



## **Italian Project**

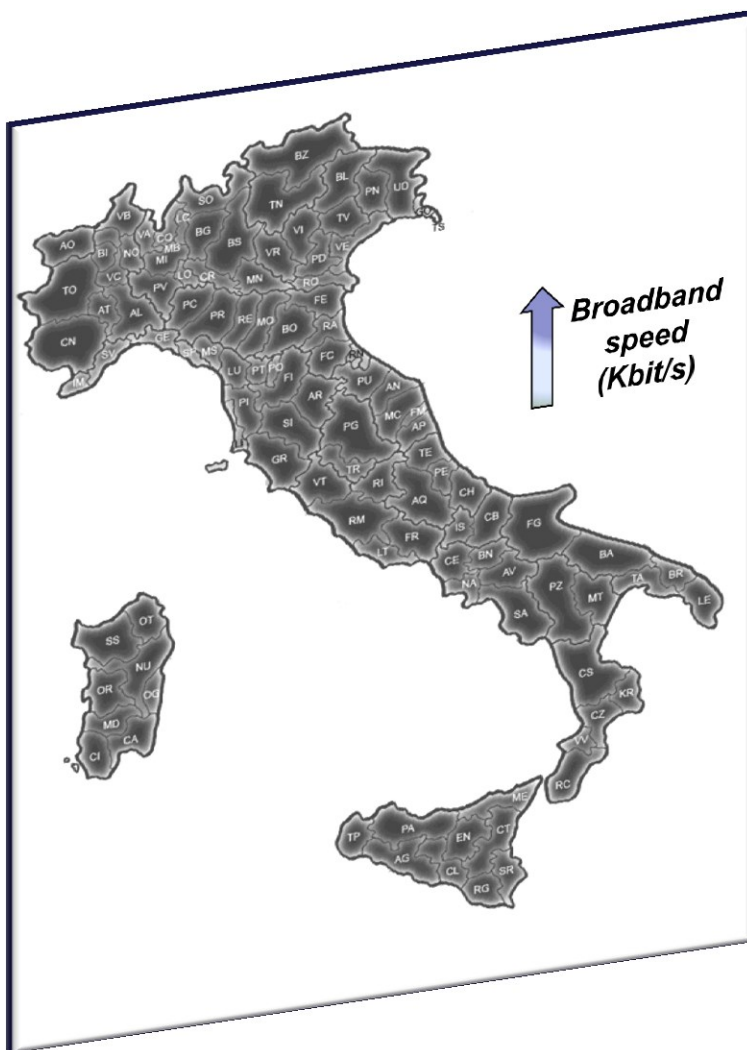
# **QoS Internet Broadband Fixed Access**

# WHY

**Before decision n. 244/08/CSP:**

- **misleading Internet offers: ISP provided only the theoretical maximum speed without providing any minimum guaranteed speed**
- **no possibility to withdraw from the contract without penalty**
- **no possibility to compare ISPs' performances because of the lack of transparency**

# WHAT



1. stimulate competition between ISPs
2. monitor NGN growth
3. Snap a picture of broadband speed evolution
4. evaluate the effectiveness of technologies for access network xDSL, P2P, PON (passive optical networks)
5. identify Digital Divide areas and suggest alternative solutions for broadband coverage (i.e. WiMax, Hyper LAN, Satellite, UMTS,..LTE)

# WHO

**Steering  
Committee**



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The Steering Committee, coordinated by Agcom, has the role of supervisory committee, attended by FUB and ISCTI, which report, in that forum, on the activities of technical boards in order to enable Agcom to evaluate the results of the technical boards.

Agcom has identified the Fondazione Ugo Bordononi (FUB) as an independent entity who, under its coordinating role, will conduct the measurement activities, pursuing the objective of evaluating the real performance of systems for Internet access on the Italian territory on the basis of indicators defined internationally by ETSI (ISP measurements), and to introduce a system of performance evaluation by the final score (Ne.Me.Sys). The tool has been certified by the Italian Economic Development Ministry (communication department- ISCOM).

# HOW

**Decision n. 131/06/CSP**



**Follow-on Decision n.131/06/CSP → Periodical Technical Board with ISP**



**Decision n. 244/08/CSP → Periodical Technical Board with ISP**



**[www.misurainternet.it](http://www.misurainternet.it)**



**ISP Measurements**



**Ne.Me.Sys**



# AGCOM Approach (1)

It is based on :

✦ **ISP Measurements** based on dedicated “probes” located in the main towns, able to measure performance related to the two most sold offers for each ISP.

✦ **End-user measurements** allow users to measure their own fixed line performances by a software called Ne.Me.Sys. The endpoint is located in the user’s house. Four suboptions: 1) issue of a complete certificate; 2) release of a certificate as soon as 5<sup>th</sup> percentile target value is violated; 3) speed test with registration; 4) speed test without registration (one-shot)

**All the measurements employ the same Network Measurement System, based on a software agent running on a standard Personal Computer.**

# AGCOM Approach (2)



**Valori Statistici Comparativi**

**Dati Nazionali**  
Dati relativi alle misure effettuate nel periodo 1 luglio - 31 dicembre 2010 ai sensi della [Delibera n. 244/08/CSP](#)

| Operatore  | Profilo commerciale         | Indicatore      | 5p   |
|--|-----------------------------|-----------------|------|
|  | Profilo 1 - 7 Mbps/256 kbps | download (kbps) | 3408 |
|  | Profilo 2 - 7 Mbps/256 kbps | download (kbps) | 2173 |
|  | Profilo 1 - 10 Mbps/10 Mbps | download (kbps) | 9227 |
|  | Profilo 2 - 12 Mbps/1 Mbps  | download (kbps) | 8976 |
|  | Profilo 1 - 4 Mbps/512 kbps | download (kbps) | 1586 |
|  | Profilo 2 - 7 Mbps/512 kbps | download (kbps) | 1116 |

## End-user measurements:

- Series of measures that each consumer can perform on its own fixed-line with the aim of evaluating the individual broadband performance
- Results can be compared with the promised performances

## ISP measurements (advertised values):

- Number of measures to help consumers understand more on broadband services they are going to buy
- Broadband results obtained by “ISP measurements” will be used by each Provider instead of “up to x Mbit/s” (advertised values)

5<sup>th</sup> percentile, computed on the whole national samples, represents the value that each ISPs can advertise. All other values such as 95<sup>th</sup> percentile or the mean values of data transmission speed are available by local analysis at [www.misurainternet.it](http://www.misurainternet.it)

**AGCOM** selected the following QoS parameters to measure internet access performances, as defined by ETSI Guide EG 202 057 057-4

- **Data transmission speed**
- **Packet Delay (Round Trip Time)**
- **Packet loss ratio**
- **Unsuccessful data transmission ratio**

The following four values relevant to data transmission speed are computed for both download and upload direction:

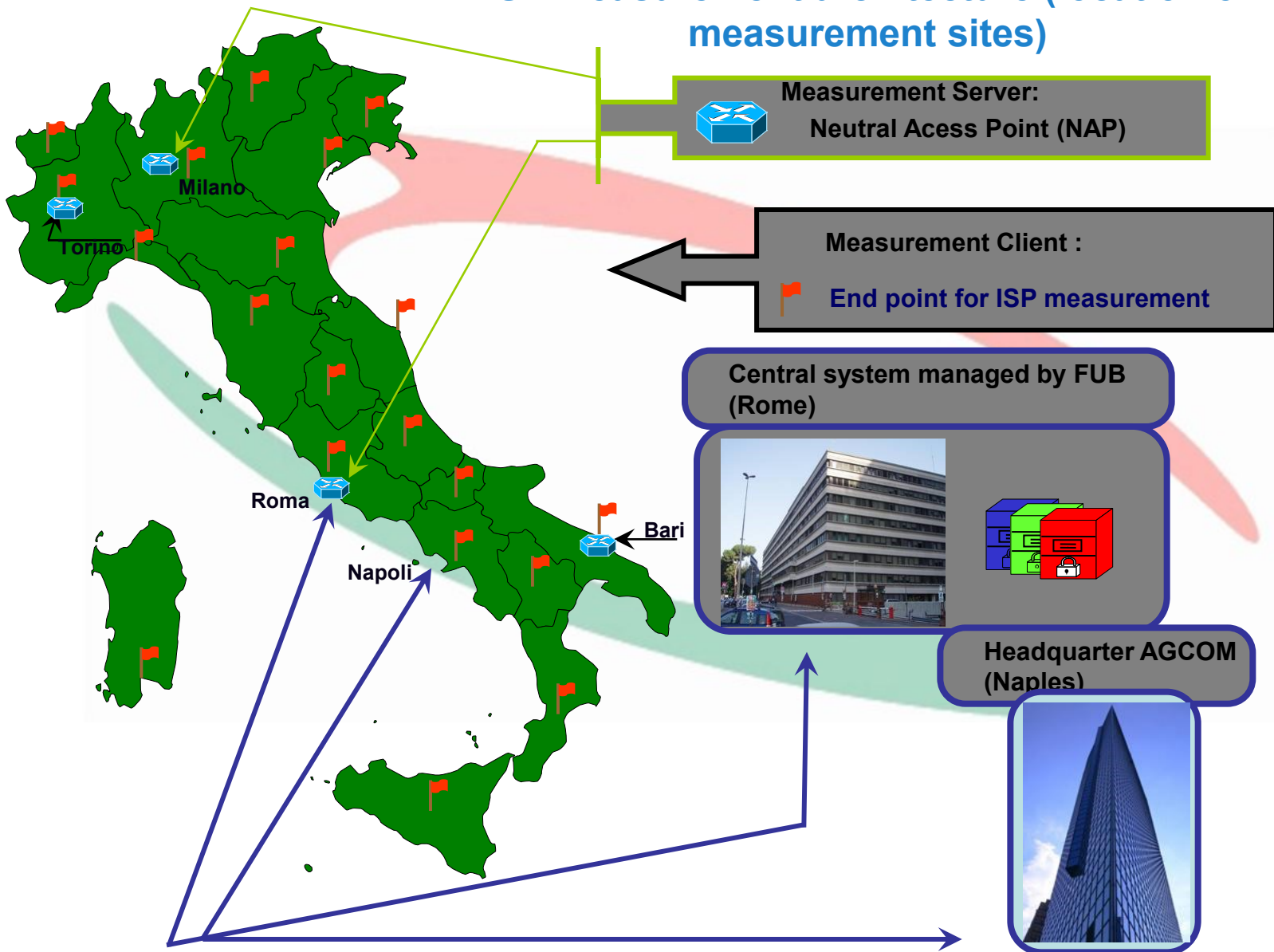
- **95 th percentile in kbit/s**
- **5 th percentile in kbit/s**
- **mean value in kbit/s**
- **standard deviation in kbit/s**

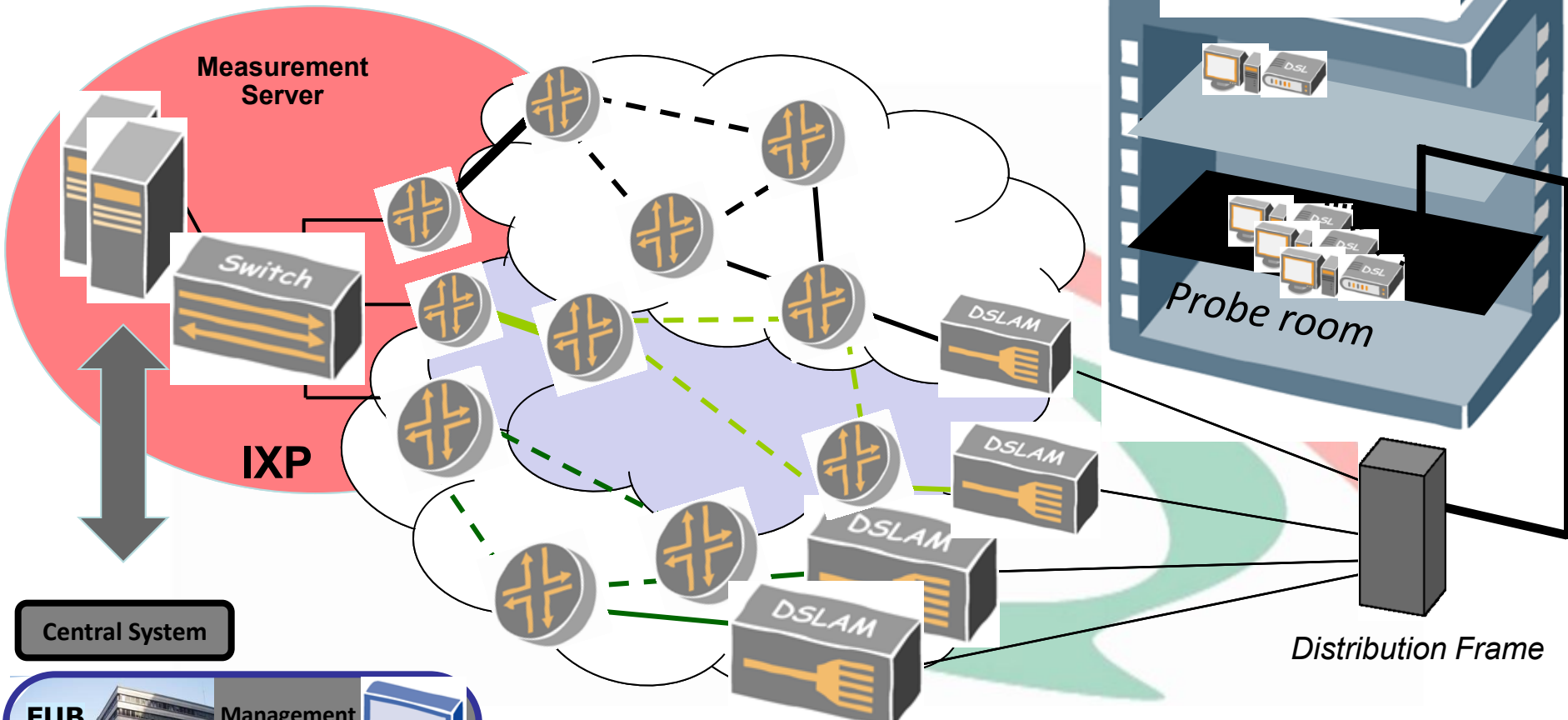
The following two values relevant to delay are computed:

- **mean values in milliseconds**
- **standard deviation**



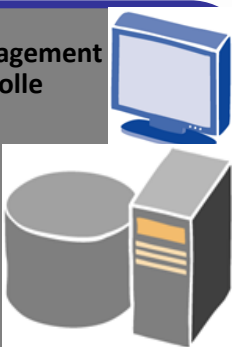
## ISP Measurement architecture (location of measurement sites)



