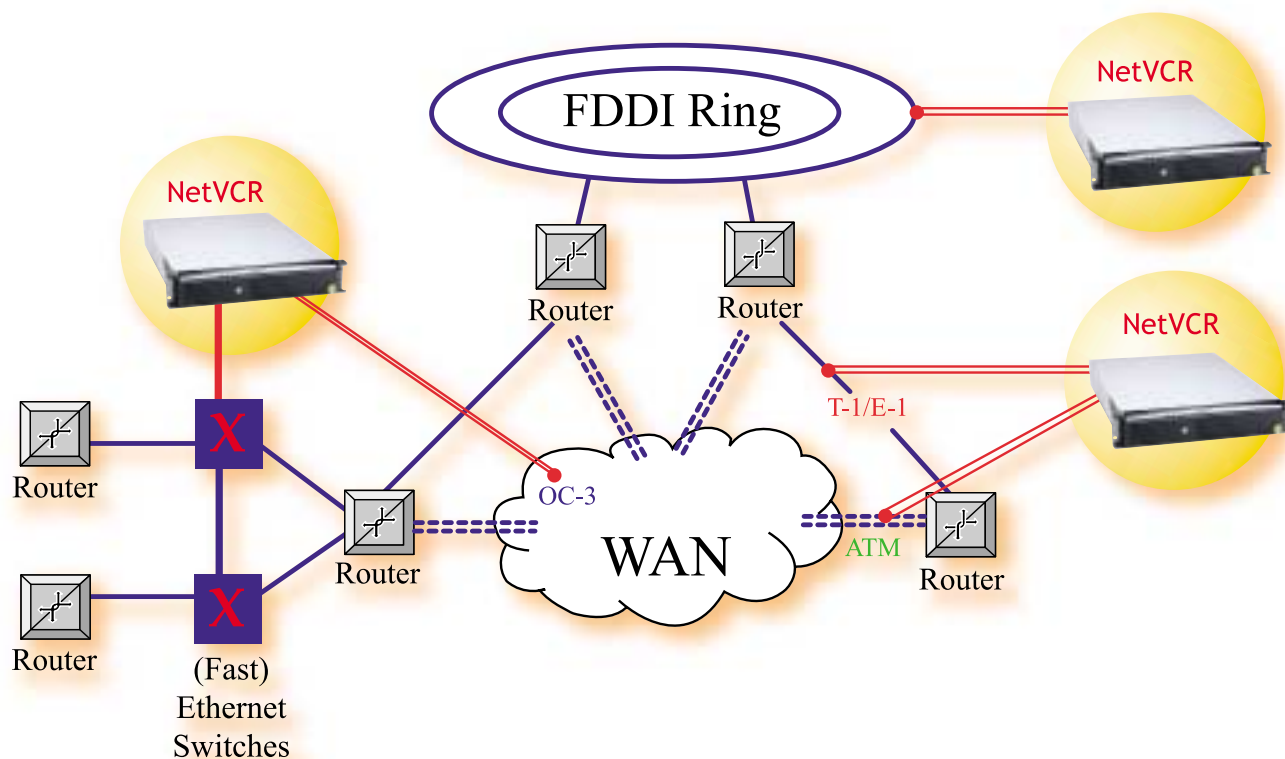


NetVCR™

The Ultimate Network Monitoring and Analysis System



Leaders in
InterNetwork
Monitoring

Multi-Network and All Layer Analysis

- ▶ Telco, ISP & Enterprise Network Monitoring
- ▶ End-to-End Performance Monitoring
- ▶ Data Link to Application Level Analysis
- ▶ Unlimited, Complete or Filtered Traffic Recording
- ▶ Web Based Reporting
- ▶ Non-Intrusive and Independent SLA Monitoring

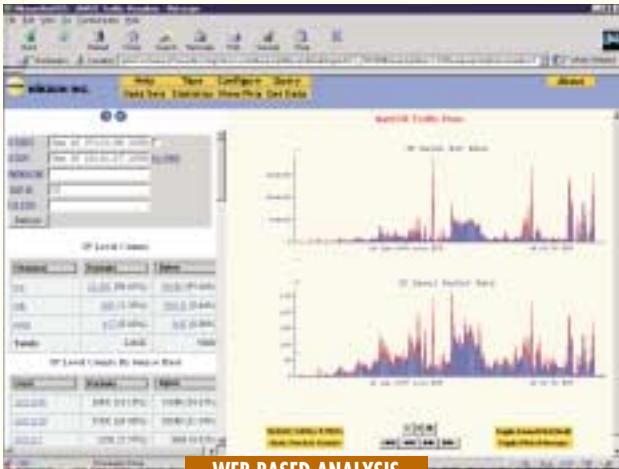
Obtain customized information with our range of analysis modules.

