

Future-Proofing Networks with Nokia 1830 SMS and evolutionQ BasejumpQDN™

INTRODUCTION

Quantum computing is transforming the cybersecurity landscape, posing an unprecedented threat to traditional cryptographic systems. NIST's new post-quantum cryptography (PQC) standards serve as a clear call to action for organizations to begin transitioning their infrastructure. However, even as organizations migrate to PQC, those that rely solely on public key cryptography remain vulnerable to both future computational and quantum-enabled attacks.

To address these challenges, evolutionQ introduces **BasejumpQDN™**: a quantum-safe key management platform that complements **Quantum Key Distribution (QKD)** devices used within networks to support multi-vendor interoperability, scalability and operational efficiency. Quantum Key Distribution offers unparalleled security by harnessing the principles of quantum mechanics to securely generate and distribute encryption keys while ensuring that any attempt to intercept or tamper with the keys is detectable, thereby guaranteeing their confidentiality.

Through its integration with **Nokia's 1830 Security Management Server (1830 SMS)**, BasejumpQDN enables Nokia Connectivity Enablers to seamlessly orchestrate the use of QKD quantum-safe keys in complex mission-critical networks composed of inline encryptors, delivering enhanced security and quantum-resilience for the Quantum Secure Economy.

THE CHALLENGE

Implementing and scaling QKD presents significant challenges:

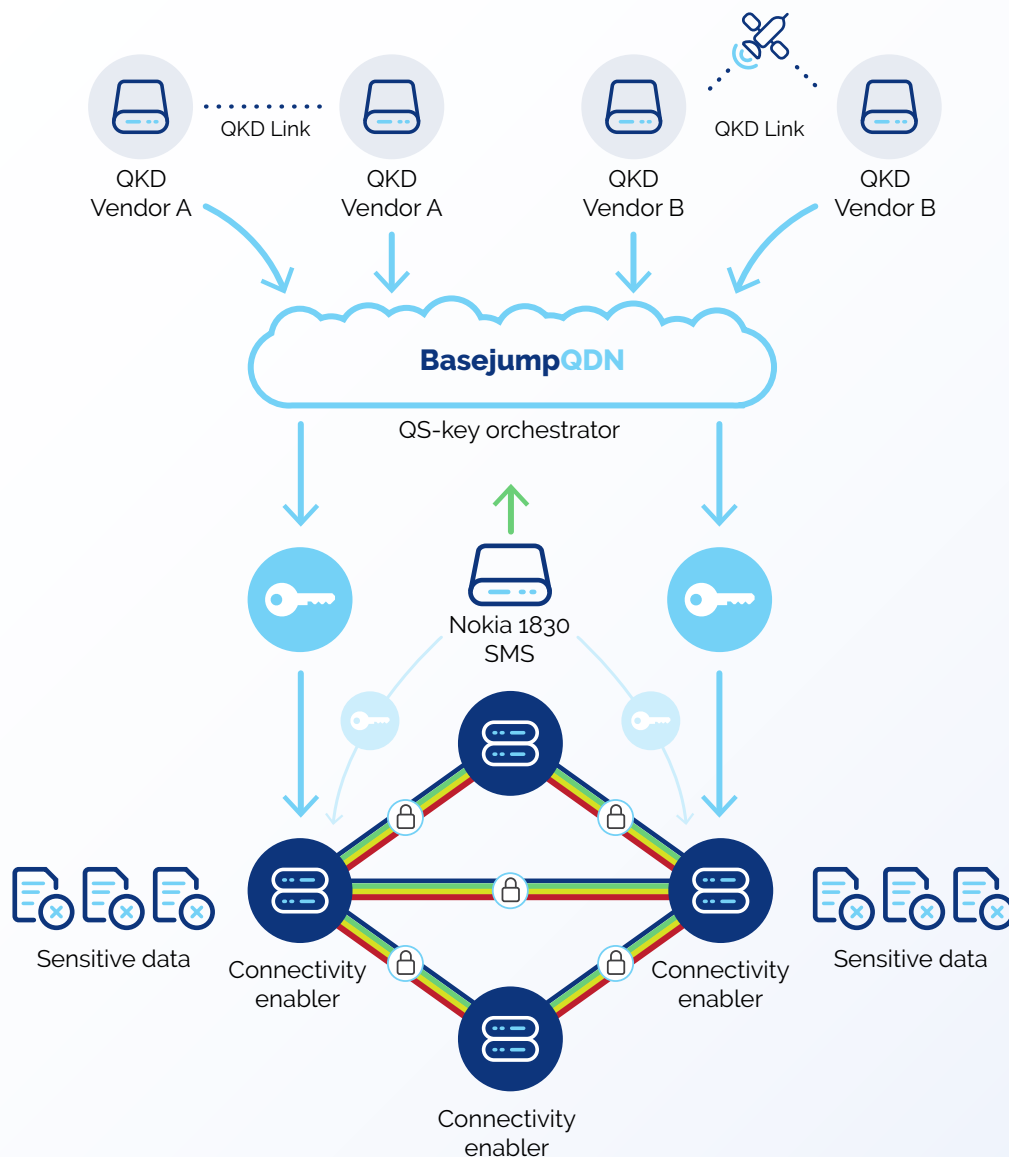
- **Interoperability:** Many QKD systems are vendor-specific, creating barriers to integration and increasing costs.
- **Distance limitations:** QKD is constrained by current technologies to ~100-125 KM ranges, requiring trusted nodes or satellite distribution to achieve longer distances.
- **Scalability:** Managing complex, multi-node QKD topologies while ensuring low-latency key delivery is operationally challenging.

