

VB120 Modular 1G/10G Packet Flow Switch

Refining The Economics of the Data Center with Gigabit Scalability and Flexibility

HIGHLIGHTS

- 2 Rackmount Unit (RU) chassis with hot-swappable architecture
- 240 Gbps unidirectional (480 Gbps bidirectional) throughput and non-blocking switching fabric
- Up to 4 swappable chassis modules
- Up to 24 non-blocking ports of 1GE and/or 10GE per chassis
- Line rate performance on all features, including rate conversion, aggregation, replication, filtering, load balancing, port tagging, time stamping, protocol stripping & de-encapsulation, conditional slicing, and encapsulated filtering & balancing
- IP Tunnel termination (e.g. ERSPAN, NVGRE)
- Reliable and secure WAN tunneling
- Active inline traffic forwarding and tool chaining with fail-safety
- Intelligent fully meshed stacking/interconnect (vMesh)
- Management via command line, XML API, and graphical user interfaces for local and remote access
- Designed for NEBS III

Product Description

The vBroker 100 Family Network Packet Broker is a highly scalable modular system that bridges the gap between 1G and 10G Ethernet networks and tools. It is designed to meet NEBS level III requirements.

The VB120 model consists of a 2RU chassis that supports up to four chassis modules, with each of the first three modules supporting up to 8 Gbps throughput and the last module supporting up to 40 Gbps throughout – for a chassis total of 64 Gbps of unidirectional (or 128 Gbps of bidirectional) throughput and up to 24 ports of 10/100/1000M and 4 ports of 10G/1G. All ports on each chassis module are enabled by default, with each port configurable as a network traffic, intermediate (service), or monitoring tool port.

With vMesh, a self-organizing architecture, traffic capture devices can be deployed in a redundant, low-latency meshed architecture for dynamic and fault-tolerant visibility that can scale to over 4000¹ ports across LAN and WAN environments, including tunneling.

Delivery Optimization

Beyond scalable aggregation, replication, and speed conversion, the VB120 supports line rate hardware-based packet filtering and session-based load balancing of packets to tools.

User-independent filtering allows traffic to be distinguished according to source and/or destination MAC address, IP address, SCTP/TCP/UDP port, as well as by specific protocols, such as HTTP, VoIP (SIP, RTP), and others. A custom filter enables more granularity, specifically within the payload of a packet. Filters can be ingress, egress, and overlapping.

Session/flow-aware load balancing enables user control of traffic distribution to monitoring tools, increasing output capacity while maintaining session integrity. For example, a 10G network can be captured and automatically balanced across multiple 1G monitoring tool ports based on user-defined session criteria. Session-based, flow-aware load balancing can operate in tandem with hardware-based filtering or independently.

¹ Total number of ports in a single vMesh is dependent on quantity and complexity of filtering.



10/100/1000M Copper PowerSafe Module		8 x 10/100/1000M UTP Ports
1G Standard Module		8 x 1G SFP Ports
1/10G Standard Module		4 x 10G/1G SFP+ Ports
1/10G Advanced Module		4 x 10G/1G SFP+ Ports
1/10G PowerSafe Fiber Module		4 x LC Ports
1/10G Advanced PowerSafe Fiber Module		4 x LC Ports



Packet Optimization

In addition to delivering the right traffic to the right tools, VB120 network packet broker optimizes the packets themselves to improve the efficiency and effectiveness of the monitoring applications.

The VB120 advanced hardware-acceleration enables packets to be optimized at line-rate, with minimal latency and negligible jitter, for a broad range of functions, which include removal of tunneling or encapsulation protocol headers, removal of undesired (or authorized) payload, addition of a timestamp, and others.

Security Optimization

To take action as offenders and bad actors are detected, the active inline security tools need to see and handle all the traffic that must be inspected.

VB120, with active inline forwarding and tool chaining, allows aggregation, filtering, and load-balancing of real-time network traffic toward multiple inline security applications while maintaining only a single intrusion into each network link. The integration of PowerSafe chassis modules ensures that the security policies are maintained during power failure, and the deployment of application-specific health checks (not just heartbeats) in conjunction with policy-based triggering facilitates automatic failure scenarios including high availability.

Management

VB120 can be locally managed via a serial console and remotely managed via a Web GUI, CLI, XML API, and the Management Center (vMC™) using HTTP, HTTPS, SSH, or Telnet. Users can monitor the system via use of Syslog and SNMP.

