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iTVSense

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iTVSense MiniProbe M-170

iTVSense MiniProbe is a small, portable, and energy efficient device usable for probing and monitoring IP traffic, including Internet/Intranet traffic, IPTV/DVB streams or VoIP communication.

The MiniProbe's innovative features, coupled with its palm-sized dimensions, low power usage, and moderate pricing makes it an ideal tool for medium to large scale service monitoring, including Internet access, IPTV and VoIP.

Benefits

With a measurement capacity of 80 Mbyte/sec (cca. 10 HD channels for IPTV, or hundreds of VoIP calls), it is a versatile measurement device for multiple application scenarios, e.g.

- In network aggregation points, i.e. on switch/router ports for monitoring backbone and aggregation routing and switching.
- On an xDSL or GPON DSLAM port, analyzing DSLAM/MSAN behavior. The M-170R („rugged”) variant is specifically designed for street cabinets.
- In the customers' home network, used for analyzing access line or home network quality issues.

With its small size and moderate pricetag, the MiniProbe is also excellent portable tool for field technicians, also to be used in temporary, on-demand deployments at customers, (like 72-hour tests).



Operation modes

iTVSense probes may be operated under central control, or in stand-alone mode, controlled primarily from the Web GUI. Centralized operation may also be extended to the probe firmware already booted from a central network service, resulting in automatic upgrade management.

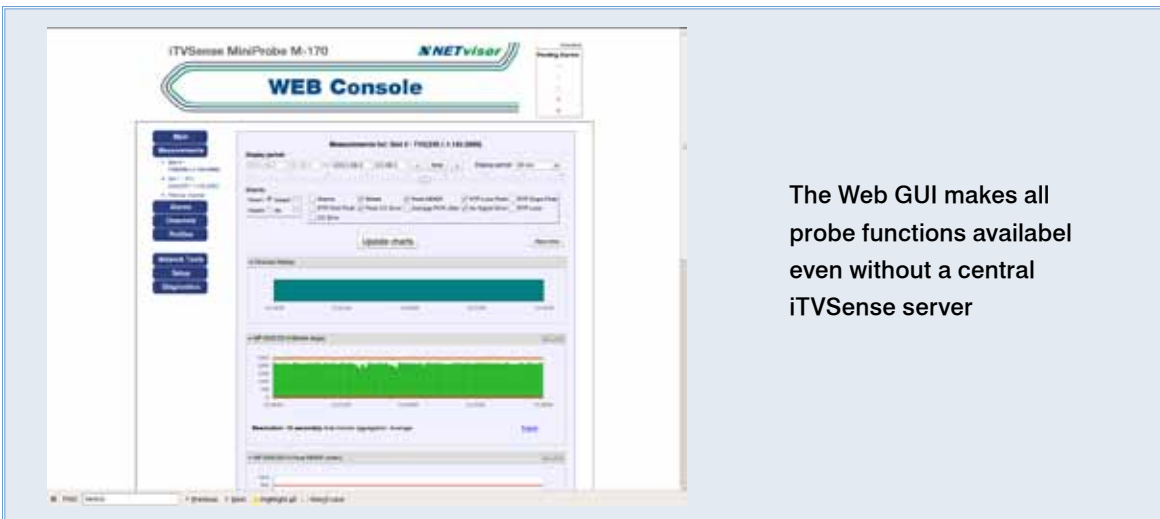
Centralized Operation

Operated under central control, the probe communicates with the iTVSense/PVSR server environment for:

- Downloading measurement configuration and (optionally the probe firmware as well).
- Serving the iTVSense performance recording server with periodic minute-resolution data.
- Sending probe-generated alarms to be stored at the server.
- Serving the iTVSense GUI with sub-minute resolution data for on-demand queries.
- Storage of probe-generated data captures on the server.

To make centralized operation and control possible, probes support several options to provide firewall-transparent access from the management server. These include L2TP, CiscoVPN or TR-69 type notification based access from the central server.

