News Release

TOSHIBA

May 27, 2025
Toshiba Asia Pacific Pte. Ltd.

Toshiba Showcases Quantum-Safe Networks with SpeQtral and Ciena to Prepare Singapore Businesses for the Quantum Era

SINGAPORE -- Toshiba Asia Pacific Pte. Ltd. (TAPL), a subsidiary of Toshiba Corporation, is set to showcase its latest quantum-safe network platform at Asia Tech Singapore (ATxSG) 2025. This demonstration highlights Toshiba's commitment to advancing quantum-safe communications by leveraging collaborative efforts with SpeQtral, a leader in quantum communications technology, and Ciena, a global provider of high-speed connectivity solutions. The companies will present quantum-safe optical encryption solutions by combining Toshiba's Multiplexed Quantum Key Distribution (QKD) technology with Ciena's high-capacity modular transport platform equipped with proven optical encryption capabilities, enabling robust, quantum-safe data transmission for the digital future.

Actual setup of the Quantum-Safe optical encryption demonstration

The collaborative showcase highlights the following innovations:

1. **Defense-in-depth Security:**

   Toshiba's QKD offers a cutting-edge, hardware-based security solution by harnessing the principles of quantum physics to generate encryption keys that are fundamentally immune to interception. When integrated with Post-Quantum Cryptography (PQC), which utilizes advanced cryptographic algorithms to withstand quantum computing threats, this defense-in-depth approach establishes an unparalleled standard of protection. The combination of QKD and PQC delivers robust, future-proof security, ensuring comprehensive defense of sensitive data against both present and emerging quantum attacks.
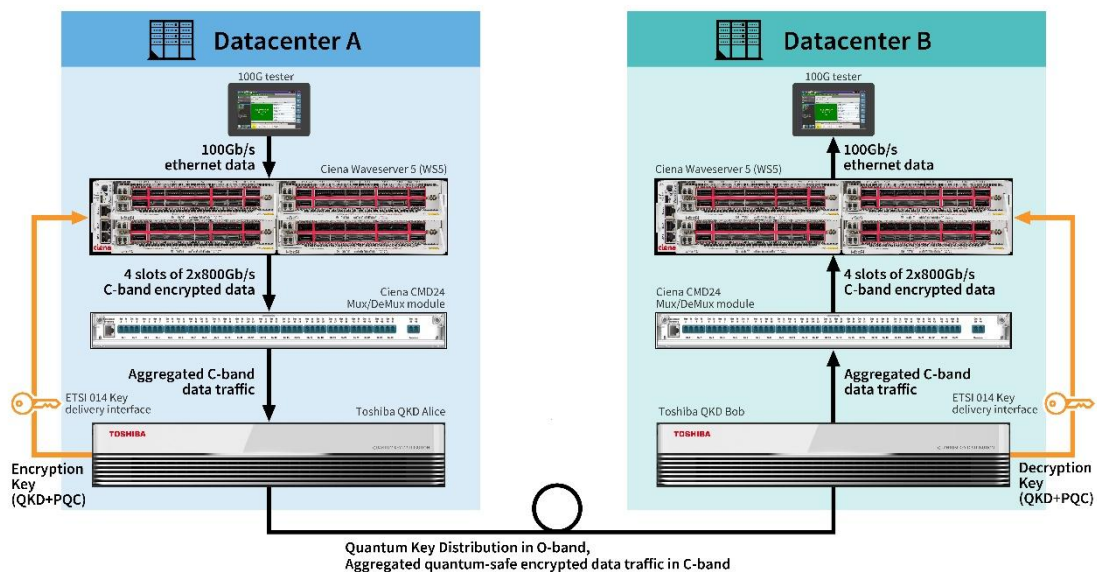
2. **Quantum-Safe Optical Encryption:**

   In the demonstration, Toshiba's quantum-safe network platform is seamlessly combined with Ciena's Waveserver 5 platform, eliminating the need for dark fiber and reducing deployment costs. This collaboration enables 800 Gb/s encrypted quantum-safe communications, allowing secure data transmission on existing infrastructure without significant upgrades and demonstrating a practical, cost-effective path to quantum-secure networking for organizations worldwide.

3. **Quantum-Safe Communication Solutioning**

   As a strategic partner to Toshiba, SpeQtral plays an important role as a quantum-safe solutions architect, enabling the design and deployment of quantum-ready networks tailored for telco and enterprise customers in Singapore. This collaborative initiative paves the way for local businesses to seamlessly adopt next-generation, quantum-resilient data security to safeguard digital infrastructure against emerging threats.

Quantum-Safe optical encryption demonstration

Toshiba MU QKD + Ciena Waveserver 5 setup on existing fiber infrastructure

"There is a growing need to create networks that are not only faster and more adaptable, but also capable of withstanding future quantum-enabled threats. Through this demonstration with Toshiba and SpeQtral, Ciena is showcasing a potential solution to protect and future-proof communication of sensitive data," said Matt Vesperman, Vice President, Asia Pacific, Ciena.

Chune Yang Lum, Co-Founder and CEO of SpeQtral, said: "As quantum threats shift from possibility to inevitability, building future-ready networks is essential and needs to start today. Our collaboration with Toshiba and Ciena demonstrates a clear path to integrating and scaling quantum security within existing network infrastructure. Now is the time for forward-looking organisations to lead the charge and secure their digital future."

"Toshiba is committed to advancing quantum technology from the lab to real-world practice. By fostering strong collaborations across the region, we are enabling organizations to confidently embrace quantum innovations. Our joint efforts with Ciena and SpeQtral highlight the practical benefits of quantum-safe communication, ensuring that businesses in Singapore and Asia Pacific can operate securely and efficiently in a rapidly evolving digital landscape," said Hiroshi Tsukino, Corporate Vice President of Toshiba Corporation and Vice President of ICT Solutions Division at Toshiba Digital Solutions.

Since 1999, Toshiba has led innovation in quantum cryptography, achieving several world-firsts such as:

- First QKD system operating over 100km of fiber (2003)
- First to achieve continuous key rates exceeding 1 Mbit/second (2010) and 10 Mbit/second (2017)
- World's first chip-based QKD system (2021)

Toshiba's advanced QKD systems deliver exceptional performance, enabling secure key transmission over longer distances and at higher rates than competitors. With the opening of a £20 million Quantum Technology Centre in Cambridge dedicated to developing quantum-secure networking solutions, including PQC integration, Toshiba remains committed to advancing quantum communication technologies and shaping a quantum-safe future.

Experience Toshiba's latest Quantum-Safe Solutions at ATxSG 2025, Booth 3P3-8, Singapore Expo Hall 3, from May 27-29, with live demonstrations of cutting-edge QKD technology. Prepare today to secure tomorrow's data with Toshiba's quantum-safe solutions.

About Toshiba Asia Pacific Pte. Ltd.

Toshiba Asia Pacific Pte. Ltd. (TAPL), a subsidiary of Toshiba Corporation, was established in 1995 as Toshiba's regional headquarters for operations in Southeast Asia, India and Oceania. Apart from its head office in Singapore, Toshiba Asia Pacific has overseas offices in Bangladesh and Vietnam. TAPL supports Toshiba companies in the Asia Pacific region with a strong focus on expanding our business in Energy Systems, Social Infrastructure Systems, Devices & Storage and Digital solutions. TAPL's commitment aligns with Toshiba's unwavering drive to solve global social issues by advancing the quest for carbon neutrality and resilient infrastructure by creating integrated value-add solutions. Find out more about TAPL at **https://asia.toshiba.com/**