Broadband Network Gateways
vBNG Evo™
Virtualized Broadband Network Gateway

COMMSCOPE®

FEATURES

- Built for the Cloud: The CommScope vBNG Evo was built from the ground up, in a container-based virtualization framework.

- Centralized/Distributed Data Planes with Automatic Scaling: vBNG Evo offers separation of control and data planes and is designed for redundancy and multi-dimensional scaling, so service providers have assurance, service agility, and faster time to market.

- Disaggregation of Network Functions: Not only are control and data planes separated, but the data plane can also be distributed to remote silos, giving service providers the ability to flexibly centralize or distribute functions as needed.

- Industry Leading Throughput: Deliver high throughput performance with HQoS and Accounting enabled per session, dynamically scalable to terabits per second.

- Advanced Subscriber Management: Features include per subscriber Hierarchical QoS and policy-based routing.

The CommScope® Virtualized Broadband Network Gateway (vBNG Evo) provides advanced subscriber management and routing capabilities in a virtualized solution that enables the elastic scaling and service agility today's dynamic Internet services environment requires. Built from the ground up as a cloud-native solution for container-based cloud networks, vBNG Evo delivers the performance, scaling, and flexibility needed to address the greater diversity of wireless access and FTTH broadband demands. Through a unique design that disaggregates network functions, streamlines packet flows, enables independent and dynamic scaling of control and data planes, the CommScope vBNG Evo delivers superior throughput in both centralized and distributed architectures.
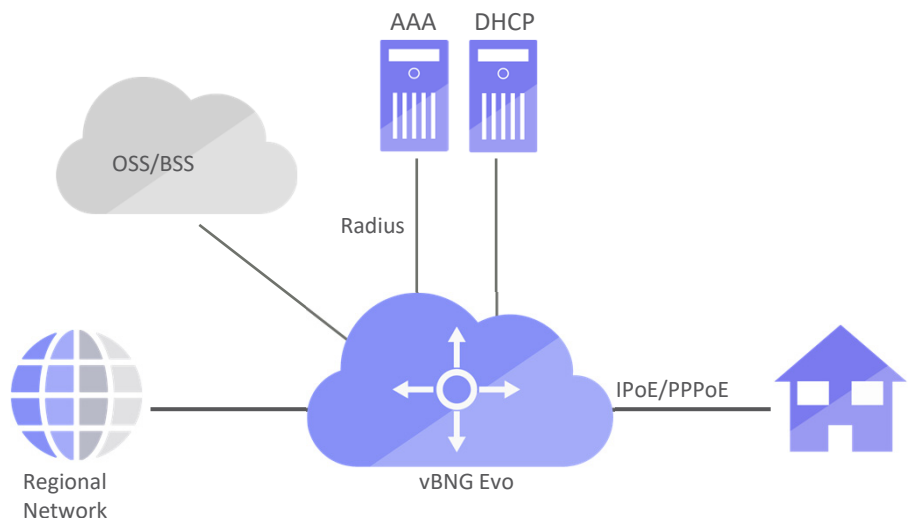

Figure 1

Customers who choose vBNG Evo can expect full BNG functionality, from a cloud-native virtualized solution.

- IPoE and PPPoE access methods providing IPv4 and IPv6 connectivity to the internet or BNG MPLS-VPNs.
- L2TP LAC and LNS for wholesale broadband connectivity.
- Dynamic template-based configuration of subscriber sessions.
- RADIUS-based authentication, authorization, and accounting per session. Change-of-Authorization for dynamic services.
- Layer 2/Layer 3 edge routing for IPv4 and IPv6 unicast and multicast.
- Hierarchical QoS for subscriber traffic with traffic shipping and rate limiting for traffic management.
- Routing VRF support for both unicast and multicast with MPLS.
- CLI, SNMP, and NETCONF/YANG for management.
- Lawful intercept support per session.
- Wi-Fi® Access Gateway
- Integrated CGNAT to reduce the number of public IPv4 addresses required.

