（Draft）

Attached sheet

Aggregation Results of Traffic on the Internet in Japan (for November 2024)

MM DD, 2025

Telecommunications Business Department, Data Communications Division

Telecommunications Bureau, Ministry of Internal Affairs and Communications

1. Types of aggregate traffic(*1)

(Related to fixed broadband services)

B Traffic to be exchanged

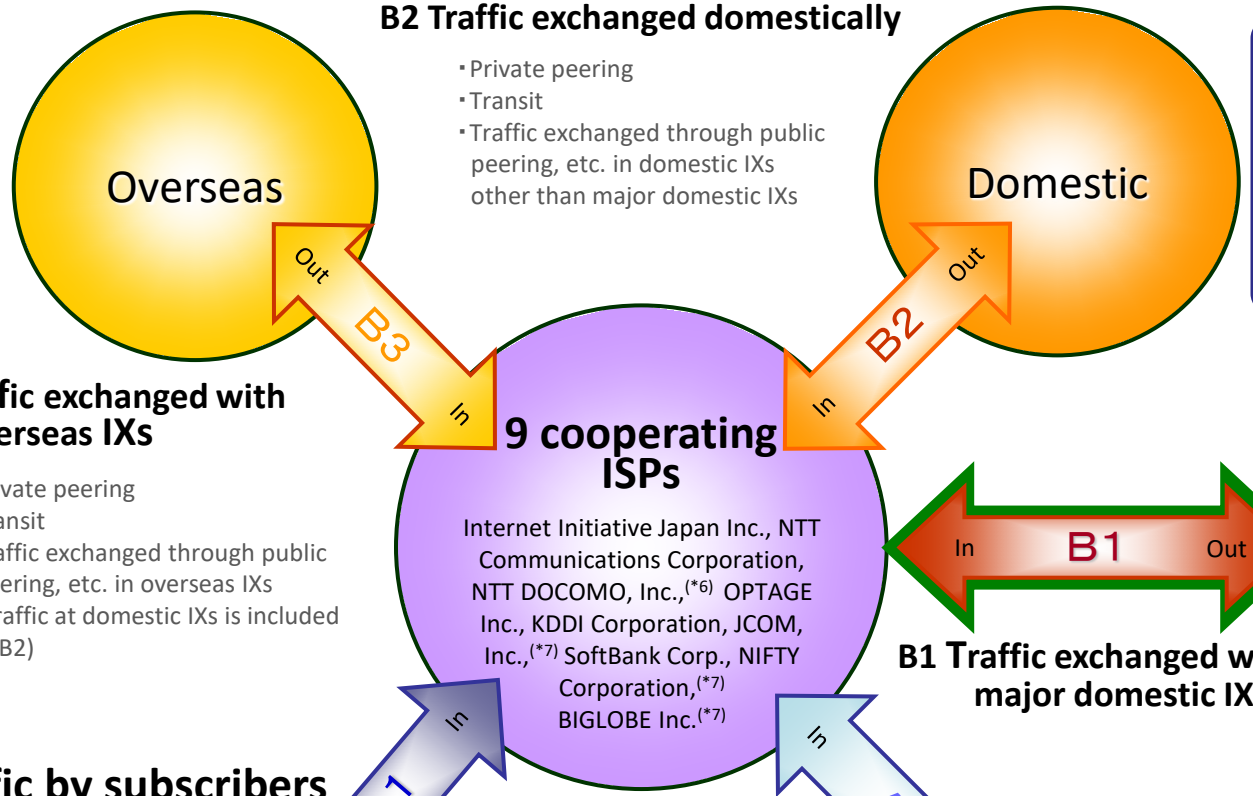
B2 Traffic exchanged domestically

- Private peering
- Transit
- Traffic exchanged through public peering, etc. in domestic IXs other than major domestic IXs

Method of estimating traffic (download and upload) of fixed broadband service subscribers

$$\text{Estimate} = \frac{\text{Traffic of fixed broadband service subscribers of 9 cooperating ISPs [A1]}}{\text{Traffic of fixed broadband service subscribers of 9 cooperating ISPs [X]}}$$

[X] = 56.2% (estimates as of November 2024)



B3 Traffic exchanged with overseas IXs

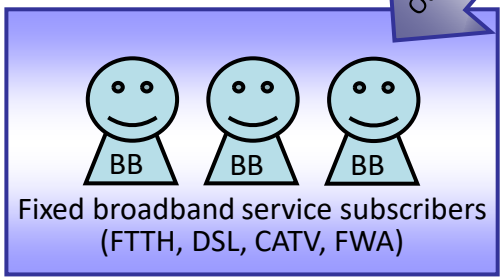
- Private peering
- Transit
- Traffic exchanged through public peering, etc. in overseas IXs (traffic at domestic IXs is included in B2)

B1 Traffic exchanged with major domestic IXs

C Traffic in domestic major IXs

Operated individually by Internet Multifeed Co., Equinix Japan K.K., JPIX Co., Ltd., BBIX, Inc., and WIDE Project

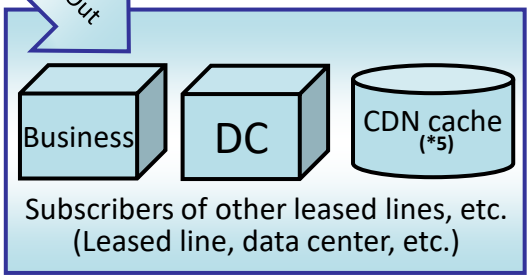
A Traffic by subscribers



A1 Traffic of fixed broadband internet service(*2) subscribers(*3)

