



# HADRON

S Y S T E M S

by  SSDIVISION  
TECHNOLOGY

# HADRON SYSTEMS

## “We ensure your privacy”

### Who we are:

**Hadron Systems** is a technology created by **SSDivision Technology**, a company specialized in highly secure communication solutions. It is comprised of a **highly skilled team in Cybersecurity and Cyber Defense, utilizing quantum technology**, unbreakable encryption to protect information from cyber-attacks and online security threats.

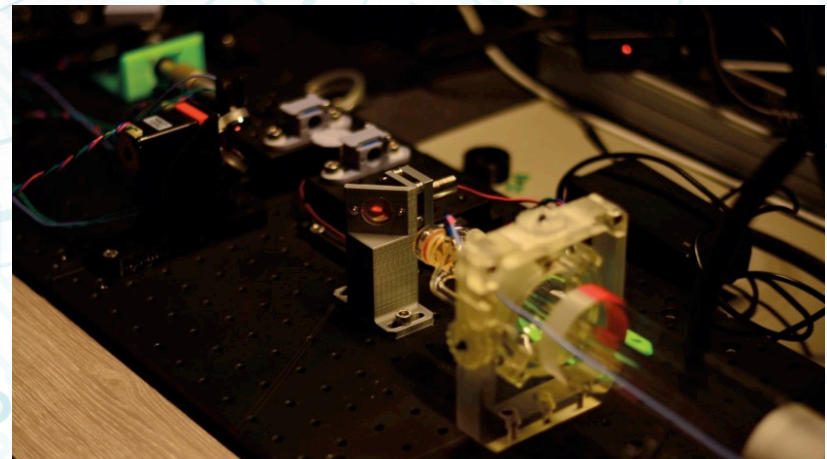
**The system employs randomly generated encryption keys**, ensuring maximum security in data transmission and complete protection against third-party intervention.

With **multi-layer encryption** providing additional protection for transmitted data, users can securely access key services within the network without the risk of data loss or intervention during transmission.

**It offers the highest possible level of security**, allowing for extremely complex file encryption (**military-grade encryption**).

“The inviolability of private communications is a fundamental pillar for democracies.”

European Court of Human Rights





# Currently

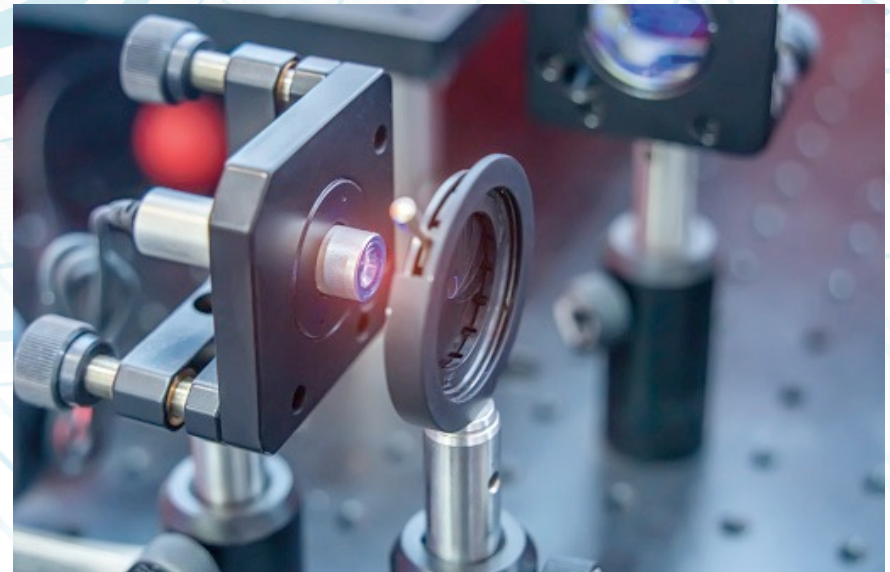
## Currently, in today's context, several challenges and risks surround the security of communications:

- Approximately 36% of mobile applications transmit sensitive information, raising concerns about communication security.
- An alarming 86% of all data transmissions are easily intercepted, while 12% are moderately difficult to intercept, and only 2% are considered secure. This means that the majority of mobile communications are vulnerable to interception and information loss.
- About 50% of mobile devices connect to unsecured Wi-Fi networks, exposing user data to potential attacks on these vulnerable networks.
- Outdated technology, such as the 64-bit algorithm used in most GSM phone calls, leaves communications susceptible to hacking.
- The threat of surveillance, hacking, and interception of phone calls, instant messaging, and emails is becoming increasingly common.



