Service Quality Assurance for Digital Media Services

iTVSense MiniProbe M-196

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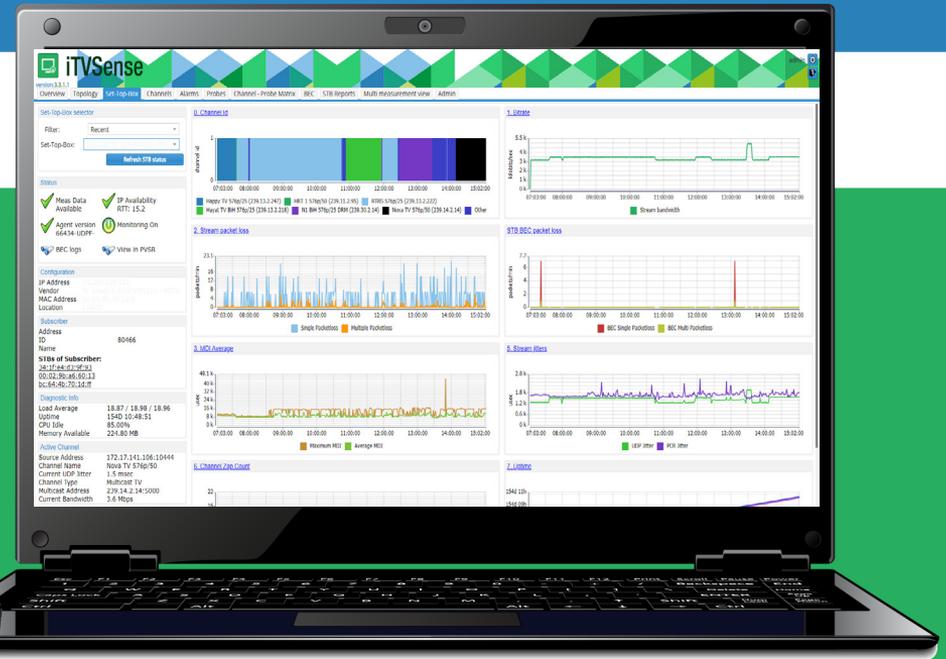
iTVSense MiniProbe M-196

SERVICE QUALITY ASSURANCE FOR DIGITAL TV AND MULTI-PLAY SERVICE PROVIDERS

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

Benefits

With a measurement capacity of 900 Mbits/sec 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.

- 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.

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
  - Measurement settings
  - Alarm thresholds defined through profiles assigned to channels or streams.
  - Boot and network setting, including
    - full VLAN support on either interfaces,
    - VPN links to make probe accessible from other, firewall-separated networks
  - Technology specific setups, like 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 PCAP format. Selective captures only include single channels or directions, while generic mode includes all network data, with custom filter definitions supported.
  - DNS, Ping, HTTP availability tests
  - Probe ecosystem diagnostics.

Technology Specific Features and Usage

iTVSense MiniProbes used in IPTV

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

- Measurement of up to 100 multicast 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 systems (escalation)
  - automatic data capture enabled for the alarm period

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

NETWORK INTERFACES

- 2x1 Gbps copper Ethernet interfaces

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.
- TCP and UDP downloads and uploads against dedicated target servers
- HTTP/FTP transfers from/to public Internet servers
- Simulated web transactions for testing interactive web services.
- ICMP and DNS availabilities and response times
- DHCP and Boot Image server availability and events

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improving the quality & efficiency of ICT services
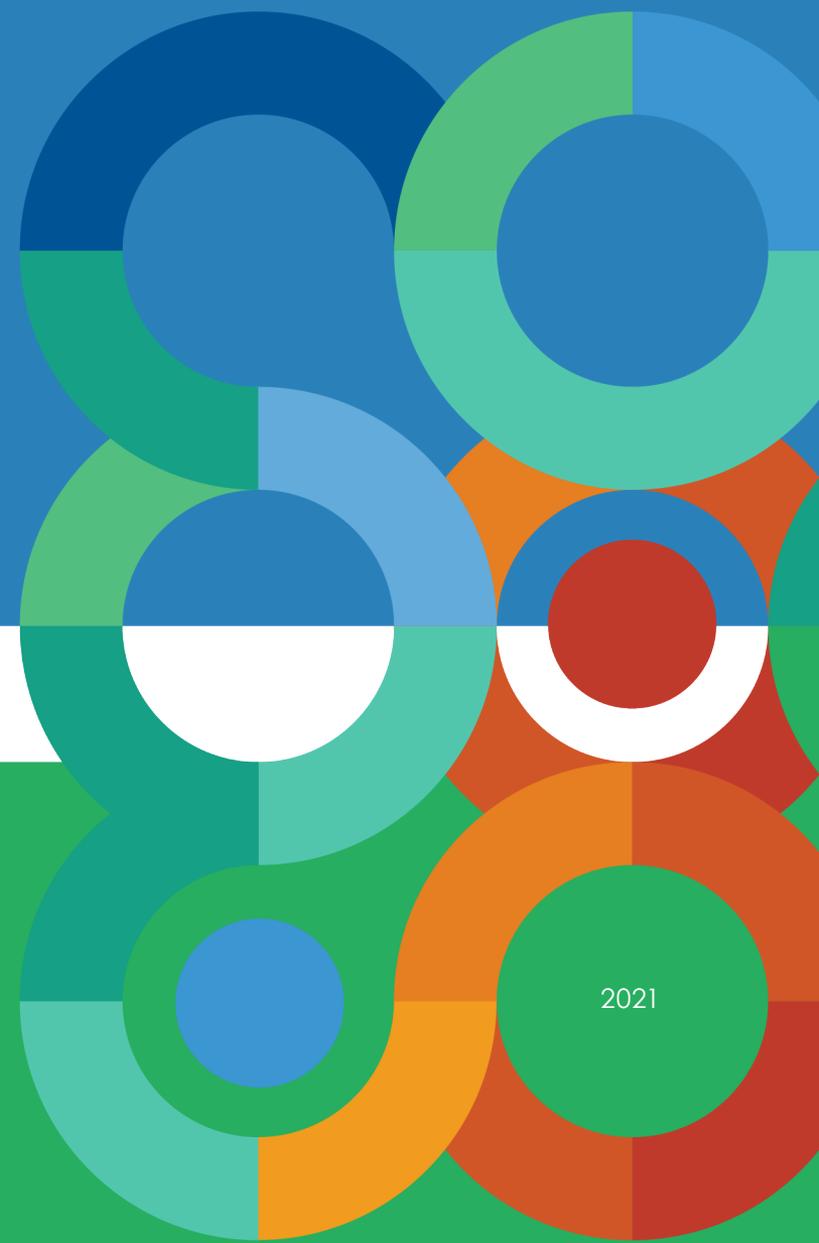
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