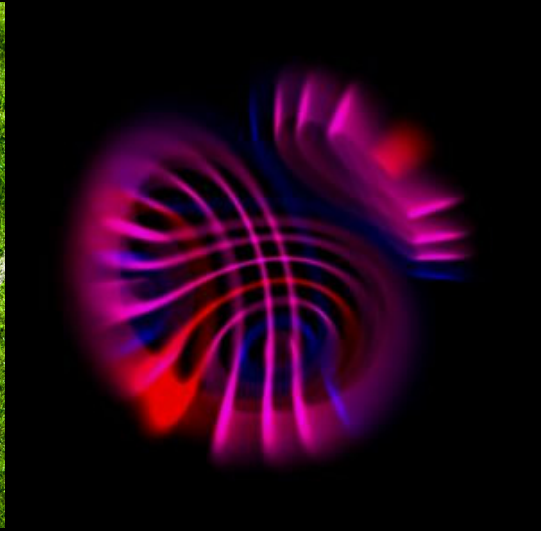




Net.Shark hand-held / rack Tap

the Path to Excellence

Net.Shark is the world first Filtering, Capture, Storage, Aggregation Tap developed in a field platform or in a rack. It supports ALL the features of high-end taps in a small, battery operated instrument to provide mobility and storage capacity to reach any point of the network.

bye, bye Limitations

Net.Shark is equipped with a unique Zero Delay technology that ensures every packet goes through without delay (even if power is lost), providing full passive access from 10 to 1000 Mbit/s without interference or introducing a point of failure

Enjoy Freedom of Movements

Net.Shark overcomes most of the limitations of the protocol analyzers running on Laptops or PCs that are not able to capture live Full Duplex traffic. Captured packets can be either saved onto an SD card -PCAP format with time stamp- or copied to a LAN in real time for further analysis

Spot the difference

Whatever your job is if you need to sniff live Ethernet/IP packets, Net.Shark will assist you in the process improving the efficiency and the performance of your protocol analyzer while adding mobility, capture filters and local storage.

Hand/held or Rack

Gaining access to live traffic is essential for those professionals doing analysis but lack the capacity to filter and capture packets in real time without disturbing the monitored stream.

"World first field Tap to filter, capture & save packets at any point"

Net.Shark is a mobile tap that perfectly works anywhere, particularly in the field where it does not have competitors at all. It is also handy in the office and suitable for distributed deployment because it is a carrier-grade device that facilitates a centralised management.

Net.Shark has really defined a new tap paradigm thanks to its keyboard and screen, to permit direct operation, whilst the VNC enables the groupware activities and the remote control through any IP network.

NETSHARK

ALBEDO Telecom

Next Gen Tap

It Works where the PC Fails

Net.Shark captures IP flows at wirespeed because this operation is performed by hardware, which is why it can analyse live traffic at full bit rate while software applications, on PC or Servers, can't escalate more than a few Mbit/s. The monitored stream is passed across the FPGA backplane providing 100% accurate packet capture at speeds of 2xGbit/s with zero packet loss.

"Net.Shark fabric delivers 100% packet analysis on any IP architecture"

Net.Shark, equipped with outstanding features, complements protocol analysers:

- **Mobility**, it is a genuine battery operated that weight less than 1,2kg.
- **Firmware filters** to identify traffic MAC, IP, UDP or TCP flow.
- **Full Duplex,** it operates in both directions to capture protocols.
- **Wirespeed**, analysis with zero loss and zero delay.
- **Copy & Forward** matching packets are copied and forwarded to the Mirror LAN.
- **Copy & Save,** matching packets are copied and saved to the SD memory card in PCAP format.
- **Errored frames**, fundamental feature for troubleshooting: FCS, runts, fragments, etc. are captured while routers and switches throw them away.
- **Remote Control,** at any client with standard VNC.
- **Transparency**, as it is invisible to the network for enhanced security
- **Aggregation,** matching packets from both ports can be forwarded to a single port.
- **Regeneration**, after passing Line ports, Tx and Rx recover its original shape.

Field or Lab?

Net.Shark is the right choice for field operation because it is powerful, lightweight, and comprehensive for troubleshooting while facilitates full-duplex operation with zero impact on traffic around the clock.