All vBroker devices support field software updates for additional features and performance enhancements. The vMC supports full management and configuration of VB120, as well as other vBroker and packet flow switch (PFS) products.

The vBroker series, including VB120, provides automated event-driven monitor output traffic direction and responses (Syslog messages, SNMP traps, light front LED, deactivate ports) with a variety of user-definable trigger event types.

Power and Compliance

VB120 is designed for NEBS III compliance; it is available with hot-swappable power supplies, fans, and air filters, and warm-swappable chassis modules. Redundant power supplies allow seamless transitions between power systems to ensure uptime.

Features and Benefits

Features	Benefits
<p>Up to 28 line-rate ports in 2RU</p> <ul style="list-style-type: none"> • 24 x 10/100/1000M • 4 x 1/10G • Advanced 1/10G ports are either 1G or 10G, depending on image <p>Compatible with SFP, SFP+ MSA compliant transceivers including direct attach copper (up to 3m) and active fiber cables</p>	<p>Highly scalable and modular system:</p> <ul style="list-style-type: none"> • Reduces per-port cost and increases flexibility • Condenses the NPB footprint (rack space) • Reduces power consumption • Simplifies management
<p>I/O configurable</p> <ul style="list-style-type: none"> • Full flexibility in selecting ports for network access, intermediate service, interconnect, or monitor output • IP tunnel (e.g. ERSPAN, GRE, NVGRE/L2GRE) termination 	<ul style="list-style-type: none"> • Enables agile response to monitoring infrastructure changes • Allows virtualized traffic to be forwarded over an IP network to PFS ingress ports, and then forwarded onto monitoring devices as is, or de-encapsulated²
<p>Selective Aggregation</p> <ul style="list-style-type: none"> • Fully flexible any-to-any port mapping 	<ul style="list-style-type: none"> • Enables scalable aggregation to maximize agility and tool visibility • Addresses asymmetrical routing issues
<p>Hardware-based Filtering</p> <ul style="list-style-type: none"> • User-independent • OSI Layers 2-7 • Custom offset • Ingress • Egress • Overlapping 	<ul style="list-style-type: none"> • Forwards only traffic of interest to each tool, which increases tool efficiency and reduces the number of required tool interfaces
<p>Session-based/flow-aware load balancing</p> <ul style="list-style-type: none"> • Distributes traffic load across multiple instances of a tool or tool port • Maintains session stickiness for full conversations • Up to 8 ports per group 	<ul style="list-style-type: none"> • Prevents oversubscription of monitoring tools and security systems - eliminating blind spots without sacrificing session integrity • 10G copied traffic can be easily distributed across multiple lower speed tool ports, allowing users to preserve existing tool investments
<p>Monitor traffic port tagging</p> <ul style="list-style-type: none"> • Provides identification of traffic based on source network/link using: <ul style="list-style-type: none"> • VLAN tagging, or • Port stamping 	<ul style="list-style-type: none"> • Users can quickly pinpoint where an issue, such as latency or security event, is occurring in the network • Provides options for different tools to access port identification
<p>Microburst mitigation</p> <ul style="list-style-type: none"> • High Data Burst Buffering 	<ul style="list-style-type: none"> • Prevents packet loss resulting from aggregation or speed conversion of bursty traffic (microbursts)
<p>Microburst measurement</p> <ul style="list-style-type: none"> • vCapacity™ metrics 	<ul style="list-style-type: none"> • Provides capacity planning data to analyze traffic profiles and burstiness • Displayed in vBroker Management Center (vMC)
<p>Hardware-based Advanced Packet Optimization²</p> <ul style="list-style-type: none"> • Accurate time stamping (from 4.5ns) for latency analysis • Protocol (Fabric Path, GRE, GTP, MAC-in-MAC, MPLS, NVGRE, TRILL, VLAN, VN-tag, VXLAN) header removal for broader tool support • Conditional packet slicing (vSlice™) for selective payload removal • Adaptive load balancing of GTP, MPLS, and multi-VLAN encapsulated traffic • Adaptive filtering of GRE, GTP, MPLS, and multi-VLAN encapsulated traffic 	<ul style="list-style-type: none"> • Provides time-of-capture data, as well as greater granularity in selecting traffic for tools, enabling tools to perform faster, more effective analysis • Minimizes amount of traffic volume to backhaul • Ensures coherent forwarding of traffic to tools

² Requires Advanced 10G chassis module.

