

# Key Management for Secure Financial Analysis

A case study for a key management solution for a division of a large bank delivering data analysis applications for the finance industry.

## Business Situation

The client is a division of a large bank, specialized in the development of data analysis applications for the finance industry. One of their guiding principles is to protect sensitive information at the highest level, building the trust of their customers and ensuring that all applicable regulatory requirements are satisfied. As part of that approach, all personal identification and financial information used in analysis applications must be secure, anonymous and appropriately segregated.

## Challenge

The client wanted to develop a new analysis product to enable the financial industry to deliver valuable insights to end customers. This product would access and use massive amounts of publicly available information, as well as private internal bank repositories. One key challenge was to ensure that the data was appropriately anonymized and segregated by source, to avoid revealing confidential information as well as leaking information between public and internal sources.

To meet this challenge, the solution needed the capability to securely generate and manage high quality cryptographic keys, and generate tokens to anonymize the information. In addition, the client needed to implement a cost-effective architecture and work within a very tight timeline. They wanted to maximize use of existing products and services and planned to include both public and private cloud infrastructure. To meet these objectives, they needed modular, flexible solutions,

proven to integrate seamlessly with a wide range of devices, applications and vendors.

Finally, they were taking an agile software development methodology, which required product delivery within a very short timeframe -- all the components had to be in place from Day 1 to allow effective aggregation of all the hardware services, third-party and custom software into the final analysis product. They needed a vendor ready, willing, and able to meet this high level of service and support.

**QuintessenceLabs' support and solutions are allowing the client to build their leadership position in financial analysis solutions while enhancing their brand as a secure trusted partner.**

## Solution

The proposed solution consisted of several pairs of qCrypt-xStream™ hardware appliances, with custom software modules. Customer data is encrypted on both the customer premises and within the client's system using keys managed by qCrypt-xStream. All encryption keys and tokens are generated, managed and controlled by the qCrypt-xStream appliances. Application-specific code running in the client's application and database servers was built using the standard QuintessenceLabs qClient™ Software Development Kit (SDK), as well as a custom encryption module developed by QuintessenceLabs.



All told, the solution is:

- Highly secure, incorporating a quantum-based high-speed true random number generator that ensures that all keys and tokens have 100% full entropy; provides for logical and physical segregation of managed cryptographic objects into separate domains to meet multi-level, regulatory, and operational security needs, and offers synchronous and asynchronous replication capabilities for performance, availability, and integrity.
  - Fully interoperable and easy to implement: the qClient SDK included in the solution allows straightforward integration, and has been tested with a broad array of third-party products and numerous applications and environments, ensuring seamless and cost-effective integration into a multi-vendor infrastructure.
  - Delivers best-in-class key management functionalities such as full-lifecycle key management to NIST SP 800-57 Part 1, object and usage policy management, fine-grained policy control and logging.
  - Supports flexible deployment and operation through a blend of easily scalable appliance and VM instances, with fast delivery and simple quick integration. In addition to delivering the above products, the QuintessenceLabs team acted as an advisor and consultant to support the design team in architecting the overall solution. The expertise offered by the QuintessenceLabs team was instrumental in enabling the development of a secure practical solution to meet complex security and availability requirements.

## Benefits

QuintessenceLabs' support and solutions are allowing the client to build their leadership position in financial analysis solutions while enhancing their brand as a secure trusted partner.

We enabled this outcome through the supply of easy-to-implement interoperable products that offer the high security of quantum-derived keys and tokens, as well as market leading key management capabilities. This is further enhanced by a collaborative consulting approach, flexible deployment options and a customer-centric commitment to fast product delivery to match the overall project deployment needs.



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