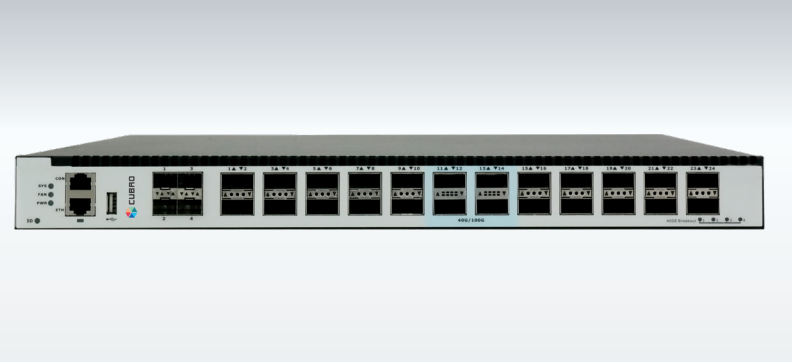
CUBRO
NETWORK VISIBILITY
SIMPLE | SCALABLE | SUSTAINABLE

DATA SHEET

Cubro Packetmaster EX20400

PRODUCT OVERVIEW



The Packetmaster EX20400 is a high performance network packet broker that aggregates, filters, duplicates, load balances network traffic to security, monitoring and management tools based on 4500 possible rules. The Packetmaster EX20400 supports OSI Layer 2, Layer 3 and Layer 4 header modifications including stripping, adding, and modifying VLAN tags, MPLS labels, MAC addresses, IP addresses and Port numbers.

Functions / Benefits:

- Finite Rule Life: Rules can be set with a timeout period where the rule will be removed automatically after a set period of time or a set period without traffic activity. Rules can be dynamically created via the REST API.
- Generate sFLOWS CDRs: The EX20400 is able to generate standard-conform sFlow information of the incoming traffic.
- Easy to configure: Via Web GUI (HTPPS supported)
- GRE / VXLAN Tunnel support: The Packetmaster EX20400, like all Packetmaster Series NPBs, can function as a GRE / VXLAN tunnel endpoint.
- Load balancing: L2 / L3 / L4 hash-based, session aware load balancing, up to 15 load balancing groups
- Cubro Vitrum Management Suite: EX20400 is fully compatible with Cubro Vitrum, a centralized management platform for all Cubro network visibility solutions.

Network Packet Broker (NPB)
At a glance

Definition

A Network Packet Broker (NPB) is a switch-like device purpose-built to receive traffic from a variety of network sources (live link, TAPs, SPANs, mirror ports) and to filter, duplicate, and/or aggregate that traffic to monitoring and security tools.

Advantages of EX20400

- 20 x 40 Gbps (QSFP) and 4 x 40/100 Gbps (QSFP/QSFP28)
- Up to 96 x 1/10 Gbps ports, breakout required
- Filters and load-balances traffic from 40/100 Gbps links to multiple 1/10 Gbps monitoring tools
- Supports traffic modifications up to layer 4 as well as changing, removing and adding VLAN, MPLS, VXLAN, NVGRE, GRE, GENEVE tags/tunnels
- Up to 4500 parallel rules
- IPv6 support
- No additional port licensing fees or software feature licensing. All features and applications included in the unit price.
- 2-year warranty period

Extended Functions:

The management host controller of every Packetmaster EX unit runs a minimal Debian Linux OS as the operating system. This Linux OS natively supports core Unix shell commands and utilites, shell scripting, Python 2.7, and the VI text editor. This allows the user to create and run custom scripts and command sets to extend the functionality of the Packetmaster EX for their environment. Cubro can also create custom application for the customers specific needs as well.

Examples:

A Perl script collects counters and writes these counters in an external SQL Database for later analysis.

A Python script reads files from a server and creates filters based on this data.

A Python script dynamically changes filters based on link load data collected from another Packetmaster.

A shell script pings different devices and changes filter rules based on ping response.

