Q-Balancer®

Q-Balancer NG NEXT-GENERATION LOAD BALANCER

BUILDING AN INTELLIGENT AND AGILE NETWORK

Q-Balancer NG is a next generation load balancer that delivers a secure, simple, affordable, and cloud-enabled WAN connectivity for enterprises with cloud-based applications, and it enables resilient delivery of a wide range of application workloads for organizations of all sizes.

Q-Balancer NG offers solutions with its abilities such as augmented connectivity, better cloud application delivery, simplified WAN operations, and reduced operational costs for those managing public and private WAN connections. Meanwhile, it removes single points of failure in the organizations or data center to enable resilient delivery of mission-critical applications for organizations as performance issues of servers could slow down or even cause disruption on application delivery.

Q-BALANCER FOR ENTERPRISE NETWORKS

Branch Gateway

All Q-Balancer NG devices support multiple WAN transports across broadband, MPLS, and LTE cellular links. Software features include the ability to route and prioritize traffic being sent to the data center, public cloud infrastructure or the Internet. Each Q-Balancer NG device also supports High Availability (HA) function, making it ideal for sites that need full redundancy.

Headend Gateway

Q-Balancer NG Headend Gateway devices are deployed in corporate headquarters or data centers working as VPN concentrator (VPNC) to terminate traffic from branch gateway devices. The headend gateways enable seamless and secure connectivity for all locations connecting to the headend gateway. The headend gateway devices can be either physically or virtually deployed in public or private cloud infrastructures.

Centralized Management System

Centralized management system (CMS) is designed to centrally monitor traffic, apply policy rules, manage configuration, and simplify deployment for all devices in a network. CMS can be virtually deployed in public or private cloud infrastructures.

Intelligent WAN Management

Q-Balancer NG gateways enable the simultaneous use of multiple WAN links and automatically fail over to the secondary connection in the event of WAN outage or brownout. The gateways also have the ability to direct traffic to the optimal path or distributes traffic across the selected paths.

MPLS Augmentation

Q-Balancer NG is able to connect various transports of WAN connections, and simultaneously utilize the bandwidth of all active links as a whole. It virtually combines bandwidth of existing MPLS and other WAN transports, and thus delivers a faster and resilient connectivity to enterprise networks.

Flexible Bandwidth Licensing

Q-Balancer NG offers scalable bandwidth throughput based on license upgrade. This means you may upgrade the bandwidth throughput without purchasing new hardware as the business grows. Also, you have access to full hardware performance capabilities through upgrading the license.

BUSINESS BENEFITS

- Improving WAN reliability and performance
- Optimal application delivery
- Increasing VPN reliability and performance
- Augmenting MPLS reliability and performance
- Flexibly increasing WAN scalability
- Ensuring accessibility to internal server for external   requests
- Lowering WAN OpEx and CapEx
- Mitigating potential security threats
- Reliable Internet connectivity for branch networks anywhere
- Enhancing dynamic routing capability
- Minimizing effort for branch devices installation
- Simplifying branch network infrastructure
- Increasing backhaul capacity

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FEATURES

WAN Load Balancing

WAN Load Balancing helps business cost-effectively build a reliable and fast connectivity through traffic distribution across available paths. A variety of algorithms is incorporated to help the appliance find the most active and responsive link for traffic distribution. It works in conjunction with path-monitoring, which constantly gauges the status of all WAN links. Based on the measured result, the selected algorithm efficiently distributes traffic across available paths and avoids sending traffic via the paths which are either down or slow.

VPN Bonding

In a site-to-site VPN network, VPN Bonding has the ability to chop a single VPN session into packets and send them across multiple paths. This provides a fast, reliable and secure connection for all online activities, browsing, video streaming, large file transfers, etc. The configuration for VPN Bonding is auto-provisioned, and therefore can be done in minimal human effort.

Server Load Balancing

Server overload and performance issues could slow down or even cause disruption on application delivery. Q-Balancer monitors server health status in real-time, and identifies overloaded or faulty servers to adjust workloads and setting parameters accordingly.

