

VirtuCrypt: Data Center Security

When choosing a cloud provider for your core cryptographic infrastructure, one aspect your organization cannot afford to overlook is the security and reliability of the data centers used to house servers and critical devices. VirtuCrypt, the industry's only Hardened Enterprise Security Cloud, is here to provide you with the knowledge you need to make an informed decision when choosing cloud services to secure your sensitive data. This solution brief outlines how VirtuCrypt's data centers satisfy the most stringent of data security requirements.



As your organization considers VirtuCrypt's Hardened Enterprise Security Cloud services, it's likely that you will have many questions, including concerns about data centers. With which regulatory standards is the data center compliant? How does the data center restrict access to my servers? What cooling methods are implemented within the center? Can the data center meet my requirements for uptime? VirtuCrypt knows that you rely on your core cryptographic infrastructure to perform as expected, 24x7x365, and these questions are vitally important to ensuring full reliability.

VirtuCrypt's cloud service is designed around Futurex's Hardened Enterprise Security Platform, which means it shares the same commitment and value for robust security. Your organization does not have to take on the burden and expense of data center audits, security, personnel training, and facility maintenance. VirtuCrypt's all-inclusive cloud offering eliminates the high cost associated with data center upkeep, the worry of ensuring redundancy, the necessity of maintaining security, and the hassle of meeting compliance requirements.

VirtuCrypt has partnered with a globally recognized data center provider to deploy our cloud across multiple secure, geographically separated data centers. VirtuCrypt data centers were chosen with security in mind; they utilize state-of-the-art technology to ensure that the devices housed inside the data centers are kept completely safe at all times. We've broken down how VirtuCrypt addresses all the main aspects of data center security, providing you with one short and sweet guide to VirtuCrypt's data centers.

Access



When maintaining data center security, the first step is to make certain that only authorized individuals can gain access inside. VirtuCrypt data centers accomplish this through multiple methods, such as biometrics, color-coded card badges, 24/7 onsite security personnel, floor-to-ceiling steel mesh enclosures, and total perimeter fencing with gated access.

In addition to the security of the facilities, VirtuCrypt's services are all based in physically secure, FIPS 140-2 Level 3-validated hardware security modules. These HSMs are reinforced with physical security measures such as hardened steel interlocking rack mounted cases, unique faceplate bezel locks to protect the configuration ports, epoxy barriers, and sensor wires with zeroization to protect the processor and system memory.

Monitoring

VirtuCrypt data centers utilize numerous cameras both outside and inside their facilities, with constant monitoring of all personnel. In addition to monitoring the actions of people on the premises, CyrusOne's innovative temperature monitoring ensures that air flow gets exactly where it needs to go, eliminating hot spots across the entire data center.

Power and Cooling

In order to ensure our customers always can rely on VirtuCrypt to stay fully functional, 27x7x365, VirtuCrypt devices utilize redundant power sources that have input from two separate grids with power fed from three substations. Automated failover goes to multiple 625 kVA Uninterruptible Power Supplies, followed by diesel generators. By having a distributed, redundant power design along with carrier-neutral connectivity through eight different carriers, VirtuCrypt is able to provide complete reliability, offering high availability options with SLA-backed uptime.

Proper cooling measures ensure that VirtuCrypt's devices are always operating at peak performance. VirtuCrypt data center locations ensure temperature control via multiple 70-ton Computer Room Air Conditioner/Handler (CRAC/CRAH) units, 500-ton chillers, and water cooling, all with N+1 redundancy.

Redundancy

A global company, CyrusOne has 26 data center locations worldwide, with current and planned expansion adding even more locations. This large global presence allows VirtuCrypt to easily expand data centers in order to meet the needs of international customers.

VirtuCrypt utilizes several geographically separated data centers in order to ensure data is secure in the event of a natural or man-made disaster. By storing servers at different data centers across the globe, VirtuCrypt provides its customers with even greater security of data through redundancy and disaster recovery service options.



Data centers boast many different features, but how do you decide which data center is right for you? To ensure your data center is able to provide security, guarantee reliability, and satisfy regulatory requirements, consider these areas:



Access

Your data center should utilize biometrics, steel enclosures, ID badges, and tamper-resistant hardware to restrict access



Compliance

Your data center should be compliant with SSAE 16 (SOC 1, 2, and 3), PCI DSS, TIA-942 Tier 4, and HIPAA



Uptime

Your data center should guarantee SLA-backed uptime and utilize automated power failover and separate grid inputs



Monitoring

Your data center should monitor all activity using security cameras, security personnel, and smoke and temperature control

Compliance

VirtuCrypt facilities are compliant with the following regulatory requirements regarding security:

- SSAE 16 (SOC 1, 2, and 3)
- PCI (see VirtuCrypt Environment Certifications for more information)
- TIA-942 Tier 4
- HIPAA

VirtuCrypt data centers undergo rigorous external audit processes on a regular basis so that organizations who select VirtuCrypt for their cloud hosting do not have to worry about the cost and logistical burden of preparing for and passing audits.