Note: The following traffic is included:

- Part of the traffic of some ISPs for public wireless LAN services
- Part of the traffic of femtocell services of some mobile communications operators



A2 Traffic of subscribers of other leased lines(*4)

Note: The following traffic is included:

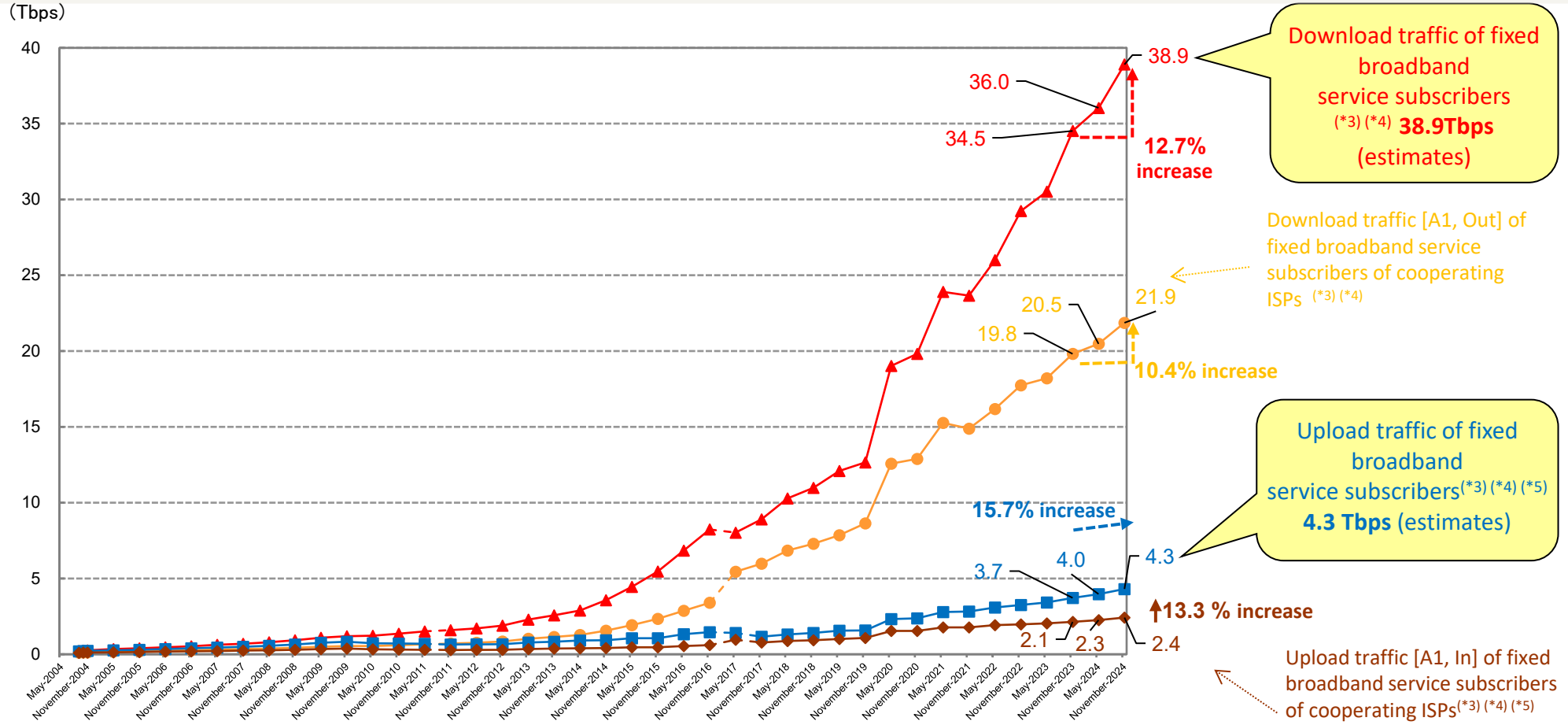
- Data centers of cooperating ISPs, CDN cache, and other internal traffic

(*1) Measured and aggregated in two-hour units over one month, and the average traffic per second was calculated. (*2) Fixed broadband services for individuals (FTTH, DSL, CATV and FWA). (*3) Including some corporate subscribers. (*4) Only this data was collected from four ISPs. (*5) Data temporarily stored (cached) by a service that provides a CDN (Content Delivery Network: A network to efficiently deliver content to users). (*6) Data on traffic and the number of subscriptions for the former NTT Resonant Inc. and the former NTT Plala Inc. is used. Note that data on traffic and the number of subscriptions for the former NTT Plala Inc. was added from May 2017 (*7) Added to the list of cooperating ISPs in May 2017.

2. Traffic of fixed broadband service subscribers in Japan (estimates)

○ **Download traffic** (estimated from **[A1, Out]**) of fixed broadband service(*1) subscribers(*2) in Japan in November 2024 was about 38.9 Tbps (400.7 petabytes per day, an increase of 12.7% from the volume of the same month last year).

○ **Upload traffic** (estimated from **[A1, In]**) was about 4.3 Tbps (44.4 petabytes per day, an increase of 15.7% from the volume of the same month last year).



