implementing next generation IT and communications solutions

Service Assurance for Digital Video and IP-based Multiplay Networks

iTVSense Probe M-211/M-236
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iTVSense Probe is a versatile and cost efficient appliance, usable for active or passive probing and monitoring of IP traffic, including Internet/Intranet services, IPTV/DVB streams or VoIP communication.

Benefits

With a measurement capacity of 2*800 Mbits/sec (supporting analysis for TCP and UDP internet or 200 SD and HD channels for IPTV, or 3000 simultaneous VoIP calls), it is a versatile measurement device for multiple application scenarios, e.g.

- In multiplex service centers for IP, IPTV and VoIP
- At strategic locations in the providers core
- 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.

With its small size and moderate pricetag, the Probe 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

Probes in stand-alone mode are mostly operated through the Probe 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 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, FFTP availability tests
  - Probe ecosystem diagnostics.

Technology Specific Features and Usage

iTVSense Probes used in IPTV

In an IPTV service environment, Probes provide the following main features:

- **Measurement of up to 200 IPTV 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 Probes Used for VoIP

iVoIP measurement functions include:

- Active and passive VoIP testing
- 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 Probes 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
- VoIP control and data flow metrics and synthesized MoS and R factor calculations
- 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 (WxDxH): 245x220x51 mm
- Weight: 1800 grams
- Power: 17 Watts (type)
- Supply: 230 VAC, / 1 Amps max.
- Temperature: 10-40 degrees Celsius
- Humidity: 80% max

Configuration window on the Web console
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