Virtual Broadband Network Gateway—vBNG Evo

The CommScope vBNG Evo gives service providers key benefits in the race to attract and retain high-speed data customers:
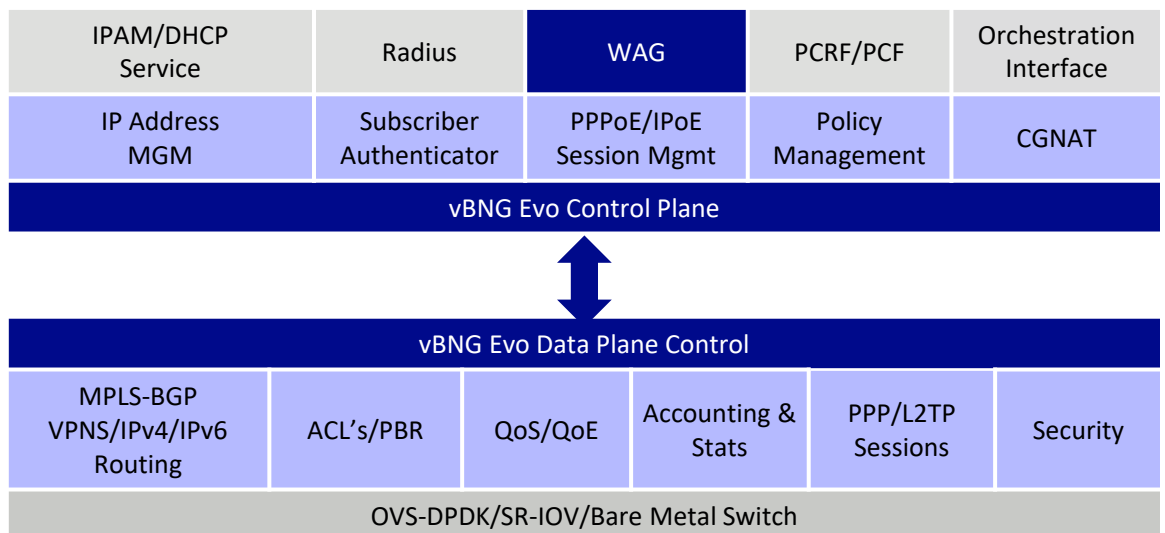
- Network simplification: reduced equipment requirements by replacing multiple legacy Broadband Remote Access Server (BRAS) and BNG chassis with vBNG Evo from CommScope
- Network flexibility: independent, dynamic scaling of control and data planes and, uniquely, the ability to distribute the data planes closer to the subscribers.
- Service agility: increased control over and ability to differentiate the user experience with elastic scaling, per-subscriber QoS, policy-based routing, captive portals, and DHCP relay.
- Automatic Scaling of Data Planes based on number of subscribers or throughput.

Control and Data Plane Separation

The vBNG Evo software architecture separates control and data plane functions and decomposes those functions, as shown in *Figure 2* below. This enables not only independent scaling, but also the flexibility to put the control plane and data plane where they make the most sense—on the same server in the data center/CO, different servers, or even in different locations (e.g., the data plane can be distributed closer to the end user). The API between the control and data plane works in any of these scenarios.

Figure 2

Cloud-Native, Decomposed vBNG Evo Architecture Control Plane and User Plane Separation

IPAM/DHCP Service	Radius	WAG	PCRF/PCF	Orchestration Interface
IP Address MGM	Subscriber Authenticator	PPPoE/IPoE Session Mgmt	Policy Management	CGNAT
vBNG Evo Control Plane				

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vBNG Evo Data Plane Control					
MPLS-BGP VPNS/IPv4/IPv6 Routing	ACL's/PBR	QoS/QoE	Accounting & Stats	PPP/L2TP Sessions	Security
OVS-DPDK/SR-IOV/Bare Metal Switch					

Distributed Data Planes with Centralized Control Plane

The CommScope vBNG Evo disaggregated architecture allows the data planes to be distributed to remote central offices closer to the subscriber location. The control plane is centralized at a data center or regional central office. The system operates as one logical BNG instance while still provided the benefits of low latency and fast access to content enabled by distributed data plane processing. CommScope supports full redundant control and planes for 5-9s service enablement to business and residential subscribers. *Figure 3* below shows the network topology for the distributed architecture.