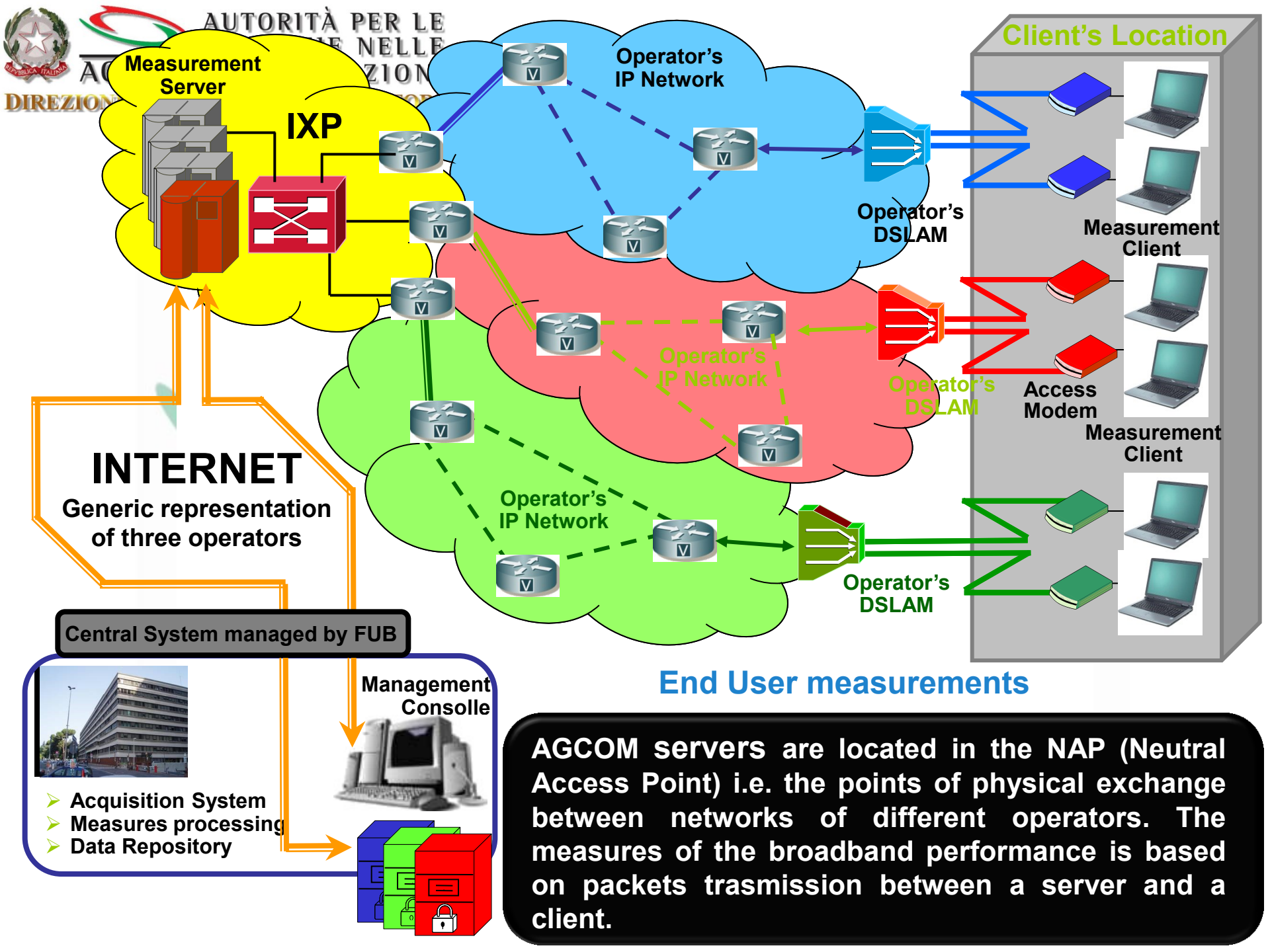


**FUB** Management Console

Acquisition System  
Measures processing  
Data Repository



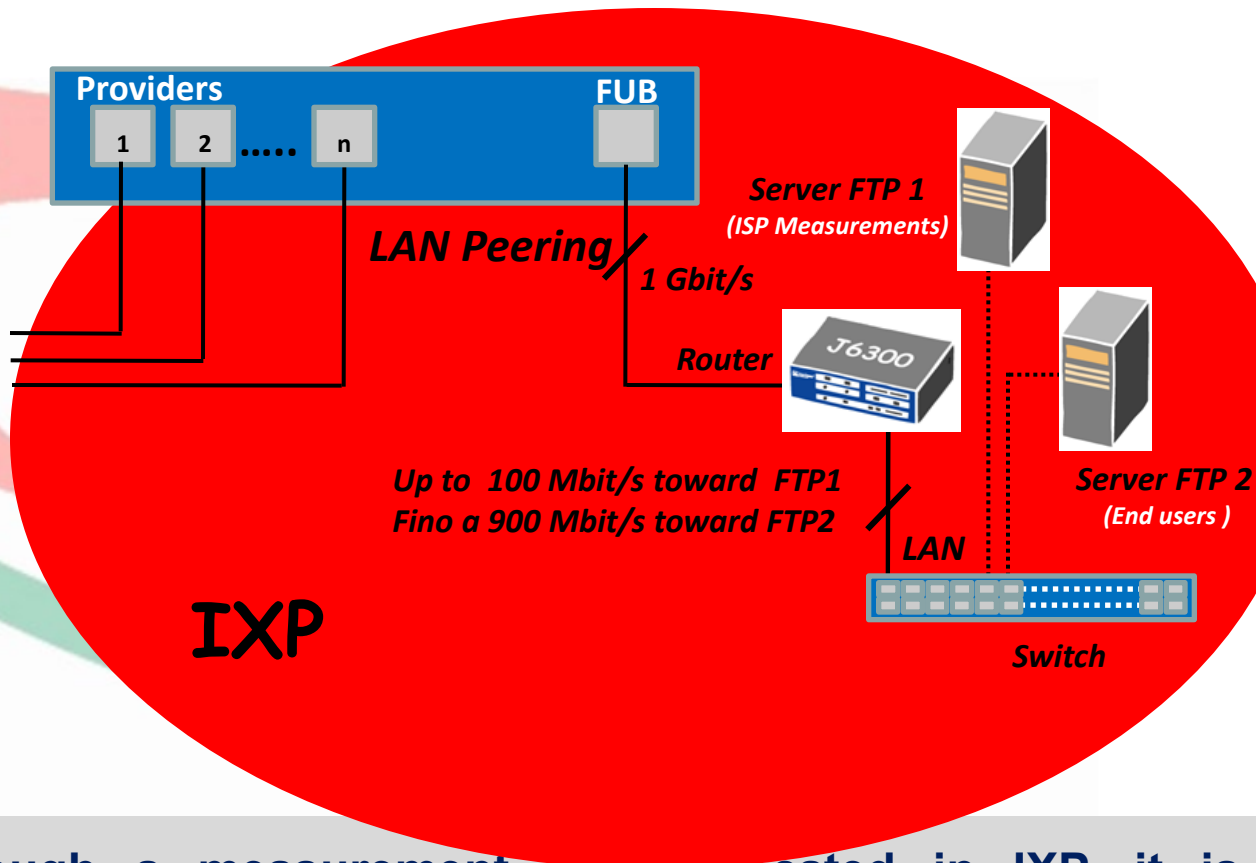
# Network Monitoring Architecture ISP measurements



## IXP (Internet eXchange Point) Milan (MiX) architecture

One or more network switch, connecting the participating ISPs to each other.

- It is a physical infrastructure through which ISPs exchange Internet traffic between their networks (autonomous systems).
- The primary purpose of an IXP is to allow networks to interconnect directly, via the exchange, rather than through one or more 3rd party networks



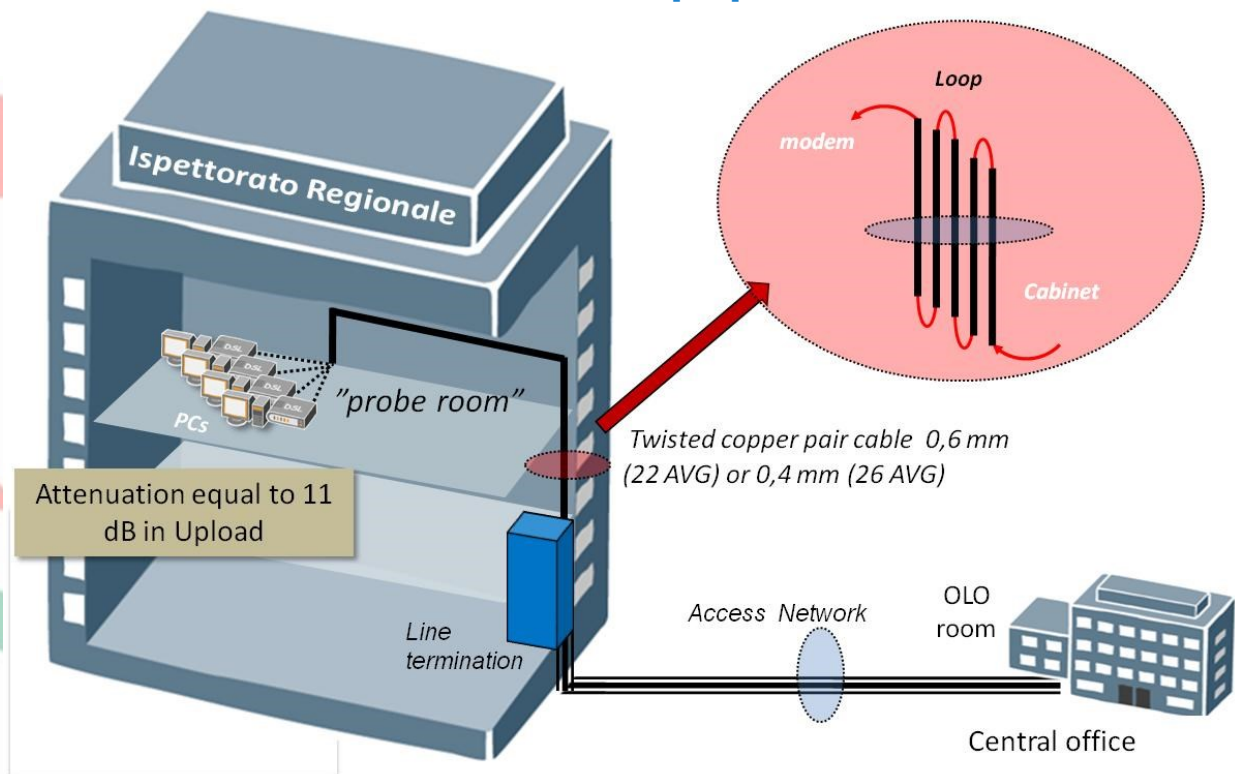
Through a measurement server located in IXP, it is guaranteed that each client measures only performances related to its own ISP Network. This approach has been chosen since it allows comparable and reproducible results



## ISP

[www.misurainternet.it/stats.php](http://www.misurainternet.it/stats.php)

- Upload line attenuation is considered because it is less affected by frequency.
- The Italian average distance between customers and exchange is about 1,2 km and the corresponding average upload Line Attenuation is 11 db
- 11 db in upload line attenuation & 1,2 km between users and Central Office (Exchange) regards 50 % of xDSL consumers in Italy



**To have a comparison between ISP performances also Line Attenuation must be the same**



The site is divided into 2 areas:



It contains general information including:

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

It offers, after registration, 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.

