

# Regulatory Framework and Technical Aspects of Broadband Access to the Internet in Europe

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- 1. Introduction
  - 2. Regulatory Framework in Europe
  - 3. Quality of Service Parameters in Recommendations
  - 4. The Tool "Measurement Lab"
  - 5. The Results Obtained
  - 6. Conclusion and Future Work

# 1. Introduction

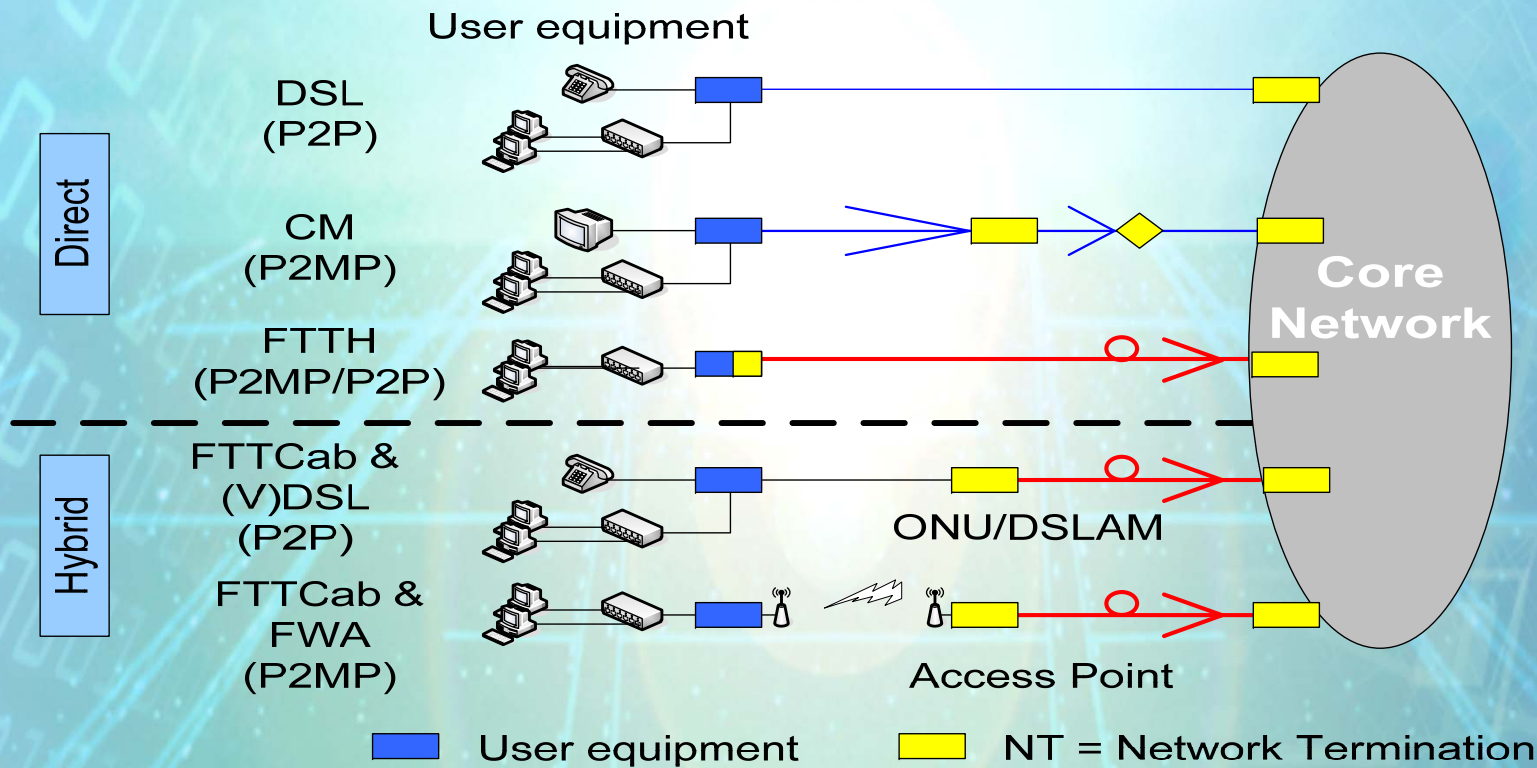
## Broadband Definition

- In Europe broadband access has yet to be defined. The European Commission has so far left it up to the individual member states.
- Poland: 2 Mbps is recommended for download and 1 Mbps for upload.  
(Recommendation by the Ministry for Infrastructure)
- Germany: 1024 kbps is the absolute minimum access rate for both upload and download.  
(Recommendation by the Federal Ministry for Economic Affairs and Technology)



# 1. Introduction

## Internet Access Solutions



## 2. Regulatory Framework in Europe

25<sup>th</sup> November 2009 the European Parliament and the European Council adopted the so-called Communications Package that includes:

**Directive 2009/140/EC** amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to and interconnection of electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services (Official Journal L 337/37)

Source:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:0069:PL:PDF>



## 2. Regulatory Framework in Europe

25<sup>th</sup> November 2009 the European Parliament and the European Council adopted the so-called Communications Package that includes:

**Directive 2009/136/EC** amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector, and Regulation (EC) No. 2006/2004 on cooperation between national regulatory authorities (NRAs) responsible for the enforcement of consumer protection laws (Official Journal L 337/11).

Source:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0011:0036:PL:PDF>

## 2. Regulatory Framework in Europe

With the project "*Digital Agenda for Europe*" of 30th June 2010 the European Commission launched a programme of public consultation on Network Neutrality and the Open Internet, including issues of quality of services (QoS).

Source:

[http://ec.europa.eu/information\\_society/policy/econom/library/public\\_consult/index\\_en.htm](http://ec.europa.eu/information_society/policy/econom/library/public_consult/index_en.htm)

In a press release 9th November 2010, the European Commission published the results of the consultations carried out during the period from 30th June to 30th October 2010.

Source:

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/1482&format=HTML&aged=0&quiLanguage=en>