Figure 3
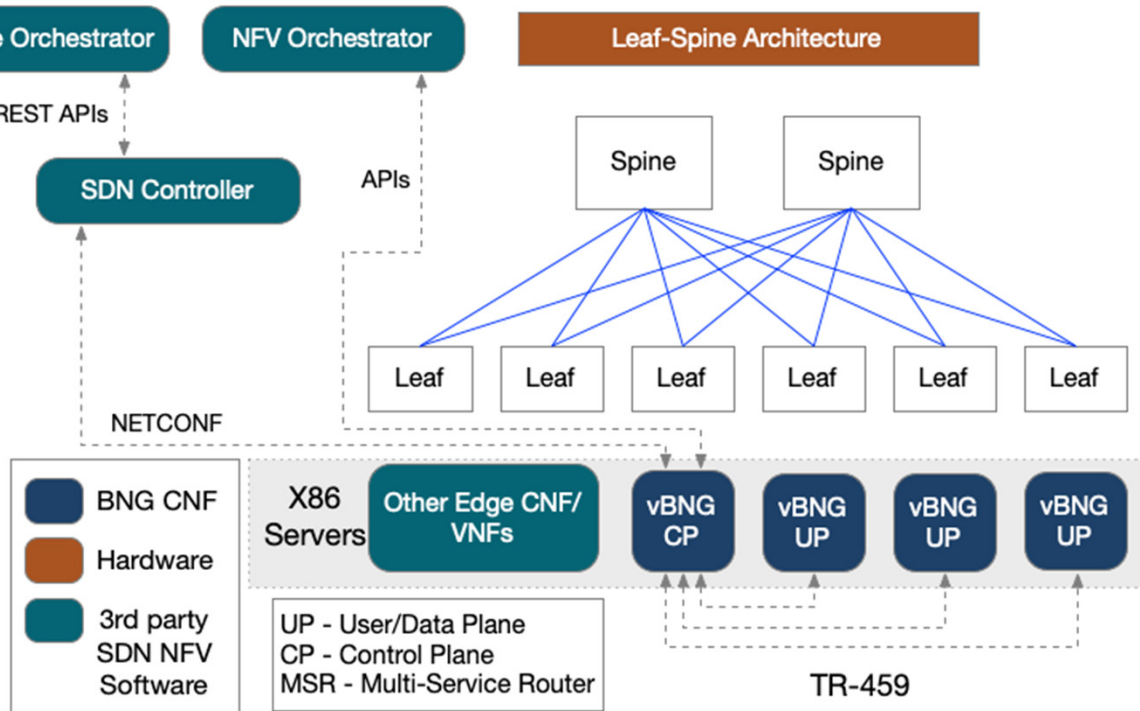
FEATURES

Access Methods
IPoE/PPPoE sessions
L2TP LAC and LNS for wholesale model
Combination of all access methods on same interface
Configuration through dynamic profiles

Authentication/Authorization of Subscriber Sessions
Authentication/Authorization/Accounting via RADIUS and Gx interface
IPoE/DHCP (Relay and local server)
IPv4 and IPv6 support
Walled Garden
PPPoE Sessions
RADIUS Change of Authorization (COA)

Traffic Management
Per subscriber QoS
Traffic policing/shaping/rate limiting
H-QoS
HTTP redirect
RR and WFQ scheduling
Unicast Reverse Path Forwarding
ACLs per subscriber

L2/L3/MPLS
802.ad (QinQ) for 1:1 and N:1 VLAN classifications
Layer 3 routing/OSPF/BGP/RIP/IS-IS/Policy-based routing
MPLS (L2 and L3 MPLS VPNs); LAG/LACP
PIM-SM/IGMP MLDv2

Management
Element Management function interfaces with OSS/BSS for provisioning, fault and performance management:
CLI, SNMP, NETCONF/YANG
Lawful Intercept trigger from RADIUS, CLI or SNMPv3

Scaling and Throughput
Independent scaling of control and data planes
Data plane scalable to Tbps
Control plane scalable from 256,000 to 5 million

Redundancy and High Availability
Control Plane 1+1 Active/Standby
Data Plane N+M Active/Standby

Value Added Applications
Wi-Fi Access Gateway
Integrated CGNAT to reduce the number of public IPv4 addresses required

