



ENCRYPTOKEY™: The Ultimate VPN Solution

By:

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***ENCRYPTOKEY™*: THE ULTIMATE VPN SOLUTION**

Abstract

Establishing a completely secure authenticated network is critical in exchanging, viewing and composing proprietary and/or classified information.

Prior to the development of the *ENCRYPTOKEY* by the Cyber Security division of Sky Catcher Solutions, the existing secure network applications lacked complete security and authentication. These networks are often unreliable and are exterior meaning that they can be easily compromised and corrupted. Achieving a true, secure network prior to the development of the *ENCRYPTOKEY* has been an elusive, unresolved task.

This white paper addresses the attributes and capacities of a revolutionary new approach to complete network security through the application of the *ENCRYPTOKEY* VPN. The *ENCRYPTOKEY* VPN solution is a crypto-analytically secure network operating system, which facilitates users' ability to create communications as if they were on the same closed network.

The *ENCRYPTOKEY* VPN has unique features not available through any other product offering:

- Security: System security in the form of complete confidentiality, integrity, availability and accessibility
- Operational: The ability to assemble VPN enabled devices and users into a mission specific operating group

Most importantly, the *ENCRYPTOKEY* provides a turn-key VPN solution with assured authentication. Authentication is the critical gateway to secure network

systems in the 21st Century. The *ENCRYPTOKEY* embraces authentication as the guiding principle in its design, execution and utilization.

Introduction

Cyberterrorism and unauthorized intrusions are the most significant problems facing today's Internet based communication world. Technological advances are being made continuously, but cybercriminals often utilize these advances to promote their own intrusive and abusive agendas. Identity theft breaches in Internet based systems continue to increase. Internet related breaches for 2009 already amount to over 13 million records in the U.S. These breaches include all categories of government, business, education and healthcare¹. Criminals are becoming more sophisticated in their activities, using many new techniques to invade and defeat network privacy and security. The worldwide financial losses are significant and growing as online fraud has surpassed viruses as the greatest source of network related monetary loss.

How can any network dependent entity, government, business or other organization, truly protect themselves from criminal predators?

How can any network truly authenticate its users?

These quandaries led system development engineers at Sky Catcher to develop *ENCRYPTOKEY*, the first truly crypto-analytically secure network operating system that can be easily deployed to interconnect computer equipment globally as if they were on a single local area network.

Inside the *ENCRYPTOKEY*

The *ENCRYPTOKEY* is an MXI biometric access USB device utilizing an advanced biometric identification module to provide individual authentication and

sole user protection.

The basic encryption engine is modular allowing a choice of encryption methods so that a user's proprietary encryption system can be incorporated into it.

The unique modular encryption within the *ENCRYPTOKEY* VPN uses a proprietary and highly secure algorithm in addition to the five algorithms approved by the U.S. Government.

The *ENCRYPTOKEY* VPN creates a pseudo interface that encrypts and encapsulates the host's Ethernet frame into TCP or UDP formatted packets of data. These connection oriented protocols enable reliable authenticated connection between two Internet end points before information is transferred. This application ensures data delivery and delivery in the correct sequence.

The *ENCRYPTOKEY* VPN session is initiated by a host contacting a redundant server that connects all hosts participating in that shared network.

The *ENCRYPTOKEY* VPN utilizes the TLS (Transport Layer Security), a cryptographic protocol with AES-256 encryption, the strongest commercial encryption system available. The TLS end-to-end encryption protocol prohibits any and all eavesdropping and tampering of the communication channel. If preferred, other ciphers (e.g. Blowfish or 3DES) can be substituted for the AES-256. Also incorporated are the use of 1024 and 2048 bit PKI certificates and HMAC protection from relay attacks or UDP flooding.

Most web client VPNs only encrypt application level traffic. The *ENCRYPTOKEY* VPN operates at OSI level 2 encapsulating all Ethernet traffic, creating the most secure and versatile VPN currently available. Any protocol that communicates over the Ethernet may transmit through an *ENCRYPTOKEY* VPN

