

## Ensemble Edge Cloud



# Cloudlet vRouter

## Digital transformation at the edge



Cloud managed



10 Gigabit



5G Mobile



Zero-touch



3<sup>rd</sup> party VMs managed

## Benefits

- Adtran hardware
- Cloud-hosted management
- Zero-touch provisioning
- Turn-key solution
- Lower total cost of ownership
- Advanced networking and security
- Ethernet 2.5G, 1G SFP, and 10G SFP+
- Wireless 5G option
- Deploy and host third-party VMs remotely

## Overview

**Imagine a cloud-managed edge router running on Adtran servers – one that delivers enhanced performance at reduced cost – and also lets you remotely deploy and manage third-party virtualized functions.**

Transformation at the edge: The historical investment in locked, single-function appliances for edge placement has created complex, laborious and costly evaluation and deployment cycles. But how can you harness the power of virtualized functionality while keeping the deployment simplicity of single-function appliances?

Meet Ensemble Cloudlet: Cloudlet vRouter combines Adtran server hardware with Ensemble Cloudlet's virtualized routing and hosting software. Coupled with Ensemble EdgeView's cloud-hosted management services, it accelerates your network rollout – and your transformation at the edge. With Ensemble, you deploy routers rapidly using trusted, high-performance hardware.

Ensemble EdgeView is the cloud-based management and service orchestration platform that authenticates nodes and launches your workloads with zero-touch deployment. Because it's cloud-hosted, Ensemble EdgeView offers limitless scalability and lets you manage edge routers at any site from any location.

## Powerful routing features

Cloudlet vRouter provides all the networking functions and services you need at the edge with dynamic Layer 3 routing, VPN connectivity, DHCP, DNS, hierarchical quality of service, Layer 2 and Layer 3 encapsulations and redundancy protocols.

## Secure your path

Ensemble ensures end-to-end protection with encrypted, authenticated IPsec tunnels between the vRouter and Ensemble EdgeView. It also provides stateless and stateful firewall support, Unicast Reverse Path Forwarding, IKEv2 tunnel authentication and more.

## Speed to soar, room to grow

With native interface support for 2.5Gbit/s, 10Gbit/s SFP+ and optional 5G wireless, Cloudlet vRouter sets the bar for versatility and speed. In addition, Ensemble EdgeView and the Cloudlet software allow you to add almost any third-party virtualized function for networking and IT applications. What's more, you can orchestrate and administer these vital new workloads remotely, without the expense of truck rolls.

# Cloudlet vRouter

## Edge routing decision matrix

Solution options	Total cost	Time to value	Simplicity & repeatability	Business agility	Overall fit
Traditional hardware (purpose-built appliance)	\$\$\$	2 months +	High	Not possible	-
Complex virtual routers (migrated appliance routers)	\$\$\$	4 months +	Med	Dynamic	-
Ensemble Cloudlet vRouter (optimized for the edge)	\$	Weeks	High	Dynamic	

### Total cost

Total solution cost includes software, hardware and site visit expenses to support service churn. Purpose-built appliances drive up costs through hardware validation, inventory overages and EOL risks on low-volume platforms. Cloudlet vRouter avoids these issues with a virtualized design delivered on Adtran-supported hardware.

### Time to value

There's no need to build out complex management infrastructure or evaluate a multi-vendor ecosystem. With Cloudlet, your time from deciding to deploying just got faster.

### Simplicity and repeatability

Can you do it again? Cloudlet zero-touch means provides an intuitive UI designed to launch your services with "click and repeat" ease.

### Business agility

High-value services demand redundant management and data paths. Cloudlet vRouter supports multi-WAN and 5G backup, while the combined Ensemble EdgeView and Cloudlet solution lets you deploy additional network functions remotely, without the cost or delay of truck rolls.

*"Cloudlet vRouter provides the agility and speed of the cloud with the simplicity of an appliance".*

# Cloudlet vRouter

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## Technical specifications

### vRouter application includes

- Server hardware
- vRouter software and cloud-hosted management and service orchestration provided on 36-month subscription

### Virtualization

- Four core total minimum CPU footprint. Two for Cloudlet OS and two for vRouter.
- SR-IOV hardware acceleration

### IP networking

- IPv4 and IPv6
- IPv6 auto-configuration
- Multitenancy (VRF)
- IPv4/IPv6 tunneling
- IPv4/IPv6 filtering
- Network address translation
- Multicast (PIM/IGMP)

### Management/monitoring

- SSHv2
- CLI
- SNMP
- KPIs/telemetry (YANG-based)
- RBAC with AAA
- Syslog
- 802.1ab LLDP
- sFlow
- IPFIX, Netflow v9

### Routing

- BGP4, BGP4+, BGP RPKI
- IS-IS, OSPFv2, OSPFv3
- RIPv1, RIPv2, RIPng
- Static routes & path monitoring
- BGP multi-path (ECMP)
- Policy-based routing (PBR)
- BGP L3VPN, BGP-LU
- Bidirectional Forwarding Detection (BFD)
- NHRP
- Quality of service
- Rate limiting per interface
- Rate limiting per VRF
- Hierarchical QoS (H-QoS)
- Class-based QoS
- Classification: ToS/IP/DSCP/CoS
- Shaping and policing
- Scheduling: PQ, PB-DWRR

