

ETX-2v

Open uCPE White Box Platform



- Versatile suite of carrier-grade white boxes, suitable for uCPE or “bare-metal” deployments
- Flexible connectivity options: SFP, SFP+, RJ-45 Ethernet, pluggable PNFs, WiFi, and LTE
- Optionally hosts RAD’s vCPE-OS or third-party operating system
- Hardware-based security

ETX-2v is a suite of new carrier-grade white boxes, installed at the customer premises (either at headquarters or in remote branch sites) to support a wide range of business customer needs and user scenarios, from small offices to large sites, using a variety of bandwidth and processing power options.

Based on the Intel x.86 processors, ETX-2v offers various interface, performance, and storage options.

ETX-2v can be used with RAD’s pluggable modules, to fit any access media, and RAD’s vCPE-OS, a carrier-grade operating system for network edge virtualization with optimized data plane efficiency and integration to third-party orchestrators and SDN controllers.

MARKET SEGMENTS AND APPLICATIONS

The ETX-2v x86-based white boxes host virtual functions (VFs) and applications. They can optionally use RAD’s vCPE-OS or any other third-party operation system. RAD’s vCPE-OS includes standard KVM hypervisor and OpenStack compute node to host third-party applications (VFs) or integrate opposite third-party service orchestrators. Optional RADview D-NFV Orchestrator includes NMS, Performance management and service chaining capabilities.

ETX-2v supports four types of Intel® processors:

- Rangeley (C2000 series)
- Denverton (C3000 series)
- Xeon D
- Xeon E

Business Services - vCPE

For business services applications, ETX-2v fits any vCPE implementation mode: centralized, de-centralized or a mix of both.

In centralized deployments, ETX-2v acts as a Thin CPE by decoupling the operating systems’ networking and NFVI capabilities.

In decentralized deployments, ETX-2v functions as a uCPE (universal CPE), hosting an array of VNFs for supporting the following applications:

- **SD-WAN:** Software-defined control of WAN connections with secure overlay tunnels for business services
- **Router:** Virtual router for hosted public clouds and branch CPE deployments
- **Cryptography:** Standard AES 256-bit cipher encryption/decryption of L2-L4 traffic
- **Next-Generation Firewall:** Unified threat management for provider-managed SMB services

- **Session Border Controller (SBC):** Managing of VoIP signaling and media flows
- **Packet Analyzer:** Troubleshooting on demand from the customer edge using a packet sniffer VF
- **WAN Optimization:** Eliminating content duplication, handling compression and optimizing latency

When combined with RAD’s vCPE-OS and D-NFV Orchestrator, ETX-2v ensures remote, agile deployment of value-added services with device management and VIM (Virtualized Infrastructure Manager).

SD-WAN

When hosting an SD-WAN VNF, ETX-2v reduces networking costs and ensures fast deployment of Business services over any infrastructure.

Service providers can offer self-service portals, as well as application-aware visibility and control.

SMART SFPs

Coupled with RAD’s pluggable smart SFPs (such as MiRIC and MiNID), ETX-2v offers the unique value proposition of a carrier-grade white box.



Using RAD's innovative vAccess solution for pluggable PPP/MLPPP interfaces, service providers can offer uCPE with TDM access to their customer base (E1/T1, E3/T3). The solution comprises an Ethernet to TDM smart SFP and a VNF for PPP/MLPPP protocol handling and bonding multiple smart SFPs into a single, logical MLPPP link.

Eliminating separate power, cabling and rack space needs, ETX-2v ensures functional consistency across multiple hosting devices.

MANAGEMENT AND SECURITY

ETX-2v with optional vCPE-OS is supported by the RADview orchestrator as follows:

- NMS: topology display, inventory, compute node configuration, zero-touch for initial setup, SW upgrade and scheduled tasks)
- Performance Manager: IP statistics, TWAMP results
- D-NFVO: VM setup, backup/restore of OS, upgrade of OS, Heat templates

ARCHITECTURE

ETX-2v features open architecture for underlay networking and service overlay with RAD's vCPE-OS or any other third-party operating system.