Features	Benefits
Stack <ul style="list-style-type: none"> Enables vMesh architecture for local and remote interconnection of up to 256 vBrokers³ as a single redundant system Works over LAN and WAN connections Tunneling packets over TCP/IP, optionally with encryption 	<ul style="list-style-type: none"> Ensures highly available monitoring Scales visibility with network infrastructure and new tools Ensures delivery of traffic across LAN or WAN to tools
Policy-based event triggering and actions <ul style="list-style-type: none"> Dynamic traffic redirection based on occurrence of events Send alerts when specific events occur 	<ul style="list-style-type: none"> Policy-based automation reduces management overhead and enables faster response times to incidents
Active Inline Access and Forwarding <ul style="list-style-type: none"> Failsafe access using PowerSafe™ Aggregation towards any tool, including AIA translation Filtering and load balancing Efficient inline tool chaining Customizable Health Check packets and triggering 	<ul style="list-style-type: none"> Maintains network uptime Removes multiple points of failure Gains visibility for a single inline security tool, e.g. Security proxy, IPS Easy deployment of layered security Removes multiple points of failure including “positive” and “negative” checks
Local and remote management <ul style="list-style-type: none"> XML API CLI (Telnet/SSH) GUI (HTTP/HTTPS) vMC (HTTP/HTTPS) SNMP (v1, v2, v3) Syslog 	<ul style="list-style-type: none"> Easy to use via graphical interfaces or via CLI for users already familiar with using CLIs Easy integration with applications using CLI or XML API Alerts can be sent to any Syslog server or SNMP manager
Role-based Access <ul style="list-style-type: none"> Multiple user support Flexible per-user privileges and access control 	<ul style="list-style-type: none"> Conforms to security policy needs of IT organizations
AAA security (RADIUS and/or TACACS+) and Local authentication	<ul style="list-style-type: none"> Meets authentication policy needs of IT organizations
Network Activity	<ul style="list-style-type: none"> Packet statistics provided per port, for both Rx and Tx packet counts, throughput (bps), utilization (%), bad/errored packets, and packet drops
Warm swappable chassis modules	<ul style="list-style-type: none"> Maintains high availability for 99.999% uptime (five-9s) or better Scales to meet changing needs
Redundant, universal power supply units <ul style="list-style-type: none"> AC and DC hot-swappable options 	<ul style="list-style-type: none"> Maintains high availability for 99.999% uptime (five-9s) or better

³ Total number of vBrokers in a single vMesh is dependent on vBroker sizes, number of ports, and complexity of filtering.

VB120 PFS Components

Chassis and Modules



Base Chassis

Base 4-slot VB120 chassis, including

- 1 x 8-port 10/100/1000M chassis module,
- 2 x Management port,
- 1 x Serial console port,
- 1 x GPS port, 1 x PTP port,
- 1 x 1PPS port,
- 2 x Power supply units (redundant),
- 1 x Fan tray



10/100/1000M Copper PowerSafe Chassis Module

8 x 10/100/1000M UTP Copper standard edition PowerSafe chassis module for VB120

- Allows up to 24 x 10/100/1000M Copper ports with active Bypass or active TAP and base feature set, and 4 x other 10G/1G ports



1G standard Chassis Module

8 x 1G SFP standard edition chassis module for VB120

- Allows up to 24 x 1G ports with base feature set, and 4 x other 10G/1G ports
- Also supports 10/100/100M using Copper SFP transceivers



1/10G standard Chassis Module

4 x 10G/1G SFP+ standard edition chassis module for VB120

- Allows up to 4 x 10G/1G ports with base feature set, and 24 x other 1G ports



1/10G Advanced Chassis Module

4 x 10G/1G SFP+ Advanced edition chassis modules for VB120

- Allows up to 4 x 10G/1G ports with advanced feature set, and 24 x other 1G ports, or
- Up to 2 x 10G/1G ports with advanced feature set,
- 2 x 10G/1G standard ports, and 24 x other 1G ports



