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(57) Abstract :
The invention discloses a quantum-enabled device for secure cloud communication channels integrating a quantum photonic subsystem (101), a quantum-classical interface module (102), an intrusion detection engine (103), and a device controller (104). The system generates entangled photon pairs, establishes quantum keys, and translates them into usable session keys for cloud communication. Real-time detection of eavesdropping ensures compromised keys are discarded. The device supports fiber, free-space, and satellite channels, offering scalable, tamper-resistant, and quantum-resilient communication across multi-cloud infrastructures.

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