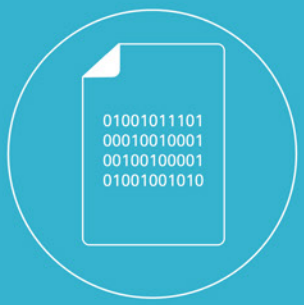
CUBRO
NETWORK VISIBILITY



EXA40 SERIES

DATA SHEET

Network Packet Broker (NPB)
At a glance

Definition

A network packet broker (NPB) is a tool that receives data from number of network links; duplicates, aggregates and filters that data for the monitoring tools.

Advantages of EXA40/ EXA40D Series

- High performance appliance offering layer 7 packet handling
- Can decode protocols like a probe
- Keyword and regular expression search
- Load balancing GTPv1 and GTPv2 traffic
- Keyword filtering (IMSI filtering)
- Keyword filtering (called party filtering on SIP)
- General keyword filtering
- Session-aware load balancing
- GB & IUPS filtering & load balancing

Product Review

The Sessionmaster EXA40 Series is the next evolution step in the row of the successful Cubro network packet broker product line. The Sessionmaster handles packets up to layer 7 and load balances based on specific applications. The possibility to do keyword and regular expression searches, completes the big picture of the EXA and allows it to fit into almost every situation in monitoring systems.

The Sessionmaster EXA40 Series focuses on the mobile core network, metropolitan area network (MAN), and internet data center (IDC) big data monitoring.The Sessionmaster understands network protocols not only by the port number. The EXA40 Series has a multicore CPU architecture and can decode protocols like a probe. This feature is vital to do keyword and regular expression search and to produce useful results.

Functions / Benefits:

- **Ultra-high port density and ultra-low power** - The Sessionmaster EXA40 Series provides up to 40 x 10GbE SFP+ ports in 1 U. The Sessionmaster can increase the access capacity and decrease the operational costs, providing the perfect solution for the next-generation network monitoring and traffic analysis.

- **Multi-dimensional traffic classification capability** - The Sessionmaster EXA40 Series supports many traffic matching rules including the input port and VLAN id match, IPv4/IPv6 5-tuple (supporting mask and range) match, bit-pattern filtering using user-defined attributes match and much more with the high-performance N-tuple classification algorithm. The flexible and robust traffic classification capability helps to distribute the target traffic to the monitoring tools more efficiently.

- **Intelligent load balancing capability in the mobile core network** - The Sessionmaster EXA40 can decode, track and identify the signaling protocols of various interfaces in the mobile core network. The Sessionmaster EXA40 Series can not only extract and restore the specified signaling but also guarantee the traffic integrity of the same session or the user during the load balancing process.

- **General keyword filtering** - The EXA40 can classify the traffic with 7-tuple rule and string matching rule, both of these match simultaneously. Users can set 63 string matching rules and each rule supports up to 128 string patterns (hexadecimal number supported).

- **Powerful packet pre-processing capability** - The Sessionmaster EXA40 can pre-process the packet in many ways including:

  - Re-assembling the IP fragment
  - Correcting the retransmitted or disordered TCP flow
  - Slicing the packet
  - De-duplicating
  - Stripping the encapsulation or tunnel
  - Time stamping, etc.

With the powerful ability of data burst buffering and multi-dimensional data statistics, the Sessionmaster helps the monitoring tools troubleshoot typical problems including packet loss and disorder.The Sessionmaster EXA40 Series offloads for the monitoring tools, thereby, improving the operational efficiency of these tools.

Product Capabilities / Features

Ports	Ports 40 x 10 Gbit SFP+
Management	1x RS232 RJ45 1 x USB 2.0 1x FE RJ45
Power	Dual AC power supply (100-240V) DC power modules available

Technical Data / Specifications

Operating specifications:
Operating Temperature: 0ºC to 40ºC
Storage Temperature: -10ºC to 70ºC
Relative Humidity: 10% min, 95% max
Non-condensing

Mechanical specifications:
Dimension (WxDxH): 484x 540 x 44,4 mm
Weight: 10,2 kg
Airflow: Front-back

Electrical specifications:
Input Power: 100-240V
Maximum Power Consumption: 145W

Certifications:
Fully RoHS compliant
CE compliant
Safety - UL60950-1/CSAC22.260950-1-07/IEC60950-1(2005)EN 60950-1 (2006)

Inputs
40 x 10 Gbps full duplex SFP+ Ports for any kind of SFP
* Each port can be input and / or output depending on the application and configuration

Outputs
40 x 10 Gbps full duplex SFP+ Ports for any kind of SFP
* Each port can be input and / or output depending on the application and configuration

Performance
Performance up to 800 Gbps
150 million packets/sec
Non-blocking design
Packet delay through processing less than 1 μs

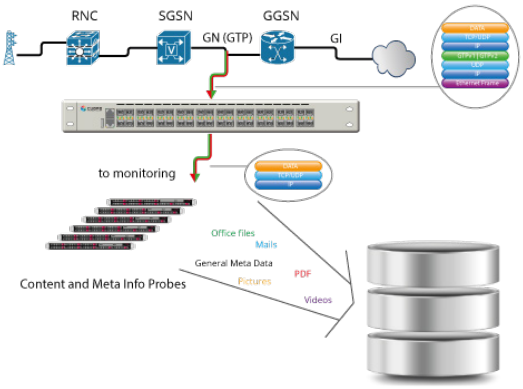
Management
Management Port: (1) RJ45 10/100 Mbit Configuration (CLI) Port: (1) RS-232 DB9 USB

