

Methodological note on the indicator “Fixed-broadband Internet traffic”

ITU collects data on “Fixed-broadband Internet traffic” since 2013. The indicator was defined by the Expert Group on Telecommunication / ICT Indicators (EGTI) and the methodology for its data collection was agreed at the 3rd EGTI Meeting, which took place in Bangkok, Thailand, on 23-24 September 2012. This indicator is collected from telecommunication operators by national regulatory authorities and ministries.

Following the request for more details on the method of collection of this indicator, this note outlines the main methodological approaches that operators can follow to collect and report these data. The aim of this note is not to restrict operators’ methodological choices when collecting these data, but rather to propose some methods that can guide data collection efforts in those cases in which operators have been unable to report “Fixed-broadband Internet traffic” so far.

1- ITU definition

“Fixed-broadband Internet traffic (exabytes) refers to traffic generated by fixed-broadband subscribers measured at the end-user access point. It should be measured adding up download and upload traffic. This should exclude wholesale traffic, walled garden, IPTV and cable TV traffic.”

2- Method of collection

- a- Fixed-broadband operators are asked to report the Internet traffic consumed by their customers within the given reference year. Operators should exclude IPTV/CATV traffic and walled-garden (including zero-rated) traffic. In case the exclusion of walled-garden traffic from the data reported is not possible, data should be reported with a note specifying “Incl. walled-garden traffic”.
- b- In order to obtain a precise measurement of retail traffic, it is suggested that operators report the traffic based on measurements as close as possible to the end-user access point.
- c- A majority of fixed-broadband operators maintain Internet access log records or IP detail records (IPDRs) which can be used as a source to compile the total fixed Internet traffic. Internet access log records or IPDRs contain a registry of each data access and the amount of data consumed (Table 1). This information can be aggregated per year and country to produce the figure to be reported for the indicator “Fixed-broadband Internet traffic”. If data from Internet access log records or IPDRs

are stored for periods shorter than a year (e.g. for legal reasons), then aggregated data volumes for each period should be stored and added up to those of the subsequent months to obtain the total for the year.

Table 1: Example of Internet access log record

ID	TYPE_COMMERCIAL_PRIVATE	TYPE_TECHNOLOGY	TYPE_SPEED	TYPE_IP_ACCESS	LAU3_CODE	DATETIME	DURATION	DATA_VOLUME
50000001	1	1	1	1	636732	1460590789	21021	48901920
50000001	1	1	1	1	636732	1460624755	19544	38274208
50000001	1	1	1	2	636732	1460667621	52585	98281200
50000002	1	1	2	2	736283	1463600670	37146	72996000
50000002	1	1	2	2	736283	1463655957	6527	12933000
50000002	1	1	2	2	736283	1463670975	78445	15291000
50000003	1	1	3	1	226398	1463201560	30617	60794000
50000003	1	1	3	1	226398	1463256930	43324	86388000
50000003	1	1	3	2	226398	1463302871	60706	121416000
50000004	1	1	4	2	109399	1460986631	72621	145248000
50000004	1	1	4	1	109399	1461087020	62676	125436000
50000004	1	1	4	2	109399	1461150692	1057	21156000
50000005	1	2	1	2	860843	1463270886	76957	153912000
50000005	1	2	1	1	860843	1463380473	39007	78014000
50000005	1	2	1	1	860843	1463436321	29605	59210000
50000006	1	2	2	1	448844	1460148452	61626	123264000
50000006	1	2	2	1	448844	1460249825	8365	16734000
50000006	1	2	2	2	448844	1460271473	4632	9264000

Source: ITU Big Data for Measuring the Information Society: Country Report – United Arab Emirates.

