

## **Quantum Corridor, Toshiba Demonstrate First Cross-State Quantum Key Distribution Over Live Commercial Metro Fiber Network**

*Proof-of-Concept Passes Quantum Keys from End-to-End Over Photonic Network Spanning Heart of Chicago to NW Indiana*

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Quantum Corridor, in collaboration with Toshiba International Corporation and partners, today announced the successful demonstration of quantum-secured communication over a live metropolitan fiber network connecting Tier III data centers in Illinois and Indiana—an achievement that marks a critical step toward building a commercially scalable, quantum-safe internet for the United States.

The team successfully implemented Quantum Key Distribution (QKD) over commercial fiber infrastructure spanning from Chicago's ORD 10 Data Center (350 Cermak) to the Digital Crossroad Data Center (100 Digital Crossroad Drive) in Hammond, Ind. The experiment validated the use of Toshiba's multiplexed QKD technology and Ciena's high-speed coherent transport systems to deliver continuous, secure key generation and high-throughput encryption across a 21.8km segment of Quantum Corridor's live high-capacity optical network.

In QKD, the cryptographic key is co-generated through the interplay of quantum physics—where single photons' quantum states establish correlated randomness—and classical communication, which reconciles and verifies that randomness into an identical secret key at both ends. This is the first demonstration on any commercial carrier in the U.S.

*"This is a historic step toward realizing a quantum-secure communications fabric for America's digital economy, defense, life science industry and beyond," said Ryan Lafler, President & CTO of Quantum Corridor. "Working with Toshiba and our regional partners, we've shown that quantum-safe networking can be deployed today—on existing infrastructure—to protect the data that underpins our most critical systems."*

The system achieved secure key rates averaging 1,500 kbps, far exceeding typical field expectations. Integrated with Ciena's Waveserver 5 800G coherent encryption modules, the implementation maintained 100% line-rate throughput with zero packet loss over 48 hours of continuous encrypted traffic, supporting AES-256-GCM encryption.

*"This achievement marks a significant transition towards commercially viable secure quantum key distribution across state boundaries in a major metropolitan center. This result from Quantum Corridor and Toshiba bodes well for further commercial expansion in the Midwest Quantum heartland," said Dr. Michael Manfra, Director of the Purdue University Quantum Science and Engineering Institute.*

## A Regional Collaboration

Both CQE corporate partners, the Quantum Corridor and Toshiba collaboration grew from the Chicago Quantum Exchange partnership program, which accelerates the progress of quantum innovations by connecting organizations to advance research and development and address gaps in the quantum ecosystem.

*"The partnerships that fueled this work highlight the essential role of collaboration across borders and between organizations in accelerating quantum technology development," said Dr. Aashish Clerk, Director of the Pritzker School of Molecular Engineering at the University of Chicago.*

Quantum Corridor piloted this project using Toshiba QKD equipment that was on loan to the Chicago Quantum Exchange. In addition, a University of Chicago graduate student provided valuable input on the use of the QKD unit.

Visit [www.quantumcorridor.com](http://www.quantumcorridor.com) for more information.

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## About Quantum Corridor Inc.

Quantum Corridor Inc. was formed by Chicago-area technology innovators to drive technology infrastructure to Indiana and create an information-sharing platform for institutions such as Chicago Quantum Exchange, defense contractors, research hubs and universities. It is a member of the Bloch Tech Hub, a coalition of industry, academic, government and nonprofit stakeholders led by Chicago Quantum Exchange, one of 31 U.S. Regional and Innovation Technology Hubs designated for quantum technologies. Quantum Corridor Inc. was named a Chicago Quantum Exchange member in April 2024. Generally targeted to the largest research and education centers and to entities that can use high bandwidth, the Quantum Corridor network will stretch 263 miles and be the nation's largest quantum computing superhighway.

## About Toshiba International Corporation

Toshiba International Corporation, a Toshiba America Inc. Group company and a wholly owned subsidiary of Toshiba Corporation, encompasses a diverse range of divisions and business units, including Motors & Adjustable Speed Drives, Power Electronics, Automotive, Transportation, Digital Solutions, Quantum Key Distribution and Transmission & Distribution. Headquartered in Houston, Texas, TIC provides application solutions to a wide range of industries including the energy sector, general industrial, data centers, automotive, medical and more.

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