(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)

(*2) Including some corporate subscribers

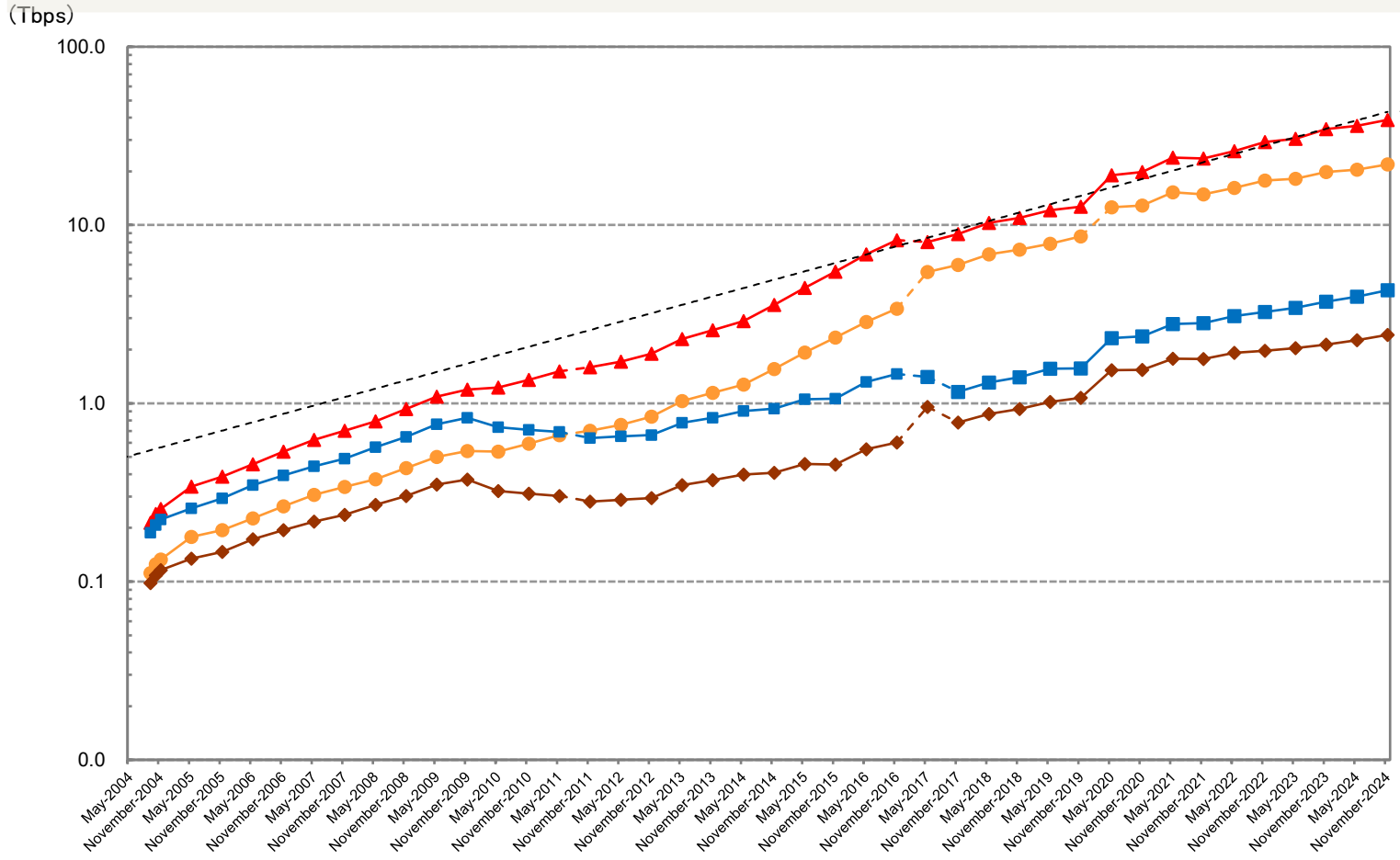
(*3) Before May 2011, part of mobile communication traffic to and from cell phone networks was included in the traffic between certain cooperating ISPs and broadband service subscribers, but since it became possible to differentiate this traffic, it has been excluded from aggregation and estimation since November 2011

(*4) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs

(*5) Discontinuations have occurred due to a change in measurement methods by some cooperating ISPs during the period from May to November 2017

(Reference) Traffic of fixed broadband service subscribers in Japan (estimates) (semi-logarithmic axis graph)

○ The traffic (estimated from **[A1]**) of fixed broadband service subscribers in Japan is shown in a semi-logarithmic axis graph.
○ In the semi-logarithmic axis graph, the slope represents the rate of increase. It becomes a straight line if the rate of increase is constant.



Download traffic of fixed broadband service subscribers (*3) (*4)
38.9 Tbps (estimates)

Download traffic [A1, Out] of fixed broadband service subscribers of cooperating ISPs(*3) (*4)