## Current Risks

- Telephone calls are at risk of being intercepted, **criminals can interfere with a phone call by purchasing an IMSI receiver** online for less than 3000 euros.
- The privacy **of telephone communications are in danger, they can be monitored and spied on without any consent.**
- Text and instant messaging messages **can be intercepted and read by other people not authorized.**
- Mobile applications are increasingly used to store personal and sensitive information.
- The personal and financial data of users, **exposed to the risk of being stolen and used for malicious purposes.**
- Espionage between governments is a reality, **there are surveillance and espionage programs that allow them to monitor communications** and obtain valuable information for their political, economic and military interests.





# HADRON SYSTEMS

“Leading solution that protects critical information”

## Encrypted Smart Phone System

It provides key services with a high level of security protecting user information:

1. **Secure voice communications:** end-to-end encryption that ensures the privacy of the phone calls, only the parties involved in the call have access to the information, **and even Hadron Systems cannot access it.** Security is based on the generation of quantum keys, and **guarantees the impossibility of being intercepted.**
2. **Secure instant messaging services:** end-to-end encryption for group conversations and file transfers.
3. **Encrypted email:** end-to-end encryption, ensures that emails are safe and private.
4. **Private cloud data storage services:** The stored data is protected by end-to-end encryption and on highly secure private servers.
5. **Quantum Key Generation:** The Hadron Systems network uses quantum key generation that provides an additional layer of security and privacy through a random number generator, ultra-fast and high-end, capable of generating keys at a speed of 4Gb/s.
6. **Functions customized according to the specific needs of the client:** It allows to adapt to the individual security requirements of each company.

## How does the System Works

An **advanced and effective methodology that guarantees the security of the network and devices**. The installation of Quantum encryption keys, security profiles and proprietary applications further increase security. The devices are **registered in a private MDM server**, it allows the security manager to configure, manage, block, delete and keep track of these devices.

**Quantum encryption keys are generated and installed on devices**, with security profiles and own applications. Whenever devices request access to any of the services provided by the network, a secure encrypted **channel is established between the device and the network, through a \*QHAE (Quantum High Assurance Encrypted Device)** device connected to the core server and a program installed to the client device. Once the connection is established, the device is allowed to access the services.

The Hadron Systems network provides a **high level of security by creating between one to three additional encryption channels**, all data goes through only these channels. **For voice calls, two encryption layers are established: the first ensures the connection with the central server, while the second creates a secure voice channel within another secure channel between the two users.**

