Product Datasheet

Enea NFV Access: Lightweight Virtualization Software Platform for Customer Premise Deployment

High networking performance with optimized dataplane, mixed virtualization technologies (optimized KVM and/or Docker containers), and complete VNF lifecycle management.

Features and Benefits

- **Minimal footprint:** Designed for high compute density on edge devices and standard servers. Does not include OpenStack in the standard setup
- **High networking performance:** 10Gb/s throughput
- **Container and VM support:** Supports virtualization with virtual machines and/or containers
- **Scalable:** From 2-core ARM edge device with single NIC to high-end x86 servers
- **Fast boot:** Boot speed optimization improves availability
- **Multiple orchestration interfaces:** VNF lifecycle management and service function chaining from orchestrator or central office/point-of-presence control node VIM
- **Device management framework** supporting FCAPS functionality in the platform
- **Zero lock-in:** Open APIs and standards for portability and whitebox deployment

Key characteristic	Benchmark	Comment
Boot speed	<3sec	Cold boot to VNF started
Virtualized Networking Throughput	Wire speed 10Gb	Single VNF forwarding over single NIC
Virtualized Networking Latency	Max 70 µs at up to 4,2MPPS load	Single VNF forwarding over single NIC

Setup	Minimum System Requirements	Recommended System Requirements
NETCONF/REST/ Docker orchestration interfaces	2-core Intel Xeon D or ARMv8 Single NIC 4 GB RAM	2-core Intel Xeon D or ARMv8 Single NIC 8 GB RAM
OpenStack orchestration interfaces	2-core Intel Xeon D or ARMv8 Single NIC 8 GB RAM	4-core Intel Xeon D or ARMv8 Single NIC 16 GB RAM

Enea® NFV Access is a lightweight virtualization software platform designed for deployment on edge devices at the customer premise. It is streamlined for high networking performance and minimal footprints for both platform and VNFs, resulting in very high compute density. Enea NFV Access provides a foundation for vCPE agility and innovation, reducing cost and complexity for computing at the network edge.

Components

- KVM: The standard virtualization engine for Linux based systems
- Docker: A standard platform for container virtualization, providing lightweight configuration using containers
- Virtual switching: Optimized OVS-DPDK provides high throughput and low latency
- Edge Link: Orchestration interface for centralized VNF lifecycle management and service function chaining (NETCONF, OpenStack, Docker, REST, CLI)
- APT packet management: Feature rich repository of pre-built open source packages for extending and adapting the platform
- CLI-based VNF management: CLI access over virsh and libvirt
- FCAPS framework: Device management framework providing full FCAPS functionality to orchestration or network management systems
- Data plane: Includes optimized data plane drivers for OVS-DPDK, DPDK, OpenFastPath (OFP), and ODP

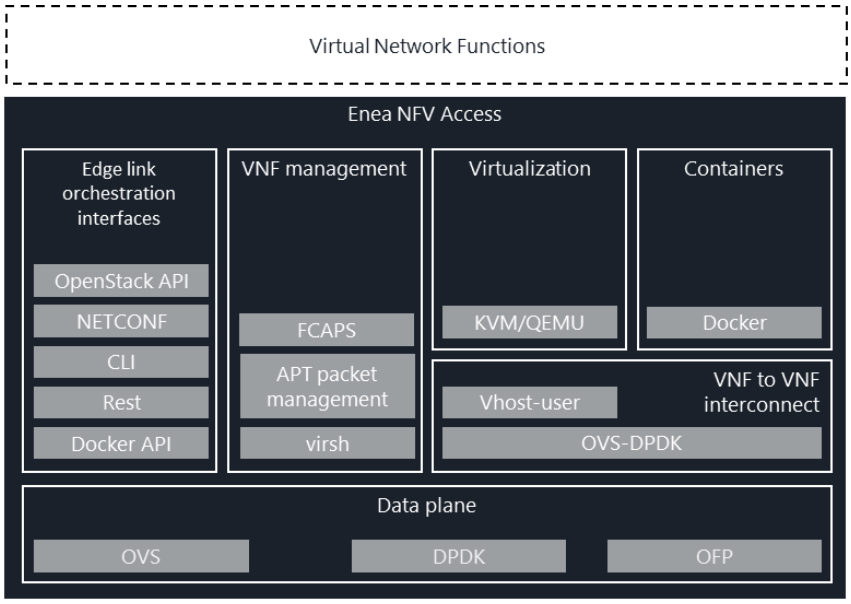

Figure 1. Enea NFV Access

Configurations

Enea NFV Access can be setup to use containers, virtual machines, or a combination of these (see Figure 2). The VNFs communicate over an internal OVS bridge independently of virtualization implementation.