Without solutions that address these challenges, organizations risk falling behind in their quantum-safe journey.

THE SOLUTION

Nokia 1830 SMS and evolutionQ BasejumpQDN™

The Nokia 1830 SMS and evolutionQ's BasejumpQDN deliver a hybrid, multi-vendor solution designed to overcome QKD challenges and provide end-to-end quantum-safe security.



KEY FEATURES

1. Centralized orchestration:

- Nokia 1830 SMS acts as the central orchestrator for Nokia Connectivity Enablers (IP routers or optical terminals). It manages key rotations and monitors the health of secure connections, with pre-check validation of the symmetric pre-shared keys and assurance of security policy compliance in the Nokia-enabled network.

2. Vendor-neutral integration:

- BasejumpQDN uses open standards such as ETSI and supports QKD devices from more than eight vendors — with potential to easily onboard more vendors in the future — enabling seamless interoperability and avoiding vendor lock-in.
- BasejumpQDN allows customers to adapt as the QKD market evolves, integrating new devices without disrupting operations.

3. Overcoming distance barriers:

- BasejumpQDN uses trusted nodes where required, along with intelligent routing to extend QKD networks beyond their traditional limitations. The architecture allows for leveraging satellites as they become available to integrate with terrestrial or subsea networks.

4. Resilient key management:

- BasejumpQDN buffers keys and routes them in advance, ensuring availability with low latency, even during network disruptions.
- The hybrid approach with Nokia 1830 SMS allows for frictionless fallback to the use of symmetric quantum-safe key distribution using high-entropy classic physics-based keys in the event of QKD disruption, damage or failure ensuring uninterrupted security.

5. Seamless integration:

- Using the SNMPv3 protocol, BasejumpQDN integrates seamlessly with Nokia's infrastructure, including network routers and optical transponders with embedded line encryptors that support SNMPv3.

"Nokia is committed to securing networks for the quantum era. Our partnership with evolutionQ delivers a robust, scalable, and quantum-safe solution, integrating seamlessly with our network infrastructure. Together, we are paving the way for future-proof, quantum-safe communications."

– Martin Charbonneau, Head of Nokia Quantum Safe Networks, Network Infrastructure Business Group, Nokia

WHY ACT NOW?

The quantum threat is imminent — and in fact here today with attack methodologies such as Harvest Now, Decrypt Later (HNDL) existing today. Preparing networks for quantum safety, quantum agility, and quantum resiliency is a complex, multi-year and phased process. With BasejumpQDN and Nokia 1830 SMS, organizations can kickstart building quantum-safe infrastructure today, ensuring their ability to ramp up security, apply a defense-in-depth approach and be ready as quantum computing advances.

Prepare your network for the quantum era with Nokia and evolutionQ.

TAKE THE NEXT STEP

Contact us to learn more about our BasejumpQDN solution and how it integrates with Nokia 1830 SMS to deliver robust, quantum-safe security.



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