# MisuraInternet Web Site

## Comparative statistical values

Clicking on the Italian regions, it is possible to access statistical data related to the more selected



The screenshot shows the website interface for the MisuraInternet project. It features the AGCOM logo and navigation menus. The main content area displays 'Valori Statistici Comparativi' for the Toscana region, with data aggregated for the year 2013. The data is presented in a table with columns for Operator, Commercial Profile, Indicator, Media, St.Dev, 5%, 95%, TP%, and Misure. The table lists performance metrics for BT, Clouditalia, and Fastweb across different service profiles.

| Operatore   | Profilo commerciale       | Indicatore      | Media | St.Dev | 5%   | 95%   | TP%  | Misure |
|-------------|---------------------------|-----------------|-------|--------|------|-------|------|--------|
| BT          | Profilo - 7Mbps/256kbps   | upload (kbps)   | 243   | 5.9    | 231  | 248   |      | 82020  |
|             |                           | download (kbps) | 5470  | 413.1  | 4688 | 5678  |      | 82245  |
|             |                           | rtt (ms)        | 53    | 2.1    | 50   | 55    | 0.04 | 41138  |
|             | Profilo - 7Mbps/832kbps   | upload (kbps)   | 631   | 23.2   | 579  | 639   |      | 82683  |
|             |                           | download (kbps) | 5866  | 206.2  | 5776 | 5924  |      | 82683  |
|             |                           | rtt (ms)        | 49    | 2.2    | 47   | 50    | 0.06 | 41299  |
| CLOUDITALIA | Profilo - 7Mbps/512kbps   | upload (kbps)   | 478   | 17.1   | 457  | 483   |      | 60857  |
|             |                           | download (kbps) | 5481  | 1004.8 | 2747 | 6216  |      | 60846  |
|             |                           | rtt (ms)        | 45    | 1.4    | 44   | 46    | 0.09 | 30373  |
|             | Profilo - 20Mbps/1024kbps | upload (kbps)   | 916   | 28.9   | 886  | 936   |      | 63960  |
|             |                           | download (kbps) | 10252 | 2505.4 | 6450 | 14687 |      | 63958  |
|             |                           | rtt (ms)        | 44    | 7.4    | 42   | 46    | 0.06 | 31942  |
| FASTWEB     | Profilo - 12Mbps/1Mbps    | upload (kbps)   | 821   | 86.3   | 810  | 840   |      | 77412  |
|             |                           | download (kbps) | 10252 | 691.7  | 9395 | 10402 |      | 77967  |
|             |                           | rtt (ms)        | 29    | 3.6    | 28   | 31    | 0.38 | 41390  |
|             | Profilo - 6Mbps/1Mbps     | upload (kbps)   | 840   | 10.2   | 816  | 847   |      | 51745  |
|             |                           | download (kbps) | 5225  | 32.1   | 5206 | 5231  |      | 52042  |
|             |                           | rtt (ms)        | 14    | 1.4    | 13   | 15    | 0.20 | 28423  |

# First Step: Registration

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 by typing the address: **www.misurainternet.it**

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

MANDATORY FIELD

MANDATORY FIELD

MANDATORY FIELD

|  |  |
|--|--|
| Nome:  | <input type="text" value="Mario"/>                             |
| Cognome:   | <input type="text" value="Rossi"/>                             |
| Indirizzo:   | <input type="text" value="Via De Rossi"/>                      |
| CAP:   | <input type="text" value="00000"/> *                           |
| Città:   | <input type="text" value="Roma"/>                              |
| Telefono:  | <input type="text" value="06/5480"/>                           |
| Codice Fiscale:  | <input type="text" value="RRIMRR..."/> *                       |
| E-mail:  | <input type="text" value="mariorossi@..."/> *                  |
| Operatore:   | Provider: <input type="text" value="Seleziona il provider"/> * |
|  | Contratto: <input type="text" value="-----"/> *                |
| Se il tuo provider o contratto non sono presenti espliciti tu: | Provider: <input type="text"/>                                 |
|  | Contratto: <input type="text"/>                                |

|            |  |
|------------|--|
| Provider:  | <input type="text" value="Telecom Italia"/> *                  |
| Contratto: | <input type="text" value="Internet senza limiti - 7M/384k"/> * |
|            | Internet senza limiti - 7M/384k                                |
|            | Tutto senza limiti - 7M/384k                                   |
| Provider:  | Alice 7 Mega - 7M/384k   |
|            | Alice tutto incluso - 7M/384k                                  |
| Contratto: | Alice 20 Mega - 20M/1M   |
|            | Alice Night Weekend - 640k/256k                                |

Click on "procedi" to go on:

Prendo il consenso per il trattamento dei miei dati secondo quanto indicato nelle [note sulla privacy](#)

Procedi con la registrazione

Cancella

## Registration Confirmation



You will receive an email with confirmation of successful registration and all the information needed to log in and to access the download area:

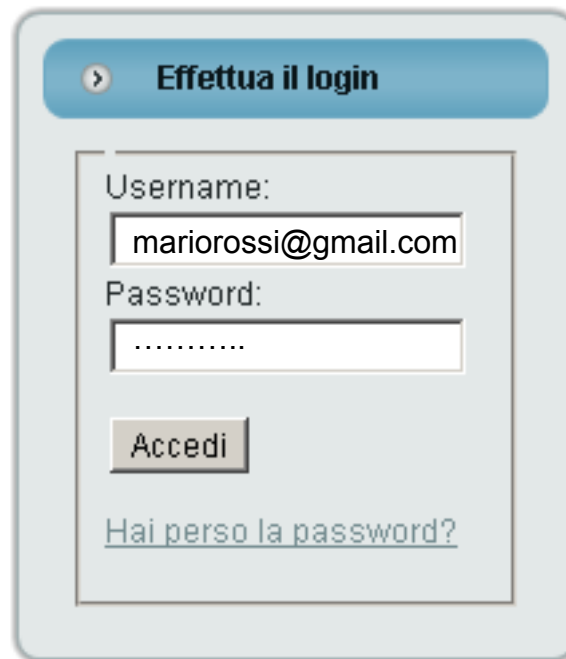
**Username:** user e-mail

**Password:** an alphanumeric string assigned to the user by the system

## Downloading Ne.Me.Sys

To download Ne.Me.Sys, you have to log in using username and password sent by email.

In the download area you can download software, start measurement and obtain final document containing the Ne.Me.Sys results.



The screenshot shows a login interface with a blue header bar containing a right-pointing arrow and the text "Effettua il login". Below the header, there are two input fields: "Username:" with the value "mariorossi@gmail.com" and "Password:" with a masked password ".....". A button labeled "Accedi" is positioned below the password field. At the bottom of the form, there is a link that reads "Hai perso la password?".

 **Download Ne.Me.Sys**

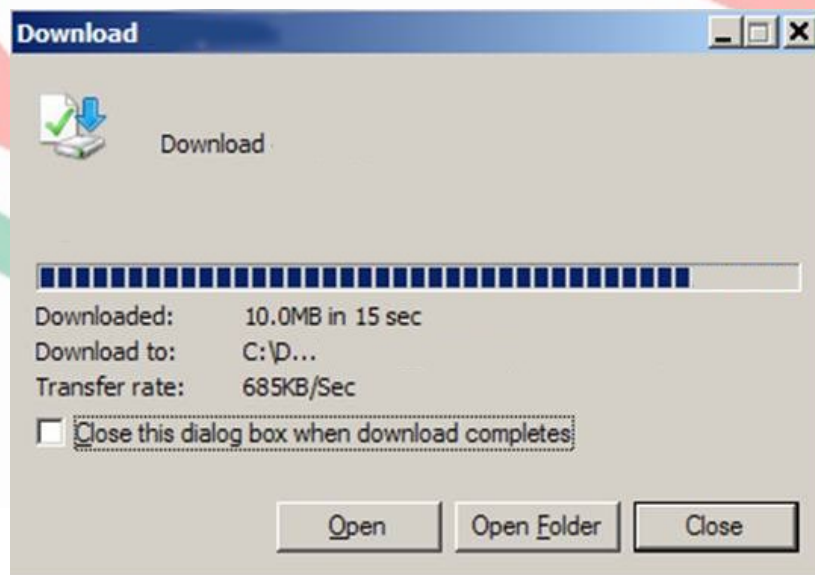
Select the operating system of the PC used to perform measures.

**Sistema operativo utilizzato**

- Windows XP
- Windows Vista
- Windows 7
- Build Linux
- Build Mac

Scarica software

Then click on download software to start Ne.Me.Sys Download.