## 2. Regulatory Framework in Europe

19th April 2011 the European Commission sent a communiqué to the European Parliament and the European Council detailing the principles of "Open Internet and Network Neutrality".

Source:

[http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/communications\\_reports/netneutrality/comm-9042011.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/communications_reports/netneutrality/comm-9042011.pdf)

The European Commission contracted BEREC (Body of European Regulators for Electronic Communications) with the investigation of the key issues influencing an open and neutral Internet.

The Expert Working Group EEC BEREC, composed of experts and representatives of various European Union regulators worked on the report "A Framework for Quality of Service in the scope of Net Neutrality".

## 2. Regulatory Framework in Europe

In preparation for future work BEREC prepared a questionnaire in December 2011 addressed separately to network operators and NRAs that manage Internet traffic along with the instructions on filling in the questionnaire.

Respondents could seek help in answering the questions by writing to the office of BEREC at [pm@berec.europa.eu](mailto:pm@berec.europa.eu).

Respondents' completed questionnaires were to be sent to NRAs by 20th January 2012.



## 2. Regulatory Framework in Europe

### State of play of EU Directives in Poland

- A draft based on the Act (regulation) has also been prepared for the transparent and effective implementation of the obligations stipulated under Article 63 of the Telecommunications Act.
- The President of the Office of Electronic Communications (UKE) has prepared a range of recommendations in line with Directive 2009/140/EC and Directive 2009/136/EC.  
*(For details see paper in proceedings of BCFIC.)*

Source:

[http://www.uke.gov.pl/uke/index.jsp?place=Lead01&news\\_cat\\_id=470&news\\_id=7181&layout=3&page=text](http://www.uke.gov.pl/uke/index.jsp?place=Lead01&news_cat_id=470&news_id=7181&layout=3&page=text)

## 2. Regulatory Framework in Europe

### State of play of EU Directives in Germany

- The Federal Network Agency BNetzA is one of the principal regulatory offices in Germany.
- BNetzA acts in line with the Telecommunications Act in Germany.
- In end effect, Section 67 (1) of the Act empowers the BNetzA to act as watchdog over other laws as well.
- BNetzA has already prepared many recommendations according to Directive 2009/140/EC and Directive 2009/136/EC.  
*(For details see paper in proceedings of BCFIC.)*
- The regulation has already come quite far in Poland, whereas Germany still has a lot of catching up to do.