Battery operated

Battery not only gives autonomy but also guarantees that 100% tap function is completely passive and won't disrupt the network even if AC power is lost. Power glitches and failures no longer mean dropped packets and lengthy renegotiation sequences.

Capture Filters

Probably the most powerful feature of Net.Shark is the wide number of programmable filters that can be set up based on MAC, VLAN, IP, TCP, UDP. DSCP and many more. Sixteen of them can be executed simultaneously on each Port, thirty two in total.

Filters allow you to drill down to the specific traffic you want to see and eventually saved on the SD card. Finally, you will be able to analyze at the office with your favourite protocol analyser.

"Go anywhere to capture go home for analysis"

All-in-One: TAP + Computer

Link Aggregation

Net.Shark is a tap that enables full-duplex monitoring where captured packets can be either forwarded to the LAN in two separate half-duplex streams (Tx and Rx), or aggregated in one single stream.

Consequently the PC is then required to run the protocol analyser and only need one RJ45 Port to receive packets from the unit.

Local or Remote

Net.Shark can be deployed as part of a centrally managed monitoring system because any VNC client such as a PC or an iPad can gain full control. Whilst the keyboard, the screen and the memory card can operate as stand alone to tap specific points.

Copy & Save

This is a very unique feature that only ALBEDO supports today: real-time monitoring and packet capture to an internal SD memory card in order to save-to-disk capability for long-term storage.

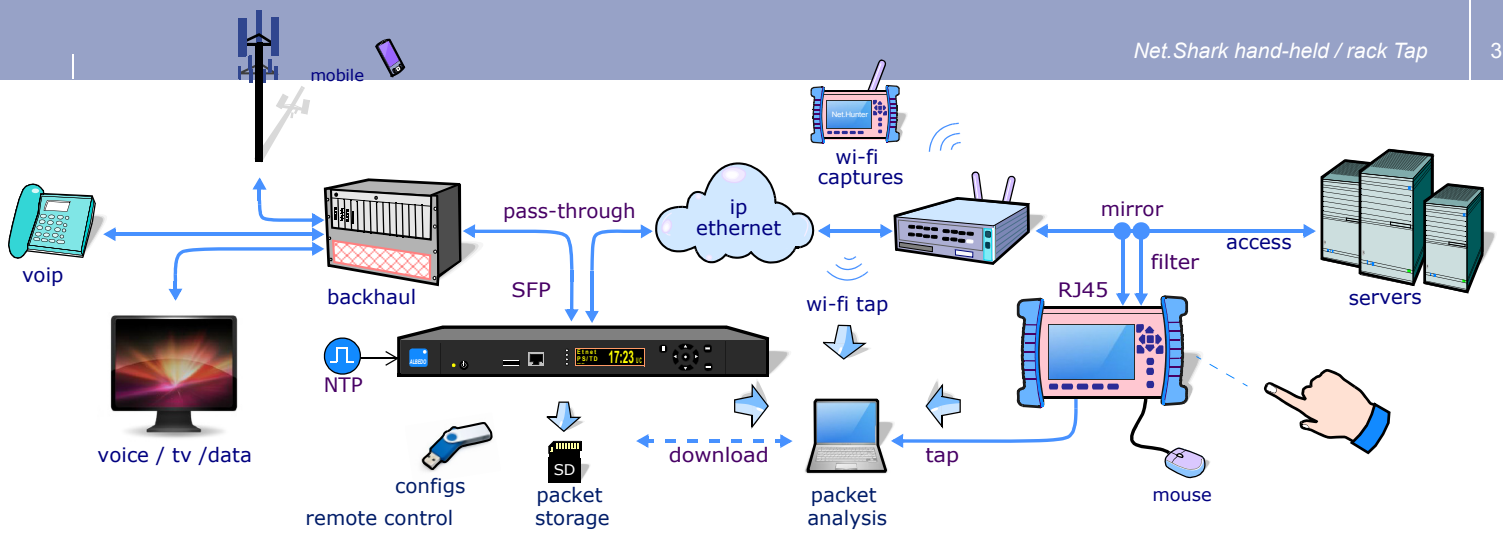
Wirespeed

Net.Shark is built as a field device and, therefore, it can be used anywhere to capture data at any point of the network. Net.Shark also facilitates remote control so you can have full control from your PC, iPhone or iPad.

