



Redefining Security

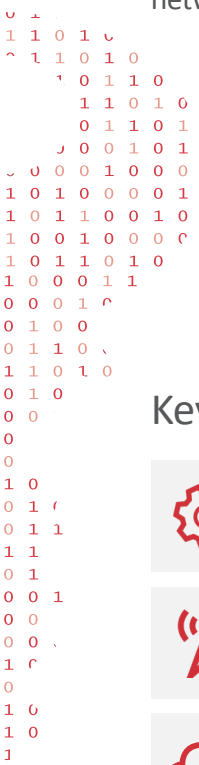
Centauris CV1000 Virtual Encryptor

Virtualised Encryption, Real-World Security and Performance

The evolution of network and server virtualisation continues to provide modern organisations with data networking simplicity, scalability and agility. While organisations prefer that data transmitted among core Ethernet network and IT infrastructure be protected by certified high-assurance hardware encryption, virtualised encryption plays a key security role in the virtualised network environment and WAN.

As workforce mobility, ubiquitous connectivity and borderless infrastructure have come to dominate the IT landscape, the need for high-performance and strong virtualised encryption security has grown.

The virtualisation of multi-Layer data network environments is helping to meet the demand for greater agility. IT is required to respond rapidly to changing business demands; driven by a significant increase in network scale and the need to rapidly deploy strong and effective encryption, all the way to the virtual network edge.



Key Markets



Managed Service Providers



Telcos



Cloud Service Providers



Large and Distributed Organisations

Key Benefits



Agile, scalable solution



Transport Layer agnostic encryption for multi-Layer (L2-4) network architectures



100% interoperability with IDQ Centauris CN encryptors



Cost-effective

High-Performance Virtual Encryption

IDQ's Centauris CV1000 Virtual Encryptor, based on the Centauris CN Series high-assurance encryption platform, is designed for large-scale WANs and SD-WANs. It delivers robust encryption security for data-in-motion across high speed Carrier WAN links up to 5 Gbps.



WHY VIRTUALISED ENCRYPTION?

The optimal application of the Centauris CV1000 is data protection across large-scale, virtualised WANs – all the way to the “virtual edge”. These large-scale extended networks, beyond the core IT network infrastructure, typically operate at speeds of 1 Gbps or less; where customers prefer to protect without dedicated hardware solutions, but still require hardened data encryption security.

IDQ Centauris encryptors are, by definition, high-assurance and secure hardware devices; dedicated to network data encryption. Their optimal use is in protecting core IT network infrastructure data.

Typically, core network infrastructure includes high-speed links (1 Gbps, 10 Gbps and higher) among key IT assets; such as those used for Big Data applications, data centre interconnections, data storage and redundant data centre back-up and disaster recovery.

Today's WANs often extend well beyond core infrastructure and include multi-Layer transport. However, the data transmitted to the edge of the network still requires strong and effective encryption protection; this is where virtualised encryption becomes an optimal solution.

Here, virtualised encryption provides the scalability, simplicity, flexibility and cost-efficiency demanded by IT and data networks managers.



PERFORMANCE

The Centauris CV1000 protects network communications at speeds of up to 5 Gbps encrypted bandwidth, when optimised in the network. The Centauris CV1000 Virtual Encryptor leverages the Centauris CN Series Ethernet encryptor platform, to maximise available bandwidth and minimise latency. Importantly, the Centauris CV1000 is transport layer agnostic and enables concurrent multi-layer encryption, making it an ideal solution for extended virtualised network security.



SCALABILITY

As a software implementation of the Centauris hardware encryptors, the Centauris CV1000 is unique. Instant scalability means it may be deployed rapidly across hundreds of network links, providing robust encryption protection for data-in-motion. Designed to match flexibility and scalability of other VNFs, such as virtual routers, switches and firewalls, the Centauris CV1000 is completely transparent to the network; making it the ideal solution to secure your WAN or SD-WAN, right to the virtual edge.



FLEXIBILITY

The Centauris CV1000 is the first high speed encryptor to offer Transport Independent Mode, meaning it is network layer independent (L2, L3, and L4) and protocol agnostic. By supporting Layer 3, the CV1000 offers network operators more configuration options using TCP/IP routing for securing critical data. Because it's software controlled, the CV1000 enables greater flexibility and responsiveness in network architecture, as well as opportunities to expand the network scale quickly.



TRUSTED SECURITY

Just like the Centauris CN series of hardware encryptors, the Centauris CV1000 offers best-in-class encryption solutions, providing maximum security and performance. Designed to meet Common Criteria and FIPS requirements, the CV1000 supports standards based, end-to-end authenticated encryption, automatic key management, and utilises robust AES 256-bit algorithms.

With integrated support for SafeNet KeySecure (Gemalto's centralised cryptographic key management solution), the Centauris CV1000 provides optimum security for the storage of master keys, the integrity of critical security policies and the source of entropy (randomness) for cryptographic key generation.