### 3. Network and Service Parameters in Recommendations

#### ITU-T Recommendation G.1020

"Performance parameter definitions for quality of speech and other voice band applications utilizing IP networks"

Source:

<http://www.itu.int/itu-t/recommendations/index.aspx?ser=G>

#### ETSI Recommendation EG 202 057-4 V1.1.1

"Speech Processing, Transmission and Quality Aspects (STQ); User-related QoS parameter definitions and measurements; Part 4: Internet Access"

Source:

[http://www.etsi.org/deliver/etsi\\_eg/202000\\_202099/20205704/01.01.01\\_50/eg\\_20205704v010101m.pdf](http://www.etsi.org/deliver/etsi_eg/202000_202099/20205704/01.01.01_50/eg_20205704v010101m.pdf)

## 4. The Tool "Measurement Lab"

### Measurement Lab Tool Home Page

The screenshot shows a web browser window displaying the Measurement Lab Run NDT tool home page. The browser's address bar shows the URL <http://measurementlab.net/run-ndt>. The page features a navigation menu on the left with links for About, Who We Are, FAQ, Additional Resources, Data, Visualizations, Usage, Contact, Papers, presentations, and docs, and Server Sites. The main content area is titled "Run NDT" and contains the MLAB logo, a description of the Network Diagnostic Tool (NDT), and a "START TEST" button. The footer includes logos for various partners such as EETT, BitTorrent, PLANETLAB, amazon web services, Google, VICTORIA, Sam Knows, aarnet, INTERNET. QUOVA, ojcotech.com, and skype. A copyright notice at the bottom states: "Policy & Acceptable Use Policy. All original material on Measurement Lab by New America Foundation is licensed under a Creative Commons Attribution-Noncommercial-Share Alike license." The browser's taskbar at the bottom shows several open applications, including Posteingang - Micr..., Run NDT | M-Lab, BCFC\_2012\_UHL [K..., and BBzugang\_Wilno [K...]