Secure as a fibre strip

Net.Shark can be connected to a mirror point or connected in pass through mode, whilst link setup can be auto-negotiated and manually configured regarding link speed, duplex mode and pause parameters.

The tap does not use IP or MAC addresses, therefore Net.Shark cannot be detected under any circumstance because it has no exposure to attacks, being as transparent as a piece of cable.



Customers

Users of analysers have to face on a daily basis issues that require traffic capture and analysis. Using Net.Shark, they can now have the tap that satisfies their needs.

Traffic Analysis

The adoption of optical networking is making it increasingly difficult to ensure 100% accurate traffic capture. There are very few systems that can capture and store packets (at line rate) to enable their organisation to provide a full record for regulatory compliance or analysis.

Active Tap

Net.Shark manages the traffic to reduce the complexity of deployments. Using switch-like technology aggregates the traffic from each of the LAN-WAN links allowing to monitor both sides of a full duplex conversation using a single NIC. It will be much easier to deploy and manage, because Net.Shark is an inline device tap that works even if power is lost but the network keeps intact.

IP Service Providers

Net.Shark is ideal for ISP's looking to ensure their networks are robust, scalable and able to meet and exceed customer QoE expectations.

VoIP and IPTV Operators

Net.Shark facilitates the proactive monitor of IP services to immediately identify threats or issues that may impact customer service, solving customer issues on SIP, H.323, MPEG4, or quality faults, to drive up satisfaction. Telecommunication and cable companies will improve loyalty and drive down customer churn.

Security

Intelligence Agencies

Net.Shark is not detectable on the network as it does not have a physical or logical address. It deals with full-duplex and passes through traffic even if the tap loses power because it is battery operated.

Intrusion Detection System (IDS)

Net.Shark monitors network and/or system activities for malicious activities or policy violations and can forward suspicious traffic to the Management Station

Discover how large enterprises, banks and traders are using Net.Shark for monitoring and recording data to drive down costs and to protect core assets.

Lawful Interception

Legal access to private communications such as email, VoIP calls or Internet. It is a process which allows users to make communications available to law enforcement officials when requested. Countries are enacting laws to regulate lawful interception procedures.

FILTERS

- Thousands of programmable filters by MAC, IP, VLAN, IP, MPLS,TOS, TCP, UDP, Port, Protocol, Arbitrary, user defined...
- Executed at Wirespeed with 100% packet inspection
- Thirty two filters executed simultaneously (FDX)
- Double Port captures
- Captures of FCS, fragments, and other faulty frames

BENEFITS

- Fully Autonomous unit
- Centralized or distributed deployment
- Capture in the field and analyze in the office
- Carrier grade device Power fault tolerant
- Overcomes PC, Laptop, and server limitations
- Invisible when connected
- Troubleshoot and monitor live traffic in a risk less way
- Ideal for experts working on ISP, VoIP, IPTV,IDS, Sniff, R&D, Lawful, Security...

FEATURES

- Rack mounted 1U
- Field Tap = [Batteries + SD card + Screen+ Keyboard]
- Zero Interruptions, Zero Delay, Zero packet loss
- Compliant traffic is saved in SD card or copied to LAN
- PCAP format support
- Jitter-less time stamps
- VNC remote control
- Captured traffic is aggregated to one Port
- Touch-screen, mouse
- Undetectable: no IP no MAC

