



Quintessence  
Labs

# QUANTUM RESILIENCE DELIVERED

Protect your future.



# PRIORITIES IN DATA SECURITY

QuintessenceLabs offers security products that enable organizations to protect their valuable data, whether at rest, in transit, or in use. Through the combined power of quantum science and advanced data protection, QuintessenceLabs' solutions maximize security, increase the ROI of existing assets, and ultimately reduce the complexities inherent in data security management. Security threats worldwide have increased both in number and sophistication, making it critical for organizations to improve their data protection. But as with any big upgrade to infrastructure, it can be a significant challenge to secure information effectively, affordably, and without hindering operations.

A founding principle of data protection is encryption, keeping the data safe even when a breach occurs. Yet generating and effectively managing encryption keys can be quite an undertaking, particularly when integrating multiple devices spread across locations and users. And for the most sensitive assets, organizations must consider stronger protection, such as solutions with automatic zeroization, one-time pad (OTP) encryption, and quantum key distribution (QKD).

Cybersecurity is taking big steps forward, and QuintessenceLabs is already there with powerful technologies and products enhanced by quantum science. We can partner with your organization for targeted data security solutions that addresses future challenges.



***RSA and DSA fail catastrophically when used with weak random number generators."***

*– Heninger, 2021*

# QUINTESSENCELABS SOLUTIONS

## KEY DISTRIBUTION

### qOptica™

#### Quantum Key Distribution (QKD)

QuintessenceLabs' continuous variable quantum key distribution (CV-QKD) technology is the most secure means of distributing keys, protected by the laws of physics. Our current solution integrates a quantum entropy source and distributes keys over existing optic fiber between network nodes.

- Point-to-point protocol that uses specialized hardware to share secret keys over an optical link
- Secrecy of the keys is guaranteed by the laws of quantum physics
- Offers CV-QKD technology with built-in advantages in terms of cost, form factor, and performance



# Trusted Security Foundation® | TSF®

## Enterprise Key and Policy Manager 100 | 200 | 300 | 400

Tackle the toughest key management challenges with the TSF key and policy manager. It provides highly capable and fully interoperable centralized key and policy management with outstanding performance, availability, and integrity. The TSF can be deployed as a virtual machine (TSF 100) or a selection of hardware appliances (TSF 200, TSF 300, TSF 400). It can integrate our QRNG with a FIPS 140-2 Level 3 HSM to meet the highest security needs (TSF 400).

- Centralized and vendor-neutral encryption key management solution
- Designed to easily address the toughest challenges in key management
- Crypto-agile adaptable to quantum resistant algorithms
- Crypto-agile and interoperable key management
- Enables strong and comprehensive end-to-end encryption
- Enabler for transition to quantum-safe



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*Without entropy, cryptographic functions such as encryption are rendered essentially useless.”*

*– Garrett Bekker, Principal Research Analyst*

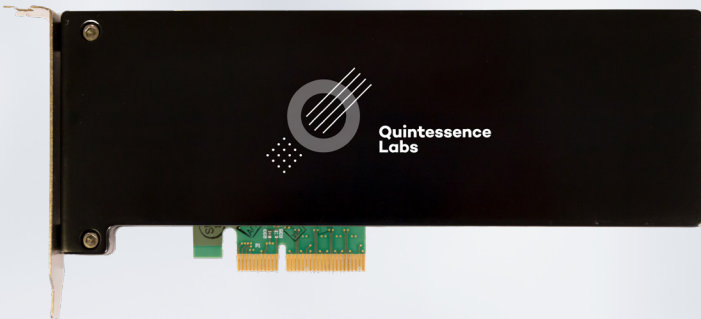
## qStream™

### Quantum Random Number Generator (QRNG) 100 | 200

The qStream™ QRNG appliance forms the foundational layer of all our security products. It uses patented quantum technology to deliver unpredictable true random numbers at 1Gbit/sec.

It can be deployed with the qRand™ 100 entropy enhancer, ensuring applications always have sufficient entropy and preventing performance and security issues.

- Derived from a quantum source
- It is the ultimate source of randomness
- It instantly strengthens all crypto systems
- It represents the new norm in random number generation
- Generates perfectly unpredictable true random numbers
- Delivered at the speeds needed for commercial applications
- Provides high-quality entropy for stronger encryption keys



## KEY GENERATION

### **qRand™ 100 Quantum Entropy Enhancer**

The qRand™ 100 Quantum entropy enhancer feeds quantum random numbers to the entropy pool of your computer.

- Solves the problem of “entropy starvation”
- Delivers sufficient entropy, even in virtual environments

## KEY MANAGEMENT

### **qClient™ Software Development Kit (SDK)**

With qClient™ (100 SDK), developers can quickly integrate QuintessenceLabs’ key management and random number generation into any application.

- Vendor-neutral software development kit (client SDK)
- Allows developers to effortlessly integrate key management and encryption applications
- Supports industry standard APIs: KMIP, PKCS#11

## KEY DISTRIBUTION

### **qProtect™ Ultimate Data Protection**

The qProtect™ delivers powerful data protection for the most sensitive and critical assets, particularly when they are in uncontrolled environments. It offers a much-needed practical solution for the protection of critical mobile data. Capabilities include automatic secure erasure of one-time key material when recording data — “virtual zeroization” — to protect confidential information wherever it is, now and into the future.



A portrait of Dr. Vikram Sharma, a middle-aged man with grey hair, smiling. He is wearing a dark blue suit jacket over a light blue striped shirt. The background is dark and out of focus, showing some mechanical or scientific equipment.

## Meet Dr. Vikram Sharma

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Dr. Sharma has over 20 years of success in building and managing technology companies, and has positioned QuintessenceLabs as a global leader in quantum cybersecurity. Prior to founding QuintessenceLabs in 2008, Sharma founded three successful startup companies, including one of India's first private ISPs and a consulting company that provided IT services to the federal government in Australia.

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*As computing technology becomes more powerful, the encryption we use to protect our data becomes more vulnerable. We need encryption that is strong enough to protect the systems we depend upon.”*

*– Vikram Sharma, Founder & CEO*

## About QuintessenceLabs

QuintessenceLabs' portfolio of modular products addresses the most difficult security challenges, helping implement robust security strategies to protect data today and in the future.

For more information on QuintessenceLabs' data protection solutions, please visit [www.quintessencelabs.com](http://www.quintessencelabs.com) or email [info@quintessencelabs.com](mailto:info@quintessencelabs.com).

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