NIKSUN MERCURY™ NK-500S

Real-Time Data Collection, Data Organization, Space Management, Continuous Statistical Computation and Statistical Update System

Configure the system to keep as much (all packets, cells) or as little data as needed. Compute packet-by-packet statistics at any granularity from the link layer to the application layer. Diagnose network or interoperability problems and much more.

```
Dump of Frame Relay pkt from Tue June 9 12:20:01 1998 to Wed June 10 12:29:30 1998
09-JUN-98 12:20:01.083032 0:0:17: _B_ arp who-has arjun.niksun.com tell beattle.niksun.com
09-JUN-98 12:20:01.083725 0:0:17: F_ _arp reply arjun.niksun.com is-at 8:0:20:86:70:7c
09-JUN-98 12:20:02.852858 1:1:17: _D www.niksun.com :80 > 10.0.0.20:1158 1:243(242) ack 0 win 8760 (DF)
09-JUN-98 12:21:09.055472 1:1:17: _D 10.0.1.192:2200 > www.niksun.com :80 ack 25813117 win 17520 (DF)
09-JUN-98 12:21:09.055574 1:1:17: FBD 10.0.1.53:1032 > www.niksun.com :80 ack 25683665 win 8576 (DF)
09-JUN-98 12:20:09.784196 0:0:17: F_D arp who-has gw.niksun.com tell beattle.niksun.com
08-DEC-98 12:20:30.784604 0:0:17: _B_ arp reply gw.niksun.com is-at 0:40:5:4c:ac:28
```



WEB BASED ANALYSIS

NIKSUN NetVCR™ NK-505S

JAVA-Based Point & Click Data Extraction, Monitoring & Visualization System.

Use your favorite JAVA enabled web browser to analyze traffic at any protocol layer. Any and all information is just a click away. NetVCR is a powerful statistical analysis, alerting, performance monitoring and troubleshooting application providing near real time displays of all pertinent network activity. Enables proactive network support and problem resolution to enhance availability and improve customer satisfaction. Current and historical data sets are archived for post data analysis, tracking, event correlation, capacity planning, SLA verification, usage determination and network/protocol/load profiling.

DISTRIBUTED NetVCR™ NK-506D

Heirarchical Control For Distributed Clients

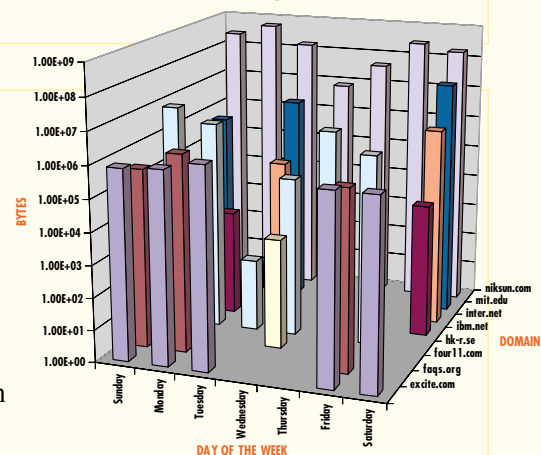
Centralized control, configuration, unit status & performance statistics of all NetVCR units known to the Zone Manager from a single communication connection. View data statistics from any NetVCR platform located within the respective zone. See 'Network Wide Views' of performance and operational statistics. Eases installation of new units by downloading of common zone parameters from the Zone Manager unit assuring accuracy and consistent application of system monitoring and alerting parameters.

NetREPORTER™ NK-525Sx

Enhanced Management Reporting

Provides extensive selection of Scheduled Reports for automatic generation. Use available 'Standard' report selections or define 'Configurable' reports from an array of user selectable options. Various reporting periods can be defined such as - hourly, daily, weekly, monthly, etc. with a wide array of operator selectable parameters (i.e. Hosts, Host Pairs, Protocols, Utilization, Packets, Bytes or Top N Talkers based upon any of the preceding.) TCP Health Statistics such as - Throughput, Goodput, Response Time, Round-trip Time, WWW Abort Rates and others over selected time periods. Also available are "Export to EXCEL" capabilities to permit easy incorporation into presentations (tables, graphs or charts), custom analysis spreadsheets and/or perform unique sorts and calculations.

TRAFFIC FLOW BY DOMAIN AND DAY OF THE WEEK



The ultimate network monitoring technology is here.

NetVCR™

NON-INTRUSIVE NETWORK MONITORING AND NETWORK DATA PROCESSING SYSTEM

Monitor a variety of networks using a non-intrusive scalable and extendable system.

Collect, record and analyze unlimited (hours, days, weeks, months) amounts of complete network traffic data.

Filter data by specific criteria, or store everything for security or research applications.