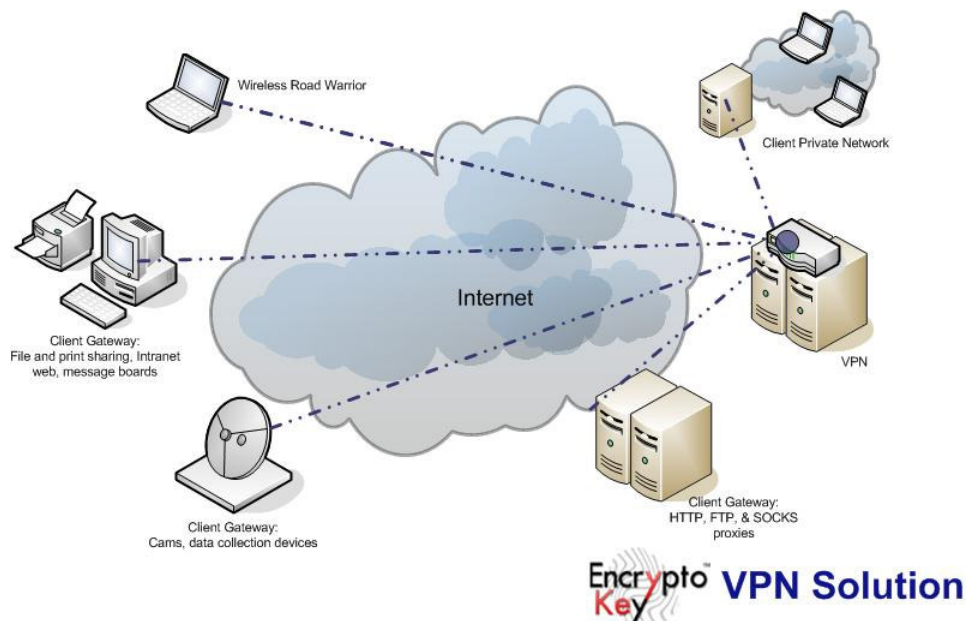
network. Additionally, all traffic on an *ENCRYPTOKEY* VPN is encrypted unlike most corporate VPNs that transmit only specific applications or requests for encryption.

The *ENCRYPTOKEY* VPN is a proxy network. All queries and transmissions from the client to the outside Internet have an origin and destination of the proxy network, providing anonymous cloaked access for the *ENCRYPTOKEY* VPN user. This proxy network is not limited to HTTP, HTTPS, FTP and SOCLS as it includes all proxies and has multiple proxy server nodes. Unlike Tor or other anonymous proxy networks, the *ENCRYPTOKEY* VPN proxy servers are hosted on a trusted system and network that does not record or log client communications.

Each *ENCRYPTOKEY* VPN network has its own internal DNS (Domain Name Server) providing protection against DNS cache poisoning and/or redirected man-in-the-middle by un-trusted networks.

See Figure 1 below for a full-scale illustration of how the *ENCRYPTOKEY* VPN works:

Figure 1



ENCRYPTOKEY: The Unique VPN Solution

The *ENCRYPTOKEY* VPN application development began with a unique assumption that all Internet channels of communication are currently unsecure or under secured. The result is that the *ENCRYPTOKEY* VPN solution provides a complete end-to-end high level of encryption that achieves optimal operating security.

The high degree of authentication and security within the *ENCRYPTOKEY*'s unique structure allows for Internet communications as if all users are on the same network, ensuring quick and secure data file transfer. This system is feature rich also allowing for print, chat, email and utilization of collaboration tools. The *ENCRYPTOKEY* VPN is compatible and works with Windows, Macintosh, Linux and UNIX operating systems.

And simplicity may be its most unique feature. There are no software downloads or hardware changes required. The *ENCRYPTOKEY* VPN device with its included processor uses the computer host for only the power, screen and Internet connectivity. When the key is removed from the computer host, there is no trace that it was ever installed – a zero software footprint and no cache.

The recovery plan should an *ENCRYPTOKEY* be lost or stolen is simply to contact the control entity to have it replaced and the missing device canceled. The device is biometrically unique to the individual user and is tamper proof. It will self destruct if unauthorized access is attempted.

ENCRYPTOKEY is the most secure user friendly device available. Small enough to carry in your pocket or bag; but with embedded storage options that range from 1GB to 32 GB.

The Perfect Device for Any User Anywhere

The *ENCRYPTOKEY* VPN is a perfect resource for any industry or specific job requirements wherein information needs to be protected. Millions of data imprints are lost every day – either confiscated or compromised by human error – creating liability and consequences.

With the *ENCRYPTOKEY* VPN, users no longer have to be burdened or concerned with wired or wireless connections because the key provides users safe and anonymous Internet connections. The *ENCRYPTOKEY* VPN is not just a perfect resource for home users or business travelers, this VPN can cover your entire operations. Each user has his or her own unique key – that can be created to the size, standards and cryptographic specifications desired. The *ENCRYPTOKEY* VPN gives organization a completely new way to conduct business, free from the worry of continually monitoring the security of networks.

Conclusion

The *ENCRYPTOKEY* VPN offers a robust set of network features that simplify secure client communications. Client to Client communications are established as if they were located on the same subnet, but actually can be located anywhere in the world.

No other VPN meets the standards of security and features as the *ENCRYPTOKEY*; nor does any other device appreciate the importance of authentication. Far beyond passwords or pins, the *ENCRYPTOKEY* demonstrates the inability to duplicate the fingerprint – the biometric advantage.

Technology is only as secure as its parameters. Remove the burden of security from networks. Never hesitate to claim security– truly authenticate with the *ENCRYPTOKEY*.

About Sky Catcher Solutions

Sky Catcher Solutions is a systems integrator specializing in the design and deployment of secure solutions and turn-key services for a variety of industries that have a need for secure networks, electronic information and other authentication services.

Solutions include advanced proprietary technology to ensure the protection of sensitive information, data, voice transmissions and streaming video over wired and wireless (LAN/WAN) networks.

Sky Catcher Communications, Inc. is located in Spindale, NC.

¹ 2009 Identity Theft Resource Center Data Breach Stats; August 4, 2009