- d- Even if a registry of Internet access at the end-user access point were not available, fixed-broadband operators should be in a position to produce an estimate of the retail Internet traffic in their networks. Indeed, this information is estimated and predicted for network management and dimensioning purposes. This is one of the core areas of expertise of network operators, so at least facilities-based operators should be able to report an estimate for retail “Fixed-broadband Internet traffic” in their network. Even if data are only reported by facilities-based operators for their retail customers, this should be a good approximation of the total given that facilities-based operators probably concentrate most of the retail traffic. In that case, data should be reported with a note specifying “Facilities-based operators only. Estimate.”
- e- If it is not possible to produce an estimate based on operators’ measurements of retail Internet traffic, fixed-broadband Internet traffic could be estimated based on the volume of traffic exchanged with wholesale service providers. For instance, based on measurements at Internet interconnection points (Table 2). The portion of Internet traffic that stays on-net should be taken into consideration. Data should be reported with a note specifying the method used for the estimation.

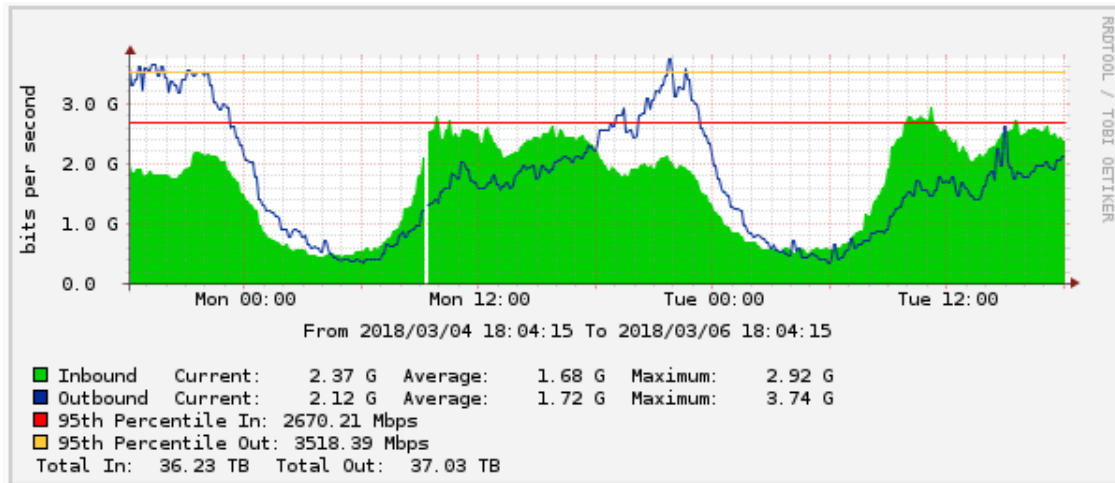
Table 2: Extract from database records used to measure traffic at Internet interconnection points for dimensioning purposes

Nodeid	Ip Address	Operador	Downstream/Upstream traffic	Date	Daily traffic volume	Value 8 20	Max day
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.01	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.01	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.02	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.02	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.03	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.03	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.04	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.04	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.05	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.05	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.06	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.06	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.07	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.07	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.08	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.08	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.09	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.09	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.10	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.10	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.11	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.11	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCOctets	17.10.12	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX
XXXX	XX.XX.X.XX	XXX	ifHCInOctets	17.10.12	XXXXXXXXXX.XX	XXXXXXXXXX.XX	XXXX.XX

Source: Autoridade Nacional de Comunicações (ANACOM), Portugal.

- f- Another option is to estimate fixed-broadband Internet traffic based on the average load of the channels at the wholesale level (e.g. peering, transit). In this case, fixed-broadband internet traffic would be estimated as the sum of the average upload and download speeds multiplied by corresponding time period of that average (Figure 1). The portion of Internet traffic that stays on-net should be taken into consideration. Data should be reported with a note specifying the method used for the estimation.

Figure 1: Example of a network monitoring tool used to estimate the average load of the international Internet channels



Source: Autoridade Nacional de Comunicações (ANACOM), Portugal.

Figure 2 summarizes the different options that operators have to report data on fixed-broadband Internet traffic.

Figure 2: Decision tree for the data collection of fixed-broadband Internet traffic

