

VERNE

CUSTOMER SUCCESS STUDY

Helping Wirth Research deliver innovation at zero carbon cost

Verne helps engineering consultancy sustainably power its efforts to increase industry efficiency

Founded in 2003, and with its roots in motorsports, Wirth Research is an engineering, design technology and advanced computational fluid dynamics (CFD) consultancy. It focuses on using its expertise in advanced engineering technologies to design and develop innovative airflow solutions, reducing the need for costly physical tests and the wasteful manufacture of prototypes.

The company's main aim is to help businesses improve their sustainability, by applying its world-leading knowledge of CFD to solve energy consumption issues, particularly those relating to air or thermal inefficiencies, in order to make the world a better, more sustainable place to live. For example, its research can be used to improve the efficiency of refrigeration – saving some supermarkets up to 40 percent of their footprint – or to deliver natural ventilation schemes that can minimise the airborne transport of viruses.

Challenge

CFD is extremely power-intensive. In order to perform its high resolution analyses, Wirth Research requires a high intensity computing environment capable of supporting trillions of calculations a second, with calculations often being re-computed every fraction of a second.

Before the pandemic struck, Wirth Research had already begun looking for an alternative location for its high intensity compute equipment – not least because the company had already blown out its local power station once already. The infrastructure was simply not in place to support its work at the scale it wanted, and the company needed to substantially upgrade its power.

The team briefly looked at hosting its equipment in a portacabin in a car park, but doing so was prohibitively expensive, as was the cost of using a cloud provider. What's more, Wirth Research's mission to help industry customers solve energy consumption issues and improve efficiencies meant it wanted to practice what it preached by finding a way to increase the efficiency of its own energy-intensive operations.



The cost of annual service, power and connectivity from Verne is equivalent to about three months of our previous electricity bill alone. The fact that our research is now powered totally by renewable energy is the cherry on top.

Nick Wirth
President & Technical Director


wirthresearch



Originally the distance was a concern of mine but performance has been consistently excellent. I often forget the equipment is thousands of miles away and not sitting right next to me.

Rob Rowsell, CTO

Results



Reliable, plentiful power

The abundance of renewable power in Iceland and the country's notoriously stable grid means col locating compute here is an extremely reliable (and cost-effective) long-term investment. Wirth Research continues its operations from the UK as before with no concerns over power availability, while Verne's team of highly skilled onsite staff ensure that the company's equipment is running optimally, at all times.



Improved speed & performance

The low cost of power in Iceland means that the cost of handing over hosting duties to Verne is an order of magnitude smaller than choosing either the cloud or a data center closer to home in the UK. These savings have allowed Wirth Research to invest in its superior, cutting-edge Dell equipment that has not only improved the speed and performance of its compute, but also improved its energy efficiency.



A turnkey HPC solution

The partnership between Dell and Verne packaged hardware, colocation, networking and installation to deliver a turnkey solution to Wirth Research, fitting the infrastructure to the company to exactly suit its needs. Not only has Wirth Research benefited from Dell's customised designs straight out of its HPC & AI Innovation Lab, the partnership means the CFD specialist can continue to consult the expertise of both companies moving forward, engineering and fine-tuning its turnkey solution to ensure systems remain tuned specifically for its workloads.



Innovation at zero carbon cost

Located on Verne's data center campus, Wirth Research's compute is powered by 100 percent renewable hydroelectric and geothermal energy. This sustainable alternative to fossil-fuelled compute power, along with the free air cooling offered by Iceland's perennially temperate climate, allows Wirth Research to analyse and verify performance of designs for industry customers at zero carbon cost. Furthermore, moving its HPC to Iceland provided the company with the opportunity to relocate its UK operations to a new state-of-the-art eco-friendly office, which creates more electricity than it uses.

Solution

While Wirth Research had previously believed itself tethered to where its supercomputer was located, the pandemic exposed relocating its compute as a viable solution. Once it had become clear that its hardware did not necessarily need to be located near employees to operate optimally, Wirth Research realised it could 'outsource' its high intensity compute.

The CFD specialist considered using the services of a cloud provider or choosing a data center in the UK, but these options turned out to be expensive and remained a burden on the non-renewable power grid. Instead, Wirth Research elected to relocate its high intensity compute to Verne's data center campus in Iceland, where renewable power, stable grid, and year-round cool temperatures made it the ideal partner to help the company meet its sustainability goals and power needs.

Additionally, Verne's **Dell Technologies Titanium Partner** status allowed Wirth Research to build a turnkey high intensity compute infrastructure while upgrading its hardware. The company now runs its supercomputing-class applications on brand new Dell EMC PowerEdge servers, powered by AMD Epyc CPUs and Nvidia Tesla T4 GPUs.



info@verneglobal.com
www.verneglobal.com