Networking Features	
Ports	• Line Ports: Optical and electrical SFPs from 1 Mb/s to 1 Gb/s • Mirror Ports: Dual RJ-45 port for electrical connection 10/100/1000BASE-T • SFP support (but not only): 10BASE-T, 100BASE-TX, 100BASE-FX, 1000BASE-T, 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, 1000BASE-BX • Auto-negotiation and forced bit rate modes supported by mirror and line ports • Negotiation of bit rate. Allow 10 Mb/s, allow 100 Mb/s, allow 1000 Mb/s
Formats & Protocols	• Ethernet frame: IEEE 802.3, IEEE 802.1Q, IEEE 802.1ad • IP packet: IPv4 (IETF RFC 791), IPv6 (IETF RFC 2460) • Jumbo frames: up to 10 kB MTU (Maximum Transmission Unit) • Throughput between measurement ports: 1 Gb/s or 1,500,000 frames/s in each direction • PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) pass-through
Operation	• 16+16 fully configurable and independent filters [Tx+Rx] defined by field contents on Ethernet, IP, UDP and TCP headers • Tap & Filter: Packets are forwarded between line ports • Packets are selectively copied to the mirror ports • Packets are stored in an SD card or stored the internal high speed storage device SSD • Filter: Traffic is filtered and forwarded to the corresponding mirror port • Packets are selectively copied to the mirror ports • Packets are stored in an SD card or stored the internal high speed storage device
Filters	**Generic Filters** defined by 16-bit masks and user defined offset. • Pattern filter (one per port) to match alphanumeric words or expressions • Length filters to match frames by their length **Ethernet Filters** • MAC address: source, destination; MAC address group: subset of addresses filtered by a mask. • Ethertype value with selection mask • VLAN-VID with selection mask, VLAN-CoS value with selection mask • S-VLAN / C-VLAN with selection mask, S-VLAN / C-VLAN CoS value with selection mask, DEI **IPv4 Filters** • Address: Source / Destination / Source + Destination / Group by masks • Protocol encapsulated in the IP packet (TCP, UDP, Telnet, FTP, etc.) • DSCP field, single value and range **IPv6 Filters** • Address: Source / Destination / Source + Destination / Group by masks • IPv6 flow label and Next header field value, TCP/UDP port, single value or ranges, DSCP field, single value and range
Results	• Frame counters for each configured filter • Autonegotiation results including current bit rate, duplex mode, Ethernet interface • Traffic statistics per each of the Four Ports • Statistics for both transmit and receive directions • Frame counts: Ethernet, and IEEE 802.1Q; Unicast / Multicast / Broadcast • Basic error analysis: FCS errors, undersized frames, oversized frames, fragments, jabbers, collisions • Frame size counts: 64, 65-127, 128-255, 256-511, 512-1023, and 1024-1518 bytes • Four byte counts: Port A (Tx / Rx) and Port B (Tx / Rx) • All traffic counters follow RFC 2819
Storage	• Full Duplex Wirespeed traffic capture to SD card • Storage format is PCAP Next Generation (PCAPNG)

Design	
Performance	• Full Duplex operation at 1 Gbit/s or 1,5 Mframes/s • Accuracy better than 10^{-6} secs. at 1 Gbit/s • Performance and accuracy 100% independent of the line bit rate • Jitter-less captures in solid state hard disk and full wirespeed (full Gbit/s at Tx & Rx simultaneously)

Ergonomics	
Platform (hand-held)	• Touchscreen 480 x 272 TFT, Mouse, USB & Ethernet ports, 1.0 kg, 223 x 144 x 65mm; IP-54 • Rechargeable Batteries continuous working up to 12 hours continuous operation • AC Power Adapter Input: 100 ~ 240 V AC, 50/60 Hz • Operating Temperature 0°C ~ 50° C, Storage Temperature -20°C ~ 70°C, Humidity 5% ~ 95%; IP rating 54 • SNMP, MIB support and VNC remote control
Platform (Rack mounted 1U)	• Management: SNMP, SSH, VNCSNMP, MIB and VNC remote control • Front Panel: Display: OLED 256 x 64 pixels, LEDs: Power, System, Alarm, Clock. • Keypad: Power On/Off, Up, Down, Left, Right, Page Up, Page Down, Esc • Redundant Power Supply: (AC+AC / AC+DC / DC+DC), VDC: -40 to 60V / VAC: 110 to 240V • Lipo Batteries: Fault tolerant 2.15h of continuous operation without power suypply • Mechanical: Fanless, Size: 1¾"x10"x19" (ETSI 1U rack mount), Weight: 4.2 kg / 8.7 lb, • Operation Temperature: -10°C to +50°C; Operation Humidity: 10% to 90%

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