Contribution to WTIM-12 session

SOURCE: Autoridade Nacional de Comunicações (ANACOM), Portugal

TITLE: Measuring fixed and mobile internet data traffic
Measuring fixed and mobile internet data traffic

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Introduction

- Capital city: Lisbon
- Total Area: 92,090 sq km
- Population: 10.6 millions inhabitants
- GDP: €170.9 Million (2011)
- Language: Portuguese

ANACOM (www.anacom.pt) is the regulator, supervisor and representative of the communications sector in Portugal.

Introduction

- High penetration of mobile phones
- Fixed Broadband penetration of 21.6 per 100 inhabitants
- Mobile BB penetration of 27.5 per 100 inhabitants
- Pay-TV services penetration of 72.2 per 100 HH
- 38 % HH have, at least, 4 different communications services
- Triple-play penetration of 38 per 100 HH
- Double-play penetration of 15 per 100 HH

Source: ANACOM, European Commission
Why measure data traffic?

Growing levels of connectivity, new devices, applications and services lead to an increase in data traffic. This increase is due to:

- Number of broadband connections no longer enough to monitor Internet usage
- Traffic figures are of key importance to monitor usage
- EU (2011), started collecting data traffic

Indicators collected by ANACOM

**Questionnaires**

- **Fixed Services Questionnaire**
  - Quarterly
  - Answered by all ISPs

- **Mobile Services Questionnaire**
  - Quarterly
  - Answered by all Mobile Operators and MVNOs

**Indicators**

- **Fixed broadband traffic**
  - Dial-up traffic (until 2008)
  - Broadband internet traffic, GB (since 2Q2008)

- **Mobile broadband traffic**
  - MB and Number of sessions (since 2007)
    - Internet
    - WAP
    - Corporate services
  - MB and Number of sessions (since 2010)
    - Internet via datacards/modem
    - Mobile TV

Data dissemination:

http://www.anacom.pt/render.jsp?categoryId=277884#horizontalMenuArea
Indicators collected by ANACOM

Fixed Broadband

**Fixed Broadband Internet**

**Indicator 4.3 - Traffic volume of the broadband internet access service (in GB).**

*Definition:* Traffic volume of the broadband internet access service (upload and download), in a fixed location, measured in GB. Includes all traffic generated by all fixed broadband internet customers of the ISP (collected quarterly).

*Includes:* Traffic from residential and non-residential customers.

*Exclusions:* IPTV/Cable digital/Cable hybrid VoD, other broadband traffic than internet.

*Questionnaire:* Electronic communications services at a fixed location and of nomadic VoIP services [available at http://www.anacom.pt/render.jsp?categoryId=340660#horizontalMenuArea](http://www.anacom.pt/render.jsp?categoryId=340660#horizontalMenuArea)

*Source:* ISPs

Problems faced by operators:

1. IPTV traffic
2. Internet access bundled with IT services (storage, data warehouse, etc.);
3. Leased line traffic – operators do not measure the real traffic routed through a leased line.

Mobile Broadband

**Mobile Broadband Internet**

*Traffic indicators:*

Packet-Switched (PS) traffic of the 3G network and equivalent standards (in MB and number of sessions):

**B.6.1 Internet – broadband traffic volume with origin in a 3G networks, upgrades, evolutions (IMT-2000).**

*Definition:* It includes, among others, the following standards: UMTS, HSPA, WCDMA, CDMA2000, 1xEV-DO Rev B, TDCDMA, TDMA/FDMA, Wi-MAX, etc. – measured in megabytes (MB)/number of sessions.

*In the cases of UMTS/HSPA it includes the PS traffic volume with origin in the network, related to the APN (Packet Data Protocol) volume sessions to access the APN Internet, measured in MB. Given the technical difficulties raised by the operators, should be counted in this indicator, the traffic above mentioned regardless of network used (above 256 Kbps).*

**B.6.1 p - of which internet connection via cards / modems – broadband internet traffic with specific connection by USB/modem**


*Source:* MNOs and MVNOs
Indicators collected by ANACOM

Mobile Broadband

Mobile Broadband Internet

D.6.3 Internet traffic in roaming-out - broadband traffic volume (with origin in a foreign provider by a customer of a national provider, while outside of Portugal) with origin in a 3G networks, upgrades, evolutions or equivalent standards (IMT-2000)

Definitions: It includes, among others, the following standards: UMTS, HSPA, WCDMA, CDMA2000, 1xEV-DO Rev B, TD-CDMA, TDMA, FDMA/TDMA, Wi-MAX, etc.... – measured in megabytes (MB)/number of sessions.

In the cases of UMTS/HSPA it includes the PS traffic volume with origin in the network, related to the PDP (Packet Data Protocol) volume sessions to access the APN Internet, measured in MB. Given the technical difficulties raised by the operators, should be counted in this indicator, the traffic above mentioned regardless of network used.

Questionnaire: Mobile Services Questionnaire (available at http://www.anacom.pt/render.jsp?contentId=963861)

Source: MNOs and MVNOs

Other Mobile Broadband Traffic indicators

- Indicators B.6.4. – Corporate Services (MB)
- Indicators B.6.5 – Mobile TV
- Indicators B.4. - Number of videocalls and number of minutes of videocalls

Broadband traffic in Portugal

Strong growth in Broadband internet traffic in recent years

- Fixed BB internet traffic has increased almost 5 times over the past 4 years
- Mobile broadband represents 4 per cent of Total Internet traffic
- Mobile Internet traffic with specific connection by USB/modem represents 93% of total mobile BB internet traffic.

Source: ICP-ANACOM
**Fixed Broadband Internet Traffic in Portugal – Time Series Analysis**

- **Average increase of 11,508 TB per quarter**
- **Seasonality effect (most prominently from 2010): 3Q registers a more significant and negative seasonal effect**

Linear regression model with a linear time trend and a multiplicative seasonal adjustment since 2010. Seasonal index: T1 = 1.02; T2 = 0.98; T3 = 0.92; T4 = 1.05. Adjusted R squared = 0.985 and Root Mean Squared Error (RMSE) = 4,037 TB

Source: ICP-ANACOM

**Avg Internet Traffic per Month, per User**

- **Average fixed Internet data volumes very different from mobile**
- **During the 2Q2012 data volume per fixed broadband user was on average 34 GB/month**
- **Mobile broadband users generated on average 1.1 GB traffic/month**
- **Fixed broadband average data volume per user increased almost 3 times over the past 4 years**
- **Mobile Internet USB/modem users generated on average 2.7 GB/month**

Source: ICP-ANACOM
**Recommendations**

Based on ANACOM’s experience:

- Traffic indicator for broadband internet only
  All BB services are difficult to measure – operator are not able to measure all data traffic.
  The wider our definition becomes more difficult to obtain reliable indicators.
- Separate indicator for Mobile vs Fixed internet
- Internet Mobile traffic via data cards vs via handsets

- Indicators need to be **clearly defined**, with clear and transparent definitions.

- To guarantee data comparability, in order to have benchmarks
  - harmonised criteria and definitions
  - collected in the same period

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**Mobile Broadband Internet Traffic:**

Mobile broadband internet traffic is 3.5X higher via datacards/modem.

**MB per session**

- Mobile Internet (MB)
- Mobile internet via datacards/modem (MB)

SOURCE: ICP-ANACOM
Thank You.

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