Zen Internet

Case Study

About

Zen Internet is one of the UK's leading independent Internet Service Providers (ISP). When launched in 1995, Zen was one of the first ISP's in the country and has remained at the cutting-edge of the industry ever since.

The Brief

Sudlows were engaged to design and build a new data centre facility located at the company's headquarters in Rochdale. This new £4 Million facility required a new energy efficient and extremely resilient design in order to retain Zen's award winning levels of support for its customers.

The project forms the first of a number of planned phases over the next few years, with the primary objective of installing 56 new data cabinets on the ground floor, with the expansion potential for 14 more.

Data Centre Components

- N+1
- Tier 2 Facility
- 2 MVA Capacity
- 2 x 500kVA DRUPS
- 6,500 Litre Diesel Tank
- 6 x 60kW Liebert CRAC
- 1 x 80kW Airedale DX CRAC
- 270 x Rack space

Value:
£1.5 million

Size:
1350m^2

Duration:
3 months

Power

Sudlows responded to Zen Internet's infrastructure needs by building a 1,350 sq. metre, Tier 2 facility. It was fitted out with state-of-the-art power, cooling and environmental management infrastructure, providing an impressive 2MVA capacity.

Technical expertise was shared throughout the design and installation phases from our specialist electrical and mechanical departments who have a broad technical understanding of these unique environments.

The project began with the construction of a dedicated plant room on the ground floor to house additional power infrastructures such as the switchgear and LV panel. Completed with generator connections, automatic transfer switch and UPS panel and bypass switch. This was created by forming partition walls of a metal stud and lined with fire-rated plasterboard.

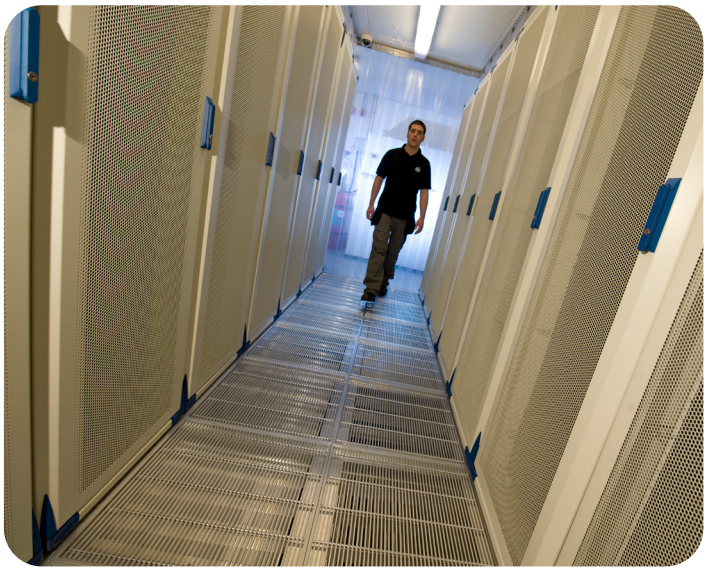
An extension to the existing electrical installation was a necessity due to the high power requirements of the data centre and with a programme of phased expansion works planned for the future.

DRUPS

Delivering 100% uptime to all of Zen Internet's hosting customers was a crucial objective, so N+1 standby power generation was supplied with two 500kVA Diesel Rotary Uninterruptible Power Supplies(DRUPS), providing 'no break' power with full control gear, panel and synchronisation for parallel systems.

Switchgear

Sudlows developed a switchgear solution with the advantage of enabling and initial expansion without requiring additional investment in new High Voltage (HV) supplies, HV cabling, associated transformer and additional capacity. The existing switchgear incorporated two Power Factor Correction (PFC) units, each occupying an 800A switch fused at 400A. The PFC units were reconfigured and redistributed across other smaller switch panels within the existing switchgear' to enable the utilisation of 800A feeds.



Power Distribution

The Sudlows delivery team installed significant under-floor power distribution throughout the entire facility to provide two 32A commando sockets to each of the 56 new data cabinets. In addition to this, the electrical Distribution Boards were installed as full, floor-mounted, Power Distribution Units (PDUs).

Connectivity

Even the most demanding connectivity and bandwidth requirements are easily accommodated within the data centre with direct connection to Zen's fully diverse core network.

Environmental Monitoring

The facility was fitted with a Novec fire suppression system, continuously monitored by automated management systems, CCTV and onsite security guards.

Cooling

The precision cooling is achieved through six 60kW Liebert downflow CRAC units mounted around the perimeter of the data centre that are in turn connected to the buildings existing chilled water free cooling system.

These existing units were legacy equipment and underwent significant refurbishment to meet modern data centre needs. Work involved upgrading to the latest microprocessor controllers and software, upgrading the evaporator fan assemblies to latest EC models, electrically rewiring the control and power, hydraulically rebalancing the chilled water.

Due to the limited availability of the building's chilled water, the balance of cooling is made up by the installation of a further 1x80kW Airedale dual circuit Smartcool downflow air-cooled DX CRAC unit.

With future growth in mind, Sudlows have installed additional refrigerant pipework to enable two future Airedale units of similar size and cooling capacity to be fitted within the facility, with minimum disruption to operation. Cool air is introduced into the cold aisles via heavy duty aluminium floor grilles mounted in the raised modular floor grid.

