
SENETAS
Security without compromise
END-TO-END ENCRYPTION SOLUTIONS
SECURING GOVERNMENT DATA
SOLUTION PAPER

SECURING GOVERNMENT DATA

The sensitive nature of much of the data held by local and central government agencies places a greater-than-average emphasis on effective cyber-security.

Protecting everything from citizen data to state secrets requires a holistic approach; one that includes both prevention and protection solutions for data at rest and in motion.

Historically, there has been an emphasis on prevention technologies – a combination of physical and virtual. However, if the past twenty years taught us anything it is that data breaches are inevitable.

Accidental data loss is still prevalent, accounting for a quarter of data breach incidents. However, it is the rise of the malicious outsider, in the form of cyber criminals and state-sponsored hacks, that accounts for the majority of stolen data.

Why Encrypt?

The rapid growth of virtualisation, data centre and cloud computing technologies mean we are becoming increasingly reliant on our high-speed/ high-availability data networks to deliver information when and where we need it.

Cyber-crime in the form of hacking, corporate espionage and even cyber terrorism, is on the rise. Information security threats remain commonplace and there is an increasing emphasis on organisations of all types to ensure the integrity and security of their data, both at rest and in motion.

We cannot rely on the assumption that our data remains secure within the perimeter of the office environment. All organisations share systems and information that rely upon common network access and most modern businesses comprise multiple offices, some separated by a few yards, others by thousands of miles.

Fibre-optic cables are used to transport petabytes of data across private and public networks every day. Although still considered the fastest and most reliable method of moving data, Fibre networks have become increasingly vulnerable as hacking technologies become more sophisticated, less expensive and more readily available.

Protection vs. Prevention

There is a common misconception within many organisations that a robust firewall is enough to prevent unwanted access to their network. Unfortunately, this is not the case.

Whilst the firewall can detect and eliminate a variety of penetration or denial of service attacks, it is no protection against a physical tap either inside or outside the firewall.

The only fail-safe solution to ensure that your data is secure as it travels across the network is encryption. Furthermore, your encryption solution should be de-coupled from any specific network architecture and accredited against recognised world-wide security standards.

Notable Breaches

Government agencies are not immune to data breaches. In the past ten years there have been dozens of high-profile cases of lost or stolen data.

In 2015 an employee of the Australian Immigration Department accidentally sent the passport and visa records of every delegate attending the G20 summit to the organisers of the Asian Cup football tournament.

In 2016 the entire list of registered voters, over 55 million records, held in the Philippines's Electoral Commission database was stolen and posted online.

The infamous Clinton Campaign hack saw over 5 million records stolen in 2016 as part of a broader cyber-attack on the Democratic Party.

Perhaps the largest breach of government data took place in 2017 in India, where the national biometric database was breached via a state-owned utility company. As a result, the records of over 1 billion registered citizens was exposed.

More recently, the governments of Bulgaria, Israel, The Netherlands, Hong Kong and Sweden have all suffered significant breaches.

TRUSTED BY GOVERNMENTS IN OVER 45 COUNTRIES

As a leading provider of cybersecurity solutions, Senetas has been trusted to protect much of the world's most sensitive data for over 20 years. Our core infrastructure and network edge encryption solutions are used by commercial and government organizations in over 45.

Senetas network data encryption solutions provide government departments and agencies with the peace of mind that comes from certification by multiple, independent testing authorities. They are certified suitable for Government and defence use by FIPS, Common Criteria and NATO.

Certification involves years of rigorous testing by the testing authorities' own labs. Without these certifications, products are unable to be installed in the respective government data networks.

In addition to our encryptors' certifications, government and defence customers have also undertaken their own proof of concept and benchmarking testing. In every case, Senetas solutions have excelled.

Importantly, organisations providing services to the government and defence sectors – such as Cloud computing or data centre storage services – can meet the certification requirements of their own government customers by using Senetas certified high-assurance products.

That assurance of multiple certifications is one important reason why Senetas solutions protect much of the world's most sensitive data and are a first choice of government departments and defence forces around the world.