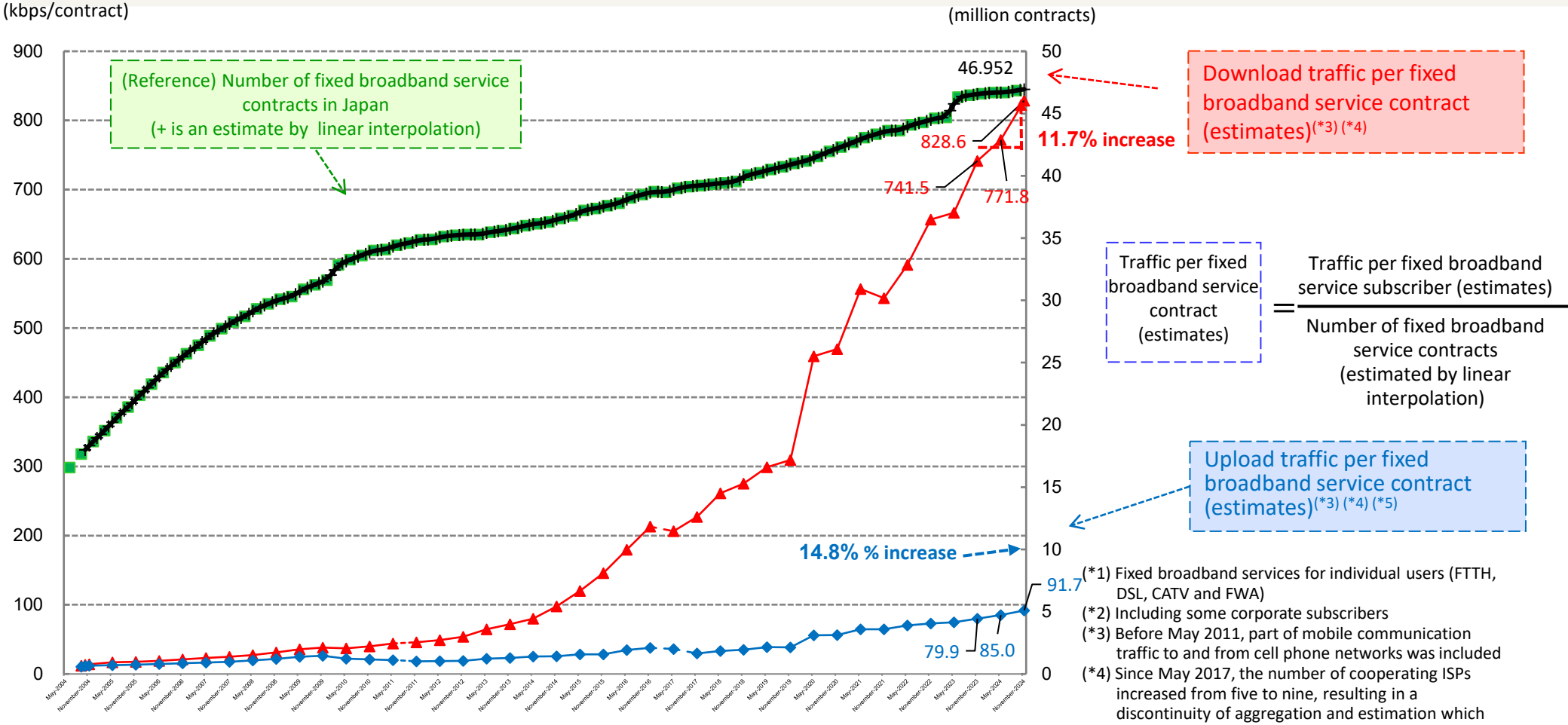
Upload traffic of fixed broadband service subscribers (*3) (*4) (*5)
4.3 Tbps (estimates)

Upload traffic [A1, In] of fixed broadband service subscribers of cooperating ISPs(*3) (*4) (*5)

(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)
(*2) Including some corporate subscribers
(*3) Before May 2011, part of mobile communication traffic to and from cell phone networks was included in the traffic between certain cooperating ISPs and broadband service subscribers, but since it becaume possible to differentiate this traffic, it has been excluded from aggregation and estimation since November 2011
(*4) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs
(*5) Discontinuations have occurred due to a change in measurement methods by some cooperating ISPs during the period from May to November 2017

3. Changes in traffic per contract (estimates)

- **Download traffic** per fixed broadband service(*1) subscribers(*2) in Japan (estimated from **[A1, Out]**) was approximately 828.6 kbps (259.8 GB per month, an increase of 11.7 % from the volume of the same month last year).
- **Upload traffic** per contract (estimated from **[A1, In]**) was approximately 91.7 kbps (28.8 GB per month, an increase of 14.8% from the volume of the same month last year).



Plotted based on "Announcement of Quarterly Data on the Number of Telecommunications Service Contracts and Market Share (FY 2025 Q2 (End of September)) (Ministry of Internal Affairs and Communications Press Release dated December 27, 2024)"
（https://www.soumu.go.jp/menu_news/s-news/01kiban04_02000250.html）

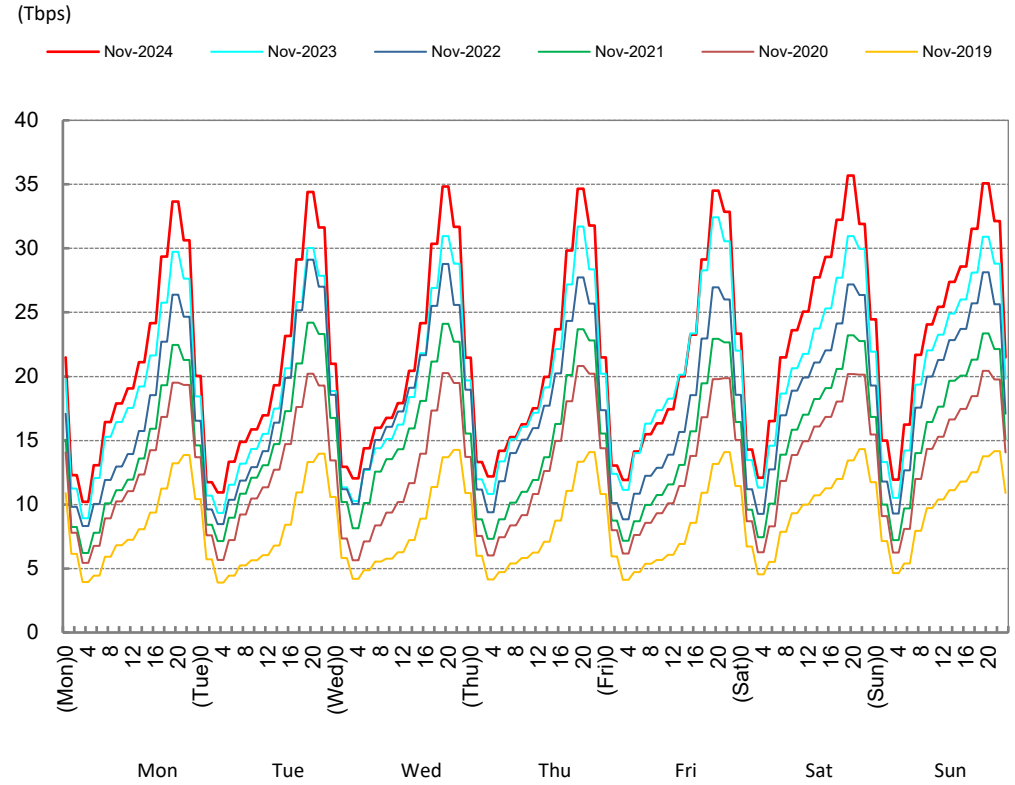
(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)
(*2) Including some corporate subscribers
(*3) Before May 2011, part of mobile communication traffic to and from cell phone networks was included
(*4) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in a discontinuity of aggregation and estimation which are based on information from the ISPs
(*5) Discontinuations have occurred due to a change in measurement methods by some cooperating ISPs during the period from May to November 2017