Inbound Load Balancing

Through its intelligent algorithms, the incoming requests will be directed to best-performing or least-loaded path, or efficiently distributed across the available paths. This avoids faulty or congested path(s) when directing incoming requests to the hosted servers, and furthermore highly increases the availability and efficiency of the hosted service to incoming requests.

Network Security

Q-Balancer NG delivers advanced security as a layer of protection to branch networks, while protecting business continuity against WAN outages. Through proper configuration for its inbuilt security mechanisms, Q-Balancer NG can be a primary firewall, or simply work nicely with the security solution that is already in place beforehand.

Multi-Path Routing

In terms of route entries learned from the underlay network through supported routing protocols such as OSPF and BGP, overlay paths are can be added manually on the appliance. Thus, in the event of an interface outage, traffic for the route will be directed to the defined virtual path.

Packet Loss Mitigation

Forward error correction (FEC) controls data transmission errors over unreliable or noisy communication channels. The technology sends out message with an extra error-correcting code, allowing the receiving end to recover from packet loss and other errors that occur during transmission. FEC is particularly suitable for networks that leverage packet-level bandwidth bonding when transmitting traffic across a WAN. The combination of FEC and link bonding results in better audio and video quality and improved application throughput.

Granular Internet Breakout

Local internet breakout eliminates the possible bottlenecks on MPLS backhaul as web and general traffic will be directly sent out via broadband WAN connections, rather than MPLS network. It saves bandwidth resource for critical applications by locally directing internet-bound traffic via broadband WAN to their correct destinations.

WAN Virtualization

WAN Virtualization combines various transports of WAN connections into a virtual single connection. The technology combines bandwidth for existing MPLS and kinds of internet connections such as DSL, 4G LTE, cable, fiber, Metro Ethernet, etc. WAN virtualization enables a faster connectivity (the sum of all WAN speed), and it is more open, reliable, resilient, agile and cost-effective to enterprise networks. It can be applied to augment and/or replace expensive MPLS connections for enterprises.

Multi-Path QoS

Even though bandwidth is plentiful and cheaper today, businesses today may still need to enforce QoS rules to make doubly sure that VoIP, video, and other critical applications work properly without being affected by the possible bandwidth issue. Q-Balancer NG mitigates abuse of bandwidth resources and prevents enterprises from mindless bandwidth upgrades or over-provisioning, and the possible waste on bandwidth cost is thus reduced. Besides, its multi-path QoS results in an improved overall network performance and increased productivity.

Zero Touch Provisioning

Using Zero Touch Provisioning (ZTP), the hardware gateways can be factory-shipped and deployed onsite. Settings can be applied based on configuration and other network-specific requirements.

Captive Portal

The captive portal of Q-Balancer NG is the gateway to your guest network, and it come with the benefits, including the ability to separate network traffic, limit data usage, collect valuable data, marketing and business recognition, and liability protection

Report

Q-Balancer NG's inbuilt reporting system provides readable information that enables IT team to analyze the activities of online users within organizations.

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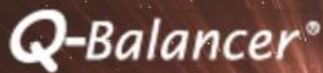
SOFTWARE SPECIFICATIONS

WAN LOAD BALANCING & FAILOVER
- Hybrid WAN
- Policy-based Routing
  MAC, IP, User Identity, Service Port, Connection, Packet, Geo-Locations, URL (Custom, Inbuilt), Applications, & Schedule
- Load Balancing Modes
  Weighted Round-Robin, Downlink, Uplink, Total Traffic, Persistent, Response, Jitter, Optimum Routing Path, Redirect, Priority, & Failover

VPN BONDING & FAILOVER
- Seamless Failover & Fallback
- Private & Dynamic IP Support
- Tunnel Encryption (DES, 3DES, AES)
- Auto-Provision Tunneling & Policy
- Forward Error Correction

Server Load Balancing
- Server Load Balancing for TCP/UDP Ports
- Unlimited Virtual and Real Servers
- NAT-based Forwarding
- Load Balancing Modes
  Weighted Round Robin, Weighted Least Connection, According to Source IP
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ROAD WARRIOR VPN
- PPTP & L2TP over IPSec
  Local Authentication
  External Authentication via Radius
- IPSec
  IKE V1 & V2, Preshared key, Digital Certificates
  External Authentication via Radius

