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Kao Data & Corning: Powering Advanced Computing

Corning and Kao Data are long-time collaborators, with a history that goes back to the very inception of optical fibre when Corning helped realise Sir Charles Kao's vision for laser light to be transmitted down an optical fibre.

Nearly 60 years and over one billion kilometres of fibre later, Corning has innovated continuously to increase the speed and capacity of optical networks and develop full-scale solutions to support the need for greater and greater bandwidth.

As for Kao Data, it now develops and operates high-performance data centres for advanced computing customers across the spectrum of cloud, enterprise, high-performance computing (HPC) and artificial intelligence (AI). Through a hyperscale-inspired design, it offers the highest-grade, sustainable colocation

capacity and specialist provision for high-density computing requirements, including supercomputers and machine learning.

From vaccine development to biomedical research and industry-leading speech recognition technology, Kao Data supports customers at the very cutting edge of their fields with three state-of-the-art colocation facilities east and west of London, and a new 40MW site in Manchester.

Its Harlow campus, based at the gateway to the U.K. Innovation Corridor between London and Cambridge, is home to the U.K.'s fastest and most powerful supercomputer, NVIDIA's Cambridge-1, which is accelerating U.K. healthcare research into areas such as drug discovery and genome sequencing.



The right tools for the job

With an array of clients that need access to high-density, industrial-scale infrastructure for the highest levels of AI and supercomputing, it's essential that Kao Data's networks can handle the enormous bandwidth that HPC requires.

“We’ve enjoyed a long and successful partnership with Corning, whose vast experience and high-quality product portfolio helps us to provide a world-class service, with high-density, industrial-scale connectivity that is fueling countless customer innovations.”

— Mark Putt, Connectivity Specialist, Kao Data

From the applications and hardware to the connectivity in its data centres, Kao Data simply cannot afford any weak links in its IT operations. With the team using high-quality optical fibre across its data centres to deliver the necessary performance and range, it selected Corning to support the industrial scale and advanced computing capabilities needed to fuel the needs of its cutting-edge customers.

Corning has vast experience in supporting data centre customers across the whole spectrum of designs and classifications – from enterprise and colocation to

hyperscale – with solutions to provide flexible, reliable and manageable network infrastructure. This ranges from Corning® ClearCurve® multimode or single-mode and Corning® SMF-28® Ultra low-loss optical fibres, which deliver enhanced macrobend performance to mitigate signal loss and extend network links to solutions that support every stage of the installation process and beyond.

Both Corning and Kao Data recognise that network connectivity must be flexible to growth and changes. They work with customers to not only meet their requirements today but help them put a future-ready infrastructure in place as well. Bandwidth demand is growing fast and supporting migration to higher data rates like 800G with a granular, scalable backbone that can support network upgrades with minimal changes – like an MPO-based EDGE8® solution – is key. In working with Corning to optimise their data centre infrastructure to adapt to future technologies and requirements, Kao Data customers can optimise their space and manage moves, adds and changes (MACs) without compromising uptime.



Enabling customers to grow sustainably is also key for Kao Data and Corning. Across all its sites, Kao Data is committed to operating the U.K.'s most sustainable and energy-efficient data centres. Today it is powered by 100% renewable energy and utilises hydrotreated vegetable oil (HVO) in all its generators, which removes fossil fuels in their entirety and reduces 90% of net CO₂ emissions. Key to achieving industry-leading levels of energy efficiency is its cooling architecture, which helps to deliver an SLA-backed PUE of 1.2 for customers, even at partial loads.

Efficiency has been an important factor in Kao Data's collaboration with Corning, whose sustainability commitments extend from powering its own manufacturing plants with renewable energy, to reducing consumables and CO₂ in the product design and packaging process. Optical fibre is itself a more sustainable material than copper, with low energy consumption, low maintenance requirements and a significant reduction in embodied carbon.

The future is bright

As the advanced computing landscape in the U.K. continues to evolve, with new hotspots for research and development emerging across the country in key areas from Oxford and Cambridge to London and Manchester, data centre hubs will

play an important role in powering the industrial-scale computing revolution.

The pace of technological development shows no signs of abating, and Kao Data is already exploring how workloads and hardware inside the data centre can change and adapt to support the likes of quantum computing. Corning's role in supporting the transition to faster, greater, and more powerful data rates, enabling even higher density connectivity and simplifying and refining network design will be key.

With years of successful partnership and with strategic plans for expansion into Manchester and beyond, Kao Data and Corning will continue to support building and operating resilient, sustainable, and high-performance data centres, wherever they are needed.



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