The open NFV/SDN architecture facilitates integration with network-wide orchestrators and controllers.

Specifications

CAPACITY

CPU

- Rangeley*
2, 4, 8 cores
- Denverton*
4, 8, 12, 16 cores
- Xeon D/Skylake-D*
4, 6, 8, 12, 16 cores
- Xeon E*
2x8, 2x10 cores

DRAM

- Rangeley*
4GB, 8GB or 16GB
- Denverton*
up to 128GB
- Xeon D*
up to 128GB
- Xeon E*
up to 256GB

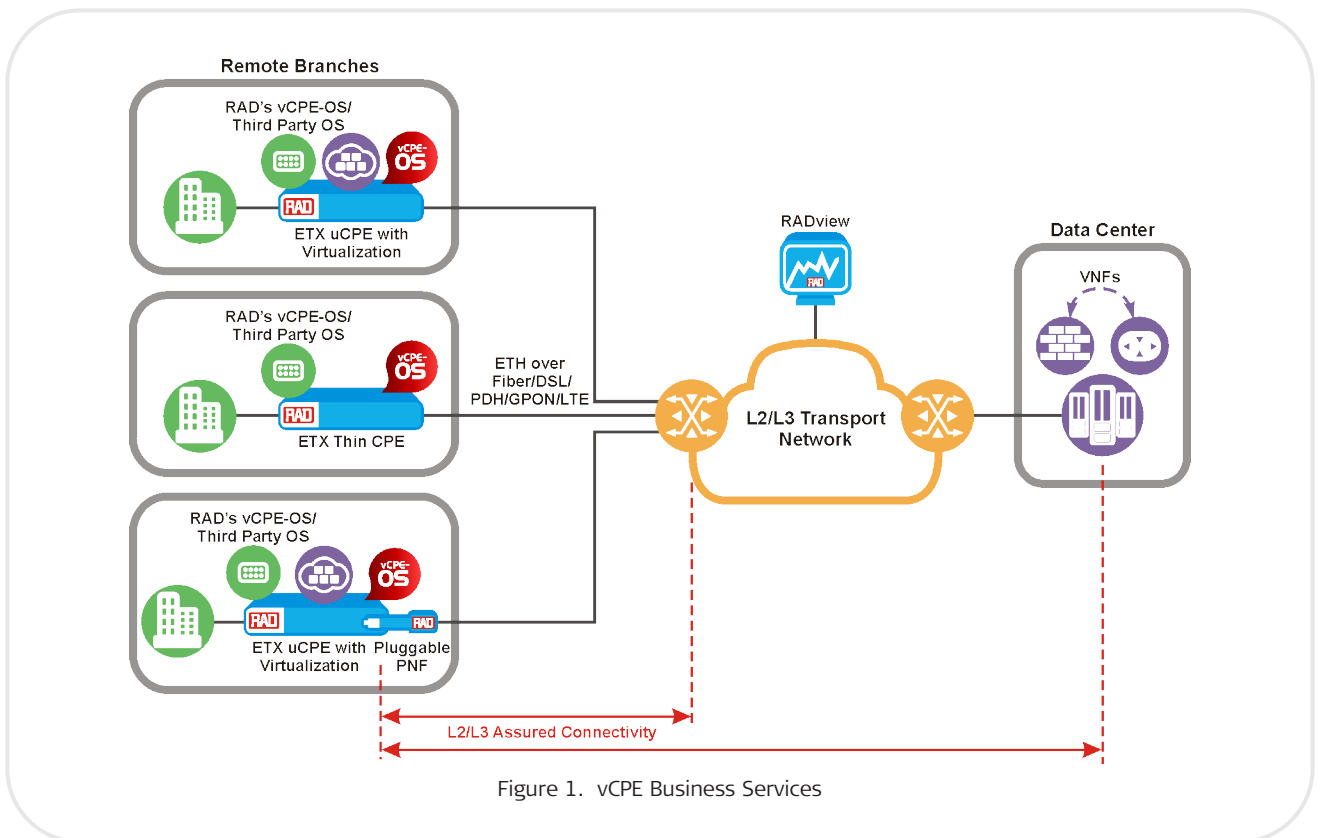


Figure 1. vCPE Business Services

ETX-2v

Open uCPE White Box Platform

Storage

Rangeley
up to 256GB SSD

Denverton
up to 2TB

Xeon D
up to 4TB

Xeon E
up to 4TB

MANAGEMENT**SW Download**

USB 2.0 host (2x)

Console Port

Serial over Mini-USB

INTERFACES**Rangeley**

4 x RJ-45

2 x GBE SFPs

Denverton

up to 2 x SFP+ or 2x SFP
and up to 8 x RJ-45

Xeon D

up to 2 x SFP+ or 2x SFP
and up to 10 x RJ-45

Xeon E

up to 4 x SFP+ or 2x SFP
and up to 20 x RJ-45

LTE

LTE modules for world-wide support (see table below)

WiFi

IEEE 802.11ac compliant and backward compatible with 802.11a/b/g/n

Frequency range:

2.4GHz: 2.412 ~ 2.472 GHz

5GHz: 5.180 ~ 5.825 GHz

Modulation Techniques: OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM

Denverton**VDSL2/ADSL module**

Intel® XWAY VRX220 (PSB 80220) xDSL chipset

Standards: ADSL ITU-T G.992.1/3/5, VDSL2 ITU-T G.993.2, ITU-T G.993.5, ITU-T G.998.4