In addition to long-term data integrity and security, Senetas solutions provide governments with protection from:

- Data 'sniffing' or eavesdropping
- Data theft or redirection
- Input of rogue data
- Loss of intellectual property
- Privacy breaches or identity theft
- Loss of trust or reputation
- Financial loss or penalties
- Breach of compliance obligations
- Innocent human and technical errors

Maximum Data Protection Without Compromise

Senetas encryptors provide maximum security without compromising network performance. Unlike other 'low-assurance' alternatives, they do not add network overhead or expose network links to unnecessary vulnerabilities.

Senetas solutions are used to protect sensitive data essential to a wide range of applications, including:

- Cloud Computing
- Big Data Capture and Analytics
- Data Centre Back-Up and Disaster Recovery
- CCTV Networks

Government Customers

Senetas encryption solutions are used to secure network transmitted data for a wide range of government and defence organisations.

Amongst those that mandate Common Criteria, NATO or FIPS certification, Senetas encryption solutions are used by:

- Government agencies – law enforcement, service agencies, regulatory bodies, etc.
- National defence and military
- Cross-government agency and departments data-sharing
- Telecommunications carriers network services provided to governments carriers'
- Cloud computing and data centre services increasing use by governments
- Inter and intra-office data networks

CHOOSING THE RIGHT ENCRYPTION SOLUTION

A lack of vendor compatibility within the network encryption marketplace means organisations looking to secure both core IT infrastructure and virtualised WAN need to think carefully about a choice of technology.

When it comes to choosing an encryption vendor, it's important to consider all the possible applications. Just as important is the realisation that all encryption solutions are not created equal.

As recommended by leading data security and encryption analysts; for a network encryption solution to be truly robust and provide long-term data protection (well beyond the useful life of the data), it must be a "high-assurance" solution.

Encryption devices such as network routers/switches with embedded encryption or those using MACSec or similar standards (not originally intended for WAN and MAN security) provide "low assurance" data protection.

By contrast, Senetas encryption solutions are certified by the world's leading independent testing authorities as suitable for government and defence applications. They are purpose-engineered for dedicated, high-assurance network data security.

Senetas Ethernet network encryptors' security credentials include all four, essential high-assurance features:

- Secure, tamper-proof hardware; dedicated to network data encryption
- State-of-the-art encryption key management; featuring secure, client-side key storage
- End-to-end, authenticated encryption
- Standards-based encryption algorithms

For real-time data applications, latency is a significant issue. Whilst adding a network encryption interface card to an existing switch may seem like an attractive option; it will result in higher latency and lower throughput performance than a dedicated device.

In some instances, using an NIC means the same vendor needs to be used throughout the network route and that data is decrypted and re-encrypted at each of the "hops".

This is both a security risk and a major key management issue. Dedicated appliances enable data to remain encrypted throughout the network route, irrespective of switch vendor.

If an NIC is used, the lifespan of the encryptor will be tied to the host network device and will need to be replaced when the switch is changed.

Most modern infrastructure comprises multiple network Layers; typically featuring Layer 2, 3 and 4 elements. So, organisations should look for a vendor that provides Layer agnostic encryption where possible.

Senetas CV Series virtual appliances provide concurrent, multi-Layer encryption and support DPDK for up to 15Gbps performance.

Like the CN Series hardware encryptors, our virtual appliances support all topologies, from P2P to Hub & Spoke and fully meshed networks.

END-TO-END ENCRYPTION SOLUTIONS

CN Series Encryption Hardware

The CN Series of Ethernet encryptors provide certified, high-assurance data protection for core IT and communications network infrastructure.

All CN Series encryptors share a common encryption platform and are 100% compatible and interoperable.

CN Series hardware is used to secure sensitive data in motion across networks operating at anything from modest 10Mbps to ultra-fast 100Gbps bandwidths.

CN4000

Small form-factor (desktop) encryptors for 'in the field' network link security (e.g. CCTV) – offering 10Mbps, 100Mbps and 1Gbps bandwidth speeds.

CN6000

Rack-mounted high speed encryptors for business-critical applications – offering 1Gbps to 10Gbps bandwidth speeds.

CN9000

Ultra-high bandwidth, rack-mounted encryptor with "mega-data" performance – offering speeds of up to 100Gbps.