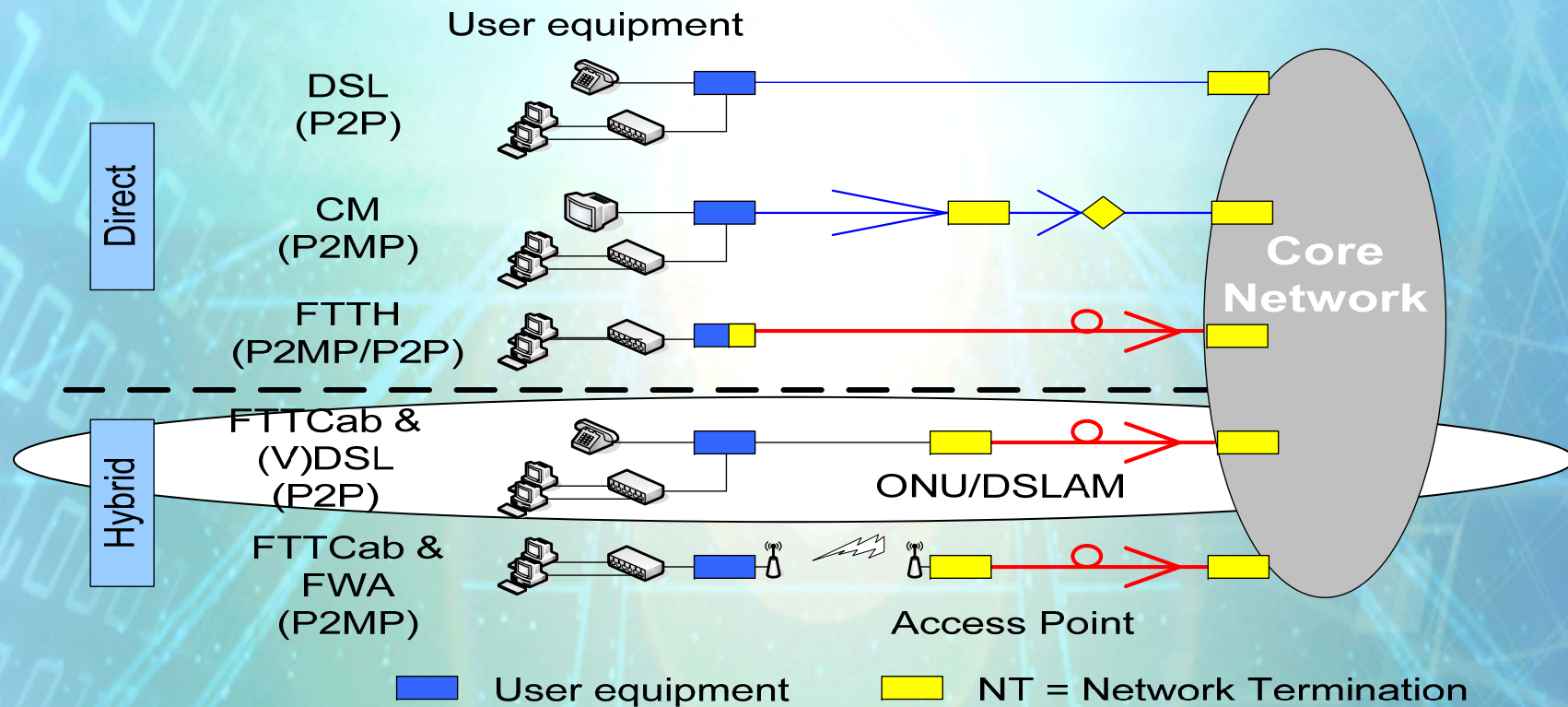
## 4. The Tool "Measurement Lab"

### Possibility Tests

- Network Diagnostic Tool (NDT) - *diagnosis of problems limiting speed*
- Glasnost Test - *testing of application blocking / throttling*
- Network Path and Application Diagnostics (NPAD) - *diagnosis of last-mile problems*
- Pathload2 - *connection bandwidth testing*
- ShaperProbe - *traffic shaping checking*
- BISmark Gateway - *testing Internet connectivity over time*
- WindRider - *checking application / service differentiation*
- SideStream - *collecting statistics about the TCP connections on the M-Lab platform*
- Neubot - *periodic tests to measure network performance*