Standalone Mode and Web GUI



The Web GUI makes all probe functions available even without a central iTVSense server

Probes in stand-alone mode are mostly operated through the MiniProbe Web GUI, a sophisticated, dynamic and bandwidth-economic web application with the following main functions:

- Probe status overview: identification, system and network status, probe alarms, and measurements overview.
- Detailed measurement charts with
 - Selectable measurements and metrics
 - Selectable time resolution (1 secs - 4 hours)
 - Interactive zoom functions
 - Related alarms indicated on measurement charts.
- Setup screens for





- Boot and network setting, including VPN interfaces to make probe accessible from outside.
- Measurement settings
- Alarm thresholds defined through profiles.
- IPTV channel definitions, Internet test server lists and/or VoIP peer lists.
- Additional Network and Diagnostic tools like
 - Selective or generic mode packet capture: captured data data is uploaded to a network server in tcpdump format. Selective captures only include single channels or directions, while generic mode includes all network data, with custom filter definitions supported.
 - DNS, NTP, Ping, HTTP, FTTP availability tests
 - Miniprobe ecosystem diagnostics.

Technology Specific Features and Usage

TVSense MiniProbes used in IPTV

In an IPTV service environment, MiniProbes provide the following main features

- Measurement of up to 10 channels or VoD streams (including all-HD or mixed SD/HD media) simultaneously
- Provides seconds-resolution metrics and minute-based aggregates of metrics like bitrate, packet loss, RFC 4445 MDI DF (delay factor), and MLR (media loss rate, a.k.a. „CC error“), PCR jitters and errors, and No Signal errors.
- Provides 60 seconds resolution data storage for up to 168 hours and seconds-level storage for up to 24 hours.
- Supports alarm definition based on measured values. In addition to being displayed on the probe Web GUI, alarms may trigger
 - syslog/snmp alerts sent to external devices
 - automatic data capture enabled for the alarm period

iTVSense Miniprobes Used for VoIP

iVoIP measurement functions include

- SIP-based VoIP call initiation and termination.
- Measurement of success rate, and call quality
- Measurements provide objective metrics (RTT, loss, jitter, data and encoding errors, etc.) and subjective Mean Opinion based scores (MOS)

iTVSense Miniprobes Used for Internet services

- Internet access measurements: availability, utilization, average/maximum RTT
- Basic internet service availability tests for DHCP, DNS, NTP, etc.
- Scheduled, periodic download/upload rate tests for selected servers
- Website and online service availability tests, including tests for simulated multi-step http/https transactions (like online shopping including catalog, registration/login/logout shopping cart, ordering, payment, etc.)



Specifications

Monitored data:

- Network UDP stream packet rate, byte rate, packet loss rate and various jitter metrics
- MPEG Transport Stream packet rates, jitter, packet loss, counter and encapsulation errors. Metrics are provided both as an aggregate and also by individual Mpeg streams (video, audio, control).
- RFC 4445 Media Delivery Index (MDI).
- Multicast join times and zapping time.
- Encoder alarm events
- IPTV server operation, network traffic and stream processing (via SNMP)
- VCAS Server network traffic and stream processing (via SNMP)
- Middleware and VoD service operation, resources and response time, server/OS/Database health.
- DHCP and Boot Image server availability and events
- STB CPU load, memory used and available, network traffic, process count, reboot events and uptimes, process monitoring, STB agent footprint.

Physical and Environmental Characteristics:

- dimensions (170 x 106 x 31 mm)
- weight 480 grams
- power: 6 Watts (typ.)
- supply: 12-24 VDC (1 Amps max.)
 - 48 VDC available as an option
- temperature: -10 - +60 degrees Celsius
- humidity: 80% max.
 - the "M-170R" option is available with increased environmental tolerance



The rugged M-170R is designed to be used in street cabinets, even under harsh climates



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