Quality measurements in streaming media
01.09.14
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Målepåler

Målepåle - ytelse ntnu.mp.ntnu.no ntnuhoved

Statens kartverk: LKS82007-R58851
Quality measurements

- Legacy SNMP monitors net elements like links and cpu
- Netflow monitors volume of bytes and packets
- Ping monitors monitoring packets
- What is the actual quality to the customer QoE?
QoE

- Ask the user – MOS
  - Tedious, sporadic
- Instrument clients (web)
  - Complex - need control
- Qflow passive measurements
  - Costly, high speed
- Active tailored testing
  - Low entry - Statistical probing
Tools

- Qstream – analyze media streams for quality
  - RTP, MPEG-TS, RTMP
- Sipshaman – measure SIP service quality
  - Signalling and streaming
- Qflow – passive extended qos flow analysis(netflow, ipfix)
- Stager a tool for statistical aggregation and presentation
- Ssmping/asmping is testing infrastructure
Qflow – per flow stats

- measure the gap, jitter and timing and sequencing errors and peak load (10, 100, 1000 ms)
- passive measurements - sees all traffic
- generate flow records (Ipfix, NetFlow v5/v9)
- Used with previous FPGA-cards
Qstream what

- Analyze a media stream for flow quality
- Intensity – throughput, bursts
- Jitter, sequence and loss (MOS)
- RTP, MPEG TS, RTMP
- Use for multicast TV, SIP service, SDP announcements, video streaming
Qstream use

```
mi6:~$ bin/qstream -h | head -12
Usage:
    usage="$0 [option]... [file...|ip|ip:port]..."

    -list list flows in files
    -dump dump data part to file
    -format [full|pretty] print full numbers for or short pretty numbers
    -net open network stream rather than file(s)
    -ipv6 Listen to IPv6 connections, Port needs to be defined with -p
    -p Set port,
    -crude the log is from crude
    -bins bins for gaps in ms ; b1,b2,","
    -itme log gaps longer than 1 (use with crude)
mi6:~$ bin/qstream -last 10 -period 2 -mpeg -net udp:224.4.0.10:1234
```

<table>
<thead>
<tr>
<th>Date</th>
<th>packet</th>
<th>pcritj(ms)</th>
<th>dwell (ms)</th>
<th>thrust(bps)</th>
<th>source</th>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>time 100ms host:port</td>
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<td>2012-04-18</td>
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<td>time 100ms host:port</td>
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<td>10:53:10</td>
<td>601</td>
<td>1.7</td>
<td>1.5</td>
<td>3.2M</td>
<td>7.9M 12.4M 130.206.3.133;46399 -&gt; 224.4.0.10:1234</td>
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<td>2.0</td>
<td>2.3M</td>
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TV load
TV zapping time
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<tr>
<th>Select</th>
<th>Group</th>
<th># of tests</th>
<th>Average statistics</th>
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<tr>
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<td>Src IP</td>
<td>Setup time</td>
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<td>129.21.180.239</td>
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Qstream how

- Multicast – register to group and listen for packets
- Input from pcap or sockets, live or file, multicast or unicast
- Output XML or text
- Alarm feed to Xymon, Zabbix
- Hand tool or background script
- Perl – 5k lines, 50 options
SIPShaman

- Measure phone service quality
  - Availability;
  - Call Setup;
  - Audio/Video streaming quality.
- Configuration Test Tool
  - Are all systems properly configured in order to place successful calls
- Use Sipp, Qstream, Stager
Sipp

- SIP protocol and performance testing tool
- Open software by HP
- SIP protocol configuration in XML
- SIP signalling capacity testing
- Sends prerecorded streams
- Modified to support systematic logging
SIP Shaman
SIP Shaman

2012-03-26 16:00:46 - 100 percent success (1/1)

CurrentTime  ElapsedTime (C)  OutgoingCall (C)  SuccessfulCall (C)  FailedCall (C)  Retransmissions (C)

2012-03-26 16:02:46 - 4.4
References

- [http://software.uninett.no](http://software.uninett.no)

Thank you!