### L2 and encapsulations

- GRE, mGRE
- VLAN (802.1Q, QinQ)
- VXLAN
- LAG (802.3ad, LACP)
- Ethernet bridge

### IP services

- DHCP server/client/relay
- DNS client/proxy
- NTP
- TWAMP

### IPsec VPN

- IKE v1/v2 pre-shared keys or X509 certificates
- MOBIKE
- Encryptions: 3DES, AES-CBC / GCM (128, 192, 256)
- Hash: MD-5, SHA-1, SHA-2 (256, 384, 512) AES-XCBC (128)
- Key management: RSA, DH MODP groups 1 (768 bits), 2 (1024 bits), 5 (1536 bits), and 14 (2048 bits), DH PFS
- EAP/Radius, EAP-MSCHAPv2
- Extended sequence numbers (ESN), large anti-replay windows
- High performance (AES-NI, QAT)
- Tunnel, transport or BEET mode
- Static and dynamic VTI
- Dynamic multipoint VPN

### Security

- ACLs (stateless & stateful)
- uRPF
- CP protection
- BGP FlowSpec (IPv4, IPv6)

### Console

- RJ-45 and micro-USB
- LEDs
- Multicolor power and Ethernet

### Mounting options

- Tabletop (standard)
- Rack mount
- Wall mount

### Dimensions

- 219 x 250 x 43 mm / 8.6 x 9.9 x 1.7 in WxDxH

### Operating environment

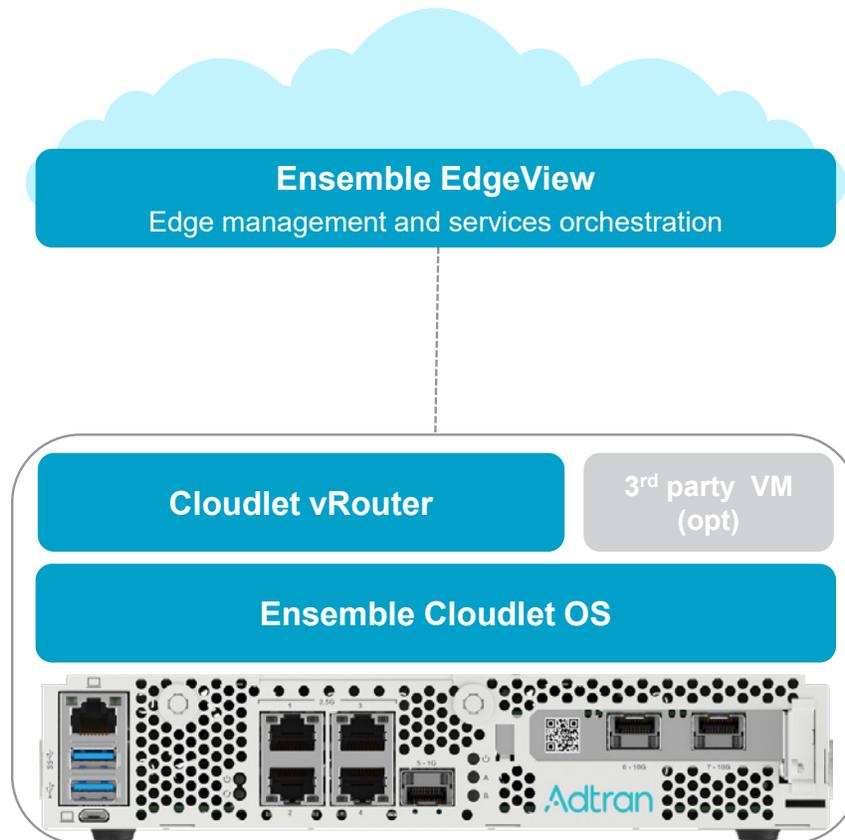
- 0 to +40C operating temperature
- Fans: 2x 40x40x20 mm FAN

# Cloudlet vRouter

## Ordering information

	Description	Part number
<b>1G Router</b>	Hardware: 4c/8G/128G server with 4 x 2.5G, 1G SFP Subscription Software: 1G, 10 tunnel Router, Ensemble EdgeView cloud-hosted management, 36 month	ENS SRVR 4C-8-128 ENS VROUTER-1G-10-36M
<b>10G Routers</b>	Hardware: 8v/32G/512G with 4 x 2.5G, 1G SFP, 2 x 10G SFP+ Subscription Software: 10G, 50 tunnel Router, Ensemble EdgeView cloud-hosted management, 36 month	ENS SRVR 8C-32-512-10G ENS VROUTER-10G-50-36M
<b>Accessories</b>		
Rack mount kit		ENS SRVR IBZ RMK
Wall mount kit		ENS SRVR IBZ WMK

## Application in your network



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