SITE-TO-SITE VPN
- IPSec Tunnel Compatible with Cloud VPN
- IPSec Tunnel Compatible with Major 3rd Party VPN
- Layer 2 & 3 Proprietary Tunnel Termination
  Private & Dynamic IP Support, Tunnel Encryption (DES, 3DES, AES), Hash Algorithms (MD5/SHA-1) Authentication Methods (Pre-shared key), IPSec NAT Traversal, Tunnel Status, Dead Peer Detection, Perfect Forward Secrecy (D-H Group 1, 2, 5), Domain Name Support for Tunnel End Points, Hub & Spoke VPN, Routings for RIP, OSPF, & BGP, Automated Tunnel Failover, Session-Based Load Balancing

MPLS REPLACEMENT
- WAN Virtualization
- Granular Local Internet Breakout
- Intelligent Traffic Steering
- Multi-Path Routing (Static & Dynamic Routes)
- Virtual Appliance

INBOUND LOAD BALANCING
- Multi-Domains
- Multi-Records
- IPv4/ IPv6
- DNSSEC
- Load Balancing Modes
  Response Time, Available Bandwidth, Weighted Round-Robin by Connection, Priority, & Failover

PATH MONITORING
- Ping, Trace Route, Connection to Specified Port, Packet loss, Latency, Jitter, Interval Adjustment

MULTI-PATH QOS
- Policy-Based QoS
  MAC, IP, User Identity, Service Port, Geo-Location, URL (Custom, Inbuilt), Applications, Priority, Minimum & Maximum, Individual/Shared, Schedule, Real-Time Usage Monitoring
- Service Priority

NETWORKING
- NAT
- IPSec NAT Traversal
- Server Mapping
- Static Route
- RIP, OSPF, BGP
- Multiple DHCP Server & Relay
- DNS
  Server, Relay, Redirection, Routing, Drop
- LACP NIC Bonding
- IEEE 802.1q VLAN
- WAN IP Address Assignment
  Static, PPPoE, DHCP, DDNS
- Inbuilt Wireless WAN & LAN Support
- Multiple Public IP Pass-Through
- ARP Proxy
- Bridge Mode
  WAN Failover
  Multiple Bridges in a LAN Bypass Pair
- IPv4/IPv6 Dual Stack
- SIP & H.323 NAT Traversal
- Bandwidth Reduction
- L4 Server High Availability & Load Balancing
- Global Server Failover & Load Balancing
- Application-Aware Routing

NETWORK SECURITY
- Stateful Inspection Firewall
- Domain Name Filtering
- Web Content Filtering
- DDoS Prevention
- Connection Limit
- ARP Spoofing Prevention

CAPTIVE PORTAL
- Login Page Templates
- QoS
- Policy-based Control
- Time/ Quota
- Whitelist Destinations by Domain Name/ IP Address / IP Network
- Exempted Clients
- Local Authentication (RADIUS)
- Landing page

FLEXIBLE LICENSING
- Bandwidth Throughput, Number of WAN Links, Number of Tunnels

STATUS
- Links (Link Status, Download/Upload Usage, Latency, Packet Loss, and Sessions)
- Current Flow (Path, IP, Port, Protocol, and Applications, Suspicious Flow)
- Volume and Sessions for Individual Policy Rule
- Individual QoS Rule
- LAN Hosts
- Admin Events

LOGGING & MONITORING
- Syslog
- On-Appliance Viewing
  Drilldown
  Multi-Format - Tabular, Graphical
  Exportable Formats - PDF, Excel
  Log Viewer - Sessions, Top 10 Services, Top 10 Sessions, Distribution by Interface and Application, Dropped by Policy Routing, DNS for Inbound & Outbound, Breakdown by WAN/LAN/Dynamic Path Selection, Blocked Hackers' IP

