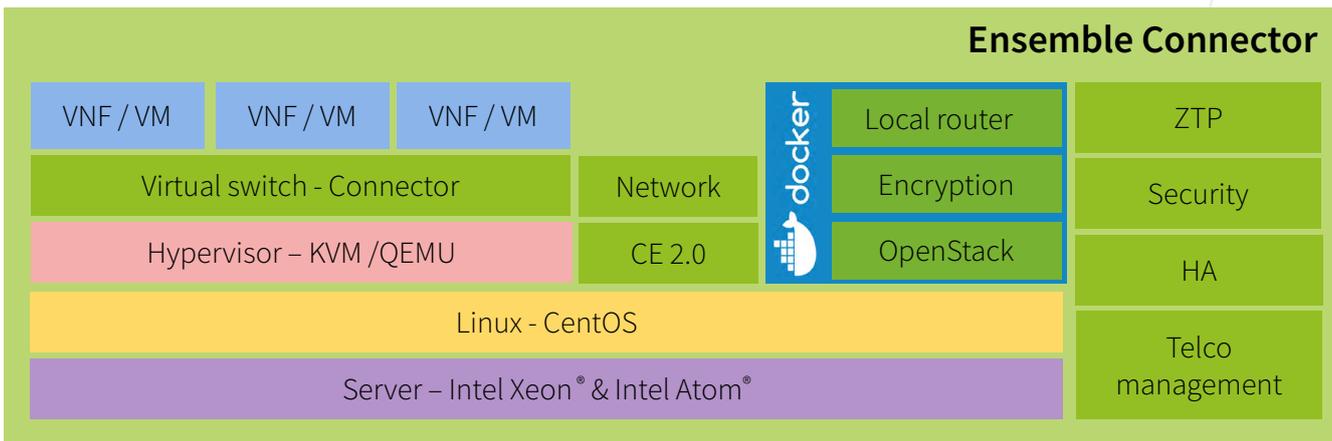


Ensemble Connector

High-performance network functions virtualization infrastructure

Communications service providers (CSPs) know that virtualizing their network is key to enabling service revenue growth and operational agility. The challenge for the CSP is to provide a ubiquitous virtual networking platform that can host other virtual network functions (VNFs) across various deployment configurations.

CSPs virtualizing their networks need an enablement platform that provides high-throughput data path performance. They need a solution that scales from small-footprint, edge applications to high-density, data center use cases. They need a solution that solves their OpenStack operational concerns and makes OpenStack easily deployable outside of the data center. Moreover, they need a whitebox solution that operates on a wide range of commercial off-the-shelf (COTS) platforms, protecting their software investment and unlocking the networking functions from proprietary hardware. They need Ensemble Connector. Ensemble Connector is a family of software applications that enables CSPs to provide the virtual networking and virtual hosting functionality at the customer premises, in the gateway between network clouds, and in the data center.



Your benefits

- ✓ **No hardware vendor lock-in**
 Choose your own third-party hardware, from low-cost Intel Atom®-based devices all the way up to multi-socket Intel® Xeon® blade servers
- ✓ **No orchestration vendor lock-in**
 Connector embedded cloud places a self-contained cloud instance on the compute node, providing an open, standard interface with third-party orchestration platforms
- ✓ **Improved virtual switching**
 Faster, more efficient and consistent forwarding performance than Open vSwitch (OVS)
- ✓ **Zero touch provisioning (ZTP)**
 With Ensemble Connector, CSPs ship an unconfigured server to a customer site and then provision it securely without the need for an onsite technician
- ✓ **Improved networking**
 Ensemble Connector provides a variety of advanced networking applications at Layer 2 and 3, including LTE access
- ✓ **Security and encryption**
 ConnectGuard™ Cloud offers protection at multiple levels: commissioning, virtualization, management, user connections and user data

High-level specifications

Network services

- Virtual routing and forwarding (VRFs)
- MEF CE 2.0 compliant E-Line, E-LAN, E-Tree services
- Network address translation (NAT)
- Port address translation (PAT)
- DHCP client and DHCP server

Protocols

- Border gateway protocol (BGP)
- L2/L3 VPN on MPLS
- 802.3ah link OAM
- Y.1731 SOAM
- 802.1ax link aggregation
- RFC 2473 IPv6 encapsulation
- NETCONF, REST, CLI SNMP, and HTTPS

Data path

- DPDK acceleration libraries and drivers
- Eight class of service queues
- Policing and priority rate profiles
- Packet capture
- Ingress matching rules on L2/L3 criteria

Cloud services

- OpenStack embedded cloud with full compute and controller services and APIs: Glance, Swift, Keystone, Nova, etc.
- KVM/QMU hypervisor environment
- Local orchestration through OpenStack Horizon GUI

Zero touch provisioning

Flexible ZTP tool set with:

- Secure tunnel interop with third-party security gateways
- Auto port detection
- Two-factor authentication
- VLAN-based search algorithms
- Customer splash screens
- Software upgrade / reversion

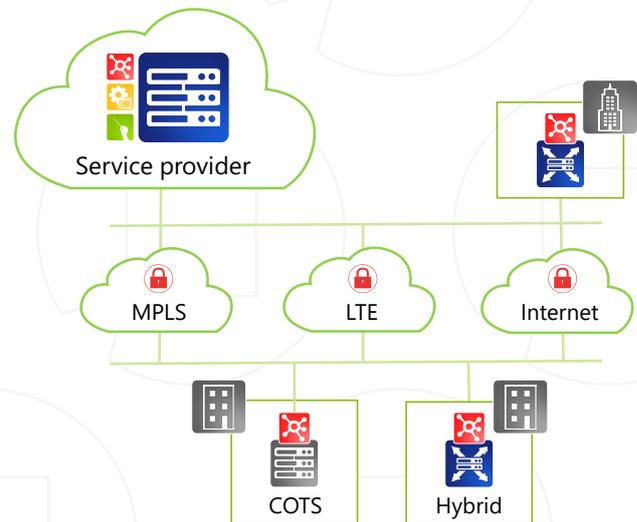
Security and encryption

- TACACS+, RADIUS authentication
- IPSec with IKEv2 tunneling
- AES encryption (256bit)
- Flexible data encryption at Layers 2, 3 or 4
- SSH key-based login options
- Role-based access (RBAC)
- Auto-lockout

Applications in your network

High-performance network functions virtualization infrastructure (NFVI)

- Encapsulation and routing protocols enable Ensemble Connector to build both overlay networks and VPNs through the legacy underlay network
- Ensemble Connector can establish overlay tunnels on existing IP backbones to tunnel Layer 2 and Layer 3 services with encapsulation
- Ensemble Connector creates a hosting environment and provides the services for connecting VNFs to the network or to other VNFs
- Virtual routing function (VRF) forwarding models support address space overlapping and enable Ensemble Connector support of multi-tenancy use cases
- Ensemble Connector enables uCPE deployments on white box or COTS platforms, including direct shipment of unconfigured devices to customers
- Software encryption enables secure connectivity between the customer site and the public cloud



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Product specifications are subject to change without notice or obligation.