Data rates up to 200+ Mbps downstream and upstream on twisted pairs using a bandwidth up to 30 MHz – see Figure 2.

GENERAL**Physical****Rangeley**

Height: 44 mm (1.7 in)

Width: 192 mm (7.6 in)

Depth: 192 mm (7.6 in)

Table 1. LTE Features per Category A

LTE Feature/Module	North America (LA)	North America (LV)	Australia/Taiwan/Brazil (LAU)	EME/Korea/Thailand (LE)	Japan (LJ)
LTE FDD	B2/B4/B12	B4/B13	B1/B2/B3/B4/B5/B7/B8/B28	B1/B3/B5/B7/B8/B20	B1/B3/B8/B18/B19/B26
LTE TDD			B40	B38/B40/B41	B41
WCDMA	B2/B4/B5		B1/B2/B5/B8	B1/B5/B8	B1/B6/B8/B19
GSM			B2/B3/B5/B8	B3/B8	

Table 2. LTE Features per Category B

LTE Feature/Module	EMEA/Australia/Brazil	North America	Latin America	Asia-Pacific
LTE-FDD	B1/B3/B5/B7/B8/B20/ B28/B32	B2/B4/B5/B7/B12/ B13/B17/B25/B26/ B29/B30/B66	B2/B3/B4/B5/B7/B8/B20/B28	B1/B3/B5/B7/B8/ B18/B19/B21/B26
LTE-TDD	B38/B40/B41	B41		B38/B39/B40/B41
2xCA	B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41	B2+B2/B5/B12/B13/B17/B26/B29; B4+B4/B5/B12/B13/B17/B26/B29; B7+B5/B7/B12/B13/B17/B26/B29; B25+B5/B12/B13/B17/B25/B26/B29; B30+B5/B12/B13/B17/B26/B29; B66+B5/B12/B13/B17/B26/B29/B66; B41+B41	B2+B2/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B4+B4/B5/B8/B20/B28; B7+B5/B7/B8/B20/B28	B1+B3/B8/B18/B19; B3+B5/B19; B7+B5/B7; B21+B19; B38+B38; B39+B39; B39+B41; B40+B40; B41+B41
WCDMA	B1/B3/B5/B8	B2/B4/B5	B2/B3/B4/B5/B8	B1/B5/B6/B8/B9/B19
TD-SCDMA				B39