**After downloading, Ne.Me.Sys will be ready to start the measurement session.**



# The Measure

**Ne.Me.Sys measures the quality of the line, making at least one measure per hour throughout the day.**

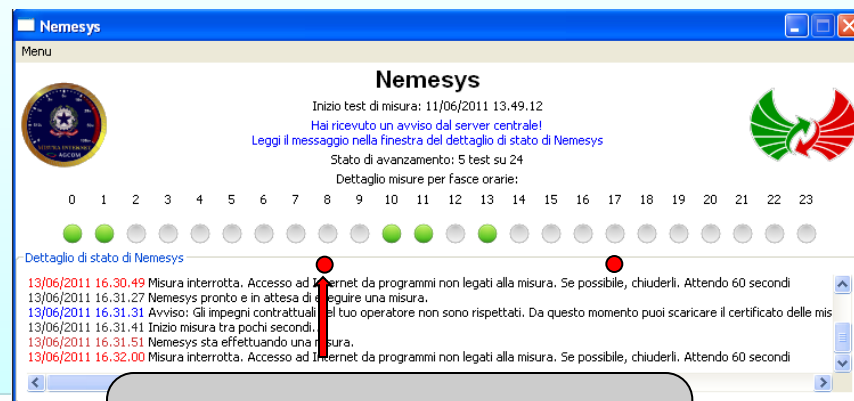
**To fully characterize the line, the software has to make a measurement in each time slot; This is necessary to evaluate the evolution of performance as a function of network load.**

**The evaluation of the line is made by at least 24 independent measurements taken in each time slot.**

**Each measure is made of :**

- **20 FTP download session**
  - **20 FTP upload session**
    - **10 ping**

**The Graphic User Interface** shows the log of each measure as soon as it is performed and informs the user when the guaranteed minimum bandwidth is not compliant with the corresponding promised value.



*GUI shows measuring progress  
the red intervals show measures  
to be repeated*

**FTP file size**, dimensioned not on headline speed but on the real line speed; at the beginning of each measure, a fast test is performed to reveal the effective access line speed. The FTP file size is based on the aforementioned test to make the duration of each test independent from the particular line speed (15 minutes).

**PDF immediately released** as soon as one of the five KPI measured by Ne.Me.Sys is less than the promised value. In this case the user has not to wait for the end of 24 measures to get the outcome document.

Obtained results can be used by customers to terminate the contract without penalties or to freely downgrade to a cheaper profile or to claim QoS parameters levels restored.

The results reported in the final certificate, in fact, can be compared with QoS KPI promised values, indicated by the operator for each internet offer, and published on [misurainternet](http://misurainternet.it) site.

If the results are less than promised values, the user may submit a claim to the operator, if the operator does not improve the quality in 30 days, the user after a second measure may terminate the contract without penalties.



## RISULTATI DELLA MISURA DELLA QUALITÀ DEL SERVIZIO DI ACCESSO AD INTERNET DA POSTAZIONE FISSA

IDENTIFICATIVO MISURA: 3819a32e597750a8ab9e8de956627e08  
CODICE DOCUMENTO: 676d74f8aec58430fd40b4bbb6cb927b

### Dati personali dichiarati dall'utente del servizio

Nome: **audrey** Cognome: **hepburn**  
Indirizzo: **via Roma** CAP: **84100** Provincia: **SA** Città: **salerno**  
Codice Fiscale: **DRYHBR81E53H7030** Email: **d.dinapoli@gagcom.it**

### Dati del contratto

Telefono: **069222222** Provider: **Telecom Italia** Contratto: **Alice 7 Mega / Voce 7 Mega**

### Dati della misura

Data e ora di avvio delle misure: **4 novembre 2010 19:57** Data e ora di conclusione delle misure: **7 novembre 2010 11:28**  
Sistema operativo del PC: **NAP** di riferimento: **NAMEX**  
IP pubblici utilizzati: **79.35.152.68; 79.56.192.132**

### Velocità di trasmissione dati

|                   | Media (Kbit/s) | Deviazione Standard | 5 percentile<br>(banda minima) | 95 percentile<br>(banda massima) |
|-------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Banda in download | 4830           | 335                 | 4615                           | 5555                             |
| Banda in upload   | 400            | 0                   | 399                            | 400                              |

### Tasso di insuccesso nella trasmissione dati

|                                 | Numero totale di tentativi | Numero di tentativi non andati a buon fine | Percentuale di insuccesso (%) |
|---------------------------------|----------------------------|--|-------------------------------|
| Tasso di insuccesso in download | 500                        | 0  | 0                             |
| Tasso di insuccesso in upload   | 500                        | 0  | 0                             |

### Ritardo di trasmissione dati in una singola direzione

|                              | Media (ms) | Deviazione standard | 5 percentile<br>(ritardo minimo) | 95 percentile<br>(ritardo massimo) |
|------------------------------|------------|---------------------|----------------------------------|------------------------------------|
| Ritardo di trasmissione dati | 22         | 0                   | 21                               | 22                                 |

### Tasso di perdita dei pacchetti

|                  | Totale pacchetti generali | Totale pacchetti non andati a buon fine | Probabilità di perdita (%) |
|------------------|---------------------------|---|----------------------------|
| Tasso di perdita | 250                       | 0                                       | 0                          |

Per confrontare i dati di misura colorati in blu riportati in queste tabelle con gli impegni contrattuali del tuo operatore visita il sito [www.misurainternet.it](http://www.misurainternet.it) alla pagina "Trasparenza dell'offerta INTERNET" nella sezione "Documenti".

### Dichiarazione sulla Privacy

Dichiaro di essere consapevole che i dati personali dichiarati ricadono sotto le esclusive responsabilità del dichiarante e consapevole della responsabilità penale conseguente a dichiarazioni non veritiere e falsità negli atti, ai sensi dell'art. 75 del D.P.R. n. 445/2000 e art. 445 Dichiaro inoltre che la misurazione si è svolta nel rispetto e in conformità con tutte le condizioni richieste per la validità legale della stessa, consapevole, inoltre, delle conseguenze amministrative in merito alla decadenza dei benefici eventualmente conseguibili tramite la misurazione effettuata conseguenti al provvedimento emanato sulla base di dichiarazioni non veritiere.

*Informativa Privacy ex art. 13 D.Lgs. 30 giugno 2003 n. 196 relativa al conferimento di dati personali per la registrazione al sito [www.misurainternet.it](http://www.misurainternet.it)*

La FONDAZIONE UGO BORDONI con sede in viale del Politecnico 147, Roma in qualità di Titolare del servizio di valutazione della qualità della connessione a Internet da postazione fissa, come da Delibera n. 147/03/CONS AGCOM, procederà al trattamento dei dati personali dei soggetti interessati al fine esclusivo di consentire la registrazione al sito [www.misurainternet.it](http://www.misurainternet.it), il conseguente accesso all'area privata e il download del software Ne.Me.Sys. I dati personali dei soggetti interessati saranno trattati in modo lecito e secondo correttezza, con l'ausilio di strumenti esclusivamente elettronici, limitatamente e quanto strettamente necessario per il perseguimento della suddetta finalità e nel rispetto delle misure di sicurezza previste dalla legge.

Il conferimento dei dati è facoltativo, tuttavia, qualora il soggetto intenda procedere alla registrazione, la mendace compilazione dei dati contrassegnati come obbligatori renderà il documento privo di ogni effetto giuridico. I dati personali comunicati a soggetti terzi né verranno né saranno comunicati e saranno trattati da personale qualificato in conformità e nel rispetto del disposto di cui all'art. 7 del D. Lgs. 196/03 in materia di accesso ai dati personali. In particolare i soggetti interessati potranno chiedere conferma dell'esistenza o meno dei propri dati personali, di chiedere la comunicazione in forma intelligibile, la rettifica, l'aggiornamento o la cancellazione, di opporsi alla prosecuzione del trattamento per motivi legittimi, ecc. Tali diritti potranno essere esercitati, ai sensi del suddetto art. 7, mediante richiesta scritta e mezzo di raccomandata con ricevuta di ritorno da indirizzarsi a Fondazione Ugo Bordoni, viale del Politecnico 147, 00161, Roma, o via e-mail, scrivendo all'indirizzo [privacy@misurainternet.it](mailto:privacy@misurainternet.it), ovvero al seguente numero di fax: 0654237459.

