SAFENET HIGH SPEED ENCRYPTION SOLUTIONS
Delivering Data-in-Motion Security without Compromise

Networks are under constant attack and sensitive assets continue to be exposed.
More than ever, leveraging encryption is a vital mandate for addressing threats to data as it traverses networks. SafeNet High Speed Encryption solutions from Gemalto provide customers with a single platform to 'encrypt everywhere'— from network traffic between data centers and the headquarters to backup and disaster recovery sites, whether on premises or in the cloud. With Gemalto's comprehensive network traffic encryption solutions, customers can better protect their data, video, voice and even metadata from eavesdropping, surveillance, and overt and covert interception at an affordable cost, without compromising security or performance.

Introduction: The Data-in-Motion Encryption Mandate

High speed fibre-optic networks are the critical foundation that supports many of an organization's most vital communications and operations. However, this foundation is at risk of surveillance and attack by increasingly sophisticated cyber criminals and well-funded nation states. These network connections, if unprotected, are proving to be highly vulnerable, leaving sensitive assets exposed. In fact, when data theft occurs, more than 60% of the time it is when data is in transit[1]. Threats such as shared infrastructure exposure, man-in-the-middle attacks, metadata exposure leave your organization susceptible to a range of devastating repercussions, including fines, brand damage, competitive threats, and, for government agencies, a host of geopolitical risks.

SafeNet High Speed Encryption: Proven Security and Performance

SafeNet High Speed Encryption offer powerful safeguards for data in motion, delivering Layer 2 encryption capabilities that provide security without compromise, as well as maximum throughput and minimal latency. These solutions are simple to deploy and administer, so organizations can address critical security gaps to compensate for cryptographic overhead. SafeNet High Speed Encryptors have been proven in the most security-driven, performance-intensive environments, including multi-national corporations, global financial institutions, service providers, and defense agencies.

High Speed Encryption Advantages

Robust Security to secure the most sensitive traffic

SafeNet High Speed Encryptors are hardware-based, stand-alone appliances that deliver robust encryption and FIPS 140-2 Level 3 tamper-resistant key management capabilities. Rigorously tested and certified to be in compliance with the requirements of Common Criteria, the Federal Information Processing Standard (FIPS), and CESG Assisted Products Service (CAPS), the solutions have been vetted by such organizations as the Defense Information Systems Agency (DISA UC APL) and NATO. In addition, SafeNet High Speed Encryption solutions are the first and only commercial solutions that combine transmission security (TRANSEC) with Layer 2 Ethernet encryption, making traffic patterns and characteristics impervious to exposure through network traffic analysis. SafeNet High Speed Encryption solutions encrypt network traffic using the robust AES-256 algorithm (CFB, CTR, GCM) and supports Suite B cryptographic algorithms for encryption, key exchange, digital signature, and hashing, including Elliptic Curve Digital Signature Algorithm (ECDSA), Elliptic Curve Diffie–Hellman (ECDH) and SHA-256/SHA-384/SHA-512). Using NIST certified random number generators, SafeNet High Speed Encryptor keys are generated and stored in hardware, ensuring that the keys are always under your control, even multi-tenant environments.

Maximum Performance and Continuous Availability

SafeNet High Speed Encryption solutions have been proven to deliver 99.999% uptime in some of the most demanding, performance-intensive environments. The solutions have minimal latency, and can operate in full-duplex mode at full line speed, without running the risk of packet loss. Further, the small amount of latency the solution does introduce is highly predictable, consistent with near zero jitter, and is unaffected by packet size. There is also a no-latency operating mode available for optimal performance. Plus, these solutions feature descriptive diagnostics that give administrators early warnings of potential issues.

Optimal Flexibility

SafeNet High Speed Encryption solutions offer flexible, vendor-agnostic implementation and interoperability, and can support a range of security objectives and environments, delivering a broad range of products and features to accommodate network speeds of 10 Mbps to 10 Gbps and beyond. SafeNet High Speed Encryption solutions feature:

> **Broad environment support.** Through attributes like non-disruptive deployment, multi-tenancy support, and in-field upgradeability, these solutions can be efficiently deployed and run in organizations with a range of business models and computing environments and across a wide range of service provider infrastructure models.

> **Broad network support.** SafeNet High Speed Encryption solutions enable flexible, efficient implementation in a range of Ethernet networks, including multi-point to multi-point (mesh), single-point to multi-point, and single point-to-point environments. Gemalto also provides solutions for securing Fibre Channel, SONET/SDH, and LINK networks.

> **Flexible deployment and administration options.** With SafeNet High Speed Encryption solutions, there are several deployment options to fit specific needs and objectives. The encryptors can be used in single locations and in complex environments that span multiple locations. Administrators can manage these encryptors directly using a command line interface to integrate into an existing environment or they can leverage management solutions that enable central, efficient, and secure administration of any number of SafeNet High Speed Encryptors. Plus, the management software can function as a certificate authority for X.509 certificates.

Benefits

By leveraging SafeNet High Speed Encryption solutions, your organization can:
> Strengthen security by enabling secure transfer of data, voice, video and metadata.
> Maximize performance and availability of existing infrastructure investments with better application performance and lower latency compared to Layer 3, software, and inline approaches.
> Fully leverage the benefits of cloud and hybrid environments while eliminating the potential risks associated with high speed data transmissions.
> Maximize administrative efficiency and flexibility by streamlining upfront implementation and ongoing administration.
> Realize optimal performance with near-zero latency and 99.999% reliability.
> Field Programable Gate Array chip technology provides cut-through architecture, enabling customization.