## 4. The Tool "Measurement Lab"

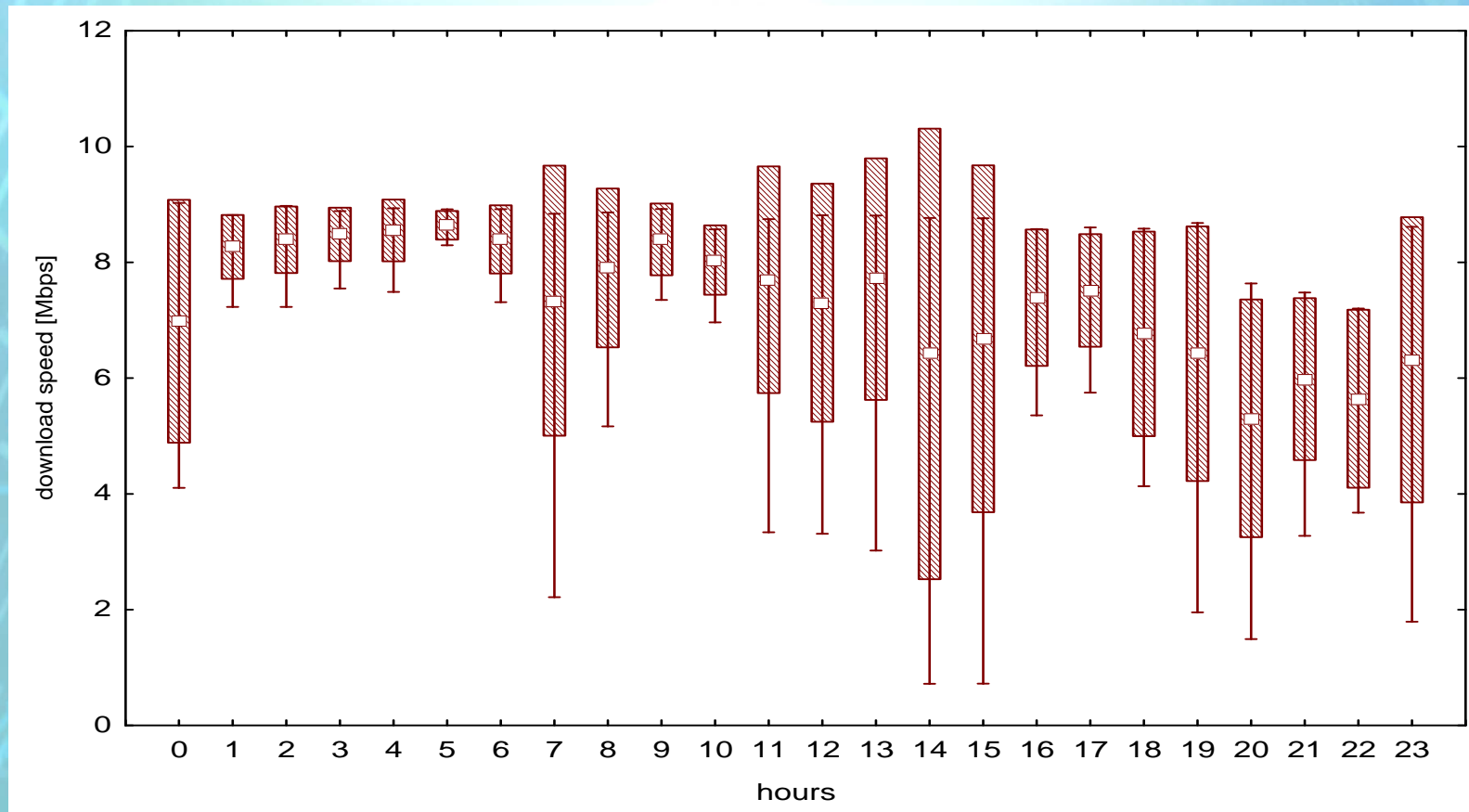
### The Real Environment Used





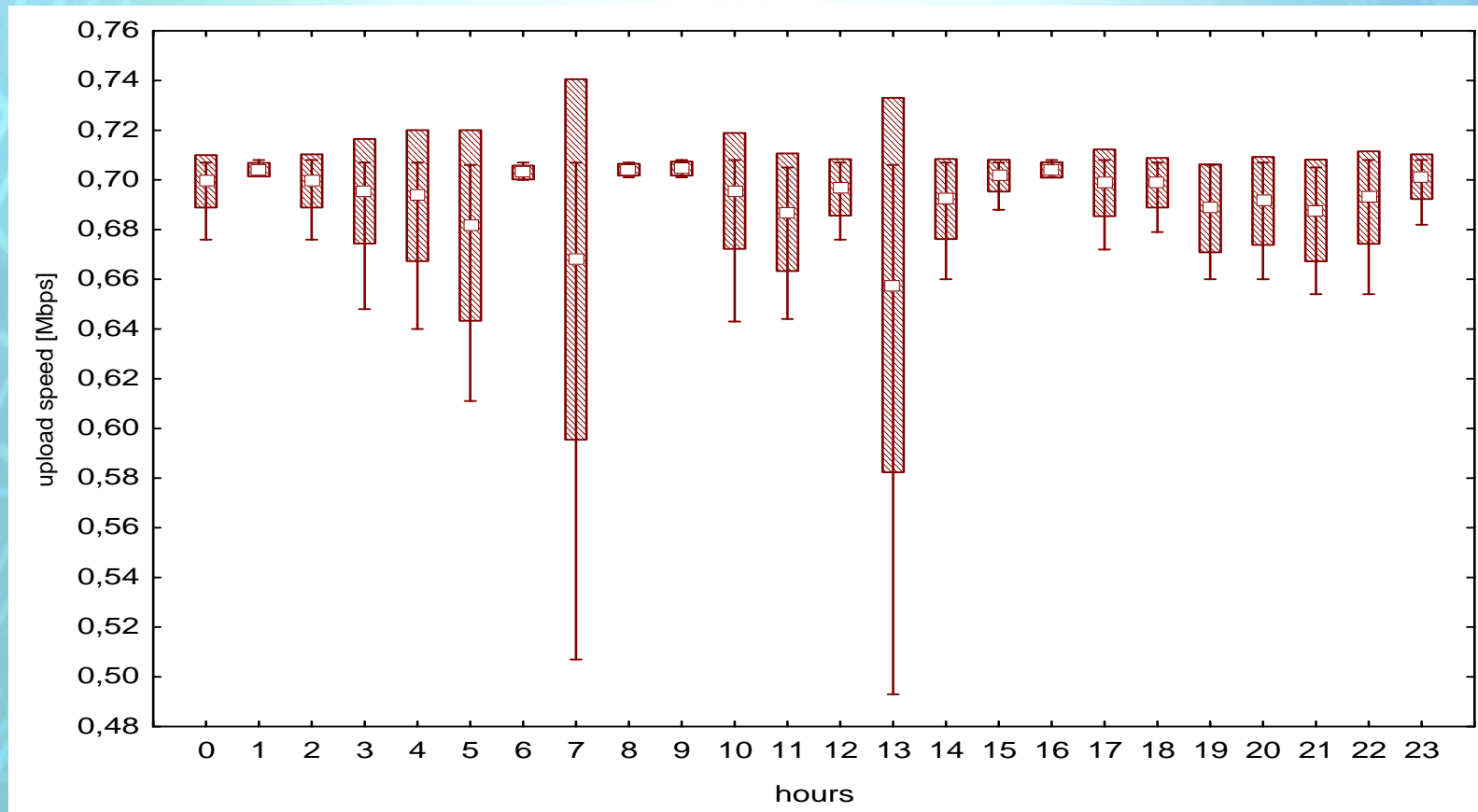
## 4. The Tool "Measurement Lab"

### The Results Obtained



## 4. The Tool "Measurement Lab"

### The Results Obtained





## 4. The Tool "Measurement Lab"

### Strengths of the Measurement Lab

- Open platform, useful for any interested user.
- Easy access from any PC with an Internet connection.
- Unlimited access to all data stored in the MLab system.
- Selection of several languages for the user overlay.
- Allows for coordination between participating countries, so avoiding duplication of measurements.
- Some tests are recognised by the NRAs as standard procedures for measuring network parameters. This can only enhance the attractiveness of the MLab tool.

## 4. The Tool "Measurement Lab"

### Weaknesses of the Measurement Lab

- The configuration of the user's PC can affect measurement results.
- No guarantee for the successful completion of tests.
- Additional applications often have to be installed before the tests will run.
- Low stability and lack of reproducibility of measurement results. The geographical location of system servers can severely affect results.
- Frequent chaotic representations of intermediate results.
- Far too few servers throughout the world.



## 5. Conclusion and future works

- Latest information about transparency and neutrality of telecommunications networks and services in Europe has been a main topic of this presentation.
- The most important impairment parameters in digital networks and digital services were discussed in the light of the latest recommendations of the ITU-T and the ETSI.
- Open measuring system MLab and its functionality were described in detail.
- Since the system is an open platform, researchers and engineers should feel motivated to use it habitually and effectively.
- Problems with the certified (accepted by ISPs) measurement tools for clients to determine actual quality of service

*Work has already begun in this direction.*

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Thank you for your attention!