RISULTATI DEL  
DI ACCESSO



LA QUALITÀ DEL SERVIZIO  
DA POSTAZIONE FISSA

IDENTIFICATIVO MISURA: 47e87919f55a3617d  
CODICE DOCUMENTO: 23b5ae061248572d9ae9532ad505527a

Riscontrata violazione degli impegni contrattuali sul parametro: 5 percentile della banda in download relativo all'offerta contrattuale "Alice ADSL" inserita in fase di registrazione\*

Dati personali dichiarati dall'utente del servizio

Nome: Mario Cognome: Rossi

- Ne.Me.Sys is
- It is able to r

Download del software

Licenze Ne.Me.Sys. e certificati

MisuraInternet Speed Test

Dati personali

| Codice licenza                   | Licenza attiva<br>(1) | Misure<br>effettuate | Download<br>certificato   | Invia il certificato al tuo<br>operatore  |
|----------------------------------|-----------------------|----------------------|---|---|
| 230398142d87bf96057274943b3fd0f1 | NO                    | 7 su 24              |    |    |
| 6d805a758e28015d8e246eb29b7c7d91 | NO                    | 1 su 24              |    |    |
| 4346a86219e763698b0229547e54a5bb | NO                    | 11 su 24             |    |    |
| a331f1cc18317e3bcc61f7bff000ecb6 | NO                    | 2 su 24              |    |    |
| 11b60d956c69cc9ad4dbccb689b73521 | NO                    | 9 su 24              |  |  |
| 7244a3deed10bb151805a853e2a1ac5a | NO                    | 3 su 24              |  |  |
| 2462b559df0a22c164feadee10f427f9 | NO                    | 10 su 24             |  |  |

neccessario per il perseguimento della suddetta finalità e nel rispetto delle misure di sicurezza previste dalla legge.

Il conferimento dei dati è facoltativo, tuttavia, qualora il soggetto intenda procedere alla registrazione, la mendace compilazione dei dati contrassegnati come obbligatori renderà il documento privo di ogni effetto giuridico. I dati personali conferiti non saranno comunicati a soggetti terzi né verranno resi pubblici e saranno trattati da personale qualificato in conformità e nel rispetto del disposto di cui all'art. 7 del D. Lgs. 196/03 in materia di accesso ai dati personali. In particolare i soggetti interessati potranno chiedere conferma dell'esistenza o meno dei propri dati personali, di chiederne la comunicazione in forma intelligibile, la rettifica, l'aggiornamento o la cancellazione, di opporsi alla prosecuzione del trattamento per motivi legittimi, ecc. Tali diritti potranno essere esercitati, ai sensi del suddetto art. 7, mediante richiesta scritta a mezzo di raccomandata con ricevuta di ritorno da indirizzarsi a Fondazione Ugo Bordoni, viale del Polidinicio 147, 00161, Roma, o via e-mail, scrivendo all'indirizzo [privacy@misurainternet.it](mailto:privacy@misurainternet.it), ovvero al seguente numero di fax: 0654237450.

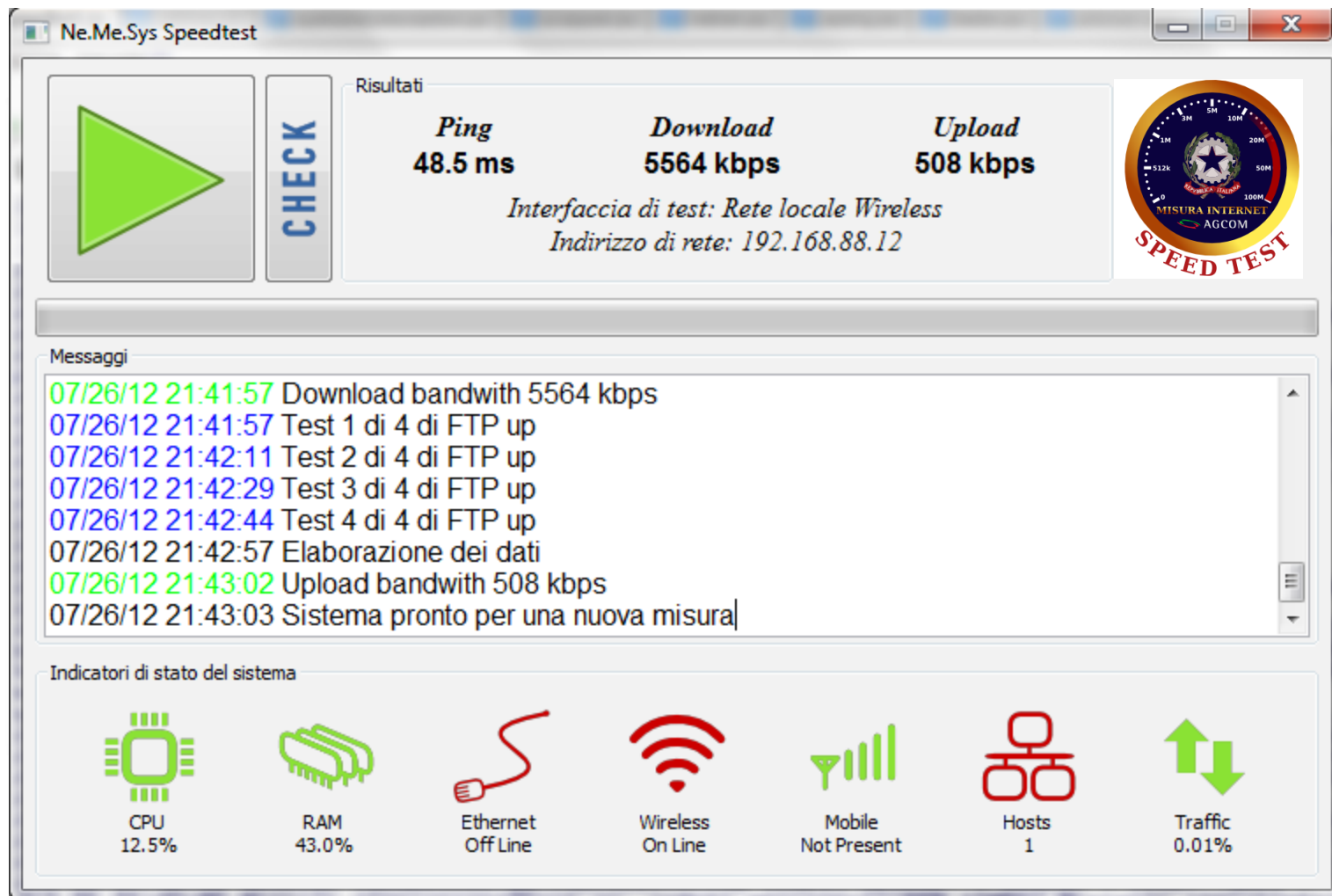
## Difference between Ne.Me.Sys and other speed tests

|                                    | <b>NE.ME.SYS</b>   | <b>OTHER SPEED TESTS</b>   |
|------------------------------------|--|--|
| <b>Protocol Type</b>               | FTP  | HTTP   |
| <b>Measurement Server Location</b> | Neutral Access Point (Rome, Milan)   | Information not available, so it is not always possible to differentiate network performance of user's ISP from those of other ISP |
| <b>Goals</b>                       | Certified Information. Each Client measures only performances related to its own ISP Network | Not certified information. They evaluate the performance of Internet connection related to some of the most popular Internet sites |
| <b>Duration</b>                    | 24 hours to evaluate the performances as a function of network load.                         | One shot (few minutes)   |



## Why MisuraInternet Speed Test?

- With the aim to give end users an easier instrument to roughly evaluate the quantitative QoS, since November 2013 a short version of Ne.Me.Sys. was released. Such a version is named **MisuraInternet Speed Test**.
- MisuraInternet Speed Test allows consumers to have an immediate result.
- Obviously such result does not have an official value to the end of terminating contracts.
- Samples collected will be the basic of national statistics with the aim of monitoring the growth and evolution of Italian broadband.



The screenshot displays the Ne.Me.Sys Speedtest application window. The main results section shows a Ping of 48.5 ms, a Download speed of 5564 kbps, and an Upload speed of 508 kbps. The test interface is identified as 'Rete locale Wireless' with the IP address 192.168.88.12. A 'CHECK' button and a green play button are visible on the left. A circular speed test logo is on the right. Below the results is a 'Messaggi' (Messages) log showing the test progress and completion. At the bottom, a 'Indicatori di stato del sistema' (System Status Indicators) section shows CPU at 12.5%, RAM at 43.0%, Ethernet as 'Off Line', Wireless as 'On Line', Mobile as 'Not Present', Hhosts at 1, and Traffic at 0.01%.