PRODUCT CAPABILITIES / FEATURES

Link/Port Aggregation	Aggregation many to any, and any to many at all link speeds.
100 Gbps traffic demultiplexer	The traffic can be easily demultiplexed into low traffic 10 Gbps links to monitor highly loaded 100 Gbps links.
Jumbo Frame Support	The Packetmaster supports jumbo Ethernet frames with a size of up to 16000 bytes
Support of IPv4 and IPv6	Yes
Ports	20 x QSFP 40 Gbps 4 x QSFP/QSFP28 40/100 Gbps 1 x 10/100/1000 Base-T (Management) 1 x RS232 Console 1 x USB
Configuration / Communication	Web GUI, CLI via SSH or Telnet, REST API, SNMP, RADIUS
Bandwidth	2,4 Mbps backplane 100 % throughput without any packet loss
Aggregation latency	Average $< 1\ \mu s$ for 64-byte frames
MTBF	178.125 hours
Packet slicing in line speed	Configurable 64-144 byte
Different Power Versions	100-240 VAC dual power supply (DC power module available)

TECHNICAL DATA / SPECIFICATIONS

Operating specifications:

Operating Temperature: 0°C to 40°C

Storage Temperature: -10°C to 70°C

Relative Humidity: 10% min, 95% max (non-condensing)

Mechanical specifications:

Dimension (W X D X H): = 484 X 497 X 43 mm

Weight: 8,4 kg

Airflow: Front-Back

Electrical specifications:

AC:
Input Power: 100-240V, 2A, 47-63 Hz
Maximum Power Consumption: 300W
DC:
Input 36-75V, 16A
Maximum Power Consumption: 320W

Certifications:

Fully RoHS compliant

CE compliant

Safety - UL 60950-1 / CSA C22.2 60950-1-07 / IEC 60950-1 (2005) EN 60950-1 (2006)

INPUTS*

20 x 40 Gbps QSFP Ports for any kind of QSFP
4 x 40/100 Gbps QSFP/QSFP28 Ports for any kind of QSFP
* Each port can be input and/ or output depending on the application and configuration
*All QSFP ports support breakout cables to 4 x 1/10G interfaces

OUTPUTS*

20 x 40 Gbps QSFP Ports for any kind of QSFP
4 x 40/100 Gbps QSFP/QSFP28 Ports for any kind of QSFP
* Each port can be input and/ or output depending on the application and configuration
*All QSFP ports support breakout cables to 4 x 1/10G interfaces

PERFORMANCE

Performance up to 2400 Gbps

Non blocking design

Boot time from power on to working 180 sec.

