

OVERVIEW

jNetWorks Software Development Kit (SDK) is a programming platform on which you can build business and network inspection applications. It provides a standard Java development library that you can use to intercept and work with computer network communications.

EXPANSION PACKS	PROTOCOL PACK (VOICE AND VIDEO)	PROTOCOL PACK (WEB AND HTTP)	PROTOCOL PACK (ACCOUNTING AND AUTHENTICATION)	PROTOCOL PACK (SIGTRAN SS7)	IMPLEMENTATION	
jNetWorks	PROTOCOL LEVEL API*				JAVA	NATIVE
	PACKET LEVEL API**					
	FRAME LEVEL API***					
JAVA ADAPTIVE LAYER	jNetWorks NT Adapter (2GD AND 3GD)		jNetWorks PCAP Adapter (ALL VERSIONS OF PCAP AND WINPCAP)			
NATIVE O.S. LAYER	NAPATECH SOFTWARE (2GD AND 3GD)		NAPATECH PCAP	GENERIC "PCAP"		
HARDWARE LAYER	NAPATECH CARDS		GENERIC CARDS			

*Stateful Protocol Analysis And Reassembly/SPAR **Deep Packet Inspection/DPI, Header Dissection *** provides card information, capabilities, sensors, configuration and, frame acquisition, crc checks, decoding, filtering, coloring, timestamp, error frames, multi-cpu traffic splitting some features only available with napatech hardware cards

Features

- **Packet capture:** you can capture packets from a live network by using a jNetWorks NT Adapter or jNetWorks PCAP Adapter together with PCAP/WinPcap libraries.
- **Zero copy** (hardware only): with Napatech Hardware, packets are captured and stored by using onboard DMA controller in host memory
- **Deep Packet Inspection (DPI):** you can inspect packets up to the application layer
- **Packet filters** (hardware and software): capture only packets your application is interested in, by using 64 on-board hardware filters. Or, direct packets into specific buffers for analysis.
- **Packet tagging:** each captured packet can be tagged by using an "integer" value that you assign and that is based on a filter expression. You can mark incoming packets to signify priority, QOS, importance, or any other defined purpose.
- **Flow-key generation:** a 32-bit hashcode that is calculated based on important fields in each packet, by using a CRC-32 algorithm.
- **Flow based multi-CPU distribution:** allows efficient utilization of host CPU resources.
- **Duplicate packet removal** (hardware only): Napatech Network Adapters implement a deduplication functionality that can remove duplicate frames, so that only unique frames (according to the classification criteria) are transferred to the server application.
- **L2-L5 packet scans** (hardware and software)
- **Protocol analysis:** protocols are fully implemented with stateful analysis.
- **IP/TCP/SCTP fragment and stream reassembly:** packets are rearranged and their payload traffic is merged and presented as a reassembled stream of data.
- **Create new packets from scratch for transmission**
- **Capture, inspect, modify and retransmit packets with ease**
- **Add your own protocols, including stateful analyzers**
- **Create beautifully formatted packet output in any format** (text, html, xml, etc...)
- **Access to host system tables** (arp, routing, etc...)

Network Frame Layer

jNetworks uses the Network Frame Layer to setup the application to capture live network traffic or to read previously-captured packets from a file. You have control over how the network packets are acquired, and what is done with the packets after they are collected.

- Packets can be read from a file. jNetworks supports a variety of file formats, such as PCAP, PCAP-NG, Snoop, and Napatech.
- You can capture packets from a live network by using a jNetworks NT Adapter or jNetworks PCAP Adapter together with PCAP/WinPcap libraries. PCAP/WinPcap libraries are an open-source industry-standard method of capturing live network traffic. jNetworks supports libpcap 1.0.0 and WinPcap 4.0 and above.

After packets are acquired, they are placed into one or more special host-buffers. Host-buffers are used for packet processing, spreading load across multiple CPUs. Three different types of host-buffers can be allocated all at once, allowing different simultaneous processing of data as required by the business logic:

- **FrameBuffer:** host buffer containing network frame objects and data.
- **PacketBuffer:** host buffer containing network packet objects, frame and data.
- **ProtocolBuffer:** host buffer containing state-full protocol objects, packets, frame and data.