An energy efficient Cold Aisle Containment (CAC) system has been installed around the server racks to ensure that all equipment is efficiently cooled.

Testimonials

Richard Tang, Owner and Managing Director at Zen Internet commented;

"Our entire business strategy is built around our mission to provide the best ISP service in the UK and this investment will ensure that we deliver on this. We are so much more than just an ISP. We are committed to the continued growth of the company and have also invested heavily in our network, services and people to ensure that we lead from the front.

"All of our services are supported by a highly robust and resilient network, excellent technical support and customer service. This ensures our products and services meet our customers' requirements and support their business needs."

David Horner, Data Centre Design Engineering Consultant for Zen Internet said;

"Zen presented our initial design ideas for the new DC, and then worked closely with Sudlows in a collaborative design review process, taking on board advice to improve and refine those plans. This helped ensure Sudlows has a really good understanding, from the outset, of both the potential and the limitations of the existing site in implementing our vision.

"In addition to assisting Zen in consideration of different key technologies and vendors, such as the selection of our Rotary UPS systems, critically, Sudlows were able to identify a key migration path we could take implementing the site electrical infrastructure in a modular fashion.

"As we moved into implementation, the same collaborative design review process was utilised to formally sign off all drawings between Zen's data centre facilities team, and the Sudlows design engineers. This close working process, with Sudlows providing sound technical advice and consultation, really helped to ensure any unexpected items or problems on site were minimised."

Robin Griffith, Head of Networks and Infrastructure at Zen Internet outlines the new facility;

"This first phase provides immediate capacity for 56 racks, with growth up to 270 racks. It will host a range of services: Co-location, Dedicated Servers, Managed Hosting, Web Hosting and Managed Networks; the first of the services are already being scheduled for installation. The phased build allows us to grow in a modular fashion in order to meet varying business needs, whilst sustaining a high efficiency for the facility. It is important for us to have the density we need to meet our customer's demands, but still maintain our environmental commitments.

"Zen has been providing hosting services to its customers for the last 15 years and is already an experienced data centre operator, having opened its first facility in 2009. The new data centre, designed by Sudlows, further enhances Zen's growing hosting portfolio and this initial phase, will be housing a range of Managed Hosting, Managed Cloud Hosting and Co-location services."

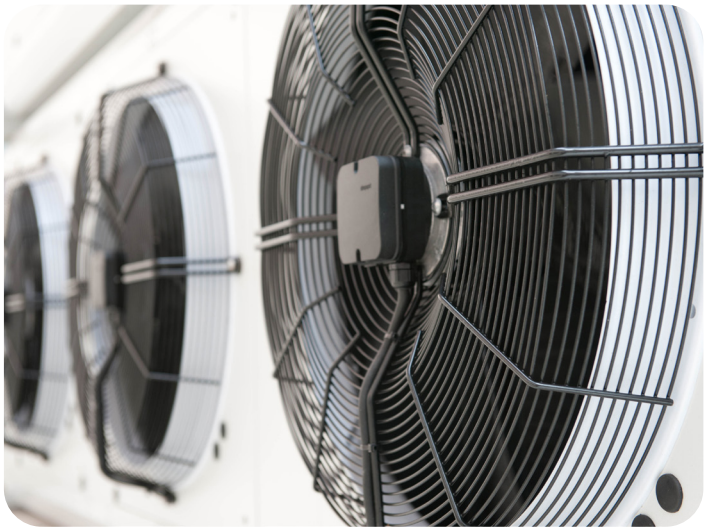
Andrew Saunders, Head of Product Management and Marketing said;

"As the cloud computing trend continues to gather momentum and businesses are increasingly reliant on IT systems to function, it has never been more important to ensure that a company's mission critical applications are hosted in a dedicated, energy efficient data centre. Providing a secure, temperature controlled environment, which has access to reliable, resilient power and connectivity."

Andy Hirst, Managing Director of Critical Infrastructures at Sudlows commented;

"The design of this new data centre will provide Zen with the ideal platform to offer their customers secure and fully resilient fast connections and ensure they maintain their status as the best ISP service provider in the UK.

"I would have to say the project, to date, has come together really well, helped all the more by the great team at Zen. In fact, our only real challenge came when a strike in Belgium caused a slight delay to the delivery of DRUPS. However, this was soon accommodated for and so all that was required to happen was that other areas of the programme were simply accelerated to compensate for this slight delay."



Robin Griffith concluded;

"We are really pleased with the new data centre. It would have been relatively easy to deliver our requirements if we were building a brand new site, but having to work within the constraints of an existing building required great team work between Zen and Sudlows.

"The ability of the team to solve problems both during the design, and then during the build was essential; the way Sudlows accommodated our requirements and offered advice meant that we were able to deliver a first class facility.

"Furthermore, their delivery plan looked extremely challenging and there were concerns about how the work might affect our operations but they have delivered to plan and been praised for the lack of disruption. We have worked well together and I'm looking forward to the next phase." "Our data centre is an essential part of our business strategy to help us meet our customer needs and grow our services, I'm proud of the facility and the teamwork that built it; I'm sure that we will have an enduring partnership with Sudlows."

"Overall the new installation provides a scalable solution which will allow Zen to progressively expand the infrastructure as and when their business calls for it. This will eventually form part of a new Low Voltage system, so that the data centre power can be segregated from the general services."