4. Changes in traffic by day of the week/time of day

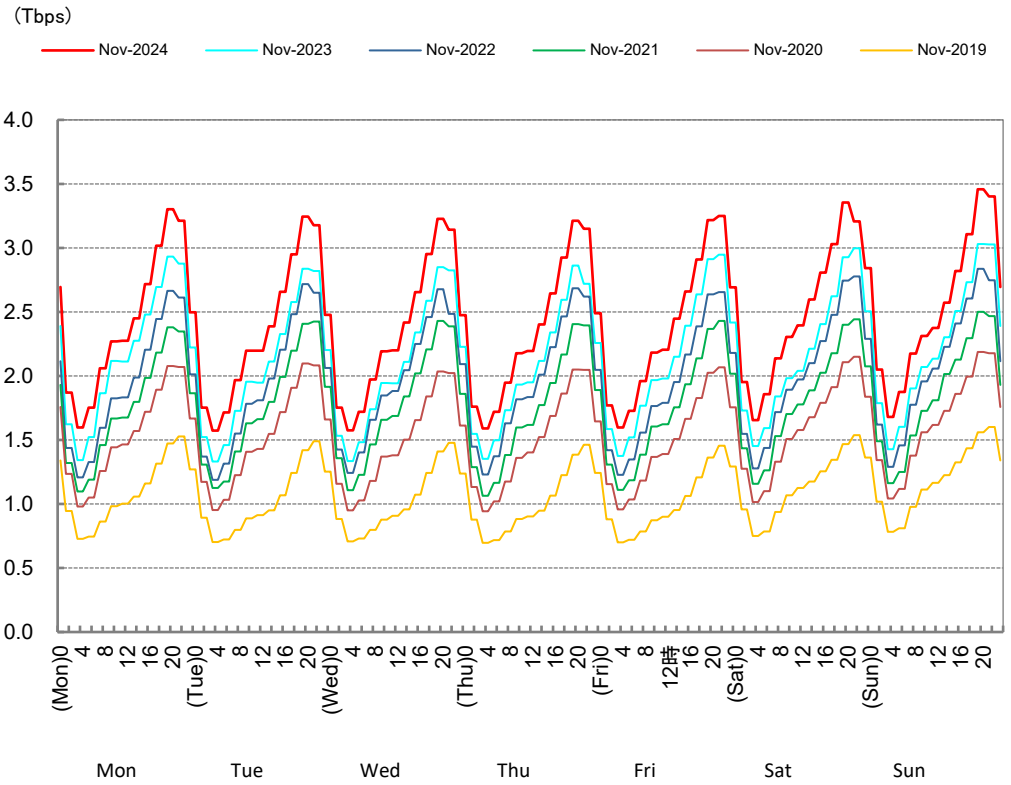
○ Regarding the traffic **[A1]** by day of the week and time of day (aggregated every two hours) of fixed broadband service(*1) subscribers(*2) of cooperating ISPs, both download and upload peaks in the course of a week occurred between 7pm and 9pm. Peak traffic (download) increased by 15.3% on weekdays and 7.4% on weekends from the volume of the same month last year.

Changes in traffic by day of the week/time of day for fixed broadband service subscribers of cooperating ISPs (compared to the past five years)

