

EN-9000™ CEI Core Edge

PRIME APPLICATIONS

- Large Network Routing
- VPN Concentrator
- Custom Configurations
- Distributed Networks

FEATURES

- Authentication
- Syslog
- Firewall
- Restful API
- Automatic Traffic Load sharing between stacked EN-9000™ CEI
- Multiple interface support; GigE
- Stackable Server
- 1X Redundancy
- VRRP
- OSPF
- BGP
- MP-BGP
- IPsec VPN (Tunnel, NAT-T, Dead Peer Detection)
- VPN IP Security AES 256 and 3DES, SSL/TLS and SSH
- Scales to thousands of secure VPNs
- Open VPN (Client, Server w/ Certificates)

CORE EDGE INTELLIGENT ARCHITECTURE

The EN-9000™ CEI is a Core Edge Intelligent platform designed to simplify the deployment of thousands of secure VPNs to widely distributed Encore EN™ routers. Advanced routing algorithms, Layer 4 network security, and VPN concentrator features address the most critical routing issues when utilities are either sharing multiple private networks or are attached to a utility owned private carrier network.

Intelligent Multipoint VPN (IMV) services from the EN-9000™ to Encore's EN™ routers in the field increases VPN security and reliability with redundant path support and random password key generation.

A customer premises hosted enSite™ device manager works with the EN-9000™ to:

- Provide Operations, Administration, and Maintenance (OA&M) support for the EN-9000™ and remote EN™ routers.
- Deliver full management and provisioning.
- Reduce the operational man-hours needed to configure large networks.
- Allow operators at a lower technical skill level to provision and manage end-to-end connectivity and authentication of both the EN-9000™ CEI and EN™ routers.

Complexities of secure routing over a private, public, or hybrid network with both wireline and wireless components requires a network administrator using both Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Multiprotocol Border Gateway Protocol (MP-BGP). The EN-9000™ CEI specifically supports OSPF, BGP and MP-BGP to route packets and advertise reachability to adjacent networks or other network core routers. Route tables and the link-state information is stored in a topological database. BGP routing tables are stored in enSite™ and are pushed to the EN-9000™ for routing decisions based on paths, network policies, or rule sets as configured by the network administrator.

The EN-9000™ can act as a Route Reflector (RR) component for BGP. As an RR, the EN-9000™ reduces the overall data throughput requirements inside of networks by not broadcasting full BGP route tables. This is key when subscribing to a commercial LTE service where a utility pays for costly data plans.

When the EN-9000™ CEI manages very large networks, it:

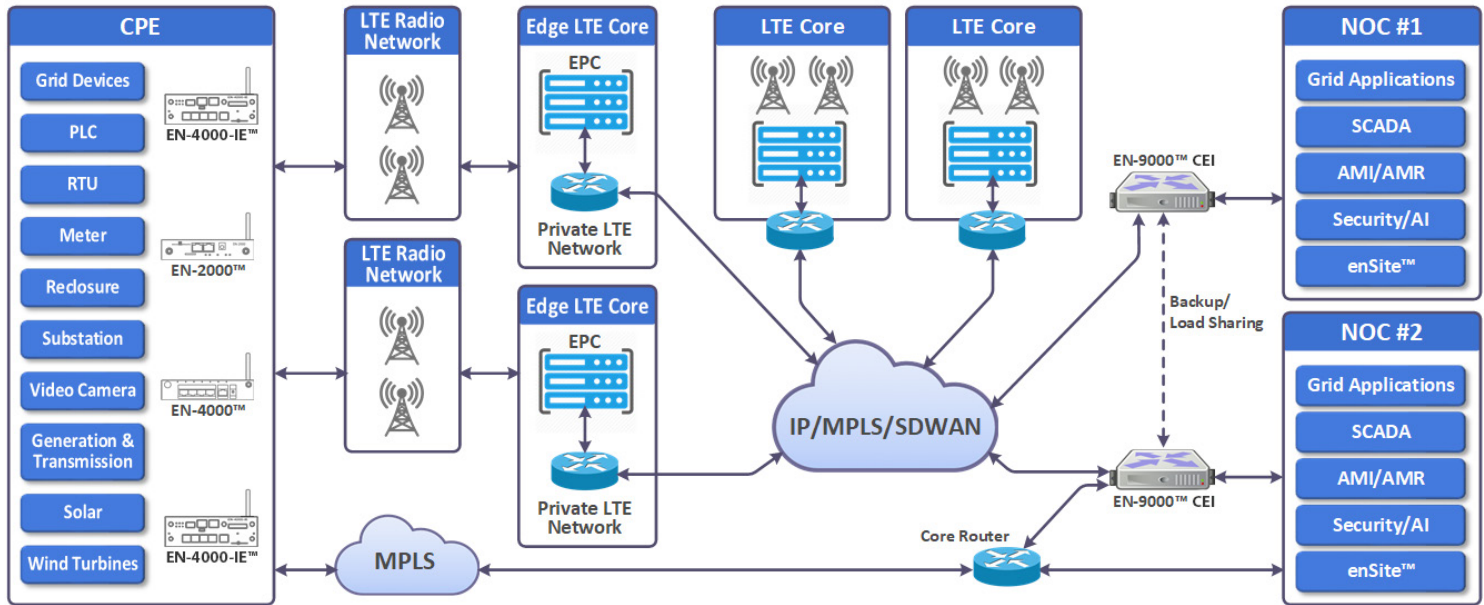
- Scales to thousands of remote devices simply by adding additional EN-9000™ CEI instances.
- Has load sharing across multiple EN-9000™ instances.
- Automatically shifts work load away from an unavailable unit to provide redundancy and higher availability.

The EN-9000™ CEI intelligent VPN concentrator features support for both static and dynamic IP Routing to the Encore edge devices providing a more flexible and secure network. The Intelligent Routing engine of the EN-9000™ dynamically learns securely and relays the remote private subnets to the host network. This gives two advantages; Simplified provisioning of Encore routers without dynamic routing, and no extra dynamic routing traffic across the Cellular network.

Unlike Encore's EN™ series of routers which are deployed at the edge and along the Grid, the EN-9000™ CEI operates in the utility's data center, network backbone, or core.

TECHNICAL SPECIFICATIONS

Encore Core Edge Architecture



GENERAL FEATURES

- SNMPv3
- Access for control via SSH, Telnet, and web access interface
- Restful API
- 1X Redundancy
- OSPF
- BGP
- MP-BGP
- VPN
- Concentrator
- Firewall

SECURITY APPLIANCE FEATURES

- Stateful inspection firewall
- DMZ LAN port
- NAT (Network Address Translation)
- SSL/TLS1
- IP Sec (RFC 2401) with AES 256 and 3DES
- Generic Router Encapsulation GRE (RFC 1701)
- Internet Key Exchange--IKE v1/v2 (RFC-2409)
- RADIUS authentication
- Open VPN
- TACACS+

PHYSICAL FEATURES

- Dell Server Hardware (Contact Encore Networks for design requirements)
- Multiport Ethernet GigE 10/100

TRANSPORT PROTOCOLS

WAN

- IP over Ethernet (compatible with MPLS services)
- Intelligent Multipoint VPN
- Intelligent Route Relay OSPF/BGP
- PPPoE
- Selective Layer Encryption (SLE) for VPN Optimization (patented)

IP

- IP Versions 4 and 6
- IP Routing (RIP v1/v2), OSPF, BGP, or static routing
- DHCP client/server/BootP/Relay
- IP QoS and traffic prioritization
- IP fragmentation/reassembly
- IP routing over VPN; TCP and UDP
- 802.1q VLAN tagging
- Virtual Redundant Routing Protocol (VRRP)
- Dead Peer Detection

MANAGEMENT

- enSite™ Device Management System - Customer Premises Server Based
- GUI Web Management
- Secure HTTPS
- SSH (secure shell)
- Syslog
- SNMP v3