REPORTING
- Email Notification of Reports
  Automated Report Scheduling
- On-Appliance Reporting
  Drilldown
  Multi-Format - Tabular, Graphical
  Exportable Formats - PDF, Excel
  QReport - Sessions, Top 10 Services, Top 10 Sessions, Distribution by Interface and Application, Dropped by Policy Routing, DNS for Inbound & Outbound, Breakdown by WAN/LAN/Dynamic Path Selection, Blocked Hackers' IP

DEVICE MANAGEMENT
- Web-based UI (HTTP & HTTPs)
- Command Line (Serial Console & SSH)
- Multiple Admin Levels
- Handheld Devices Compatible
- Firmware Upgrades via Web UI
- Automated Configuration Backup
- Automated Firmware Upgrades
- System Auto Recovery
- NTP Server Support
- SNMP
- Email Alert
- Events Notification Center
- Built-in Diagnostic Tools
- VRRP High Availability
  Configuration Synchronization, Firmware Version
- Centralized Management System
  Device Provisioning, Device Management, Device Monitoring & Reporting

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HARDWARE APPLIANCES

MODELS	QB-MESH	QB-200	QB-300	QB-500	QB-2000
Deployment Modes	Remote / Small / Branch Offices	Small and Medium sized Enterprises	Small and Medium sized Enterprises	Medium and Large sized Enterprise	Enterprise / Data Center / Campus
Recommended Users [1]	50 ~ 150	100 ~ 300	100 ~ 500	300 ~ 2000	1500 ~ 20000+
SYSTEM					
Throughput (bps)	500 M	200 ~ 2000 M	300 ~ 4000 M	500 ~ 5000 M	2 ~ 20 G
WAN Links	4 ~ 7	5 ~ 10	7 ~ 25	7 ~ 52	7 ~ 52
Max. Concurrent Connections	50K	100K	800K	2M	8M
Connections per Second	5K	10K	40K	150K	550K
HARDWARE					
CPU	Quad Core	Quad Core	Quad Core	Quad Core	Quad Core
Network Interfaces (GbE)	4	4/6	8	8 ~ 12 [7]	8 ~ 24 [7]
Hardware LAN Bypass (Pairs) [2]	•	•	•	1/2	2
User-defined Port	•	•	•	•	•
Embedded 4G LTE Modems [3]	•	•	•	•	•
USB 4G Modems [4]	1	1	1	1	1
Wi-Fi Support [5]	•	•	○	○	○
GPS Interface with Female Antenna Connector	•	○	○	○	○
QBReport [6]	•	•	•	•	•
DIMENSIONS & WEIGHT					
Form Factor	Desktop	Desktop	1U	1U	1U
W x D x H (mm)	195 × 138 × 70	200 x 44 x 174/ 210 x 44 x 214	428 x 321 x 44	428 × 321 × 44	430 × 450 × 44
Net Weight (Kg)	2	1.2	4.5	4.5	8.5

[1] Recommendation for sizing purposes only; no software restrictions applied. [2] LAN Bypass pair can optionally be added. [3] 4G LTE modules can be optionally added; QB-Mesh supports up to 4 x 4G LTE modules. [4] USB 4G Modem only works as failover line. [5] Wi-Fi Module is an option to supported models. [6] QBReport is an option. [7] LAN modules with GbE/10GbE/40GbE (QB-2000 only) are optionally supported to QB-500 and QB-2000 respectively. [8] All specifications are subject to change without prior notification.

VIRTUAL APPLIANCES

MODELS	QB-VHUB	QB-V2000	QB-MANAGER
Deployment Mode	VPN Concentrator (VPNC)	Large / VPNC	Centralized Management System
Throughput (Gbps)	Unlimited	2 ~ 20	Unlimited
Hypervisor Supported	VMware ESXi 6.5 or above	VMware ESXi 6.5 or above	VMware ESXi / ESX 5.0 or above
Minimum Number of interfaces	2	2	2
Minimum vCPU Required	2	2	2
Minimum Memory (GB)	4	4	4
Minimum Storage (GB)	2	2	1000

* The capacity of QB-V2000 is same as QB-2000.
**For complete hardware specifications, please see the data sheets for each model.