HUBER+SUHNER strengthens collaboration with Microsoft to advance global deployment of Hollow Core Fiber connectivity in the Microsoft Azure network

HUBER+SUHNER today announced a strengthening of its close collaboration with Microsoft Azure Fiber with further planned investments in its production capabilities to accelerate the rollout of Hollow Core Fiber (HCF) cable and connectivity solutions supporting cloud and artificial intelligence (AI) infrastructure. As part of the cooperation, HUBER+SUHNER expects progressive growth in manufacturing volumes as Microsoft deploys HCF across more Azure regions.

Since 2017, HUBER+SUHNER has worked closely with the Azure team in Romsey, UK, (formerly the University of Southampton spin-out Lumenisity), to develop and manufacture innovative HCF cable and connector solutions. These solutions are already deployed in the Azure network, with higher-capacity variants under development to support Microsoft's future scaling of its HCF-enhanced cloud infrastructure.

HUBER+SUHNER and Microsoft have developed and qualified a series of ruggedized outside plant (OSP) and inside plant (ISP) cable solutions, certified for field deployments. In parallel, the collaboration is progressing its next-generation, higher-density HCF cable designs to support future Azure network requirements. At the HUBER+SUHNER manufacturing plant in Herisau, Switzerland, special processes have been established to integrate HCF into stranded multi-fiber loose-tube (MLT) cables, with capacity to grow as Microsoft's ecosystem collaborators expand fiber manufacturing at scale.

Additionally, HUBER+SUHNER has created an innovative mode-converting HCF connector specifically engineered for the demands of hyperscale and metro-optical environments. These patented HCF connectors are in series production at HUBER+SUHNER's Cube Optics facility in Mainz, Germany, and the company is investing to further scale manufacturing capacity to meet accelerating demand. With qualified designs in both HCF cables and connectors, HUBER+SUHNER is now extending its HCF product portfolio to enable fully integrated, end-to-end connectivity solutions.

Long-standing collaboration

"HUBER+SUHNER is proud to support Microsoft as HCF connectivity solutions move to deployment at scale. Building on our foundations of innovation and quality, we can expect further advances in our HCF connectivity portfolio as the pace of adoption accelerates," said Jürgen Walter, COO Communication Segment at HUBER+SUHNER. "Together, we look forward to shaping the future of cloud connectivity and unlocking the full potential of HCF."

"We value our long-standing collaboration with HUBER+SUHNER, which has helped us transition HCF technology from advanced research into operational deployment in the Microsoft Azure network," said Colin Wallace, GM Cloud Network Engineering, Microsoft Azure. "These HCF cable and connector technologies are already deployed and carrying live traffic over Azure HCF links today, and this integrated capability will help us rapidly co-design and scale connectivity solutions for the future of cloud and AI network infrastructure."

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Why HCF matters
The performance of optical networks has the potential to be transformed by HCF. By guiding light in air rather than glass, data is transmitted 47% faster, enabling low-latency communications both within and between data centers (DCs).

Microsoft's Double-Nested Anti-Resonant Nodeless Fiber (DNANF) achieves record-low loss and far greater launch powers than are possible with standard solid-glass single-mode fiber (SMF), reducing or eliminating the need for optical amplification in metro-scale networks.

Deployment of an all-HCF network delivers significant business benefits for next-generation DCs, including greater location flexibility to minimize energy and real-estate costs; and improved efficiency of distributed AI training by reducing latency across compute clusters.

Meeting the connectivity challenges of HCF
Several practical challenges need to be overcome to enable widespread deployment of HCF. In addition to robust HCF cable designs that preserve low-loss transmission characteristics, termination solutions are needed that can protect the HCF end-face and interface seamlessly with existing SMF infrastructure and equipment to make it easy to build and maintain end-to-end communication systems at scale.

HUBER+SUHNER's high-performance HCF connectors transform light in the HCF core to industry-standard SMF LC/UPC and LC/APC connector interfaces with low loss and low back-reflection, while sealing the fragile hollow core microstructure against environmental contamination. Designed to withstand high optical launch powers, the HUBER+SUHNER HCF connector facilitates simple installation and commissioning of HCF transmission systems.

This media release can be found at https://www.hubersuhner.com/en/newsroom/company-news/news-ad-hoc-news and is also available in German.

Image: Hollow Core Fiber (HCF) cable and connector © HUBER+SUHNER

HUBER+SUHNER Group
The globally active Swiss company HUBER+SUHNER develops and produces components and system solutions for electrical and optical connectivity. The company serves the three main markets Industry, Communication and Transportation with applications from the three technologies of radio frequency, fiber optics and low frequency. HUBER+SUHNER products excel in excellent performance, quality, reliability and long service lives – even under the most demanding conditions. Through a global production network, combined with subsidiaries and representatives in over 80 countries, the company is close to its customers worldwide.

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