Indicators
Per RJ45 port: Speed, Link/Activity
Per SFP+ port: Status, Rx, Tx, Link
Per Device: Power, Status

Applications / Solutions

IMSI (International Mobile Subscriber Identity) filtering application

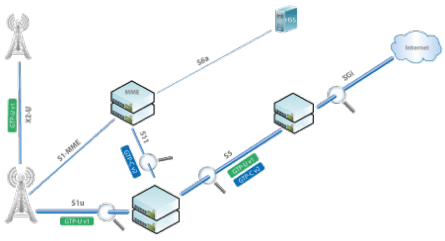
There are two ways to monitor a user or a bunch of users in a mobile core network. The first method is to capture all traffic with a large and expensive monitoring system, and search later in the database of the monitoring system for the users traffic, in order to analyse it. The other option is smart filtering.



The Cubro Sessionmaster EXA40 is able to filter, correlate and aggregate the traffic of one or a bunch of users, based on the IMSI. This is done on line in Sessionmaster so that you can connect simple monitoring devices (Laptop & Wireshark) to analyse the traffic. The Sessionmaster forwards traffic in a small portion and therefore user can capture it with a small capturing device.

It is a two-stage concept - typically the GN ports carry a lot of traffic up to multiple 10 Gbps.
Therefore, the traffic must be split into smaller portions. The first stage is to load balance the traffic session-aware to 20 Gbps portions. In the second stage, the Sessionmaster EXA40 correlates the GTP traffic (4 tunnels) and searches for the IMSI in the signaling tunnel. The information in the signaling tunnel provides the transport information to find the customer traffic in the data tunnels.

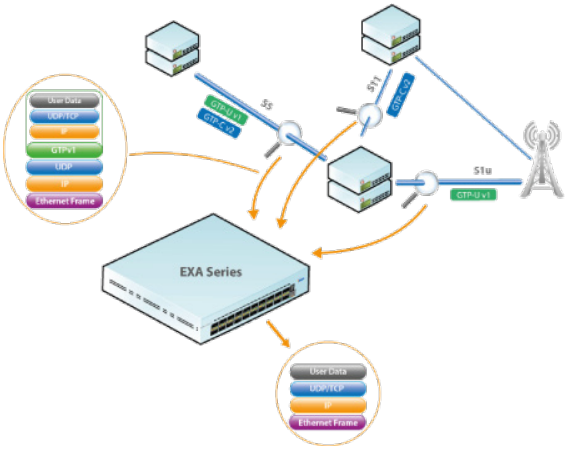
HTTP filtering in the GTPv1 or GTPv2 tunnel in a core UMTS LTE Network



These applications show the capability of the Sessionmaster EXA40 to filter inside the GTP tunnel without removing the GTP header. The application is filtering the HTTP traffic inside the tunnel and load balancing the traffic. As an additional feature, the GTP header could also be removed from the filtered traffic.

In line GTP tunnel de-encapsulate & tunnel encapsulate

This application simplifies a challenging process. With it, the user can remove the GTP tunnel only on HTTP traffic, process the traffic and add the GTP tunnel in the live link.



1. The traffic is sent over a Cubro optical bypass switch to the Sessionmaster EXA40, to protect the live link in case of a failure.
2. From the bypass, the traffic goes to the EXA40. The EXA40 removes the GTP tunnel but stores the tunnel information.
3. The EXA40 sends the pure (without GTP header) IP traffic to the application server (firewall, IDS, proxy ...).
4. The traffic is sent back to the Sessionmaster EXA40 after being processed.
5. The EXA40 sends the packets (with the original GTP header re-encapsulated), over the optical bypass switch back to live link.
6. The traffic is now reinserted in the live link.

Packet de-duplication

To gain the maximum visibility customers often do not rely only on the source for their monitoring data. Nowadays a mix of physical and virtual tapping can be found in many installations. However, the additional inputs to the monitoring systems also have one major drawback. There is a high probability that the probes receive a set of data multiple times because they are getting overlapping information from the physical and virtual tap. This leads to unnecessary load at the monitoring tools and also more importantly to wrong analysis.

The Cubro EXA40 series prevent the probes from duplicate packets. The built-in CPU will check each packet in a configurable frame and will send out each packet only once.

Data masking

There are situations when it is required to filter some unnecessary information out of a packet. This can be due to security requirements or also compliance. It is often the use case when personal data is involved like addresses, names, etc. With the Cubro solution of data masking, it is possible to override this data with pre-defined patterns. This means the packet header and length will still be the same as before so the probes can still analyze the data.

Ordering Information

Part Number	Description
CUB.SM-EXA40	Sessionmaster EXA40, 40x10G, AC power
CUB.SM-EXA40-DC	Sessionmaster EXA40, 40x10G, DC power
CUB.SM-EXA40D	Sessionmaster EXA40D, 40x10G, AC power (Dual CPU)
CUB.SM-EXA40D-DC	Sessionmaster EXA40D, 40x10G, DC power
CUB.PS-EXA40-DC	DC Power supply module for Sessionmaster EXA40 Series
CUB.RR19-1U	Universal Rackrail Kit for 1U 19" units (Packet/Sessionmaster)

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