1/10G PowerSafe Fiber Chassis Module

4 x LC standard edition PowerSafe chassis modules for VB120

- Allows up to 80 x 10G/1G ports with advanced and base feature sets



1/10G Advanced PowerSafe Chassis Module

4 x LC standard edition PowerSafe chassis modules for VB120

- Allows up to 4 x 10G/1G ports with active Bypass or active TAP and advanced feature set, and 24 x other 1G ports
- Multimode OM1 & OM4 and Singlemode OS2 variants



AC Power Supply Unit

100 to 240V, 50/60 Hz AC Power Supply Unit (included in base chassis)



DC Power Supply Unit

-48V DC Power Supply Unit (included in base chassis)



Hot-swappable Rear Fan Tray

PRODUCT SPECIFICATIONS

Physical Characteristics

Component	Height	Width	Depth	Weight
Base Chassis (w/o PSU)	2RU (3.5 in. / 89 mm)	17.35 in. / 441 mm	27.5 in. / 699 mm	20.7 lb. / 9.4 kg
10/100/1000M Copper PowerSafe chassis module	3.3 in. / 85 mm	3.4 in. / 86 mm	16.1 in. / 408 mm	2.5 lb. / 1.1 kg
1G standard chassis module	3.3 in. / 85 mm	3.4 in. / 86 mm	16.1 in. / 408 mm	2.5 lb. / 1.1 kg
1/10G standard chassis module	3.1 in. / 78 mm	3.4 in. / 86 mm	16.2 in. / 411 mm	2.6 lb. / 1.2 kg
1/10G Advanced chassis module	3.1 in. / 78 mm	3.4 in. / 86 mm	16.2 in. / 411 mm	3.5 lb. / 1.6 kg
1/10G PowerSafe chassis modules	3.1 in. / 78 mm	3.4 in. / 86 mm	16.2 in. / 411 mm	3.1 lb. / 1.4 kg
1/10G Advanced PowerSafe chassis modules	3.1 in. / 78 mm	3.4 in. / 86 mm	16.2 in. / 411 mm	4.0 lb. / 1.8 kg
AC Power Supply Unit	3.3 in. / 85 mm	4.2 in. / 106 mm	9.2 in. / 234 mm	3.3 lb. / 1.5 kg
DC Power Supply Unit	3.3 in. / 85 mm	4.2 in. / 106 mm	9.4 in. / 239 mm	2.9 lb. / 1.3 kg
Rear Fan Tray	3.3 in. / 85 mm	6.3 in. / 159 mm	5.1 in. / 129 mm	1.3 lb. / 0.6 kg

Power Specification

Component	Specifications
Base chassis	100 to 240 V AC, 85 W. Fully loaded: 262 W, 2.9 A -48 V DC, 85 W. Fully loaded: 262 W, 6.6 A
10/100/1000M UTP Copper PowerSafe chassis module	15W
1G standard chassis module	11 W
1/10G standard chassis module ⁴	15 W
1/10G Advanced chassis module ⁴	72 W
1/10G PowerSafe chassis modules ⁴	18 W
1/10G Advanced PowerSafe chassis modules ⁴	75 W
AC Power Supply Unit	720 W, 8.0 A
DC Power Supply Unit	600 W, 15.0 A
Rear Fan Tray	(included as part of the base chassis)

⁴ Chassis modules running at full line rate, loaded with the described transceivers if applicable.

Environmental Specification

Temperature	Operating: 32 to +113 °F / 0 to +45 °C, Storage: -4 to +212 °F / -20 to +100 °C
Humidity	Operating: 20% - 80%, non-condensing, Storage: 5% - 95%, non-condensing

Electrical and Optical Characteristics

Aspect	
Data Rates	1Gbps, 10Gbps
Interface Types	Ethernet: 10 Base-T, 100 Base-T, 1000 Base-T, 1000 Base-SX, 1000 Base-LX, 1000 Base-ZX, 10G Base-LR, 10G Base-ER, 10G Base-ZR, 10G Base-SR, 10G SFPwire, 100 Base-FX
Propagation Delay	< 3.2µs for 10G, <13.2µs for 1G