On-Demand Security System

The CV1000 is the perfect match for Telcos that want to offer clients a modular security system with speed and effective deployment. By setting up a managed security with minimal deployment risk and high business potential, Telcos can optimise their exploitation costs and provide their customers flexible encryption solutions implemented in an existing architecture.



TRANSPORT INDEPENDENT MODE

Many organisations utilise multiple data network Layer protocols (Layer 2, 3 and 4) to help deliver their business applications and communications services. Having this in mind, Transport Independent Mode was created.

This advanced, transport Layer agnostic encryption technology enables destination policy-based, concurrent multi-Layer encryption.

Significantly, customers are still assured of strong, end-to-end encryption as the protected data traverses the various network Layers, for example: from Layer 2 Ethernet to Layer 3 IP network destinations.



AGILITY

Virtualised and software-defined networks do not come with any form of native data security. The Centauris CV1000 was built to match the flexibility, scalability and cost-efficiency of a virtualised environment and to provide strong and effective encryption security, without compromising network performance.

The Centauris CV1000 Virtual Encryptor is fully interoperable with IDQ's Centauris hardware encryptors. Connecting several CV1000 in remote sites around a central multilink hub — such as the Centauris CN8000 — allows organisations to optimise costs and to deploy a secure network architecture much faster.

Network Functions Virtualisation (NFV) Advantages

Cost-effective

- Reduces dependence on purpose-built hardware
- Reduces the waste associated with over-provisioning
- Reduces requirements for other significant indirect/hidden costs (space, power, cooling)

Increased Business Agility

- Fast implementation into existing environments
- Fast response to new competitive threats and market opportunities
- Fast and easy to adapt services and to deliver enhancements

Centauris CV1000 Virtual Encryptor at a glance

Model	Centauris CV1000 (Software Version: v5.0.1)	
VIRTUAL NETWORK FUNCTION (VNF) - HOSTING GUIDE		
Network data encryptor type and topologies ¹	Transport layer agnostic VNF virtualised encryption for large-scale networks (x86 hosted VNF)	
Transport Independent Mode	Concurrent, multi-Layer encryption (Layer 2, 3 and 4)	
Bandwidth / Performance ²	>1Gbps	
Performance acceleration (optional) ²	Supports DPDK Intel Library for up to 5Gbps performance	
Virtual appliance (min.recommended)	4x CPU, 4GB RAM (without DPDK) 2GB ³ virtual disk storage 3x CPU, 2GB RAM (with DPDK) 2GB ³ virtual disk storage	
Hypervisor support	VMware, KVM, Microsoft Hyper-V. Other platforms may be supported. Contact IDQ for further details.	
CV1000 (guest) operating system	Linux Debian distribution - v9 (stretch)	
FUNCTIONAL SPECIFICATIONS		
Supported topologies	Point-to-point, Multi-point, Hub and spoke, Fully meshed, Layer 2 forwarding	
Interoperability	Fully interoperable with all Centauris CN Series hardware encryptors	
Maximum number of connections	500+	
Encryption algorithms	Symmetric cryptography: - AES-128, AES-256, CFB or CTR modes	Asymmetric cryptography: - ECC-512 - RSA-2048
Policy based encryption	- MAC address - VLAN ID	
Crypto-agility	Support for custom curves, custom algorithms, BYO entropy	
Authentication	Certificate based (X.509)	
In-band/out-of-band management	- Console Command Line Interface (CLI) - SSH	- TACACS+ - SNMPv3
Virtualised network interfaces	- Eth0 - Management port - Eth1 - Local port	- Eth2 - Network port - Eth3 - Aux management port (optional)
Virtualised hosting environment	Supports: - KVM/QEMU - VMware - Microsoft Hyper-V	
CV1000 management application	CM7 - Included	
Centralised key server support	Optional support for SafeNet KeySecure - centralised cryptographic key management solution (master key security and random number generation) ⁴	
Certificate-based CV1000 software licensing model	Flexible model choice: - Perpetual - Subscription ⁵ Excludes host hardware and hypervisor	

¹ For virtual (Ethernet) transport

² Customer environment, hardware platform and x86 host configuration dependent (DPDK optional)

³ Subject to image storage requirements

⁴ KeySecure provides additional customer benefits. See SafeNet KeySecure website for details

⁵ Payable monthly, dependent upon number of instances



Senetas is a leading developer of hardware and software encryption technologies used in 35 countries. Senetas and ID Quantique are technology partners committed to long-term data security.



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ID Quantique (IDQ) is the world leader in quantum-safe security solutions, designed to protect data for the long-term future. The company provides quantum-safe network encryption, secure quantum key generation and quantum key distribution solutions and services to the financial industry, enterprises and government organisations globally.

IDQ also commercialises a quantum random number generator, which is the reference in the gaming and security industries.

Additionally, IDQ is a leading provider of optical instrumentation products; most notably photon counters and related electronics. The company's innovative photonic solutions are used in both commercial and research applications.