

Virtual Broadband Network Gateway (vBNG)



Advanced Subscriber Management & Routing

The Benu Networks virtual broadband network gateway (vBNG) offers advanced subscriber management, dynamic routing capabilities, as well as a robust set of functionalities that empower service providers to become more agile, dynamic, and scalable to meet consumer demand.

As a part of the Benu Platform, the vBNG provides a breadth of functionalities including:

- Device Level Policies
- Analytics
- Interconnect
- DPI
- CGNAT
- Authentication
- Authorization
- Accounting
- IP Addressing
- Bandwidth Management
- Service Policies
- Lawful Intercept

Key Highlights

Edge Application Agility

- Open APIs for programming built-in network functions for the Edge
- 3rd party low latency data plane application stitching

Low Latency and Jitter

- Latency < 10 microseconds
- Jitter 200 nanoseconds

Speed, Throughput and Capacity

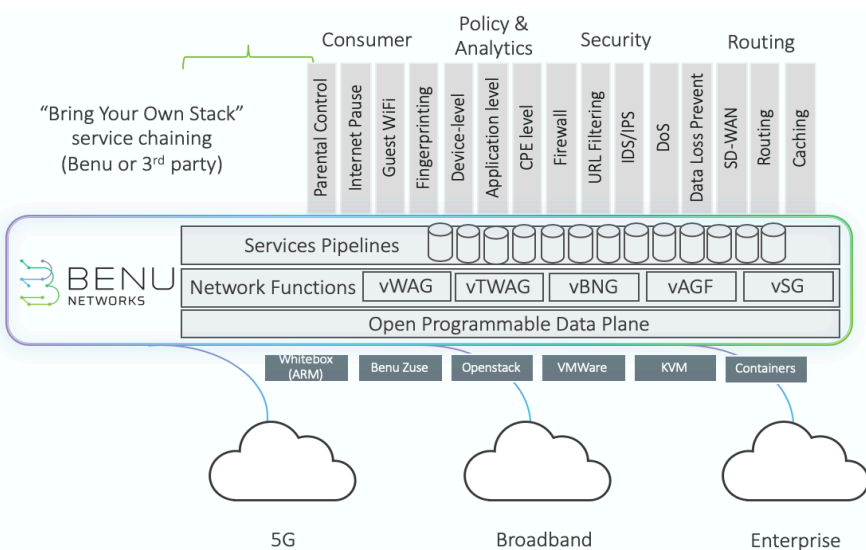
- 1Gbps – 200Gbps software solution
- 400Gbps+ throughput using HW assist (Programmable P4 Smart-NICs and Switches)
- Up to Million devices per node

Flexibility

- Flexible Edge – 2Core VM to 56 Core whitebox compute node
- Intel and ARM bare-metal, VMware and Openstack Virtual Machines, Containers

Operations Efficiency

- Reliability 1:1 or N:1 HA support
- Auto onboarding portals
- Cloud Orchestration and Automation Portal and APIs



Virtual Broadband Network Gateway



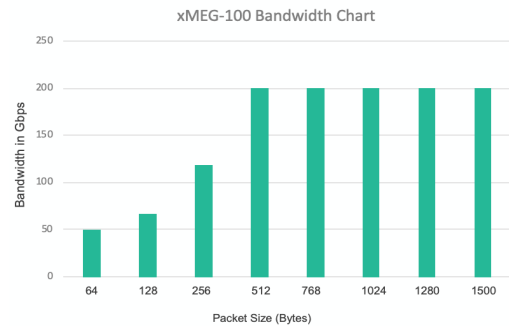
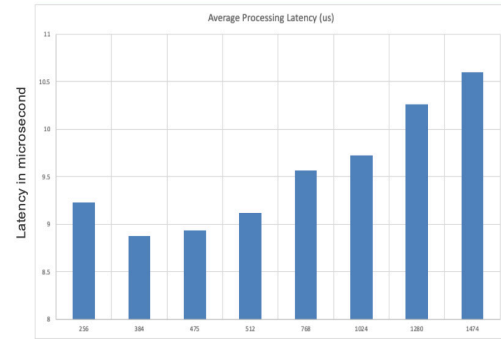
With the vBNG and the Benu Platform, service providers are able to:

- **Simplify Network** – eliminate dependencies on hardware and legacy equipment, plus leverage the intelligent data plane to virtualize & simplify processes
- **Increase Performance** – best-in-class performance and unmatched capacity/box ensures highly performant network
- **Future-Proof Network** – Benu’s vBNG empowers network scalability and agility, equipping teams with the ability to meet current and future customer demand
- **Rapidly Realize ROI** – lower total cost of ownership coupled with the ability to swiftly implement new revenue streams helps teams quickly see return on their investment.

Ultra Low Latency

<10 microseconds packet latency
15 nanoseconds avg jitter

Up to 10G/ core
1.2 Million packets per second per core (Mpps)



Deployment Options:

The Benu Platform offers hybrid deployment options, seamlessly fitting into the network architecture already in place, for a truly frictionless virtualization option. These options include:

Elastic Edge

Premises (Far Edge)

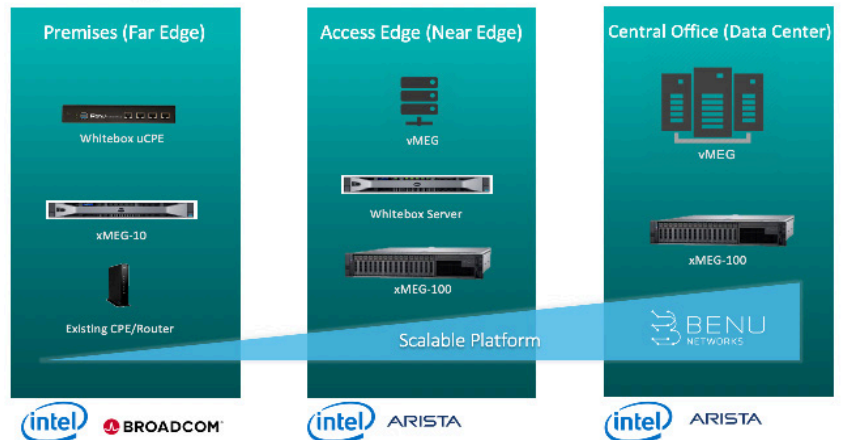
- Whitebox uCPE
- xMEG-10

Access Edge (Near Edge)

- vMEG
- xMEG-10
- xMEG-100

Central Office (Data Center)

- vMEG
- xMEG-100



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The vBNG as a part of the Benu Platform helps service providers rapidly achieve their vision for agility by streamlining packet processing as well as separating the control plane and data plane for dynamic scaling, added agility, optimal network performance, and cost reduction.