Download



Upload

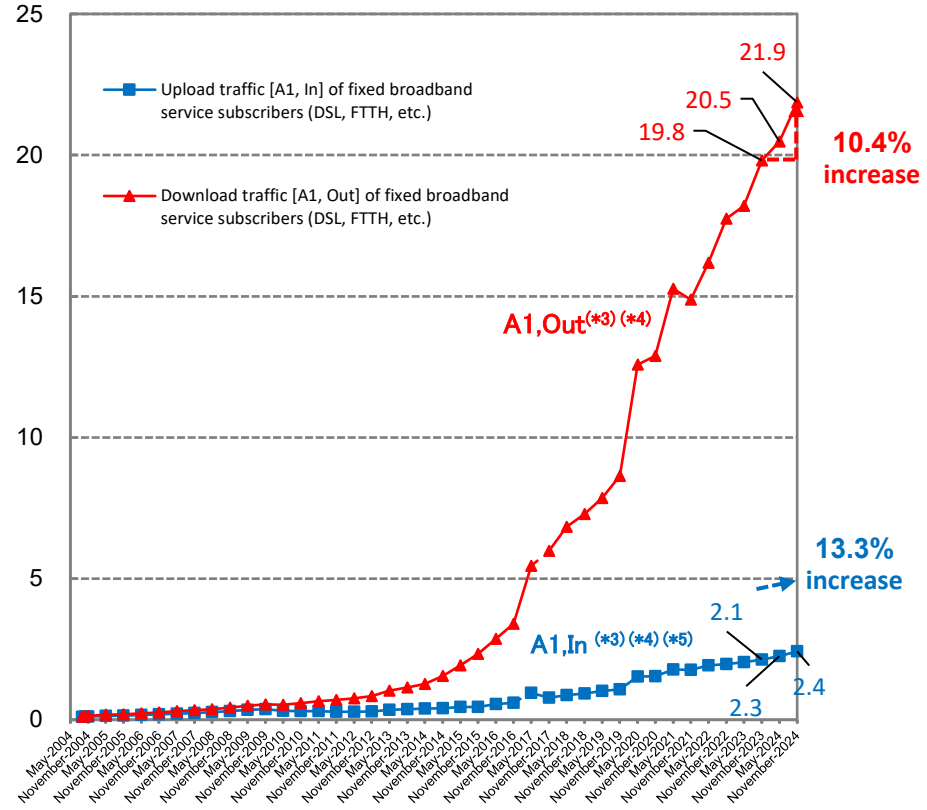


(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)
(*2) Including some corporate subscribers

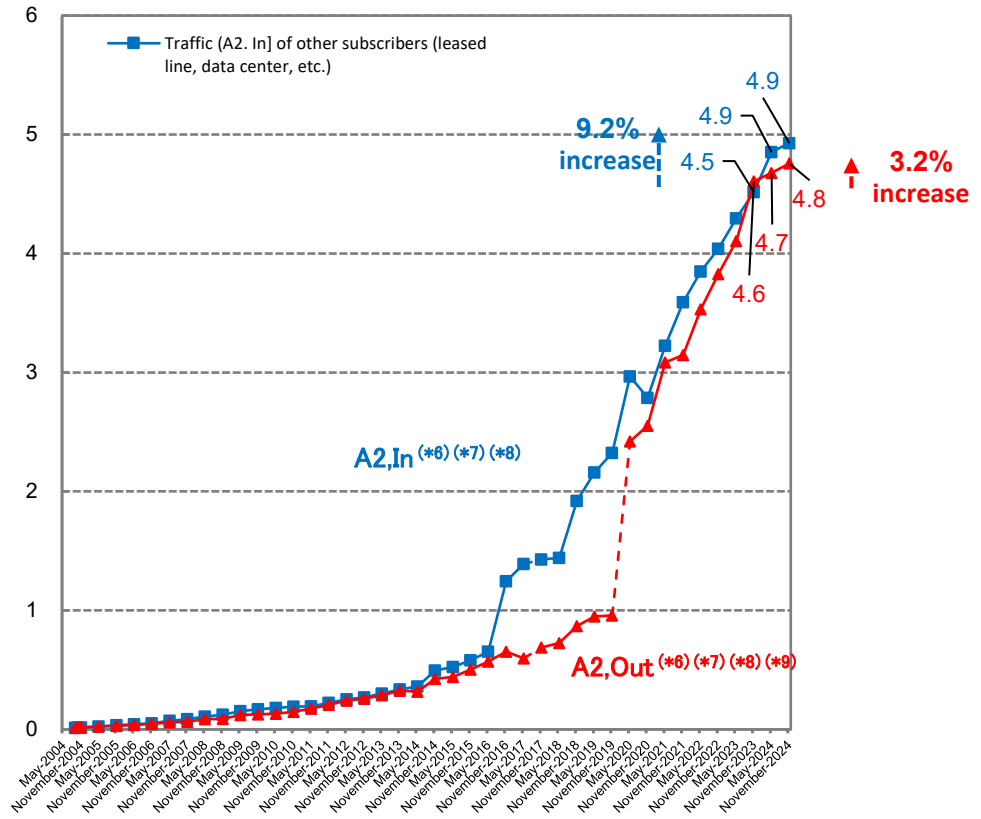
5. Traffic of fixed broadband service subscribers of cooperating ISPs

- Regarding the traffic of fixed broadband service(*1) subscribers(*2) of cooperating ISPs, **download [A1, Out]**, and **upload [A1, In]** increased by 10.4% and 13.3%, respectively, from the volume of the same month last year.
- **Outflow [A2, Out]** and **inflow [A2, In]** of traffic from other leased line subscribers of cooperating ISPs increased by 3.2% and 9.2%, respectively.

