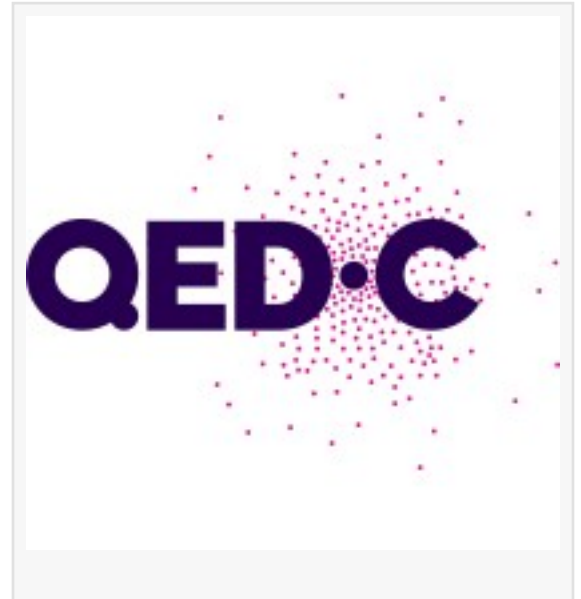


QED-C® Roadmap Identifies Infrastructure Priorities Critical to Scaling Quantum Networks

New report finds quantum optical network switches, repeaters and satellite infrastructure could each enable 9 of 10 high-impact quantum networking applications

ARLINGTON, VA, UNITED STATES, July 29, 2026 /EINPresswire.com/ -- The Quantum Economic Development Consortium ([QED-C](#)) today released a new Quantum Networking Applications Roadmap, identifying the technologies and performance improvements needed to enable quantum networks for commercially valuable applications in secure communications, networked computing, and distributed sensing.



As quantum computing, sensing, and security technologies mature, their capabilities and value will also depend on whether quantum information can be shared reliably between systems, across useful distances, and among multiple users. The roadmap identifies 10 applications across network security, networked quantum computing, and networked quantum sensors, along with the performance metrics and technologies necessary for those applications to achieve their full

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*Saikat Guha, co-director of
NSF Center for Quantum
Networks (CQN)*

potential. The applications assessed include quantum key distribution, blind quantum computing, clustered and distributed quantum computing, and distributed quantum sensing.

Based on expert input, the roadmap finds that advances in quantum optical network switches, quantum repeaters, and quantum satellite infrastructure are necessary for most of the applications assessed. Advances in quantum light sources and light-matter interfaces are also critical for many applications.

These insights help clarify which parts of the quantum

networking stack may deserve the most attention from funders, policymakers, companies, and researchers. While quantum networks are expected to support future applications ranging from secure communications to distributed computing and advanced sensing, the report finds that today's systems remain limited. Current quantum network performance can support only two of the assessed applications, quantum key distribution and distributed quantum sensing, and only in point-to-point, short-distance deployments.

"Quantum networking is still in its early stages of development, but it has the potential to extend the value of quantum computing, sensing, and security," said Dr. Celia Merzbacher, Executive Director of QED-C. "This roadmap is intended to show the various capabilities and technologies in which progress is needed and where targeted investment could have the greatest impact."

The roadmap also speaks to which network capabilities are most often holding applications back. Improvements are needed in qubit transmission rate and transmission distance, as well as in fidelity and synchronization. Together, the gaps in what is required and today's capabilities clarifies where research is needed to support larger, more flexible systems beyond today's relatively limited connections.

"QNAR 2.0 represents a major step forward in our understanding of commercially relevant quantum networking applications and their technical requirements," said Saikat Guha, co-director of NSF Center for Quantum Networks (CQN). "Developed jointly by the Center for Quantum Networks, the QED-C, and industry stakeholders, it provides a foundation for aligning research with high-impact use cases and informing the technical roadmaps needed to accelerate technology transition."

The roadmap was developed through a collaboration between QED-C and the Center for Quantum Networks and builds on an earlier roadmap developed by CQN. The effort involved contributors from across industry, government, academia and national laboratories, including representatives from L3Harris Technologies, IonQ, the University of Arizona, SRI International, the National Science Foundation, the National Institute of Standards and Technology, Argonne National Laboratory, Fermi National Laboratory, Horizon Quantum, Aliro Quantum and other organizations.

The full Quantum Networking Applications Roadmap is available here:

<https://quantumconsortium.org/publication/quantum-networking-applications-roadmap/>

Industry and research experts will discuss application requirements, market opportunities, benchmarking frameworks and future research and development priorities during the QED-C webinar, "Advancing Quantum Networking Applications," at 11 a.m. EDT Aug. 12. Registration is available at: <https://quantumconsortium.org/event/from-roadmap-to-reality-advancing-quantum-networking-applications/>

About QED-C

The Quantum Economic Development Consortium (QED-C) is the world's premier association of pioneers in the quantum technology marketplace. Members of QED-C enable the real-world application of quantum technology, and, in turn, grow a robust commercial industry and supply chain.

Sitting at the intersection of tech, academia, business, entrepreneurship, and policymaking, QED-C is uniquely able to foster the collaborations the industry needs. QED-C is where experts and organizations share knowledge and collectively shape how quantum technology will grow.

QED-C is managed by SRI.

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