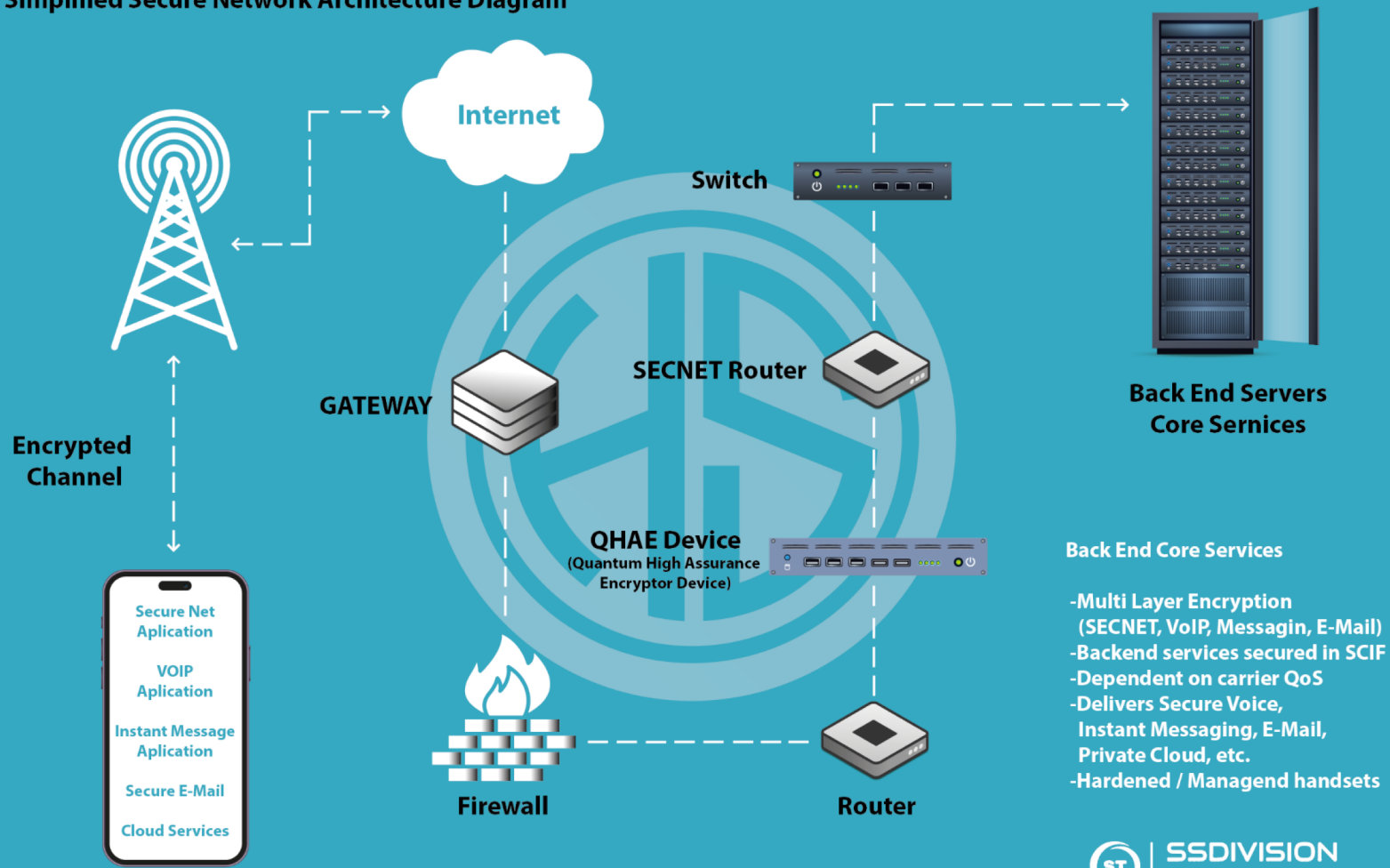
Messaging applications **do not send or receive any sensitive data until a secure channel Hadron Systems Secnet is established**. The information contained in the arriving PUSH notification packet to the device is simply that it has a message on the server, and the user must open the messaging application to download received messages through a secure channel.

Messages are encrypted during their transmission within the Hadron Systems network and on the servers where they are stored, **only the devices that send and receive the messages can decode them.**

Within the system, various data encryption algorithms and various key exchanges are used, **from NIST-approved algorithms such as AES-256 CBC/GCM, RSA-4096, and HMAC, to algorithms specific owners according** to customer needs. For resistant systems to quantum technology, **algorithms such as NTRU, BCNS15 or Frodo are used.**



## Simplified Secure Network Architecture Diagram



- Back End Core Services**
- Multi Layer Encryption (SECRET, VoIP, Messagin, E-Mail)
  - Backend services secured in SCIF
  - Dependent on carrier QoS
  - Delivers Secure Voice, Instant Messaging, E-Mail, Private Cloud, etc.
  - Hardened / Managend handsets