(Tbps) **Changes in traffic of fixed broadband service subscribers [A1]**



(Tbps) **Changes in traffic of other leased line subscribers [A2]**

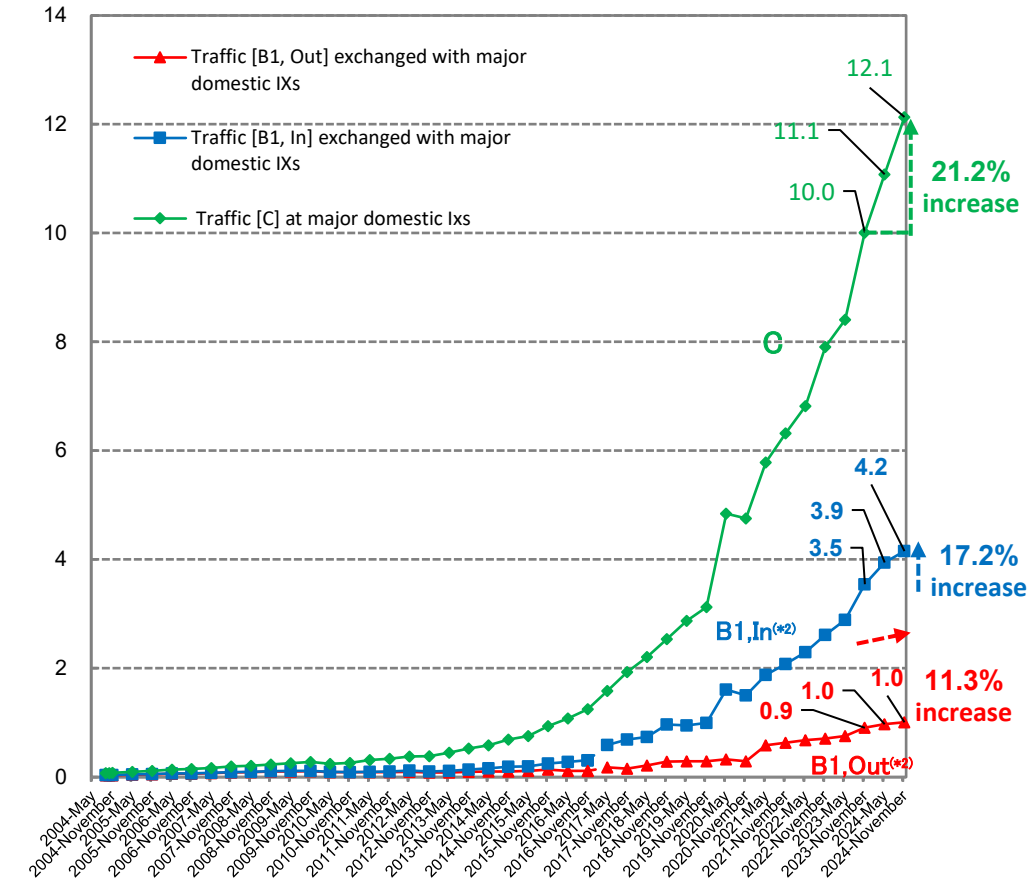


(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)
(*2) Including some corporate subscribers
(*3) Before May 2011, part of mobile communication traffic to and from cell phone networks was included
(*4) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs
(*5) Discontinuations have occurred due to a change in measurement methods by some cooperating ISPs during the period from May to November 2017
(*6) From November 2016, it will be made clear that traffic from CDN caches and traffic from connections to customer ISPs where cooperating ISPs provided transit will be treated as [A2]
(*7) Since May 2017, the number of ISPs that provide A2 has increased from 3 to 5, and this change caused discontinuations in aggregation figures
(*8) According to a change in the network configuration of an ISP that provides A2 in November 2019, the number of IPSs has decreased from 5 to 4
(*9) In the Out of traffic [A2] for other leased line subscribers, discontinuity has occurred due to a change in measurement methods by some cooperating IPSs during the period from November 2019 to May 2020.

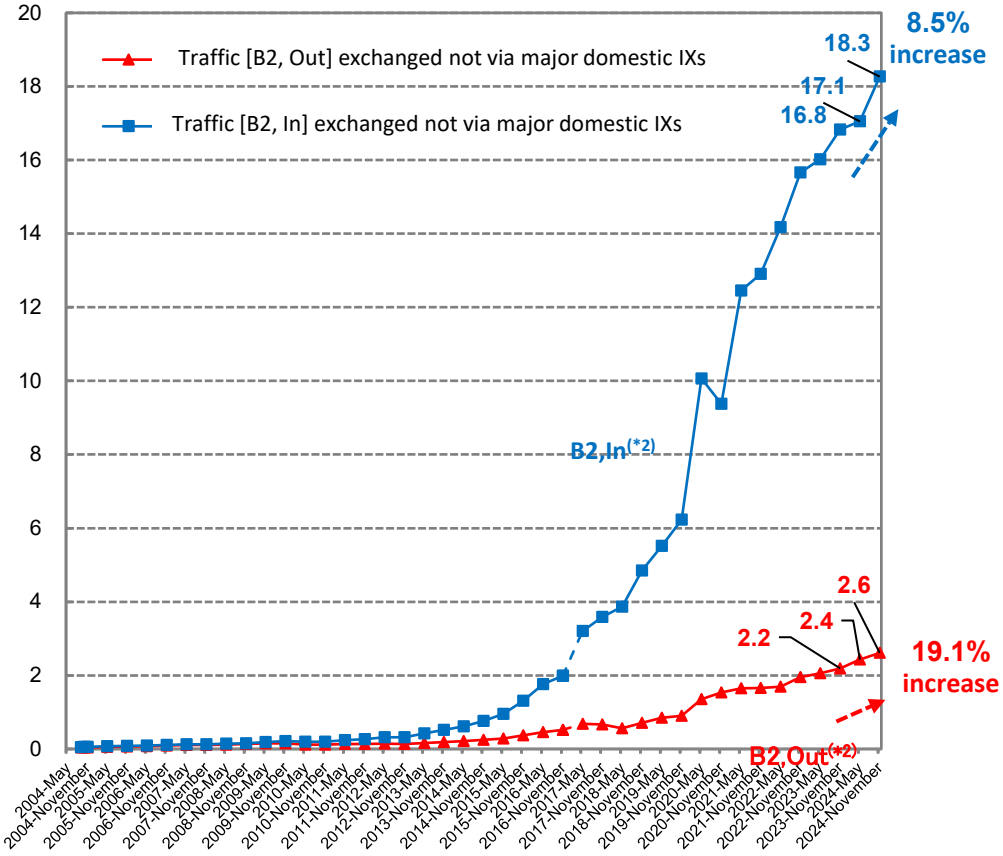
6. Aggregation of traffic exchanged between ISPs (1)