Packet delay through processing less than 1 μs

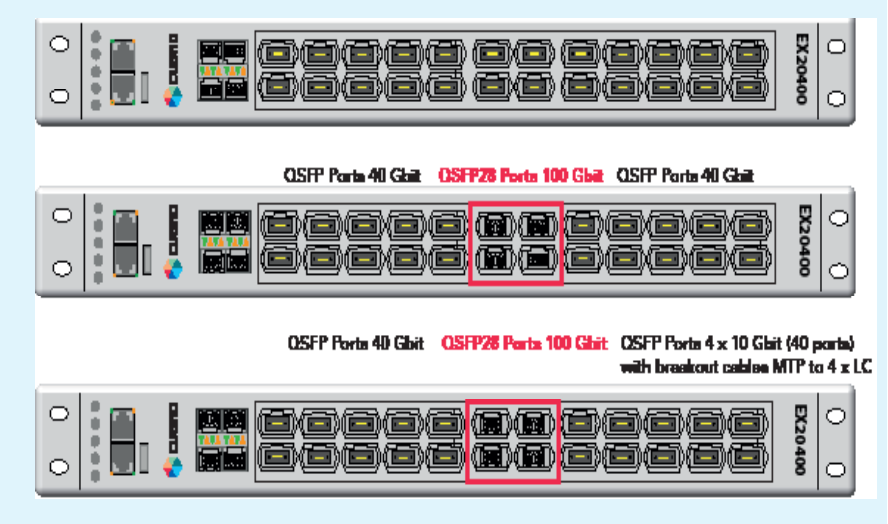
MANAGEMENT

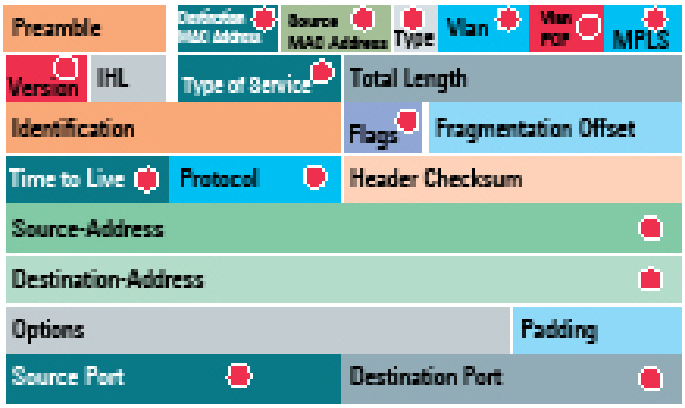
Management Port: (1) RJ45 10/100/1000 Mbit Configuration (CLI) Port: (1) RS-232 DB9

APPLICATIONS / SOLUTIONS

Aggregation

Traffic aggregation from many input ports to one or many output ports. This also works with different link speeds of up to 100 Gbps.





Filtering

4500 flow rules (filters) can be set in a unit. The fields marked with the red dot can be used as a match for a packet, stand-alone, combined or with wild cards. For IP Src and IP Dst supernets are supported.

Available actions after a positive match include –

- Output: Forward the traffic to one or more ports (even the input port)
- Drop: Drop (discard) the traffic
- Modify: Modify header information such as VLAN tag, MPLS label, source MAC, destination MAC, source IP, destination IP, source Port, and destination Port.
- Add VLAN tag: The Packetmaster EX units can add or append VLAN tags to the filtered traffic to separate or identify it after aggregation/ output. (Up to six VLAN tags are possible).
- Strip VLAN: Remove VLAN tag(s) (Q in Q support).
- Add MPLS: Add an MPLS Tag to a matched packet
- Strip MPLS: Remove an MPLS Tag from a matched packet
- Rule Priority/Rule Stacking: The ability to prioritize filtering rules allows for very complex filtering possibilities.