**Ne.Me.Sys Speedtest**

**Resultati**








|             |                 |               |
|-------------|-----------------|---------------|
| <b>Ping</b> | <b>Download</b> | <b>Upload</b> |
| 48.5 ms     | 5564 kbps       | 508 kbps      |

*Interfaccia di test: Rete locale Wireless*  
*Indirizzo di rete: 192.168.88.12*







**Messaggi**

- 07/26/12 21:41:57 Download bandwidth 5564 kbps
- 07/26/12 21:41:57 Test 1 di 4 di FTP up
- 07/26/12 21:42:11 Test 2 di 4 di FTP up
- 07/26/12 21:42:29 Test 3 di 4 di FTP up
- 07/26/12 21:42:44 Test 4 di 4 di FTP up
- 07/26/12 21:42:57 Elaborazione dei dati
- 07/26/12 21:43:02 Upload bandwidth 508 kbps
- 07/26/12 21:43:03 Sistema pronto per una nuova misura

**Indicatori di stato del sistema**

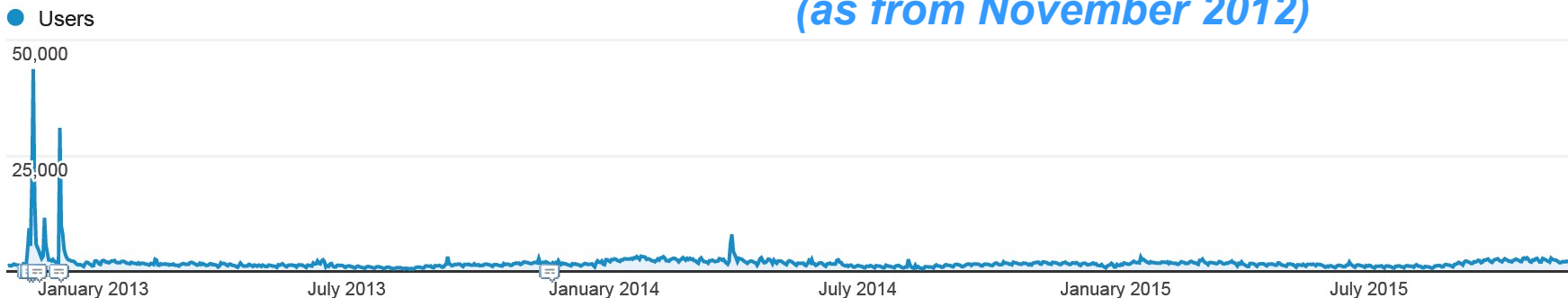
|   |   |   |   |  |   |   |
|---|---|---|---|--|---|---|
| <br>CPU<br>12.5% | <br>RAM<br>43.0% | <br>Ethernet<br>Off Line | <br>Wireless<br>On Line | <br>Mobile<br>Not Present | <br>Hosts<br>1 | <br>Traffic<br>0.01% |
|---|---|---|---|--|---|---|

**Speed Test** runs some checks during the measure to verify:

-  • The impact on speed of CPU busy
-  • The impact on speed of RAM busy
-  • The impact of having more than one computer using a broadband connection
-  • The presence of wireless working connection
-  • The presence of mobile working connection
-  • Other processes already running

*No checks prevent the execution of the measure  
(differently from the Nemesys software)*

# General statistics after MisuraInternet Speed Test release *(as from November 2012)*



Sessions  
**2,218,058**



Users  
**1,673,279**



Pageviews  
**9,512,814**



Pages / Session  
**4.29**



Avg. Session Duration  
**00:03:43**



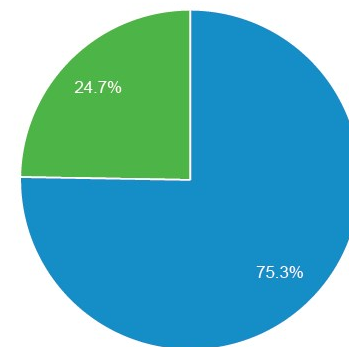
Bounce Rate  
**38.64%**



% New Sessions  
**75.14%**



■ New Visitor ■ Returning Visitor



**Web-site visitors**

1.673.279

**Registered users**

227.115

**MisuraInternet Speed Test  
downloads**

483.600

**Emitted certificates**

47.200

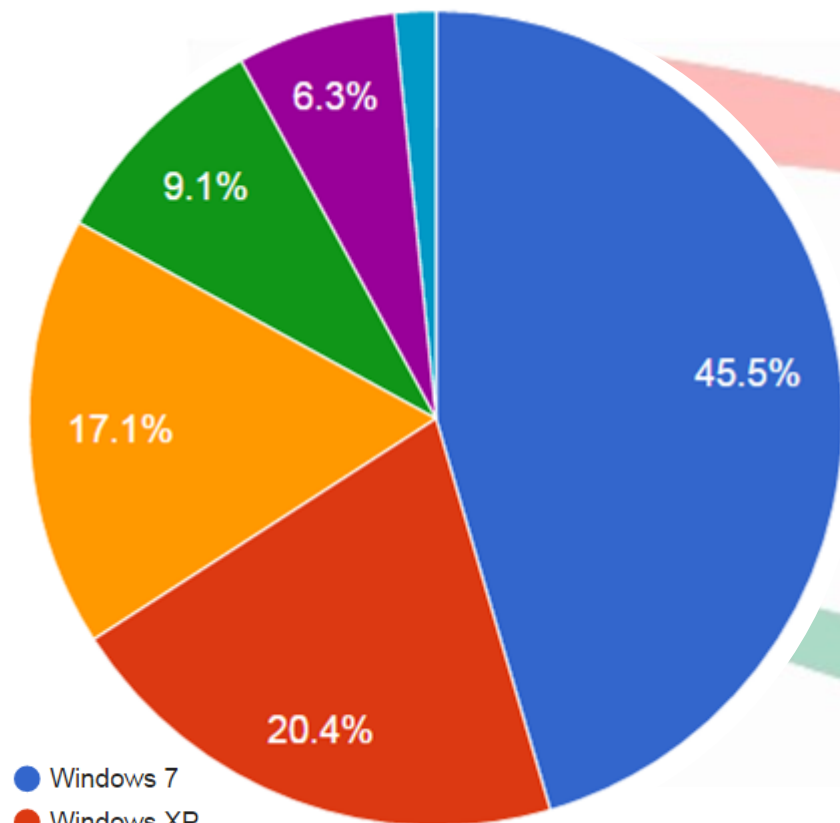
## MisuraInternet consumers' experience at the end of November 2015

|   |                |
|---|----------------|
| <b>Registered Users on<br/><a href="http://www.misurainternet.it">www.misurainternet.it</a></b> | <b>227.115</b> |
| <b>Outcome Ne.Me.Sys Certificates</b>   | <b>47.181</b>  |
| <b>Outcome MisuraInternet Speed Test<br/>Downloads</b>  | <b>483.600</b> |
| <b>Outcome MisuraInternet Speed Test<br/>Measures</b>   | <b>340.800</b> |