Filtering

jNetworks uses filtering extensively in the Network Frame Layer to designate which host-buffer a packet is to be stored in, frame slicing (soft, hard and dynamic), coloring (or assigning a user defined integer value to all matching frames) and which frames to drop. Filtering allows you to only capture packets in which you are interested.

Hash Codes

You can assign a variety of hash-code algorithms to each packet type to generate 32-bit integer values. You can use this feature to ensure that TCP packets that are part of the same TCP stream will end up with the same hash-code value, allowing easy identification and grouping of such packets in the host-buffers.

Deep Packet Inspection (DPI) Layer

The Deep Packet Inspection Layer breaks down the structure of each packet, into its smallest components. Packets are broken down into a list of "headers" and meta-data entries. Each header is further dissected into "sub-headers", "header fields" and meta-data entries, and so on.

jNetworks offers the most flexible deep packet inspection (DPI) product on the market for a Java environment.

The DPI functionality is executed in hardware whenever possible.

Stateful Packet Analysis (SPA) layer

The Stateful Packet Analysis Layer provides a "protocol-stack" view all of communication under inspection as a coherent end to end data stream, for every supported protocol. For example, TCP streams are reassembled in correct sequence, and the end-user works with a stream of reassembled data.

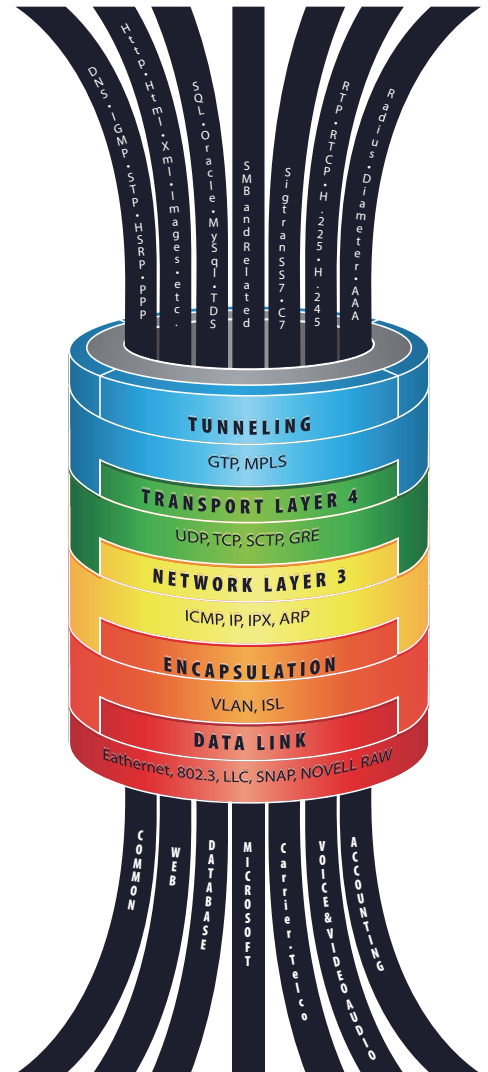
Protocol Matrix

The jNetWorks SDK comes with support for the following core set of protocols:

PROTOCOL	TYPE
Ethernet, 802.3, LLC, SNAP, NOVELL_RAW	Data-link
VLAN, ISL	Encapsulation
ICMP, IP, IPX, ARP	Network layer 3
UDP, TCP, SCTP, GRE	Transport layer 4
GTP, MPLS	Tunneling

You can get protocol expansion packs that let you extend jNetWorks to support the following additional protocols:

PROTOCOL	TYPE
DNS, IGMP, STP, HSRP, PPP	Common
Http, Html, Xml, Images, gzip encoding, etc.	Web
SQL/Oracle/MySql, TDS	Database
SMB and related	Microsoft
Sigtran SS7/C7	Carrier/Telco
RTP/RTCP, H.225, H.245	Voice & video audio & video codecs
Radius, Diameter, AAA	Accounting (AAA)



Sly Technologies™ Inc. specializes in native and "Java" middle-ware platforms for working with network communication protocols and data. We develop, market and support software (capture, analyze, store and report) and hardware solutions (cards, servers, appliances) to solve complex problems in Enterprise and Telco data-centers.

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