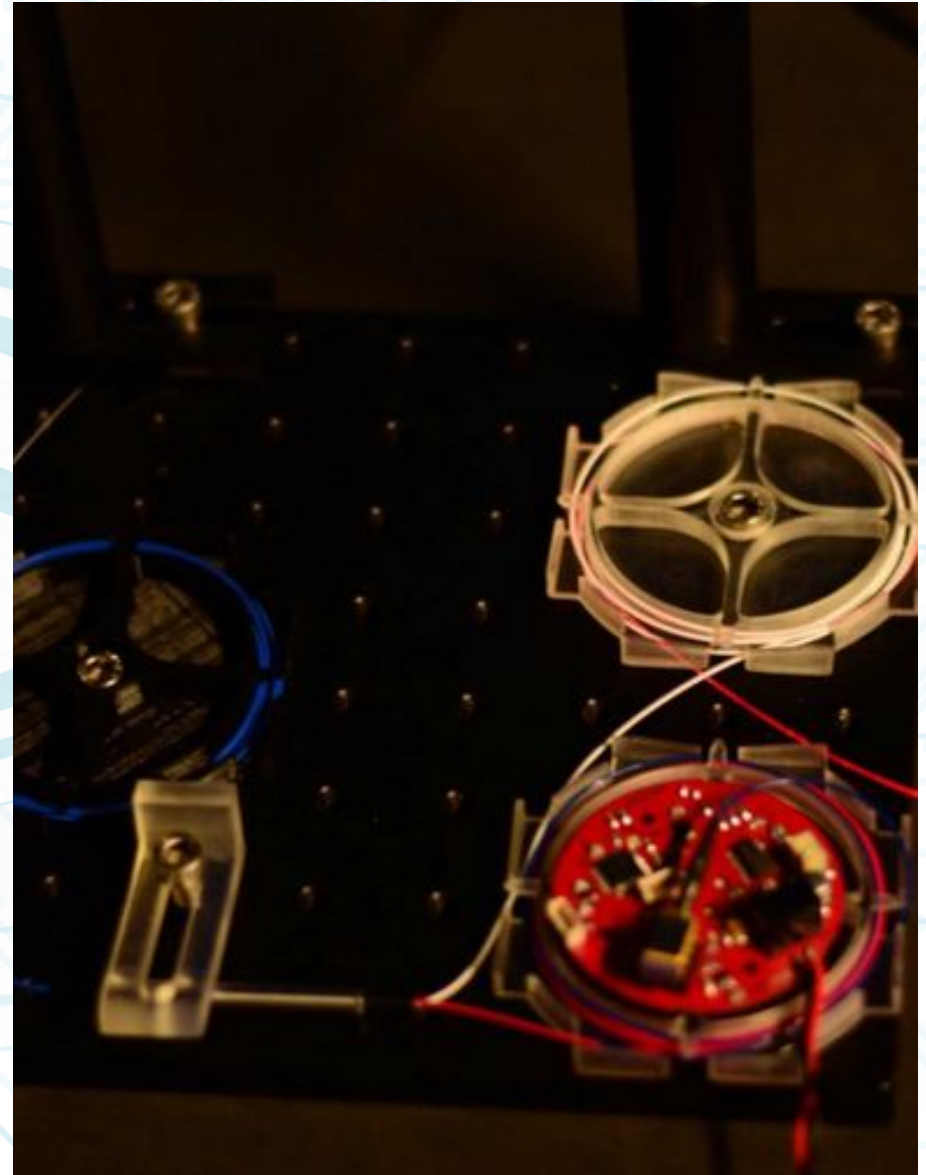
## Quantum key-based encryption

Encryption is the process of coding data **that prevents unauthorized parties from accessing the information denying the intelligibility of the content to a potential recipient.**

The quality of an encryption system is measured by the quality of the algorithm and of the keys used, they use random and secure encryption keys.

The keys generated through this method are **unique and cannot be predicted or replicated**, which makes encryption highly secure.

The generation of **encryption keys really random** is essential to ensure the protection of data in an increasingly technological environment and connected, it is crucial to ensure **that even the more powerful machines can generate passwords with identical encryption in a useful time frame.**





## COMPARATIVE

# Hadron is the System that guarantees confidentiality in the digital age

### a) The competition uses:

1. **Simple, pseudo-random keys:** Vulnerable to attacks by hackers and cybercriminals. These Systems are easy to crack and do not provide adequate protection for sensitive data.
2. **They offer operation on any device:** these operating systems are easily accessible to confidential data.
3. **Data centers hosted in unsafe and even dangerous jurisdictions:** data stored in these data centers may be at risk of being hacked or stolen.
4. **Single layer security** (for example, encrypted SIP over an insecure network), these systems are vulnerable to hacker attacks and do not provide adequate protection for sensitive data.
5. **Hardware and software from different external providers, \*MDM servers hosted on public servers** (for example, Meraki, Simple MDM, etc), use hardware and software that increase the risk of security vulnerabilities.
6. **They will only allow their solution to run on their servers**, under their control: this limits flexibility and the ability for customers to customize their security solution according to their specific needs.
7. **Unencrypted data storage:** Increases the risk of data being hacked or stolen.
8. **Using the master key to read and mine data** endangers the privacy and security of confidential customer data.