Standards and Compliance

Standard	Specification(s)
Ethernet	IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3ae, IEEE 802.3z
VLAN	IEEE 802.1Q, IEEE 802.1ad
PTP	IEEE 1588-2008
NTP	IETF RFC 5905
ARP	IETF RFC 826
IP	IETF RFC 791, 2460
UDP	IETF RFC 768
TCP	IETF RFC 793
FTP	IETF RFC 959, 2228
Telnet	IETF RFC 854
SSH	IETF RFC 4251, 4252, 4253
HTTP	IETF RFC 2616, 2817
TLS (SSL)	IETF RFC 4492, 5246
SNMP	IETF RFC 1157, 3411-3418
Syslog	IETF RFC 5424
RADIUS	IETF RFC 2865, 2866
TACACS+	IETF RFC 1492

Standard	Specification(s)
EMC	FCC Part 15 Class A, VCCI Class A, EN55022/CISPR-22 Class A, Australia/ New Zealand AS/ NZS CISPR-22 Class A, CE Mark EN 55022 Class A, ETSI EN300 386 V1.3.2, EN61000-4-2, EN 61000-4-3, 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-3-2
Safety	UL 60950-1, CSA C22.2 EN 60950-1, IEC-60950-1
NEBS Level 3	GR-63, GR-1089
RoHS	RoHS 6, EU directive 2002/95/EC

MORE INFORMATION OR QUESTIONS

For more information or any questions, about NETSCOUT Systems or its products, please contact your local representative, call +1 800-309-4804 or +1 978-614-4000, or go to www.netscout.com.

Ordering Information

Part Numbers	Description
VF_01309	vBroker 120, 2U, 64G, Network Packet Broker, 4-slot chassis, w/ Filtering, Load-balancing, vStack+, vProtector, PTP, 8 x1G UTP, & AC power - power cord for target country is included when selected
⁵	vBroker 120, 2U, 64G, Network Packet Broker, 4-slot chassis, w/ Filtering, Load-balancing, vStack+, vProtector, PTP, 8 x1G UTP, & DC power
VP_01451	PowerSafe Chassis Module for vBroker 120, 2U, 8x1G UTP w/ vAssure
VP_01452	Chassis Module for vBroker 120, 2U, 8x1G SFP sockets
2200NMGM2000	2200 Series – 1/10G chassis module with 4 x 1Gb/10Gb SFP+ Ports
2200NMGM2HOA	2200 Series – 1/10G Advanced chassis module with 4 x 1Gb/10Gb SFP+ ports and 4 x FPGA ports
2200NMGM2JBC	2200 Series – 1/10G PowerSafe chassis module with 4 x 1Gb/10Gb LC SX/SR MM 50micron ports and 2 x Bypass pairs
2200NMGM2GOA	2200 Series – 1/10G Advanced chassis module with 4 x 1Gb/10Gb SFP+ ports and 2 x FPGA ports
2200NMGM2JAC	2200 Series – 1/10G PowerSafe chassis module with 4 x 1Gb/10Gb LC SX/SR MM 62.5micron ports and 2 x Bypass pairs
⁵	2200 Series – 1/10G Advanced PowerSafe chassis module with 4 x 1Gb/10Gb LC SX/SR MM 62.5micron ports and 2 x Bypass & FPGA pairs
⁵	2200 Series – 1/10G Advanced PowerSafe chassis module with 4 x 1Gb/10Gb LC SX/SR MM 50micron ports and 2 x Bypass & FPGA pairs
2200NMGM2JCC	2200 Series – 1/10G PowerSafe chassis module with 4 x 1Gb/10Gb LC LX/LR SM ports and 2 x Bypass pairs
2200NMGM2HCD-SP	2200 Series – 1/10G Advanced PowerSafe chassis module with 4 x 1Gb/10Gb LC LX/LR SM ports and 2 x Bypass & FPGA pairs

⁵ These parts are not main or recommended specials price list items. Please contact a NETSCOUT or VSS Monitoring representative for correct part numbers. For transceivers, please refer to list of SFP & SFP+ transceivers offered by NETSCOUT and VSS Monitoring.



Corporate Headquarters
 NETSCOUT Systems, Inc.
 Westford, MA 01886-4105
 Phone: +1 978-614-4000
www.netscout.com

Sales Information
 Toll Free US: 800-309-4804
 (International numbers below)

Product Support
 Toll Free US: 888-357-7667
 (International numbers below)

NETSCOUT offers sales, support, and services in over 32 countries. Global addresses, and international numbers are listed on the NETSCOUT website at: www.netscout.com/company/contact-us