CV Series Virtualised Encryption

The CV1000 virtual encryptor provides strong and effective data encryption for large-scale and virtualised wide-area networks.

Scalable to thousands of end-points, the CV series of virtual encryptors is a software application of the trusted Senetas encryption platform. It delivers cost-effective, transport Layer agnostic data protection at up to 15Gbps (with DPDK).

As a Virtualised Network Function (VNF) that will run on any x86 hardware, the CV Series virtual encryptor is 100% interoperable with Senetas CN Series hardware encryptors and is built on FIPS compliant technology.

SureDrop Encrypted File Sharing and Collaboration

SureDrop delivers the file-sharing convenience of popular box-style applications, but with the addition of end-to-end encryption security and 100% data location control.

It also offers users a choice of the resilience of a bespoke, on-premises solution or the flexibility of a managed service provider solution.

SureDrop clients include government agencies and service providers that are concerned about the inherent risks associated with sharing documents outside of their protected LAN.

SureDrop represents a new way to enjoy secure file sharing; with the emphasis on delivering a service that meets the needs of large commercial and government organisations who are required to frequently share sensitive and confidential information across the web.

SureDrop also provides organisations with the user-authentication security benefits of active directory compatibility.

Votiro Secure File Gateway

VOTIRO

Votiro Secure File Gateway leverages patented, next generation anti-malware technology to proactively protect your files from the most advanced, persistent cyber-attacks.

It sanitises incoming, shared and stored files, enterprise-wide; eliminating the risks associated with both known and zero-day, or undisclosed, attacks. At the same time, it preserves 100% of original file content and functionality, without disrupting user workflows.

WHAT MAKES SENETAS STAND OUT?

Best Performance

High-speed

The designed-in, market-leading performance capabilities of Senetas encryption solutions are what make them stand out from the crowd.

Whether operating at 10Mbps, 100Mbps, 1Gbps, 10Gbps or 100Gbps; time after time, they consistently win competitive performance tests.

Their encryption speeds, near-zero data overhead and near-zero latency make Senetas encryption solutions ideally suited to the most demanding network environments.

Ultra-low latency

Senetas high-speed encryption solutions operate in full duplex mode at full line speed 99.99% without loss of packets.

Latency is not affected by packet size (<2 microseconds per unit at 100Gbps) meaning maximum throughput with near zero protocol overhead.

Importantly, by using Field Programmable Gate Array (FPGA) technology, this outstanding performance is predictable and dependable.

Zero impact

The zero impact of Senetas encryptors is not limited to network bandwidth and latency; it extends to network operations and management.

They simply fit in within the user network. They don't require changes to other devices or network reorganisation; making them a favourite among network engineers.

High-Assurance

Certification in-depth

Senetas CN Series encryptors include the only multi-certified products of their types, as a result they are trusted by governments and defence forces around the world.

Rigorous testing is carried out over many years and provides our government and commercial customers with maximum confidence. Senetas CN Series encryption solutions are certified by: FIPS, Common Criteria and NATO.

For over 20 years, Senetas R&D has included a commitment to 'certification in depth'. Customers value the benefits of exhaustive and ongoing testing authorities' product evaluation.

Best encryption key management

All Senetas products adopt state-of-the-art encryption key management. Your encryption keys are only ever held by and accessible to you, on your premises; securely stored and encrypted.

Solution integrity

Senetas encryptors provide maximum solution integrity; unlike 'low assurance' solutions, such as router-based network data encryption or multi-function devices with embedded encryption.

Senetas high-assurance encryption solutions feature dedicated, tamper-proof hardware and provide gapless, end-to-end, authenticated encryption with standards-based (AES256) encryption algorithms.

Versatile & Simple

Crypto-agility

All Senetas encryption solutions are agile by design; from 100% compatibility and interoperability to customisable encryption and FPGA based flexibility.

Selected Senetas encryptors also support Quantum Key Distribution (Quantum Cryptography) and Quantum Random Number Generation, for long-term data security.

Support for all topologies

Senetas CN series encryptors operate in point-to-point, point-to-multipoint and fully meshed network topologies. Senetas CN9000 encryptors are the only 100Gbps encryptors that support multipoint-to-multipoint topologies.

