New metrics for broadband and cybersecurity

The Misura Internet Project

Silvio De Nicola
1. Different metrics: a digital Tower of Babel

2. Different goals: the regulatory point of view

3. The Italian way: the *Misura Internet* Project

4. Remarks & Conclusions
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2. Different goals: the regulatory point of view

3. The Italian way: the *Misura Internet* Project

4. Remarks & Conclusions
The «quality» of Internet services can be affected by different dimensions, hence a wide set of metrics should be monitored.
However, the higher the number of dimensions, the lower the comparability for users.
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2. Different goals: the regulatory point of view

3. The Italian way: the Misura Internet Project

4. Remarks & Conclusions
Different approaches

Accademia, tech companies, and consulting firms have run (even jointly) several projects on «Internet measurement», with different purposes.
From a regulatory point of view, these instruments should lead to:

1. increase awareness in consumers,
2. facilitate to compare offers,
3. provide to consumers a certified tool.

Concern  Comparability  Certification
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In 2006 AGCOM started a project aimed to build a quality measurement system for fixed broadband Internet access services.
AgCom selected the following QoS parameters to measure internet access performances (as defined by ETSI Guide EG 202 057 057-4)

- **Speed**
  - Data transmission rate achieved separately for downloading and uploading, using specified test files exchanged between a remote server and a user's computer.

- **Delay**
  - half the time in milliseconds, needed for an ICMP Echo Request/Reply Packet (Ping Command) to a valid IP address.

- **Packet Loss**
  - the ratio between the number of not replied Ping commands to the total number of sent Ping commands.

- **Service availability**
  - the ratio of unsuccessful data transmissions to the total number of data transmission attempts in a specified time period.
Every hour the software evaluates the quality of the line (network load) and performing an independent measurements.

Every measurement contains
- 20 FTP download session
- 20 FTP upload session
- 10 ping request

After 24 hours, the procedure is complete.
Collected samples are processed in order to obtain relevant values (both download and upload direction)

- **Guaranteed Speed**
  - 5\textsuperscript{th} percentile

- **Maximum Speed**
  - 95\textsuperscript{th} percentile

- **Average Speed**
  - Mean value
- **ISP Measurements** based on dedicated “probes” located in the main urban areas of the Country, in order to measure the performance of main IAS offers for each ISP.
- **End-user measurements** allow users to measure their own fixed line performances through a software called Ne.Me.Sys.

Both measurement methods (server-based & client-based) employ the same Network Measurement System, based on a software agent running on a standard Personal Computer.
It contains general information including:

- Access to AGCOM Resolutions
- Technical discussions
- FAQ
- Definitions
- Help
- Gallery of useful links

It offers to registered users the possibility to download Ne.Me.Sys software and – by the end of 2012 – its Speed Test version, activate the procedure to execute the tests, and finally obtain the pdf certificate containing Ne.Me.Sys results.
End-user measures generate a legal document; people who are willing to perform the measures, need to fill in a special form available on the web site.

Select from the dropdown menu your provider and internet offer.

Ne.Me.Sys can be freely downloaded from the site following the registration procedure. The User who wants to register, must first connect to the site.

### Registration Form

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nome:</strong></td>
<td>Mario</td>
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<tr>
<td><strong>Cognome:</strong></td>
<td>Rossi</td>
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<tr>
<td><strong>Indirizzo:</strong></td>
<td>Via De Rossi</td>
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<td><strong>CAP:</strong></td>
<td>00000</td>
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<td><strong>Città:</strong></td>
<td>Roma</td>
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<tr>
<td><strong>Telefono:</strong></td>
<td>06/5480</td>
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<tr>
<td><strong>Codice Fiscale:</strong></td>
<td>RRIMRR...</td>
</tr>
<tr>
<td><strong>E-mail:</strong></td>
<td>mariorossi@...</td>
</tr>
</tbody>
</table>

**click on “procedi” to go on:**

- [ ] Spetto il consenso per il trattamento dei miei dati secondo quanto indicato nelle note sulla privacy

**Click on “procedi” to go on:**

**Provider:** Telecom Italia
**Contratto:** Internet senza limiti - 7M/384k

**Provider:** Alice 7 Mega - 7M/384k
**Contratto:** Alice Night Weekend - 640k/256k

**Provider:** Alice tutto incluso - 7M/384k
The software, before starting the procedure, performes some check that could affect measurement:

- The impact on speed of CPU busy
- The impact on speed of RAM busy
- The impact of having more than one computer using the connection
- The presence of wireless working connection
- The presence of mobile working connection
- Other processes already running
In order to simplify consumer complaints procedure, AgCom, in April 2014, has launched a new electronic procedure which allows consumers to notify their ISP a validation certificate of measurement results stating that their QoS values are lower than the minimum guaranteed. Measurement results can acquire legal value only if user performs the measurements twice.

If results are confirmed after a second measurement, the validation certificate can be used as a proof, and entitles the consumer to withdraw from the contract without penalties if the ISP fails to handle the complaint within 30 days.

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Other activities

AgCom have started different activities aim to **enlarge** and **enrich** the *Misura Internet* Project.

1. Misura Internet over **mobile** network;

2. Misura Internet **simplified** procedure;

3. Misura Internet for **ultrabroadband** lines (≥30 Mbps).
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4. Remarks & Conclusions
1. Competition among operators is shifting towards «quality», so consumers need more and more sophisticated tools to compare offers.

2. Technical aspects should be fully discussed and operators should be involved along all the process.

3. Monitoring tools should be «monitored» and costantly developed.


Thanks for your attention

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“My topic is ‘How To Give A Presentation Without Losing Your Audience’s Attention’. The End. Thank you for coming.”