## b) Our Network:

1. It offers **Encryption based on a Random Quantum Key Generator**.
2. A **fiber optic system capable of generating pairs of polarized entangled photons, creating random streams at very high bandwidth**. This method is perfect for structures that need a large number of random sequences, such as communication servers and encryption of data.
3. **Users are not allowed to install apps or make unauthorized changes**. In addition, **the Software and security updates are managed centrally, ensuring that Devices are always protected and up to date**.
4. **Reliable data center in neutral countries: such as Spain, Andorra, Switzerland**, which ensures that the Data is protected by strict privacy laws and a high level of security in its facilities accommodations.
5. **Multi-layer security, self-manufacturing** of hardware and software devices: a CPU architecture high skill multiple and an **integrated quantum random number generator**. In addition, we **use post-quantum encryption algorithms and multi-layer security** to ensure maximum data protection; **software is developed internally**, which ensures that products are safe and high quality.
6. **Private MDM servers** assigned to each client: ensures that data is always protected by multi-layered security and **centrally managed** (customers can customize the configuration according to their needs).
7. **Customers can use their own server infrastructure**: they can choose where to host their data and have greater control over security and access.
8. Data stored on fully encrypted servers: **even with full access to the server, data cannot be read**. In addition, Hadron Systems does not store data in the clear and **does not use the key master to read**, ensuring customer data is always safe and secure.



# THE SECURE NETWORK

Our System rejects any installation of Malicious Software.

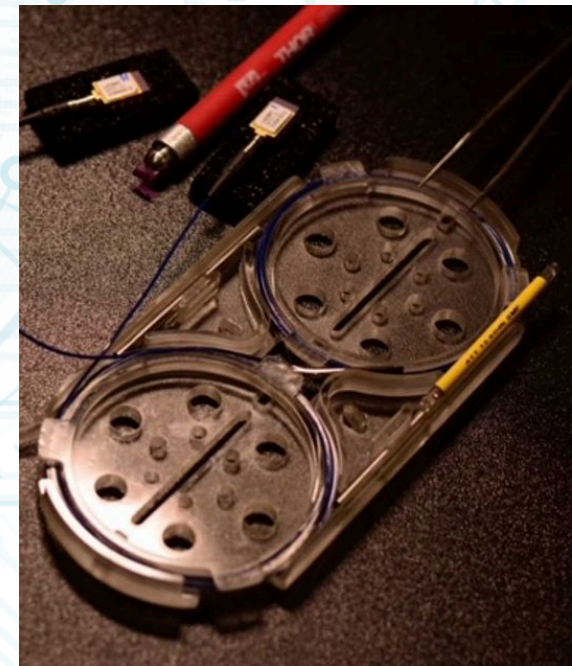
## 1. Hadron QGen Quantum Key Generator

The technique used to generate the quantum encryption keys is innovative, it is based on a system of optical fiber capable of generating polarization entangled pairs of photons. These photons are sent through a complete fiber optic circuit to the single photon detectors.

Through a quantum process, a large number of random bits are generated and supplied to the servers at a very high speed.

This combination of technologies allows the generation of random sequences with an observable repetition pattern of more than 10500 (for a potential attacker would have to generate 10,500 sequences random, until you could start to see some repeatable pattern).

To further illustrate the security of the system, imagining the case of a unique 256-bit key that is not modified (our system discards and constantly regenerates encryption keys), it would take 150 supercomputers, each capable of checking billions of ( $10^{18}$ ) of 256-bit keys per second (if you could build a computer), it would take 1052 years to exhaust the 256-bit space. Even if such a set of computers could be manufactured, would surely exceed the \*Landauer limit, which means in simple terms, that there is not enough energy on Earth to feed this type of machine.



**“Information is the Currency of the Universe, and every bit matters”**

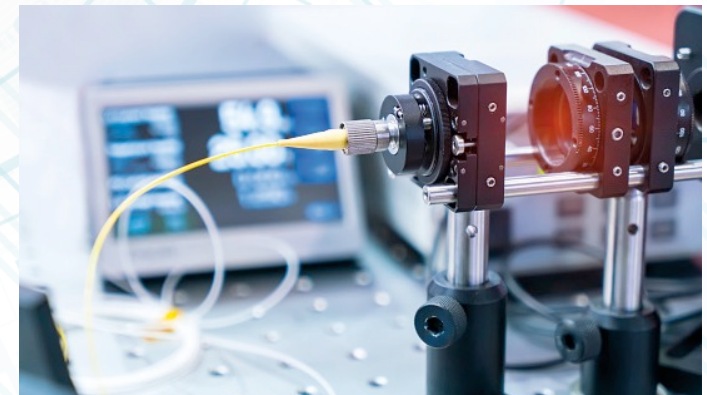
## **2. Hadron Server**

It is a **high security device designed to provide highly secure services, such as voice and video communications, instant messaging, secure email, storage file insurance in the cloud, and private intranet, among others.**

**The voice service is capable of handling more than 10,000 simultaneous calls** and providing this service to **100,000 registered users on a single server.** For larger deployments, you will need an additional server, making it an ideal choice for large organizations and governments that they need to ensure the security of their data.

