



NEWS RELEASE

Adtran and Orange demo 400G transmission of QKD-secured data across 184km end-to-end system

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News summary:

- In the face of growing cyber threats and the advent of quantum computing, robust and future-proof network security is critical
- Joint trial features Adtran's open DWDM system combined with QKD key exchange and Adva Network Security quantum-safe encryption
- Demo uses hybrid key exchange, blending classical, approved cryptography with Toshiba's QKD for ultimate Layer 1 security

PARIS--(BUSINESS WIRE)-- Adtran today announced its collaboration with Orange on a lab trial of quantum key distribution (QKD) technology, marking a key step towards safeguarding real-world networks from the threat of quantum computer attacks. Using a unique arrangement of the most advanced QKD and WDM technologies, the milestone multi-vendor demo successfully showcased 400Gbit/s transmission of a QKD-secured 100Gbit/s data stream over a 184km SSMF through three QKD links and two trusted nodes. A hybrid approach combining classical cryptography and QKD was utilized, setting a new standard for future-proof security. Running over heterogeneous end-to-end infrastructure, the trial demonstrates the technology's maturity for widespread commercial deployment. Both the Layer 1 encryption and hybrid key exchange used in the trial are enabled by Adva Network Security's **ConnectGuard™** solution.



Adtran's technology is helping to showcase how real-world networks can be protected from the threat of quantum computer attacks.(Photo: Business Wire)

“As we navigate the opportunities and challenges that quantum computing

presents, it's clear we're at the beginning of a new era in network security. Our successful lab trial with Adtran highlights the magnitude of industry collaboration required to harness the full potential of quantum technology and secure our digital future,” said Gilles Bourdon, VP of wireline networks and infrastructure at Orange. “The synergy between Adtran's FSP 3000 open optical transport technology, Adva Network Security's ConnectGuard™ encryption, Toshiba's latest QKD systems, and our expertise in network integration sets a formidable benchmark for quantum-resistant communications across Europe.”

The trial featured Adtran's **FSP 3000** with OpenFabric™ technology for efficient encryption key distribution and optimized link performance. Leveraging a coherent 400Gbit/s DP-16QAM channel, the platform transported a QKD-secured data stream across two trusted nodes and three links, spanning 184km of standard, single-mode dark fiber. One of the trial's key achievements was overcoming data loss and distance constraints while transporting significant volumes of quantum-secure data alongside the quantum channel. The trial introduced a hybrid key exchange, blending classical asymmetric methods with QKD, creating a robust dual layer of security. While classical key exchange ensures immediate data protection in line with current cryptographic standards and governmental approval, QKD offers future-proof security, resilient against future computational advancements. The details of the trial will be presented in Glasgow, UK, at ECOC 2023.

“By utilizing a QKD trusted-node configuration provided by our technical partner Toshiba Europe/Japan, we're showcasing some of the practical applicability of this technology in today's networks. At Adtran, we've always been at the forefront of quantum security advancements, consistently applying the latest developments in QKD and post-quantum cryptography. This trial further underscores our dedication to pushing boundaries in this field,” commented Christoph Glingener, CTO of Adtran. “We've also always been committed to championing interoperability, promoting and contributing to open standards, such as the ETSI interface for QKD key delivery. Our latest collaboration with Orange emphasizes that an open, cooperative approach in the design and implementation of QKD solutions is indispensable to propel this vital technology at the speed we all require. Together, we're setting the stage for a future where our data remains secure, irrespective of the challenges coming over the horizon.”

About Adtran

ADTRAN Holdings, Inc. (NASDAQ: ADTN and FSE: QH9) is the parent company of Adtran, Inc., a leading global provider of open, disaggregated networking and communications solutions that enable voice, data, video and internet communications across any network infrastructure. From the cloud edge to the subscriber edge, Adtran empowers communications service providers around the world to manage and scale services that connect people,

places and things. Adtran solutions are used by service providers, private enterprises, government organizations and millions of individual users worldwide. ADTRAN Holdings, Inc. is also the largest shareholder of Adtran Networks SE, formerly ADVA Optical Networking SE. Find more at **Adtran**, **LinkedIn** and **Twitter**.

About Orange

Orange is one of the world's leading telecommunications operators with revenues of 43.5 billion euros in 2022 and 136,000 employees worldwide at 30 June 2023, including 74,000 employees in France. The Group has a total customer base of 291 million customers worldwide at 30 June 2023, including 246 million mobile customers and 24 million fixed broadband customers. The Group is present in 26 countries. Orange is also a leading provider of global IT and telecommunication services to multinational companies under the brand Orange Business. In February 2023, the Group presented its strategic plan « Lead the Future », built on a new business model and guided by responsibility and efficiency. « Lead the Future » capitalizes on network excellence to reinforce Orange's leadership in service quality. Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN). For more information on the internet and on your mobile: **www.orange.com**, **www.orange-business.com**, and the Orange News app or to follow us on Twitter: @orangegrouppr. Orange and any other Orange product or service names included in this material are trademarks of Orange or Orange Brand Services Limited.

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