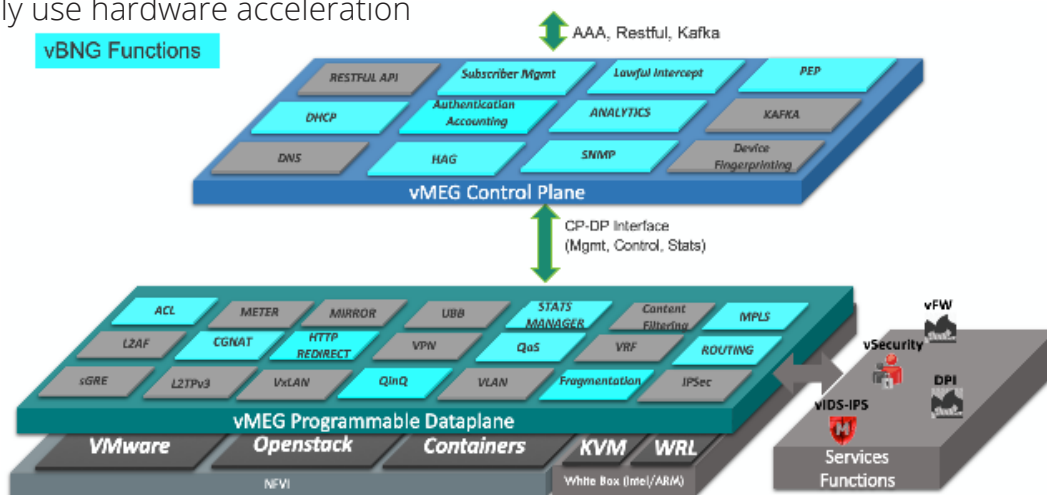
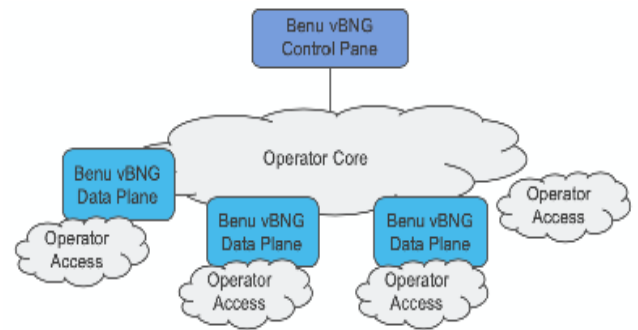
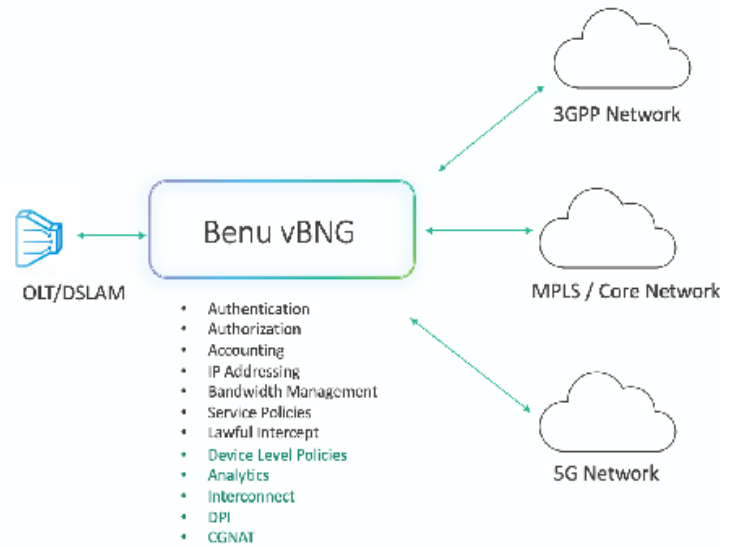
The flexible, open architecture supports 3rd party stitching on top of the breadth of functionality native to the vBNG. Service providers can now consolidate functions such as TDF/DPI, CGNAT, SG, BNG, and AGF into a single virtualized platform for ultra-low latency and high performance.

With the vBNG, service providers can increase revenues

- Service agility
- 3rd-party service stitching
- Services not limited by CPE (vCPE)

As well as decrease costs with

- Cost-effective distributed BNG architecture
- Consolidate functions (TDF/DPI, CGNAT, SG, BNG, AGF) in single virtualized platform
- Selectively use hardware acceleration



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Features

Access	<ul style="list-style-type: none"> • IPoE • PPPoE • GRE • IPSec • L2TPv3 • QinQ
Authentication	<ul style="list-style-type: none"> • DHCP • RADIUS • S2a • Rest API
Traffic Management	<ul style="list-style-type: none"> • ACL • Advance DNS ACL • DNS • Wall Garden • CGNAT • Inline Service Stitching (SFC/NSH) • H-QoS • DSCP Marking • IPv4/v6 Fragmentation • Dual stack Subscriber Support • HTTP Redirect • Application based policy • Routing – BGP, OSPF, IS-IS
Services	<ul style="list-style-type: none"> • Fingerprinting • Security • Analytics • Usage Based Billing • Home Services • Parental Control • Roaming Profile • Cloud Security • Business Services • Cloud Firewall • Static IP • Device Management • WiFi Services • WAG • TWAG • Lawful Intercept