**It uses quantum resistant algorithms to ensure the privacy and confidentiality of the information transmitted.** In addition, **it offers cascading services with triple layer security and redundancy,** multiple layers of protection to ensure data is protected at all times. Can customize and comes with a management interface that allows users to manage devices, permissions, and users. In addition, **the server does not store any connection records, CDRs or messages, which guarantees the privacy of user data.**

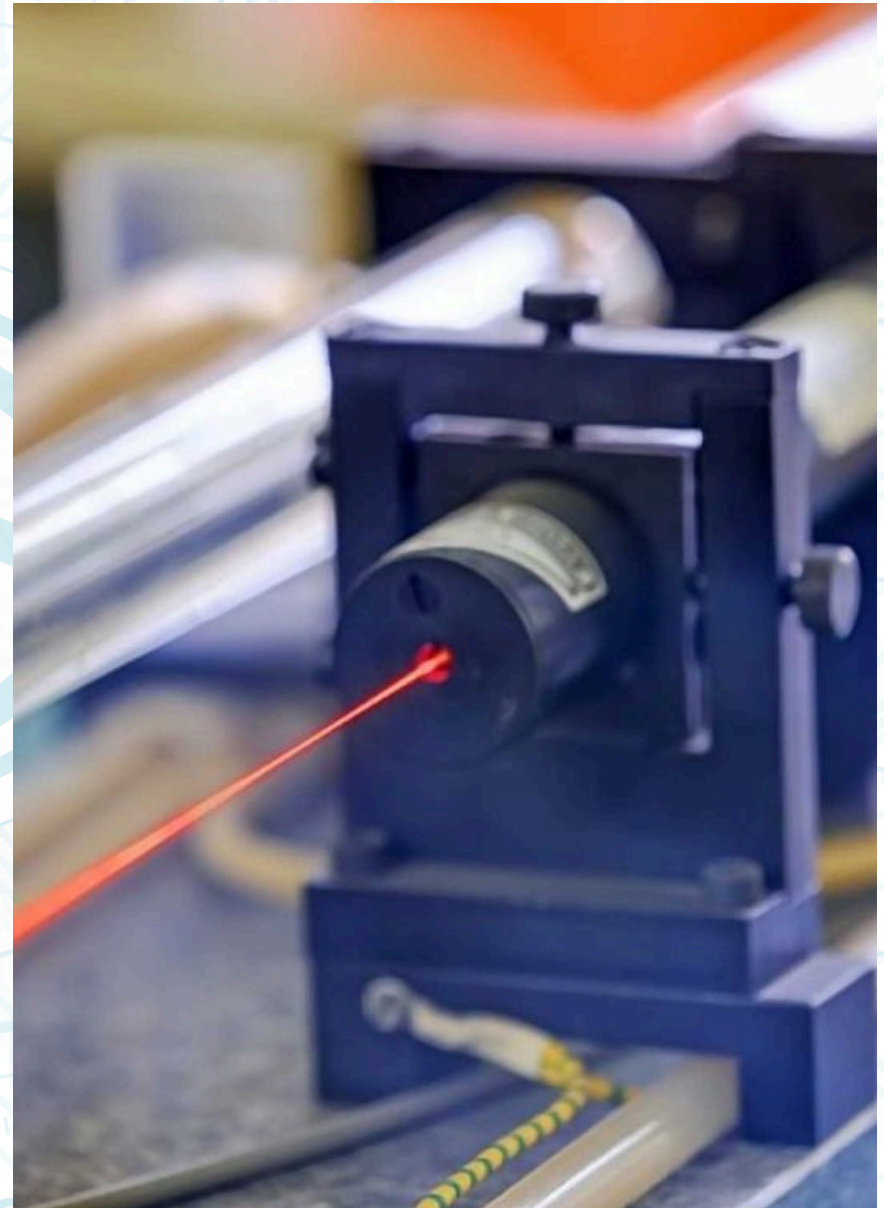
It is a comprehensive solution for data security and communication in an organization. With his **ability to high power processing, high speed interfaces of data and algorithms of quantum resistance,** guarantees the protection of **Post-Quantum encryption algorithms resistant to quantum computing attacks.**