VirtuCrypt Environment Certifications

VirtuCrypt services undergo annual audits to ensure that all environmental compliance and certification requirements are met and maintained. These standards include PCI Data Security Standard (PCI DSS) and PCI PIN Transaction Security Requirements (PTS). PCI defines these standards as the following¹:

- PCI DSS applies to any entity that stores, processes, and/or transmits cardholder data. It covers technical and operational system components included in or connected to cardholder data.
- The PCI PTS applies to manufacturers who specify and implement device characteristics and management for personal identification number (PIN) entry terminals used for payment card financial transactions.

Compliance with the PCI security standards is enforced by the five major payment card brands who established the Council, including: American Express, Discover Financial Services, JCB International, MasterCard Worldwide and Visa Inc.

A full list of environment certifications and standards met by VirtuCrypt is listed here:

- PCI P2PE – Reference # 2017-01115.001
- PCI DSS – Performed by External Assessor
- PCI-PIN – Performed by External Assessor
- Visa Approved Service Provider – ESO, Merchant Servicer, TPS-PIN,
- Acquirer/Issuer specific validations

HSM Financial Certifications

VirtuCrypt maintains a policy of supporting all current and emerging regulatory standards. All HSMs within VirtuCrypt are FIPS 140-2 Level 3-validated Secure Cryptographic Devices and are compliant with Payment Card Industry (PCI), and ANSI X9.24 part 1 and 2—TR-39.

- FIPS certificate number – 3373
- PCI approval number – 4-10219

Strong encryption forms the backbone of all VirtuCrypt service offerings, ensuring your customers' sensitive data is kept completely safe from compromise.

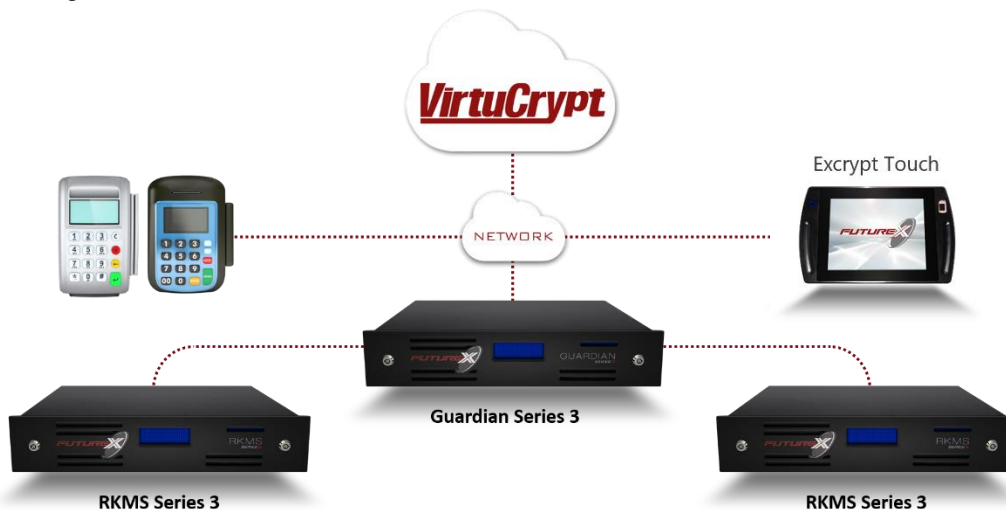
About VirtuCrypt

Futurex's Hardened Enterprise Security Platform, a collection of advanced data security solutions, has been implemented by Tier 1 organizations across the globe. Futurex's commitment to quality solutions and technological innovation has combined to form the VirtuCrypt Hardened Enterprise Security Cloud, providing the robust security of physical hardware with the convenience of the cloud. VirtuCrypt provides all of the critical elements of a world class

¹ PCI Security Standards Council. *Payment Card Industry Security Standards*. Oct. 2010, www.pcisecuritystandards.org/documents/PCI_SSC_Overview.pdf.

hosting service with a focus on high availability and maximizing predictability while significantly lowering upfront capital expenditures. VirtuCrypt's services include:

- Hardware security module technology for secure, reliable data encryption, information management, and key generation
- Remote key management and injection platforms
- Certificate authority issuance and management
- High availability solutions for load balancing, monitoring, and disaster recovery
- Secure storage and access of sensitive data



VirtuCrypt's two main offerings — Managed Services and Enterprise-Class Services — are designed to provide organizations with exactly the technology they need in a format most conducive to their total system. For organizations desiring a Hardened Enterprise Security Platform comprising everything from disaster recovery to key management to secure encryption, VirtuCrypt's Enterprise-Class Services provide a full scale implementation of VirtuCrypt's innovative solutions using environments dedicated to individual customers.

As an alternative for customers seeking to enhance their existing cryptographic infrastructure with additional cloud-based technology, organizations can take advantage of VirtuCrypt's Managed Services. For tasks such as tokenizing data, verifying transactions, remotely loading keys, and more, VirtuCrypt offers specific functionality on a per transaction basis. You get the services you need without having to pay for a full core cryptographic infrastructure.

VirtuCrypt represents the best-in-class for organizations of every size and industry by offering secure, versatile, and scalable hosted data security solutions designed to meet current and emerging security and compliance standards. Also reflected in VirtuCrypt is Futurex's culture of exceptional customer service and dedication to meeting the evolving business needs of our global customers and partners.