galaxy® 5000 60kVA UPS, Galaxy® 6000 400kVA UPS fitted with THM and advanced pack filters, MGE Upsilon® Static Transfer Switches, specialist in-room MGE PDUs and modular input/output panels. The physical infrastructure is comprised of APC InfraStruXure® rack systems with In-Row® chilled water cooling units and rack-mounted PDUs, Airedale Ultima chillers with free cooling systems to 400kW and multiple 1 MW generators installed by APC Gold Partners, RM Donaldson.

From a cooling perspective, customers have the choice to use in-row, hot or cold aisle containment or more classically a raised floor environment to which Domicilium have added a twist by engineering a system that provides equal cool air distribution across the full height of the equipment racks which are equipped with sensors to monitor the internal environment and provide an alarm if there is any unexpected build up of heat. From an efficiency and carbon footprint perspective, prevailing weather conditions coupled with advanced free cooling technology means that free cooling is available for approximately 40% of the year.

The datacentre network is comprised of extensive power distribution and cabling links, again facilitating the modularity of the design. Phil Adcock continues: *“We have supplied a Tier 3 power distribution system with the capability to operate at Tier 4. In addition to 10 miles of power cabling, we have also installed over 30 miles of data cabling into the fabric of the datacentre. This means that data rooms can be added, sub-divided or taken away, with no disruption to services. The internal walls are constructed using AST’s SmartShelter components, which are both fire resistant and penetration proof to provide additional layers of security within the building.”*

The Domicilium opportunity is based partly on the suitability of the Isle of Man for data facilities, located as it is, only one hour’s flight from major UK mainland airports. While UK organisations become increasingly concerned at power problems, the shortage of suitable space and the threats that may be attendant on high-profile city centre locations, the Isle of Man offers a relatively threat-free environment, three power stations and a hydro-electric plant which generate three times as much electricity as the island currently uses and a fully fibred communications infrastructure including two SDH rings and multi-terabyte capacity.

Domicilium’s Isle of Man location represents advantages of power availability, security and the

availability of fully-provisioned space. In addition, Domicilium has ensured that key suppliers such as RM Donaldson and Schneider Electric with APC and MGE solutions have trained local sub-contractors to a level necessary to provide 24/7 support whilst locally increasing the stock availability of critical parts. These commitments ensure a better than four hour response time in the event of an outage caused by a critical equipment failure can be achieved, whatever the weather.

The success of the new facility can best be judged by the fact that the first modular solution was designed, developed and deployed in under 8 weeks with a physical build time of 11 working days to deliver a fully redundant, self contained facility. Further expansion for another 10000 square metres is already underway.

Domicilium's modular approach to the data centre market has enabled the company to develop markets beyond its original base in offshore finance and gaming, among both mature organisations wishing to invest more substantially in IT facilities and start-up companies looking for lower levels of initial investment. Pressures on costs, the questionable viability and probable risk of deploying small numbers of high density servers in-house and the recognition among companies for whom IT is not core business are now filling out the Domicilium facility.

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