## Characteristics

- **The 1Gbps and 10Gbps data interfaces** provide a high-speed and low-speed connection latency, essential for the transfer of large volumes of data in real time.
- **The generation of quantum keys in time almost real.** Ensures that the keys used to encrypt the data are **truly random** and hard to decipher.
- **The Hadron Server** also has **military-grade encryption** and implementation of high bandwidth strategic capacity, ideal for highly secure environments and sensitive.
- Offers data, voice, video and messaging services safe and **meets TEMPEST SDIP-27 Level A standards.**
- High reliability multiple CPU architecture.
- **Quantum random number generator integrated.**
- **Post-Quantum encryption algorithms.**



### 3. Hadron Mobile APP

- Communication tool designed to provide security and privacy to its users. The application **is exclusively for iOS devices and is not available on the App Store public**, which means that it can only be downloaded and installed through the organization's security manager.
- The application uses managed and controlled phone profiles. Voice and video calls are secure thanks to **the quantum resistant algorithms used by the application.**
- **Offers secure instant messaging for group chats and make secure conference calls, with up to 48 simultaneous participants.**
- Application users have **access to the private cloud** Hadron Network Cloud, email and other services of the grid.
- The application also has a management interface for users, devices, permissions, etc. This is **done without storing any type of information on the server, which means there are no connection records, CDRs, messages, etc.**
- The application is an extremely secure tool and private for business communication.





**Protocol**

**The most secure smartphones on the market**

**Designed**

**Especially for enterprise solutions**

**Protocol and Design**

Hadron Systems, provides encrypted smart telephony, messaging and data transmission to the highest advanced level.

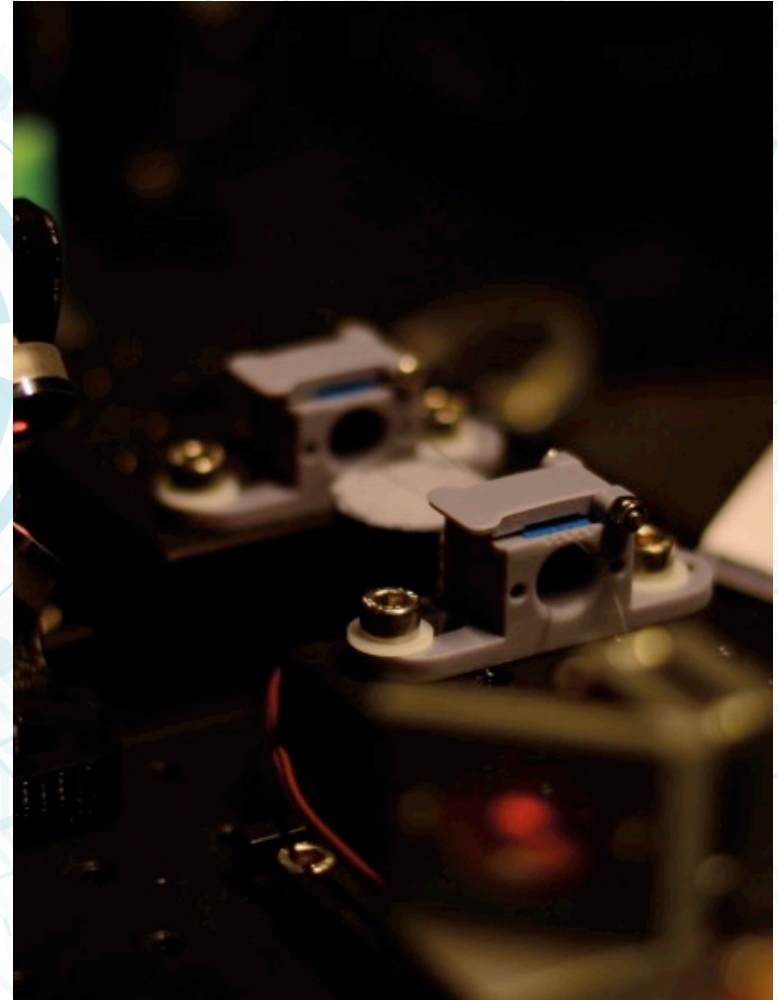
Thanks to the use of its own Operating System, reinforced with three layers of encryption and through its random quantum key generator, is designed to safeguard total privacy in communications.

**"SSDivision Technology is for the Code of Good Governance in Cybersecurity and Cyber Defense, as well as with the Charter of Digital Rights"**

Designed for :

## Business Solutions.

- **Pharmaceuticals:** you can use it to protect your research and development activities, ensure that data leaks do not occur and compromise your operations.
- **Consultancies:** you can protect the data of your clients and preserve the integrity of your privacy and business, through its implementation.
- **Energy:** ensure an uninterrupted flow of operations by turning all communication channels into one impenetrable fortress.
- **Lawyers:** you can use Hadron Systems to help to your cause and guarantee the confidentiality, integrity, authenticity, as well as the availability of data between the defense members.
- **Banking:** you can control the security of communication within your institution and ensure that no Information ends up in the wrong hands.





