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Data Sheet

General Availability

vCPE-OS

Open Carrier-Class Operating System for Network Edge Virtualization

- Linux-based, carrier-class operating system for disaggregated edge devices
- Integration of NFV Infrastructure, vCPE-optimized VIM and advanced routing
- Open-standard Northbound Interfaces for management and orchestration
- Optimized for high-performance and low resource consumption

The cornerstone of RAD's vCPE Toolbox, vCPE-OS is designed for disaggregation between hardware, operating system and network functions. While running on any COTS white box server, it combines powerful networking capabilities with virtualization, for hosting value-added virtual network functions (VNF) from multiple vendors.

vCPE-OS enables a single box to serve as a networking edge, as well as a host for networking, security and IT applications, while offering the following benefits:

- Avoiding VNF vendor lock-in: vCPE-OS is suited to host value added services of any type per customers choice.
- Avoiding orchestration lock-in: vCPE-OS integrates with any orchestration system based on NETCONF/YANG or CLI interface
- High performance, resource efficiency: vCPE-OS is a thin operating system, occupying a single x86 Core and less than 2 GB RAM memory. With ultimate resource efficiency, it provides top notch networking performance for its embedded routing functionality, as well as for hosted VNFs
- Zero touch provisioning: automatic installation and service provisioning without technicians on site
- Secure operating system: offers hardening of Linux and KVM, data protection at rest, in transit and in processing, blocking of penetration and hacking attempts

MARKET SEGMENTS AND APPLICATIONS

With vCPE-OS, service providers can deploy a single common network OS on all hardware white boxes in use, each one suited to the requirements of the specific customer sites. The service provider gets to choose the preferred hardware within the x.86 family (avoiding vendor lock-in and optimizing performance vs. costs), desired applications for each customer, and a management/orchestration system. vCPE-OS is deployed in branch sites and in enterprise headquarter sites, on an array of white boxes differing in interfaces, processing power and capacity for storing applications. Hosted applications vary between sites, where branches often deploy SD-WAN and SD-Branch, and headquarters also add on voice applications, such as IP-PBX.

INTEROPERABILITY

vCPE-OS has an open management platform and can be easily integrated with standards-based SDN controllers, orchestrators, and Operations/Business Support Systems (OSS/BSS) from major providers using NETCONF/YANG interface modeling, standard OpenStack-compatible REST API or SNMP.

ARCHITECTURE

vCPE-OS features a standard KVM hypervisor to host third-party VNFs. Common applications include: SD-WAN, firewall and Session Border Controller (SBC).

vCPE-OS embedded routing functionality enables superior performance edge connectivity with value-add service chains.

The vCPE Toolbox also includes:

- RAD's D-NFV Alliance, an ecosystem of network orchestration and pre-tested VNFs
- RADview management and domain orchestration with standard APIs
- White box and pCPE platforms with distributed and centralized virtualization capabilities

MANAGEMENT

vCPE-OS management suite includes NETCONF/YANG, OpenStack-compatible REST API, CLI, SNMP, Syslog, and alarms.

RADview Domain Orchestrator manages the VNF resources and network capabilities. It models and deploys VNF instances via service function chains.

RADview also provides NMS tools and a Performance Monitoring portal.

RAD

Your Network's Edge®

vCPE-OS

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SECURITY

vCPE-OS security features include:

- Integration with external user management servers like LDAP, TACACS+ and RADIUS
- Protection for local user management
- Secured interfaces with ACLs, SSL authentication, RSA and pre-shared keys
- Data protection with multiple secured protocols, such as SSH, SFTP, SCP, HTTPS, IPsec
- Critical data encryption
- Constant security updates for all OS layers

Specifications

HARDWARE REQUIREMENTS

CPU	64-bit Intel x86 processor with VT-x (virtualization technology)
Ports	At least one Ethernet port
	At least one USB port
RAM	Minimum 4 GB memory for vCPE-OS and acceleration (DPDK)

Note: *For certification of vCPE-OS over a third-party white box, please contact your local RAD partner.*