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[1] "2012 Trustwave Global Security Report", http://www.secretservice.gov/Trustwave_WP_Global_Security_Report_2012.pdf

Ease of Use and Low Total Cost of Ownership

SafeNet High Speed Encryption solutions enable your organization to address its security objectives with minimum effort and cost. These solutions deliver:

> **Unobtrusive network implementation.** These solutions feature a "bump in the wire" design that enables you to drop them into a network, without having to change the network architecture or associated devices. They also feature link-state forwarding that supports transparent implementation. Further, these platforms are self-contained, including key generation and distribution, so there is no need to install and support additional key servers.

> **Efficient ongoing operation.** Once SafeNet High Speed Encryptors are deployed, service providers can set and forget them for years without incident. In addition, service providers can leverage intuitive, Web-based interfaces for centrally managing all their SafeNet High Speed Encryptors, even remotely. All this minimizes overall cost of ownership and on-going management overheads.

> **Maximum cost efficiency.** SafeNet High Speed Encryption solutions ensure your organization get the most value from its investments, while minimizing upfront and ongoing expense. Products that run on the same protocols are fully interoperable and backward compatible. Small footprints and low power consumption, as well as rate-limiting capabilities help organizations preserve the value of their investments.

> **Maximum utility from the existing network infrastructure.** Compared to other approaches such as Layer 3, which can introduce up to 50% loss of bandwidth, or MACsec which was only designed for LAN-based "hop-by-hop" network connections, SafeNet encryptors minimize the performance impact of encryption on network infrastructure. This eliminates massive infrastructure investments to compensate for cryptographic overhead and, if you expand your network requirements, there's no vendor lock-in. In addition, SafeNet encryptors are network transparent, providing the ability to encrypt multicast traffic without requiring a dedicated management server.

CN4010 ETHERNET ENCRYPTOR

CN6010 ETHERNET ENCRYPTOR

CN6040 ETHERNET/ FIBRE CHANNEL ENCRYPTOR

CN6100 ETHERNET ENCRYPTOR

CN8000 MULTI-LINK ENCRYPTOR

Management Platforms

Gemalto offers the following management platforms, which can be used to centrally manage the entire suite of SafeNet High Speed Encryptors:

> **Security Management Center (SMC).** SMC is a robust, Web-based management platform that enables administrators to work with an intuitive interface for visualizing and managing network security. The platform can be used to remotely configure, update, authenticate, and monitor SafeNet High Speed Encryptors. With its comprehensive support for managing keys, certificates, and policies, SMC represents a comprehensive platform that eliminates the need to set up a separate PKI environment for network encryption platforms.

> **CM7**. CM7 is an element manager designed for smaller deployments. The product offers an intuitive interface for configuring, managing, and monitoring encryptors. CM7, like SMC, can also be configured as a Certificate Authority for SafeNet encryptors running on your network.

High Speed Encryptors

Gemalto offers a range of SafeNet High Speed Network Encryptors to ensure the right mix of features and capabilities tailored to your needs. The products below are fully interoperable, so a single platform can be used to centrally manage encryptors across single customer links or distributed networks. Each of the encryptors offered can support up to 512 concurrent encrypted connections. The encryptors are certified for FIPS 140-2 Level 3 and Common Criteria EAL+2.

> **CN4010 Ethernet Encryptor.** The CN4010 is a versatile, cost-effective solution for distributed computing environments and branch office locations. The product features variable speed licenses that range up to 1 Gbps.

> **CN6010 Ethernet Encryptor.** The CN6010 is a cost-effective, scalable platform that is ideally suited to a range of enterprises, government agencies, and service providers. The product features variable speed licenses that range up to 1 Gbps.

> **CN6040 Ethernet/Fibre Channel Encryptor.** The CN6040 is a single platform that can support both Ethernet and Fibre Channel protocols. On Ethernet networks, the platform can support speeds up to 1 Gbps. On Fibre Channel networks, the product can support speeds of 1, 2, and 4 Gbps for data in transit across storage area networks (SAN).
  CN6100 Ethernet Encryptor. The CN6100 can address the security and performance demands of the largest, most performance-intensive environments, including those of enterprises, government agencies, and cloud service providers. The platform offers variable-speed licenses that go up to 10 Gbps.

> **CN8000 Multi-Link Encryptor.** The quantum-powered CN8000 enables multi-link encryption of Layer 2 network Ethernet traffic, providing 100 Gbps of total encrypted bandwidth, with no overhead and minimal latency. It delivers the performance capabilities of ten times 10 Gbps encryptors in one compact high-density chassis, and is in process to be FIPS 140-2 and Common Criteria certified.

CONCLUSION

With Gemalto's portfolio of SafeNet High Speed Encryption solutions, organizations can ensure that network traffic—including data, video, voice, and even metadata—is secure. At the same time, the solution offers capabilities that help maximize network performance and operational efficiency. To learn more, visit the SafeNet High Speed Encryption solutions page at http://www.safenet-inc.com/data-encryption/network-encryption

ABOUT GEMALTO'S SAFENET IDENTITY AND DATA PROTECTION SOLUTIONS

Gemalto's portfolio of Identity and Data Protection solutions offers one of the most complete portfolios of enterprise security solutions in the world, enabling its customers to enjoy industry-leading protection of data, digital identities, payments and transactions—from the edge to the core. Gemalto's SafeNet Identity and Data Protection solutions enable enterprises across many verticals, including major financial institutions and governments, to take a data-centric approach to security by utilizing innovative encryption methods, best-in-class crypto management techniques, and strong authentication and identity management solutions to protect what matters, where it matters. Through these solutions, Gemalto helps organizations achieve compliance with stringent data privacy regulations and ensure that sensitive corporate assets, customer information, and digital transactions are safe from exposure and manipulation in order to protect customer trust in an increasingly digital world.

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