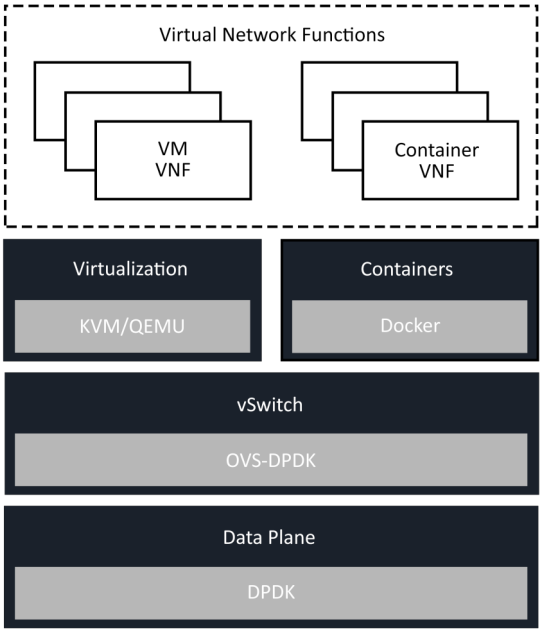

Figure 2. Enea NFV Access configurations.

Edge Link

Edge Link provides multiple interfaces for centralized VNF lifecycle management and service function chaining. It connects to orchestration in the central office either directly with orchestration components, or with a carrier edge NFV platform on VIM level (see Figure 3). All APIs provided are open standards which also makes it possible to connect Enea NFV Access to third party control node platforms and orchestrators.

- NETCONF: Standard, network management API, allowing the Enea NFV Access NFVI platform to be modelled in YANG
- REST: Provides easy-to-use interface for customized integrations
- OpenStack API: Lightweight configuration of OpenStack providing an API that can be used for integration with OpenStack and OPNFV control nodes
- Docker API: For management of Docker containers and the VNFs they are hosting. The Docker API only supports container virtualization

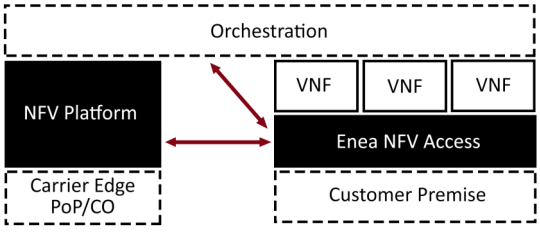

Figure 3. Enea NFV Access Edge Link.

Open Source Optimizations

Enea NFV Access is built on open source components that have been optimized to provide better performance in terms of throughput, footprint and boot speed.

- Kernel optimizations reduce RAM and CPU footprint
- Data path optimizations provide high throughput and low latency
- Partitioning with core isolation and pinning maximizes system performance
- Boot speed optimizations shorten time to boot

Platform Management/FCAPS

Enea NFV Access integrates a powerful device management framework that is the foundation for full FCAPS functionality. The framework supports YANG modeling and NETCONF/REST northbound APIs.

Security Hardened

Enea NFV Access is security hardened and protected by Enea Security Response Team, ensuring rapid action on detection of a threat and confidential handling of security risks.

Integrated Security

- Patched with the latest security fixes and continuously updated
- Validated against NVD (National Vulnerability Database) with zero vulnerabilities as criteria
- Signed updates
- Access control security policies are based on SELinux

Automated Updates with Full User Control

- Security updates provided with APT package management
- Automation though local scripting or remotely over NETCONF

Security Helpdesk

- Available for expert security advice

Hardware Support

Enea NFV Access is available for both ARM- and x86-based hardware platforms:

- X86- based platforms: Xeon D (Reference plf. Xeon D-1521)
- ARM-based platforms: ARMv8 (Reference plf. Cavium Octeon TX)

Find out more on the Enea website!

ENEA

Enea develops the software foundation for the connected society with a special emphasis on reducing cost and complexity at the network edge. We supply open-source based NFVI software platforms, embedded DPI software, Linux and Real-Time Operating Systems, and professional services. Solution vendors, Systems Integrators, and Service Providers use Enea to create new networking products and services faster, better and at a lower cost. More than 3 billion people around the globe already rely on Enea technologies in their daily lives. For more information: www.enea.com