ORDERING INFORMATION

Model Name	Description
BNG-BASE-SW	BNG Control Plane base license
BNG-UP-BASE	BNG User Plane base license
BNG-660-5418Y-1	Single Intel Xeon Gold 5418Y
BNG-660-5418Y-2	Single Intel Xeon Gold 5418Y
BNG-660-6438N-1	Single Intel Xeon Gold 6438N
BNG-660-6426-1	Single Intel Xeon Gold 6426Y
BNG-660-6426-2	Dual Intel Xeon Gold 6426Y
BNG-1K-S	License for 1,000 BNG subscriber sessions
BNG-10K-S	License for 10,000 BNG subscriber sessions
BNG-100K-S	License for 100,000 BNG subscriber sessions
BNG-250K-S	License for 250,000 BNG subscriber sessions
BNG-500K-S	License for 500,000 BNG subscriber sessions
BNG-1G-BW	Software license for enabling 1G bandwidth downstream and upstream combined
BNG-10G-BW	Software license for enabling 10G bandwidth downstream and upstream combined
BNG-40G-BW	Software license for enabling 40G bandwidth downstream and upstream combined
BNG-100G-BW	Software license for enabling 100G bandwidth downstream and upstream combined
BNG-CGN-10G-BW	License for 10G of BNG CG-NAT bandwidth downstream and upstream combined
BNG-CGN-100G-BW	License for 100G of BNG CG-NAT bandwidth downstream and upstream combined
BNG-1K-GRE	1,000 GRE Tunnel Terminations
BNG-10K-GRE	10,000 GRE Tunnel Terminations
BNG-100K-GRE	100,000 GRE Tunnel Terminations
BNG-1G-1K-PKG	BNG package license for enabling 1G bandwidth for 1,000 subscriber sessions. Includes BNG-BASE-SW, BNG-UP-BASE, BNG-1K-S, BNG-1G-BW, BNG-1K-GRE. Note package includes 1 standby User Plane.
BNG-10G-10K-PKG	BNG package license for enabling 10G bandwidth for 10,000 subscriber sessions. Includes BNG-BASE-SW, BNG-UP-BASE, BNG-10K-S, BNG-10G-BW, BNG-10K-GRE. Note package includes 1 standby User Plane.
BNG-10G-20K-PKG	BNG package license for enabling 10G bandwidth for 20,000 subscriber sessions. Includes BNG-BASE-SW, BNG-UP-BASE, BNG-10K-S (2), BNG-10G-BW, BNG-10K-GRE (2). Note package includes 1 standby User Plane.
BNG-20G-20K-PKG	BNG package license for enabling 20G bandwidth for 20,000 subscriber sessions. Includes BNG-BASE-SW, BNG-UP-BASE, BNG-10K-S (2), BNG-10G-BW (2), BNG-10K-GRE (2). Note package includes 1 standby User Plane.
BNG-100G-64K-PKG	BNG package license for enabling 100G bandwidth for 64,000 subscriber sessions. BNG-BASE-SW, BNG-UP-BASE, BNG-10K-S (6), BNG-1K-S (4), BNG-100G-BW, BNG-10K-GRE (6), BNG-1K-GRE (4). Note package includes 1 standby User Plane.
BNG-200G-128K-PKG	BNG package license for enabling 200G bandwidth for 128,000 subscriber sessions. BNG-BASE-SW, BNG-UP-BASE, BNG-100K-S, BNG-10K-S (2), BNG-1K-S (8), BNG-100G-BW (2), BNG-100K-GRE, BNG-10K-GRE (2), BNG-1K-GRE (8). Note package includes 1 standby User Plane.
BNG-400G-256K-PKG	BNG package license for enabling 400G bandwidth for 256,000 subscriber sessions. Includes BNG-BASE-SW, BNG-UP-BASE, BNG-100K-S (2), BNG-10K-S (5), BNG-1K-S (6), BNG-100G-BW (4), BNG-100K-GRE (2), BNG-10K-GRE (5), BNG-1K-GRE (6). Note package includes 1 standby User Plane.
BNG-SGRE-BASE	License Per User Plane Soft GRE tunnels support

RELATED PRODUCTS

XP4202M XGS-PON Remote Optical Line Terminal (R-OLT)

Contact Customer Care for product information and sales:
- United States: 888-944-4357
- International: +1-215-323-2345

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