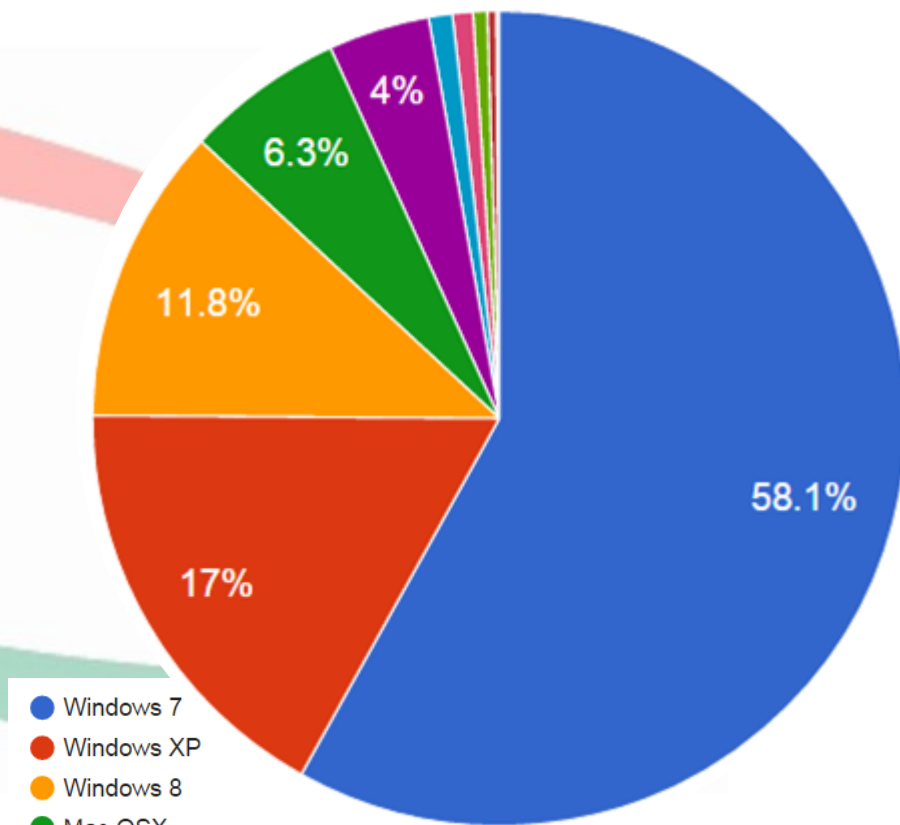


# Most used Operative Systems extracted by Ne.Me.Sys and Speed Test results

## Ne.Me.Sys



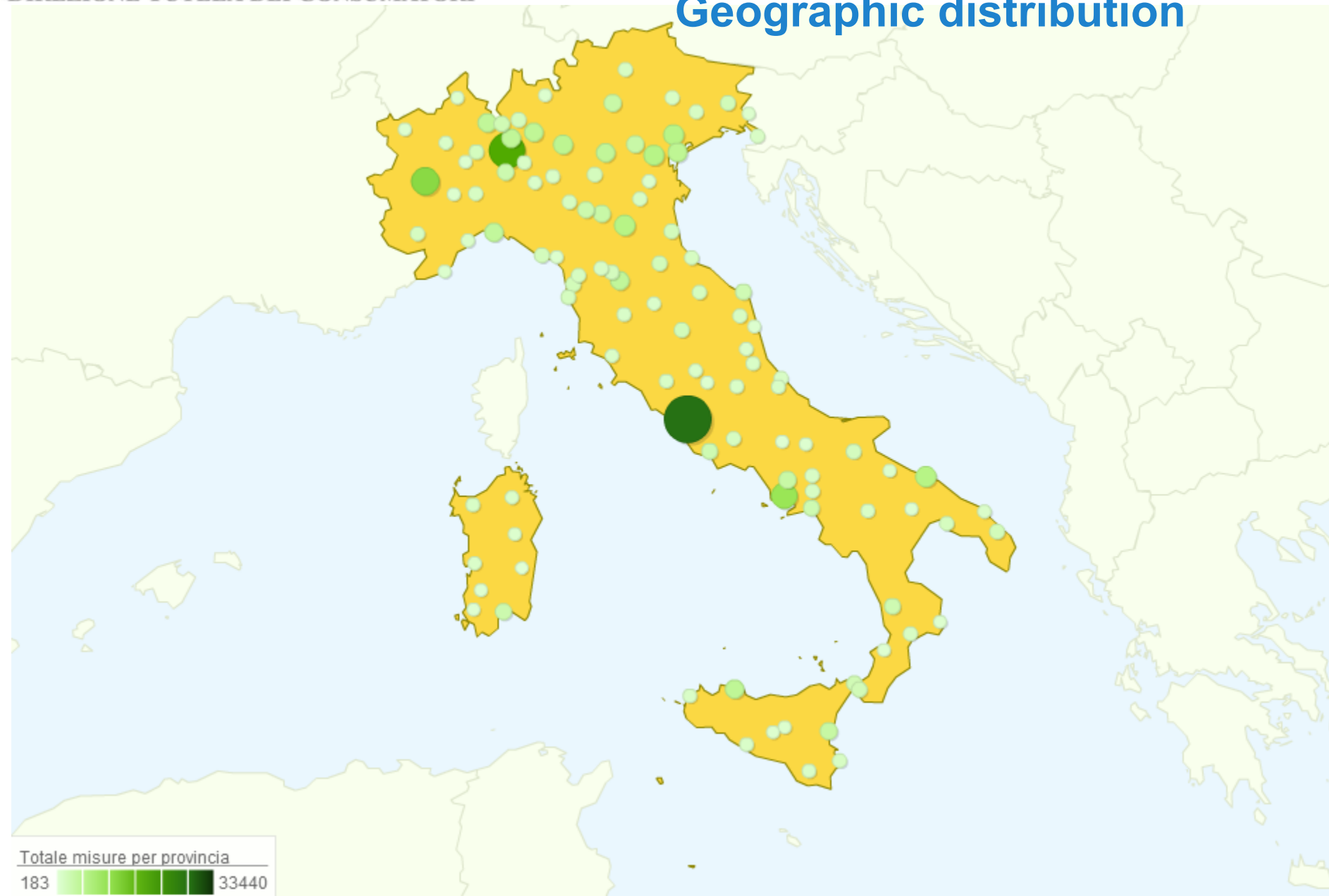
## Speed Test



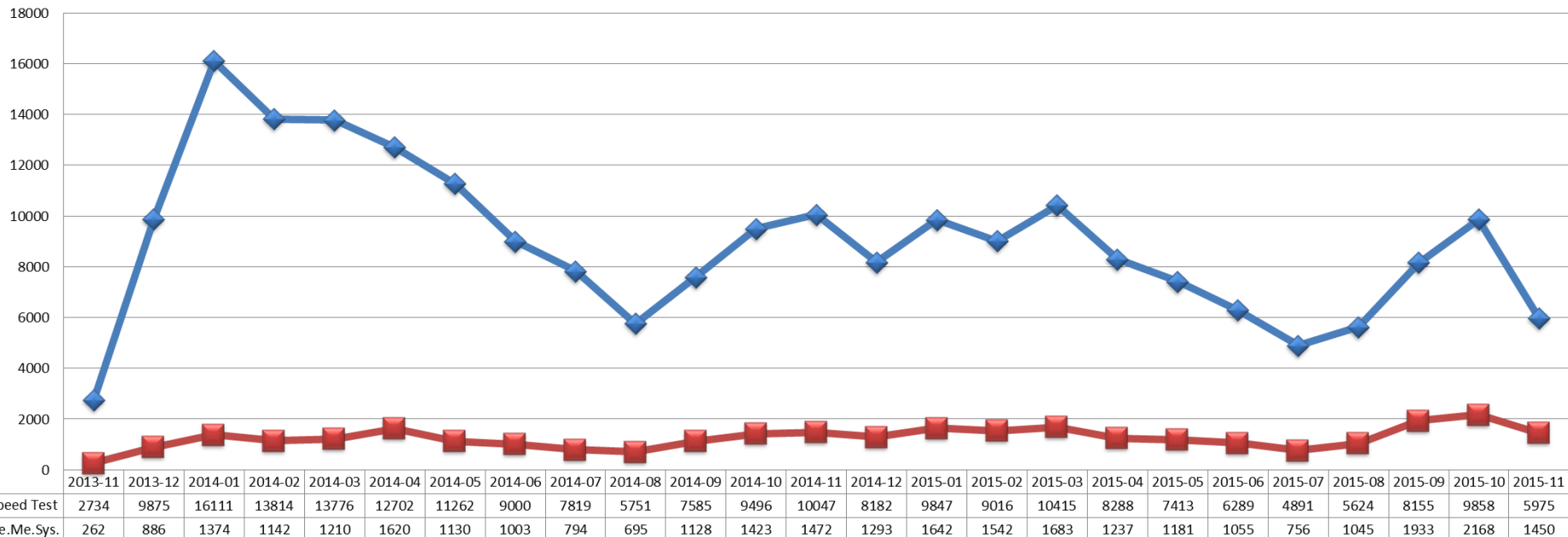
- Windows 7
- Windows XP
- Windows 8
- Mac OSX
- Windows Vista
- Linux
- Altro

- Windows 7
- Windows XP
- Windows 8
- Mac OSX
- unknown
- Linux
- Microsoft Windows 10 Home, 10.0.10240
- Microsoft Windows 10 Pro, 10.0.10240
- Windows Vista
- Altro

# MisuraInternet Speed Test Measures Geographic distribution



# Ne.Me.Sys. and MisuraInternet Speed Test Measures from November 2013 to November 2015



First reading of Regulation of the European Parliament and of the Council laying down measures concerning open internet access and amending Directive 2002/22/EC and Regulation (EU) No 531/2012.

Adopted by the Council on 1 October 2015 (2015/C 365/01)

#### **Article 4 Transparency measures for ensuring open internet access**

4. Any significant discrepancy, continuous or regularly recurring, between the actual performance of the internet access service regarding speed or other quality of service parameters and the performance indicated by the provider of internet access services in accordance with points (a) to (d) of paragraph 1 shall, where the relevant facts are established by a monitoring mechanism certified by the national regulatory authority, be deemed to constitute non-conformity of performance for the purposes of triggering the remedies available to the consumer in accordance with national law.

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015AG0014%2801%29&from=IT>

- Now the *data transmission speed* indicator is measured using the FTP protocol.
- In 2016 *data transmission speed* indicator will be measured using the HTTP protocol, as ETSI ES 202 765 – 4 standard suggests.
- The new measurement method allows to use the multi-session mechanism which saturates the available bandwidth even with high RTT and exploits the channel better than the single-session.
- Furthermore the *data transmission speed* parameter will be measured considering a constant analysis duration (10 seconds as ETSI standard suggests).
- Two values are relevant for data transmission speed metric (both for downloading and uploading):
  - the **average bit rate** during the analysis period of 10 seconds;
  - **95 quantile** - *In a practical way, this indicator is determined by taking into account all measurement results obtained for the metric and by determining the bit rate threshold corresponding to 95 % of the measurements.*





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AGCOM COMUNICAZIONI

DIREZIONE TUTELA DEI CONSUMATORI

**Thank you for your attention**

**Federico Flaviano**

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