

Nu Quantum and Cisco join forces for world-first advance after £2.3m contract win

Cambridge-based quantum networking company Nu Quantum has won a £2.3 million contract from the UK government to deliver a world-first modular, rack-mount and scalable quantum data centre prototype.

Nu Quantum is collaborating with Cisco, using the US headquartered technology giant as a prospective end user for the project.

A world leading supplier of networking infrastructure, Cisco has vast experience in delivering scalable, resilient and performant data-centre services. As part of this collaboration, Cisco intends to contribute to key system requirements and help to evaluate final deliverables.

The project, called LYRA, delivers discrete 19-inch rack-mount modules for control-plane and optical interfacing. This modular architecture allows in-field upgrades to support different quantum computer modalities and alternative wavelengths.

The solution also incorporates a new high-precision timing-architecture and digital control bus, allowing the system to easily scale to support a large cluster of quantum-compute nodes.

The ultimate goal for quantum computing is to solve problems that are out of reach for even the most powerful classical computers. Commercially useful, fault-tolerant quantum computers of any modality will require millions of physical

qubits – between 1,000X to 10,000X what quantum computers are currently capable of.

There is increasing recognition that real-world systems will be most efficiently architected by combining tens to thousands of computing cores or quantum processing units supported by quantum networking units. Nu Quantum says that LYRA delivers the world-first modular, rack-mount and scalable QNU prototype.

Carmen Palacios, co-founder and CEO of Nu Quantum, said: “We are honoured to be awarded the contract from UK SBRI to pilot the first prototype of a quantum data centre in the world and to have an amazing partner like Cisco.

“LYRA takes the cornerstone quantum networking units from optical-bench to a deployable, prototype-product, capable of supporting test-bed integration with trapped-ion qubits and software stacks.

“The LYRA QNU is designed for future support of different qubit modalities and is a huge step forward in bringing quantum out of the lab and into real world use.”

Peter Shearman, head of Co-Innovation at Cisco UK & Ireland, said:

“The potential of quantum computing is extremely exciting. However, it is increasingly accepted that to reach its potential quantum networking will be needed to scale quantum computing to a Fault Tolerant era.

“We are delighted to partner with Nu Quantum to accelerate this journey towards a modular, qubit-agnostic and data centre-optimised future.”

The funding has been awarded under the ‘SBRI: Quantum Networks, Enabling Components & Systems’ competition and is extra to other procurements contracts awarded directly from the UK Government in 2023.

Roger McKinlay, Challenge Director – Quantum Technologies for UK Research and Innovation added: “The award of this contract to Nu Quantum, working with Cisco, is a perfect example of what we were seeking when we launched this SBRI competition earlier this year.

“Partnerships are as important as products to accelerate the development and adoption of this transformative technology.”

Founded in 2018, Nu Quantum is a Cambridge University spinout from the Cavendish Physics Laboratory. In November 2023, the company raised an £8.5m pre-series A round from main investors Amadeus Capital Partners, Expeditions Fund and IQ Capital to accelerate its mission to build the entanglement fabric essential to scale quantum computers.