Enea NFV Access - Software Platform for Advantech White box uCPEs

Broad Intel SoC support extends VNF deployment to large branch installations

Advantech's open white-box uCPEs, designed around standard Intel processors in feature-flexible appliances, provide the range of server-grade platforms needed by Communication Service Providers (CSPs) to transform conventional deployment models in the enterprise WAN. When coupled with solutions based on Enea NFV Access, CSPs can rely on the same software framework to seamlessly deploy Virtual Network Functions (VNFs) on both cost-sensitive slim CPEs designed for high volume deployment, and high performance uCPEs for increased network traffic and VNF onboarding.

Benefits

▸ Cost-efficient solutions

▸ Minimal CPU and memory footprint

▸ One scalable software platform for all Advantech white boxes

▸ Scales from remote and small branch to also meet medium and large enterprise deployments

▸ Open source based uCPE software

▸ Integrates with any VNF and orchestration

▸ Automation simplifies deployment and management

▸ Optimized and hardware accelerated data Plane

Enea NFV Access available on Advantech validated Intel Select Solutions for UCPE

intel select solution

Flexible Solutions with Hybrid WAN Connectivity

CSPs are embracing Software-Defined Wide Area Networks (SD-WANs) running on Whitebox Universal CPE (uCPE) at the customer edge to enable more flexible and cost-effective solutions for routing traffic between branch offices, enterprise data centers and the cloud.

Through a growing adoption of software defined networking (SDN), SD-WAN and network functions virtualization (NFV), CSPs can now significantly improve enterprise connectivity to cloud-based services enabling businesses to access them over a broader infrastructure than just MPLS. Access to LTE, xDSL and fiber options integrated into white box uCPEs enables optimized application delivery over the internet across a broader choice of WAN connections.

Key to this more agile network is SD-WAN's ability to leverage a flexible white box uCPE-based NFV Infrastructure such as Enea NFV Access, and dynamically steer traffic towards the best available transport connection. By using the most optimal delivery path to shape bandwidth, both quality of experience and user productivity increases . In addition to the improved network agility provided across hybrid networks by SD-WAN VNFs, Enea NFV Access enables Zero Touch Provisioning over NETCONF to simplify new branch deployment and remote management on any available Internet connection including over LTE.

Entry to Mid-range Deployment at the Network Edge

For a highly optimized uCPE processing solution, Advantech's FWA-T011 and FWA-1012VC bring outstanding performance processing and power efficiency, and are available as 2 to 8 core scalable offerings with even the slim 2 core offerings are supported out-of-the-box by Enea NFV Access. Designed specifically for uCPE and SD-WAN, both network appliances are powered by processors based on Intel® architecture. The Advantech FWA-T011 is a slim network appliance based on the 2-core Intel® Celeron® N3350 and 4-core Intel®Pentium® N4200 for entry-level SOHO and small enterprise installations. The higher spec FWA-1012VC is powered by an Intel® Atom™ Processor C3000 System-on-Chip with 2, 4, or 8 cores and Intel® QuickAssist

FWA-T011
Intel® Celeron® or Pentium® N Series
Slim CPE for cloud-based deployments

FWA-1012VC
Intel® Atom™ Processor C3000
Versatile platform for wide-scale deployments

FWA-3050
Intel® Xeon® Processor D-2100
Fully configurable to fit any enterprise deployment

Technology. Both appliances offer rich wired LAN connectivity with WiFi and 4G/LTE options.

Higher Networking Performance and VNF Compute Capacity

CSPs can scale their uCPE deployments with Advantech's FWA-3050, an Intel Select Solution for uCPE based on the Intel® Xeon® D-2100 processor, this further scales up whitebox uCPE choice and provides the extra throughput, VNF onboarding and processing headroom that CSPs and Enterprises need to efficiently address increasing on-premise workloads. This versatile 1U rackmount platforms offers flexible WAN connectivity supporting multiple site-to-site communication protocols, broadband internet and 4G LTE through field-replaceable expansions.

The FWA-3050 can be configured to meet any enterprise needs thanks to Advantech Network Mezzanine Cards (NMC) that can be populated with a choice of 1,10, 25 or 40GbE interfaces. Integrated Intel® QuickAssist Technology accelerates execution of crypto algorithms including IPSec without burdening the CPU. As a result, secure branch connectivity including end-to-end encryption can be provided without compromising VNF performance or increasing cost. Additional IPsec acceleration and offload can be added by leveraging the Advantech PCIE-3020 Intel® QuickAssist PCIe adapter.

Optimized NFVI for Slim CPE

Enea NFV Access is a complete NFVI platform designed for deployment on white box uCPEs at the customer premise, and optimized to overcome common vCPE and SD-WAN use case challenges. Not based on OpenStack, it is able to provide full throughput and performance with minimal footprint. It runs on as little as one core and scales to high-end Intel Xeon devices, allowing flexibility to deploy on either FWA-T011, FWA-1012VC, or FWA-3050 with maintained management interfaces, orchestrators and VNFs.

Enea NFV Access simplifies deployment and management through automation and orchestration integration. It is a future proven platform where VNFs easily can be replaced or extended post deployment.

uCPE Management

Enea uCPE Manager is a VIM and VNF Manager included with Enea NFV Access. It manages deployed uCPEs and VNFs with a high level of automation using the NETCONF protocol and a feature set that includes zero touch provisioning, simple VNF onboarding, service function chaining, VNF lifecycle management and platform lifecycle management providing full FCAPS.

Extensibility allows Enea uCPE Manager to adopt to brownfield deployments, feature extensions, and adaptions for complex integrations and deployments.

Enea uCPE Manager can be deployed as a VNF in the cloud to enable uCPE management and orchestration as a service, and it integrates with any orchestrator.

Enea NFV Access Features

▸ Complete NFVI software platform

▸ Automated with ZTP, Ansible, and orchestration integration

▸ Optimized hardware utilization without OpenStack overhead allows high virtual networking performance with minimal footprint

▸ Scalable to high-end Intel Xeon devices with Service Function Chaining

▸ Optimized boot speed for improved resilience and availability

▸ Secured management communication, secured boot, and role based access control

▸ Based on industry standard open source components, packaged and ready for deployment

Enea NFV Access Characteristics

Characteristic	Enea NFV Access	Competing alternatives
Platform RAM footprint	< 1 GB	4-12 GB
Platform disk footprint	< 1 GB	4-12 GB
Platform CPU footprint	1 core	2-4 cores
Platform boot speed (excl BIOS)	< 3 s	10-30 s
Network throughput over vSwitch	10 Gb IMIX line rate	1 Gb IMIX line rate
Network latency over vSwitch	Average 10-15 μs	Average 25-75 μs