NETWORKING

Layer-3 Forwarding	Static, BGP, OSPFv2
Multiple VRF	
Policy-based routing	
Bridging	aware/unaware
Dynamic IP	
NAT and NAT traversal	
IPsec tunneling	
GRE tunneling	
VLAN tagging	
Flexible binding	of physical/logical ports to virtualization layer entities
Local switching	
VDSL2	

ACCELERATION

Method	DPDK
	SR-IOV

CELLULAR DRIVERS

LTE modem	PPP connection to hub

DIAGNOSTICS

Tool	Syslog
	NETCONF notifications

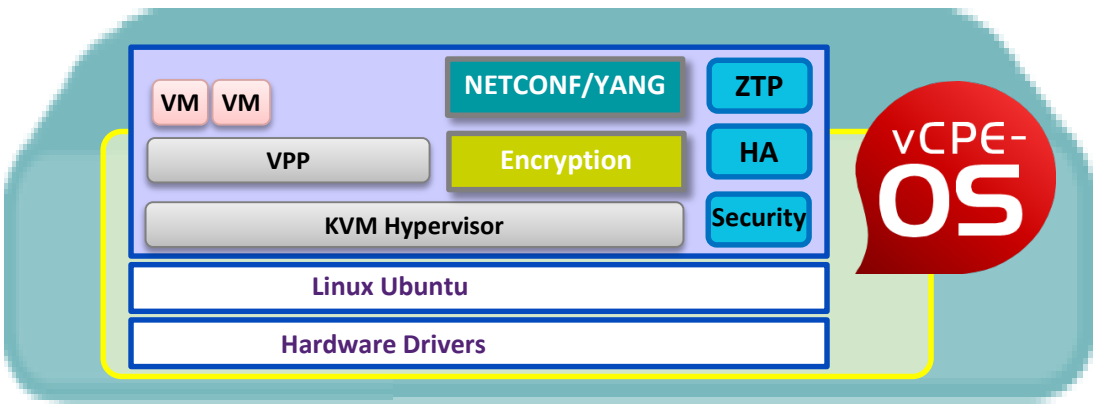

Figure 1. vCPE-OS Main Building Blocks

vCPE-OS

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MANAGEMENT AND SECURITY

Authentication	5-level user authentication with TACACS+, RADIUS, LDAP (for virtualization only)
Console Port	Mini USB or serial (RS-232 or similar) port for management via CLI
Management Options	CLI, SNMPv3, NETCONF
	Remote management by SSH
	SFTP Client
	DHCP client
	NTPv4
	Access Lists for management and data traffic
	Zero Touch
	Performance Management

Ordering

RECOMMENDED CONFIGURATIONS

VCPE-OS-LIC/[cores]
Annual license for one instance, based on the number of cores in the HW

VCPE-OS-LIC/[cores]/P
Perpetual license for one instance based on the number of cores in the HW

ANNUAL SERVICE COVERAGE

Note: *The RADcare packages below are offered for a 12-month period. For longer periods, please contact RADcare Services.*

RADCARE-D-NFV-BASIC-PLUS
8x5 SW support coverage plus maintenance and security patches

RADCARE-D-NFV-EXTENDED
24x7 SW support coverage plus maintenance and security patches

RADCARE-D-NFV-PREMIUM
24x7 SW support coverage plus maintenance, new feature releases and security patches

PROFESSIONAL SERVICES

Remote installation and activation of vCPE-OS on ETX-2v

Onsite or remote vCPE-OS SW upgrade and activation

Onsite initial implementation (20 installations of vCPE-OS on ETX-2v, installation documentation and training session)

Full list of RAD services

SPECIAL CONFIGURATIONS

Please contact your local RAD partner for additional configuration options.

International Headquarters
24 Raoul Wallenberg St., Tel Aviv 6971923, Israel
Tel 972-3-6458181 | Fax 972-3-7604732
Email **market@rad.com**

North American Headquarters
900 Corporate Drive, Mahwah, NJ 07430, USA
Tel 201-529-1100 | Toll Free: 800-444-7234 | Fax: 201-529-5777
Email **market@radusa.com**

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