Custom encryption

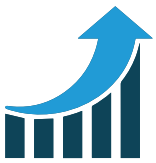
In addition to the standards-based AES256 and 128-bit algorithms, Senetas CN series encryptors support the use of customer-requested algorithms, custom curves (BYOC) and entropy (BYOE).

Ease of use

Set and forget simplicity and network transparency are underlying Senetas design themes. They ensure ease of implementation, operation and management. All Senetas encryption solutions feature automatic zero-touch key management. They also feature automatic network discovery and connection.

Local or centralised management

Configuration may be performed locally or remotely through the intuitive Senetas CM7 management software; which acts as the Certificate Authority in a network of encryptors by signing and distributing X.509 certificates.



Low Cost, High Efficiency

Suitability

All Senetas CN Series solutions operate at full line speed; enable maximum network performance and deliver 'set and forget' management simplicity.

The business investment case out-performs even 'cheap and cheerful' low-assurance solutions that prove very costly over time.

It is not necessary, nor beneficial, to opt for low-cost, low-assurance solutions to meet the toughest business case and TCO requirements.

Cost-efficiency

Senetas encryption solutions provide excellent TCO through a mix of network bandwidth savings, ease of management and reliability.

Longevity, interoperability, backward compatibility, minimal installation and management costs and solution flexibility all contribute to a rapid ROI.

Other cost benefits include, low power consumption minimal rack space use and combined rack space/ power utilisation efficiency.

Reliability

All Senetas hardware encryption solutions boast 99.999% uptime. Carrier-grade, rack mounted devices are hot-swappable and provide further network operations uptime benefits thanks to dual redundancy of consumables, such as fans and power supplies.

Flexibility

The use of FPGA technology enables maximum operational flexibility. This enables on-going operational simplicity, such as infield upgradability, as customers' requirements change; helping to protect their investment in technology.

GLOBAL SUPPORT

Senetas encryption solutions are distributed and supported internationally (outside Australia and New Zealand) by Thales

Thales is the world leader in digital security and defence, servicing over 30,000 customers across 180 countries. Senetas products are sold by Thales under its brand.

ANZ PARTNER COMMUNITY

Senetas works directly with customers and their service providers across Australia and New Zealand. We provide technical consultancy and support to data networks providers, systems integrators and cloud service providers. Visit our **ANZ Partner Page** for full details.

www.senetas.com

Senetas is a leading developer of end-to-end encryption security solutions; trusted to protect enterprise, government, defence, Cloud and service provider network data in over 40 countries.

From certified high-assurance hardware and virtualised encryption, to secure file-sharing and collaboration with data sovereignty control, all are based on the same crypto-agile platform and deliver security without compromise.

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GET IN TOUCH

Are you looking for a service provider to help you select and implement a network data encryption solution? Contact Senetas and we'll help you find the right one.

Senetas works with IT infrastructure service providers and systems integrators across the globe, to help specify the optimal encryption solution for their customers' needs.

Customers may contact Senetas directly to discuss their requirements; or ask their service provider to speak to us on their behalf.

ENCRYPTION SECURITY WITHOUT COMPROMISE

Whatever your network security needs, Senetas has an encryption solution to suit. Our certified high-assurance encryptors protect data across networks operating at speeds from modest 10Mbps to ultra-fast 100Gbps and support all network topologies.

Our virtualised encryption solution, for virtual CPE and virtualised WAN, supports bandwidths of up to 5Gbps. It provides policy-based, end-to-end encryption across multi-Layer networks.

Senetas encryptors are recognised globally for delivering maximum data security and crypto-agility, without compromising network or application performance.

SECURE FILE SHARING

SureDrop offers all the flexibility of a drop-box style solution, with the added benefit of best-in-class encryption security and 100% control over data sovereignty.

For customers seeking additional layers of content security, SureDrop is also available with the Votiro Disarmer extension.

DISARM MALICIOUS CONTENT

Votiro Disarmer leverages patented Content Disarm & Reconstruction (CDR) technology to protect your files from the most advanced, persistent cyber-attacks. It sanitises incoming files, eliminating the risks associated with zero-day or undisclosed attacks, whilst preserving 100% file functionality.

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