Our products make it easy for you to analyze network traffic data for a variety of applications:

- ▶ **SLA** - Independently Verify Service Level Agreements
- ▶ **MULTI-LAYER ANALYSIS** – Link Layer to Application Layer Analysis
- ▶ **END-TO-END QoS** – Measure True End-to-End Quality of Service
- ▶ **NETWORK OPTIMIZATION** – Obtain Data for Logical/Physical Network Planning, Capacity Planning, Network Dimensioning
- ▶ **E-COMMERCE** – Quantify Your Customer's View of Application Performance
- ▶ **BILLING** – Obtain Data for Statistical or Usage Based Billing Services
- ▶ **DELAYS AND LOSSES** – Obtain Actual Packet-by-Packet or Cell-by-Cell Statistics
- ▶ **PERFORMANCE** – Application to Link Layer Performance (e.g. Web Transactions, TCP Goodput, FECN/BECN Rates, etc.)
- ▶ **CUSTOMIZED STATS** – Define and Measure Statistics Suitable for your Application
- ▶ **BANDWIDTH** – Characterize Application Bandwidth and Peak Usage Requirements
- ▶ **MARKETING** – Obtain Usage Patterns, Develop Profiles



Choose your hardware platform



NIKSUN NK 3100PB NetVCR™ PORTABLE MONITOR

- ▶ Portable Chassis (4-Slot PCI bus) with 13.1" TFT display, keyboard and touch-pad mouse
- A unit specifically designed for field and troubleshooting applications. This unit offers all the power in a portable unit.*

NIKSUN 2000SL INTEGRATED PLATFORM

- ▶ 3.5" Rackmount Chassis (2U)
- ▶ Up to four Ultra 160 HDD's
- ▶ Storage from 18GB to 144GB
- ▶ Mechanical lock and intrusion switch monitored by ISC software



NIKSUN NK 3200RC

- ▶ 7.0" Rackmount Chassis (4U)
- ▶ Up to five Ultra 160 HDD's
- ▶ Storage from 72 GB to 144 GB
- ▶ Supports a wide variety of mix and match interfaces and software applications within a single platform



INTERFACES & PROTOCOLS:

NetVCR supports a wide variety of interfaces - 10/100/1000

Ethernet, T1/E1 (both clear & channelized), T3/E3, V.35, X.21, HSSI, FDDI, OC-3/STM-1, and others, either individually or in

combinations. Support for all major protocols such as IP, Frame Relay, ATM, Packet over SONET and others are also available.



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Real Solutions
For IP Networks

Niksun

Advanced Network Tools

For Network Monitoring and Analysis

Abstract

Modern networks are much more complex as new technologies result in higher levels of bandwidth and new applications, e.g., Web, emails with large attachments, voice over IP, and streaming video/audio, etc., compete for resources over these higher performing transmission facilities. Additionally, these new applications have varying requirements for bandwidth, bit rates and acceptable levels of jitter. While gigabit ethernet and switched ethernet LANS provide ever increasing levels of local area bandwidth, they often create bottlenecks when connected to much lower speed WAN connections. An organization's ability to manage their complex network infrastructure often relies on trained network engineers and advanced tools to improve productivity. Niksun offers an affordable, non-intrusive appliance providing the highest levels of performance and ease-of-use. We provide the most fine-grained performance metrics and analyses of TCP/IP traffic in the industry.

Niksun NetVCR reduces the time required to comprehend the state of the network. Other products tell you that you have congestion in certain areas. (Of course, exasperated users will also be calling.) Typically, this results in somebody putting a "sniffer" on the troubled network segment and then waiting for the problem to reoccur. Alternatively, a trained network engineer could possibly glean the necessary information using existing enterprise management products but usually, only if the problem were recent. Now there is a better way.

Niksun products allow network managers to more easily identify and diagnose the situation. This can be done days after the problem has occurred. Our core (patent pending) technology non-intrusively reads all packets on multiple networks and simultaneously analyzes and stores the important information into a very large database. NetVCR can monitor both LAN and WAN traffic simultaneously. It can support very high data rates including gigabit ethernet and ATM OC-3. Additionally, NetVCR will continue to collect data even while a complex query has been made so that data ingest occurs simultaneously with traffic analysis.

Ease-of-use is a critical aspect of the NetVCR design. The large, potentially distributed NetVCR database is accessed through a browser such as Netscape or Internet Explorer. NetVCR provides the ability to easily "drill down" through layers 2 through 7 of the TCP/IP protocol stack. Extensive filtering is also supported. For example, a network administrator query could be something like: "tell me all of the telnet and http traffic to and from server xyz from 2AM until 4AM yesterday morning..." The result of such a query would usually be returned in seconds.

Because NetVCR collects all of the data, it is not subject to averaging over time. For example, a network monitor tool which polled SNMP devices at 15 minute intervals (or even 5 minute intervals) would:

- 1) use both system and network resources to poll, collect and analyze data, and
- 2) not provide visibility into an intermittent network problem of only several minutes of duration.

NetVCR provides fine-grained visibility into your network for purposes of locating and comprehending network/application/server bottlenecks. Each appliance supports up to 16 interfaces (if all T1) and 144 GBytes of disk. Software is currently available to logically connect multiple of our units together using the backend management port. This allows Niksun to scale up our solution as the network/internet grows. A network administrator could easily check traffic on any network by a point-and-click browser interface from a single desktop workstation/PC. This facilitates remote network management by the network support team.

In summary, NetVCR is:

- a) Easy to use
- b) Non-intrusive
- c) Capable of monitoring multiple high-speed LAN and WAN networks
- d) Scalable (number of interfaces, amount of storage, etc.)
- e) Supports remote network monitoring/analysis
- f) Productivity tool reducing the time-to-insight regarding the state of the network