## Security, Defense and Intelligence.

Security, Intelligence and Defense forces can use Hadron Systems **to facilitate and secure critical communications and avoid compromising Homeland Security.**

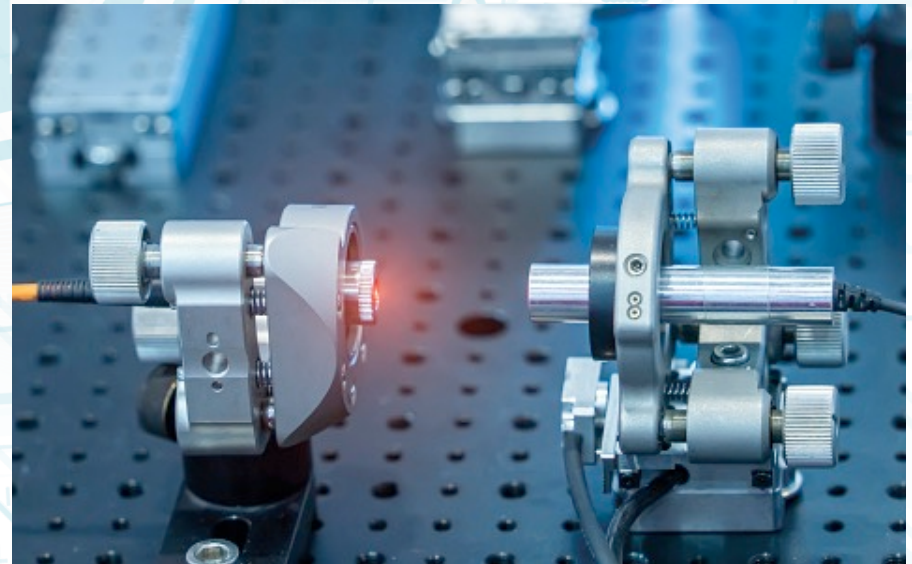
It uses a **military-grade encryption, (refers to the highest possible level of security that you can get)**, very precise encryption, which allows files or information to be encrypted in a way that it is extremely difficult to decipher.

**AES-256 is the most powerful standard algorithm** (Advanced Encryption Standards). Are complex mathematical operations, since the key that encrypts an specific document is a table with a huge amount of values; during several rounds the original value is transformed into a new one.

**The NSA** (National Security Agency in the United States) **presents it as the best way to encrypt classified information.**

**"Cybersecurity is everyone's responsibility, the confidentiality, integrity and availability are an essential part of the life cycle of the Information "**

**"Encryption makes that the Privacy is a Right that can be claimed"**



# PRODUCTOS

Hadron is the key that allows us to keep our conversations safe from prying eyes.

Any type of information that is transmitted over electronic communications networks may be protected by encryption procedures

## a) Hadron Systems Encrypted Telephone Annual License:

Acquiring an Annual License allows customers to have easy and secure access to the privacy of their communications:

- **iOS Private App: Not available through the App Store.** Fully phone profiles managed/controlled.
- **Secure voice/video calls using quantum resistant algorithms.**
- **Secure Instant Messaging / Group Chat.**
- **Secure multi-conference calls** - up to 48 simultaneous participants. Transfer/ secure file storage.
- Security in triple layer, in cascade, redundant.
- **Access to Hadron Network Cloud private cloud**, email and other Hadron services.
- Management interface for users, devices, permissions, etc.
- **No data stored to the server (no connection records, CDRs, messages, etc.).**



## b) Complete Hadron Systems Equipment:

**Acquire your complete team** and manage it with your own administrators.

- **Hadron Server (Server).**
- **Qgen generator (quantum keys).**
- **Hadron Mobile App Software.**

A complete and customized solution **for companies that need more control and management of their secure communications.**

**Delivery time is 60 days, includes installation in the customer's data center and training of the staff that will manage their own network.**

**The guidelines of the legal framework established in the European Union and Council of Europe, advocate the safeguarding and protection of privacy in communications.**

**"We ensure your Privacy"**





**HADRON**  
SYSTEMS

**Product:**



**SSDIVISION  
TECHNOLOGY**

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