

ENET vRouter Network Appliance

Ethernity Networks' ENET vRouter network appliance is designed for Communications Service Providers, Internet Service Providers, and Enterprise Data Centers as an easy means of accelerating network performance without a large investment into new hardware. Companies can add 100Gbps routing functionality by simply installing Ethernity's vRouter software and ACE-NIC100 FPGA SmartNIC networking and security acceleration cards into existing commercial off-the-shelf (COTS) servers. The comprehensive vRouter software, together with our FPGA firmware and management tools, provides an inexpensive virtualized deployment to upgrade the network.

In contrast with pure software routing solutions that require investment in expensive servers with multiple CPU cores, adding both capital and operating expenses, the ENET vRouter network appliance uses FPGA offload to offer deterministic low-latency performance without significantly affecting power and physical space requirements, by using the data center's existing COTS server footprint.

Product Highlights

- 100G routing using COTS servers
- Offers complete programmability of control plane (handled in CPU) and data plane (handled in FPGA)
- Save valuable CPU cores
- Enhanced, deterministic low-latency performance
- Millions of flow rules with different editing options and statistics collection
- Low power, small physical footprint
- Flexible and scalable
- Easily extendable to vBNG or VPN Gateway

With our patented technology that significantly reduces the required logic, the ENET vRouter network appliance takes advantage of more affordable FPGAs with smaller SoC die size yet provides the ultimate in networking acceleration.

Moreover, Ethernity's FPGA-based technology offloads networking and security function data plane from the CPUs freeing more space for control, orchestration, and calculation.

Furthermore, the ENET vRouter network appliance can easily be extended to other applications, such as a vBNG appliance with the addition of PPPoE Termination and per-subscriber QoS, or to a VPN gateway appliance.*

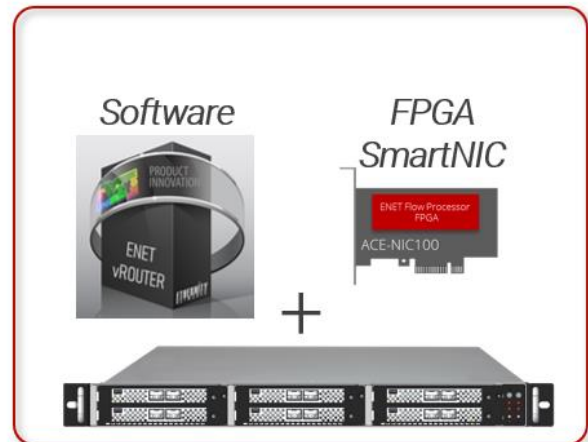
Thus, the ENET vRouter network appliance offers the utmost flexibility and scalability for any enterprise network deployment and is available in two convenient ordering options:

- Pluggable kit including ENET vRouter software and ACE-NIC100 FPGA SmartNIC, ideal for any server
- Standalone server-based turnkey appliance with ENET vRouter software and ACE-NIC100 FPGA SmartNIC pre-installed

Kit for Any Server



Standalone Turnkey Appliance



* Further extensions to the ENET vRouter require a separate license.

Applications

Network Connectivity

The system, at its core, offers a routing engine with full support of IPv4 and IPv6 dynamic routing protocols (BGP, Multicast, RIP, OSPF) and policy-based routing. This includes support for various network Interfaces and a wide variety of 1/10/25/40 and 100G Ethernet ports.

Threat Protection

The ENET vRouter appliance features L2-L4 packet filtering to protect your critical data. Our advanced firewall capabilities include multiple field filters and many combined actions based on match flow.

The vRouter also offers added threat protection by integrating secure subscription-based services based on rate limiting and policing toward the CPU.

Secure Connectivity

Customers can establish secure site-to-aggregation point or site-to-site VPN tunnels with standards-based IPsec VPN with high speed network requirements.

Traffic Management

The ENET vRouter can apply various H-QoS queuing mechanisms to inbound traffic for identifying and prioritizing applications and traffic flows. Ethernity proposes an easily extendable queue configuration to match different PoPs, in both fixed and mobile networks.

Redundancy

Time and mission critical networks can deploy the ENET vRouter appliance with the confidence that system redundancy can be achieved through industry standard failover, LAG, and ECMP mechanisms. Additional OAM and BFD implemented at high speed can easily detect failure of service at any interface speed.

Specifications

L2 Carrier Ethernet Bridging

- Unicast and Multicast VLAN-aware bridging
- Support for PB and PBB model
- STP/MSTP
- IGMP/MLD snooping
- LLDP
- LLCP

IPv4 / IPv6 Routing and Gateway

- BGPv4, BGPv6
- OSPFv2
- RIPv2
- Static routes
- Policy-Based Routing (PBR)
- Multicast PIM, IGMP, MLD
- Network Address Translation (NAT)

MPLS and VPN Services

- MPLS-based Segment Routing
- Seamless MPLS
- MPLS Label Stack Encoding
 - MPLS LER
 - MPLS LSR
- Encapsulation Methods for Transport of Ethernet over MPLS Networks

IP Address Management

- Static configuration
- DHCP server
- DHCP client
- DHCP relay
- Dynamic DNS
- DNS forwarding
- IPv6 DNS resolver
- IDHCPv6 server, client
- DHCPv6 relay

Encapsulations

- Ethernet
- 802.1Q VLANs
- PPPoE, L2TP
- IP-in-IP
- VxLAN
- GRE

Tunneling / VPN

- Site-to-Site VPN (IPSec)
- Remote VPN (PPTP, L2TP, IPSec)
- Layer 2 bridging over GRE

Firewall

- Multiple-tuple inspection firewall
- Extended set of actions per flow
- Time-based firewall rules
- Rate limiting and storm control
- ICMP type filtering
- In-HW failure detection

Additional Security

- IPSec
 - 3DES, AES encryption
 - MD5 and SHA-1 authentication
 - 802.1x
- DHCP snooping
- IP source guard
- Unicast, multicast, broadcast storm control

Performance Optimization

- Jumbo frame support
- Ethernet link bonding/LAG
- ECMP
- Hierarchical traffic management

SLA Functionality

- OAM/BFD
- Performance monitoring counters per flow
- RMON

QoS Policies

- Priority queuing and weighted fair queue
- Shaper and 2r3c policer
- L2/L3/L4 classifier
- VLAN tag and QinQ priority
- DiffServ
- Port and flow QoS

Ethernet Standards

- IEEE 802.2ba (40/100GbE)
- IEEE 802.3ae (10GbE)
- IEEE 802.3z (1GbE)
- IEEE 802.1p Priority
- IEEE 802.1Q VLAN Tagging
- IEEE 802.3x Flow Control
- IEEE 802.3ad Load Balancing
- Ethernet II and 802.3 encapsulated frames
- Jumbo frames up to 9.6KB

Management

- SNMP
- NetConf/Yang
- CLI
- WEB (partial)

SmartNIC Interface Options

(depends on product model)

- PCIe Gen3 x8/16 (x8 + x8 bifurcation)
- 2 x 40GbE
- 2 x 25GbE
- 8 x 10GbE
- 1 x 100GbE (1:1)

For information on ordering the ENET vRouter, please contact us at sales@ethernitynet.com.