ETX-2v

Open uCPE White Box Platform

Denverton

Model A

Height: 44 mm (1.7 in)
 Width: 231 mm (9.1 in)
 Depth: 200 mm (7.9 in)

Model B

Height: 44 mm (1.7 in)
 Width: 438 mm (17.2 in)
 Depth: 321 mm (12.6 in)

Xeon D

Height: 44 mm (1.7 in)
 Width: 438 mm (17.2 in)
 Depth: 321 mm (12.6 in)

Xeon E

Height: 88 mm (3.46 in)
 Width: 440 mm (17.3 in)
 Depth: 501 mm (19.7 in)

Power

AC input, via wall-mount PS (100-240 VAC to 12 VDC)

Xeon D and Xeon E

Dual power supply

Environment

Operating temperature:
 0–40°C (32–104°F)

Relative humidity: 5–90%, non-condensing

Ordering

SPECIAL CONFIGURATIONS

Please contact your local RAD partner for configuration options

OPTIONAL ACCESSORIES

VCPE-OS

Carrier-grade operating system for virtualization

Pluggable Smart SFPs

MiNID, MiCLK, MiRiCi-E1/T1, MiRiCi-E3/T3, MiTOP, MiVDSL & SFP-GPON-1DH

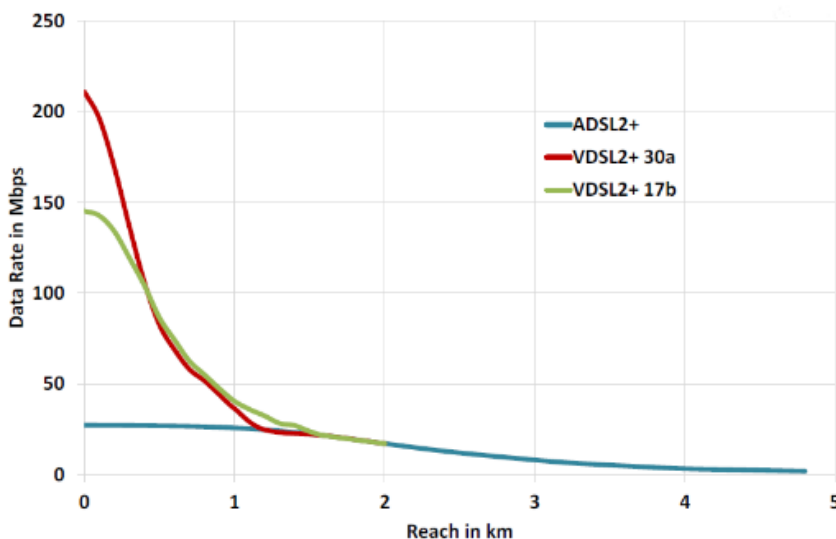


Figure 2. Rate/Reach Performance Measurement for ADSL/VDSL

International Headquarters

24 Raoul Wallenberg Street
 Tel Aviv 69719, Israel
 Tel. 972-3-6458181
 Fax 972-3-6498250, 6474436
 E-mail market@rad.com

North American Headquarters

900 Corporate Drive
 Mahwah, NJ 07430, USA
 Tel. 201-5291100
 Toll free 1-800-4447234
 Fax 201-5295777
 E-mail market@radusa.com

www.rad.com



691-150-05/18 12 01 Specifications are subject to change without prior notice. © 1988-2018 RAD Data Communications Ltd. RAD products/technologies are protected by registered patents. To review specifically which product is covered by which patent, please see ip.rad.com. The RAD name, logo, logotype and the product names MiNID, Optinix, Arrinix, Ipnix and MiCLK are registered trademarks of RAD Data Communications Ltd. All other trademarks are the property of their respective holders.