

Naples DSC-25 Distributed Services Card

OVERVIEW

The Pensando **Naples™** Distributed Services Card (DSC) delivers a broad suite of software-defined services at the compute edge. Naples installs easily in standard servers, delivering high-performance networking, security and storage functions, eliminating an assortment of discrete appliances throughout the data center.

Just as enterprises have adopted a “scale out” approach for compute and storage systems, so too the networking and security elements should be implemented as a *Scale-out Services Architecture*. The ideal place to instantiate these services is the server edge (the border between the server and the network) where services such as east-west firewall, micro-segmentation and encryption termination can be delivered in a scalable manner. In fact, each server edge is tightly coupled to a single server and needs to be aware only of the policies related to that server and its users. It naturally scales, as more DSC services capabilities come with each new server that is added.

UNIFIED MANAGEMENT

Naples incorporates gRPC and RESTful APIs for the management and monitoring of all device capabilities. Pensando's **Venice** centralized policy and services controller enables seamless distribution of ACL and firewall security policies, network configuration, encryption policies, etc. to active Naples devices. In addition, Venice provides full lifecycle management of the platform and all associated security, load-balancing, encryption and network services with pervasive visibility.

NETWORKING, SECURITY and STORAGE SERVICES

Available Naples software subscription packages include:

Advanced Networking – Switching/Routing, L3/L4 Load Balancing, overlay networking, VXLAN, NAT, SPAN, rich packet telemetry and streaming Netflow

Advanced Security – Stateful L4 firewall with connection tracking, Zero Trust Security Model with Micro-Segmentation and whitelist policy, VPN termination (IPsec), TLS/DTLS encryption, TLS Proxy, Application Layer Gateway features (ALG)

Enhanced Storage – NVMe virtualization, NVMe-oF with RDMA or TCP transport, data-at-rest encryption, lossless compression, deduplication acceleration

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Naples DSC-25 PCIe Card

HIGHLIGHTS

BENEFITS

Improved security posture through distributed network protection and east-west security
Achieve deep visibility into network behavior with 'Always-On' telemetry

Save server CPU resources by offloading networking and security functions at wire speed
Eliminate complexity and latency associated with “tromboning” through multiple appliances
Scales to 100k firewall rules and >1M routes
Solution works seamlessly with virtualized, bare metal and containerized workloads

FEATURES

Integrated security, networking and storage functions in a single device
Incorporates both data plane and control plane, eliminating host agents
Simplified configuration and management for large scale deployments
Venice centralized management system securely manages policy and provides network visibility and troubleshooting

PRIVATE & HYBRID CLOUD (VPC) ENABLEMENT

- Multi-tenancy
- VXLAN, MPLS
- EVPN
- Routing protocol

- Stateful security groups
- NAT
- Rate control
- Workload traffic/resource isolation

USE CASES

- Distributed stateful firewall at the server edge
- Routing, Segment Routing, MPLS, BGP
- SDN and Virtual Networking with various encapsulations (VXLAN, etc.)
- East-West encryption within the data center
- Comprehensive network / security visibility and telemetry
- Flow capture/mirroring (bidirectional ERSPAN)
- Network load balancing, with TCP/TLS termination
- Storage virtualization functions, including NVMe-oF

PERFORMANCE & SCALE

Naples delivers 25G wire-speed services on each of its SFP-28 ports, including chained services such as L4 stateful firewall + IPsec encryption + Load Balancing.

Performance	Naples DSC-25
Stateful Firewall throughput	50Gb/s full-duplex
Load Balancer throughput	50Gb/s full-duplex
Encryption throughput	50Gb/s full duplex (AES-GCM-256, 256B packet size)
Packet rate	24 Mpps unidirectional

Scale Metric	Naples DSC-25
Routes (LPM)	1M IPv4 AND 1M IPv6 – 2M total routes
Overlay Mappings	128k Local Mappings
	1M Remote Mappings
	1M IP address to TEIP Mappings
Stateless ACL Entries	1M IPv4 AND 1M IPv6
Flow Table Entries	>1M depending on flow key size
IPsec Tunnels	100k simultaneous at 50Gb/s full-duplex
NAT Mapping Tables	512k
Policers	4K

INDUSTRY-LEADING HARDWARE PLATFORM

Pensando's **Capri** P4 Programmable Processor powers the **Naples** card, enabling wire-speed performance and enhanced security through policy enforcement. The data plane and control planes are fully software-defined and supported

with optimized hardware accelerators. Up to 4 GBytes of on-board memory provides the performance and flow-table capacity for true cloud-scale deployments.

HARDWARE SPECIFICATIONS

Form Factor	Half-height, Half-length PCIe
PCIe Interface	8-lane PCIe Gen3
Network Ports	2 ports SFP28
Port Configurations	2x 10G/25G
Management Port	1x RJ45 100M/1G Ethernet
Indicators	Port activity and link
Power	20W Typical
Cooling	Passive heatsink
Airflow	300 lfm airflow with DAC interface

DEPLOYMENT CONFIGURATION

Naples cards are installed into standard servers to provide advanced services as well as high speed network I/O ports. **Venice** manages the nodes over the network, in-band or out-of-band.

Distributed Services Cards Deployed in Servers