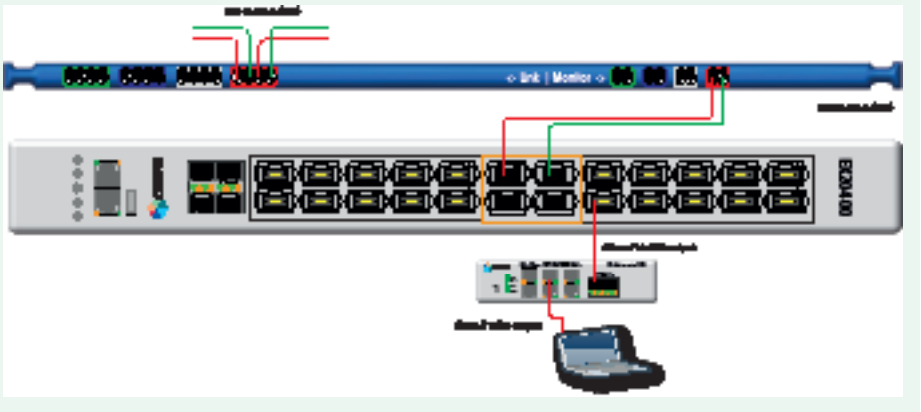
App: 100 Gbit Load Balancing

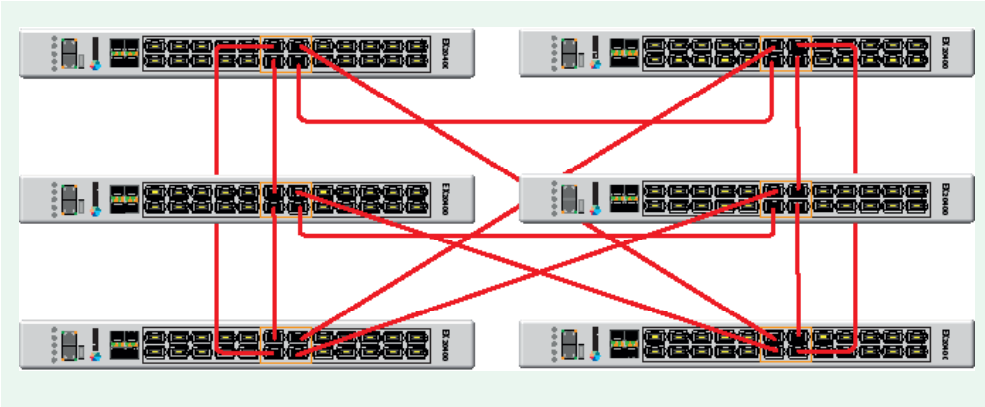
The EX20400 receives traffic from a 100G live link via the monitor ports of an inline TAP. Using the session-aware load balancing capability of the EX20400 it is possible to load balance the 100 Gbps traffic across twelve 10 Gbps monitoring tools.

App: 10 Gbit Monitoring

The EX20400 receives traffic from a 100G live link via the monitor ports of an inline TAP. Using the filtering capability of the Packetmaster Series NPBs, the user can isolate only the traffic necessary to troubleshoot the network issue in question.

In combination with a Cubro EX2 it is possible to look into a 100 Gbit link with a standard PC and Wireshark.





App: Cross Connect

6 x EX20400 are connected via the 100 Gbit links to generate a cross connect with several hundreds 10 Gbit ports.

App: Symmetric Load Balancing

Symmetric load balancing is a mechanism of interchanging the source and destination addresses to ensure that bidirectional traffic specific to a particular source and destination address pair flows out of the same member of a trunk group.

For many monitoring and security applications, bidirectional conversations flowing through the system must be carried on the same port of a Link Aggregation Group (LAG). For network telemetry applications, network traffic is tapped and sent to a Cubro G4 Packetmaster, which can hash selected traffic to the application servers downstream. Each server analyses the bidirectional conversations. Therefore, the Packetmaster must enable symmetric load balancing to accomplish bidirectional conversations. In addition, the firewall between the Cubro devices can be configured to allow the bidirectional conversations per link of the LAG. These network telemetry applications also require symmetric load balancing on the LAGs between the Cubro devices.

After enabling symmetric load balancing, Flow X upstream traffic (with SIP as 10.10.10.10, DIP as 8.8.8.8, layer 4 source port as 32500, layer 4 destination port as 53) and Flow X downstream traffic (with SIP as 8.8.8.8, DIP as 10.10.10.10, layer 4 source port as 53, layer 4 destination port as 32500) will hash to the same member link of the LAG resulting in the bidirectional conversation going to the same DPI pool.

App: UDF Filtering

Cubro supports UDF (user defined filtering) on all G4 Packetmaster EX units. This feature allows filtering on the first 128 byte past the L3 header for a 4 byte match. This is often very useful if the standard filters are not enough.

ORDERING INFORMATION

Part Number	Description
CUB.PM-EX20400	Packetmaster EX20400, 20 x 40G and 4x100G Network Packet Broker
CUB.PM-DC-C	DC Power supply module for Cubro Packetmaster EX20400/48400/484-3
CUB.RR19-1U	Universal Rackrail Kit for 1U 19" units (Packet/Sessionmaster)

Product Components:

- Packetmaster EX20400
- AC, DC power modules available
- Europe/US/UK power cords available

For more information please check our website **www.cubro.com**