- For domestically exchanged traffic [B1] and [B2], both **inflows [B1, In]** and **[B2, In]** to cooperating ISPs exceed **outflows [B1,Out]** and **[B2,Out]**.
- **Inflow [B1, In]** and **outflow [B1, Out]** of traffic exchanged with major domestic IXs increased by 17.2% and 11.3%, respectively, from the volume of the same month last year.
- Traffic **[C]** at major domestic IXs increased by 21.2% from the volume of the same month last year.
- **Inflow [B2, In]** and **outflow [B2, Out]** of domestically exchanged traffic increased by 8.5% and 19.1%, respectively, from the volume of the same month last year.

Changes in traffic [B1] exchanged with major domestic IXs(*1) and traffic [C] at major domestic IXs(*1)



Changes in domestically exchanged traffic [B2]

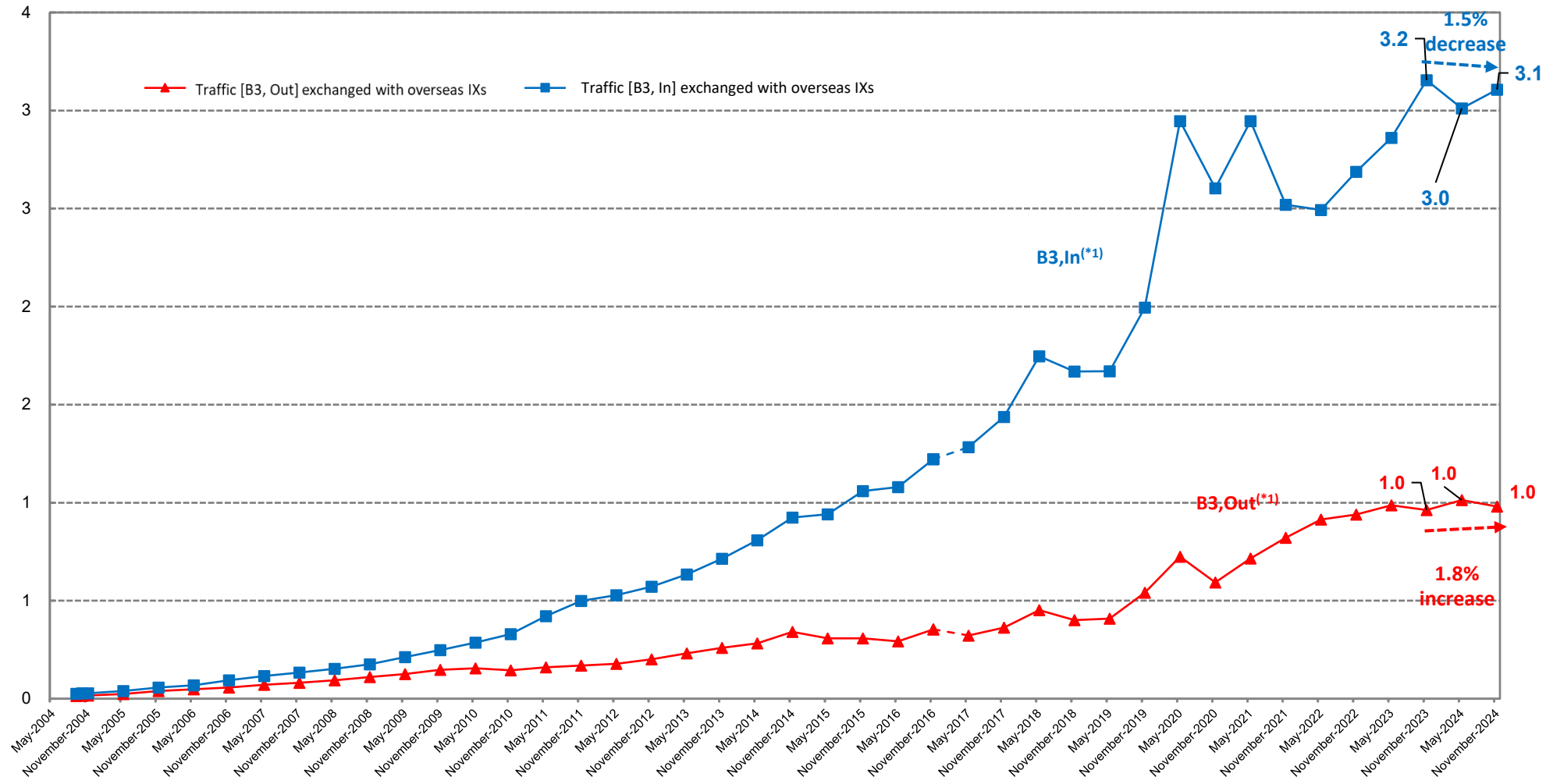


(*1) Three major IX operators before November 2010
(*2) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs

6. Aggregation of traffic exchanged between ISPs (2)

- For traffic **[B3]** exchanged with overseas IXs, **inflow [B3, In]** exceeded **outflow [B3, Out]**.
- **Inflow [B2, In]** and **outflow [B2, Out]** of exchanged with overseas decreased by 1.5% and increased by 1.8%, respectively, from the volume of the same month last year.

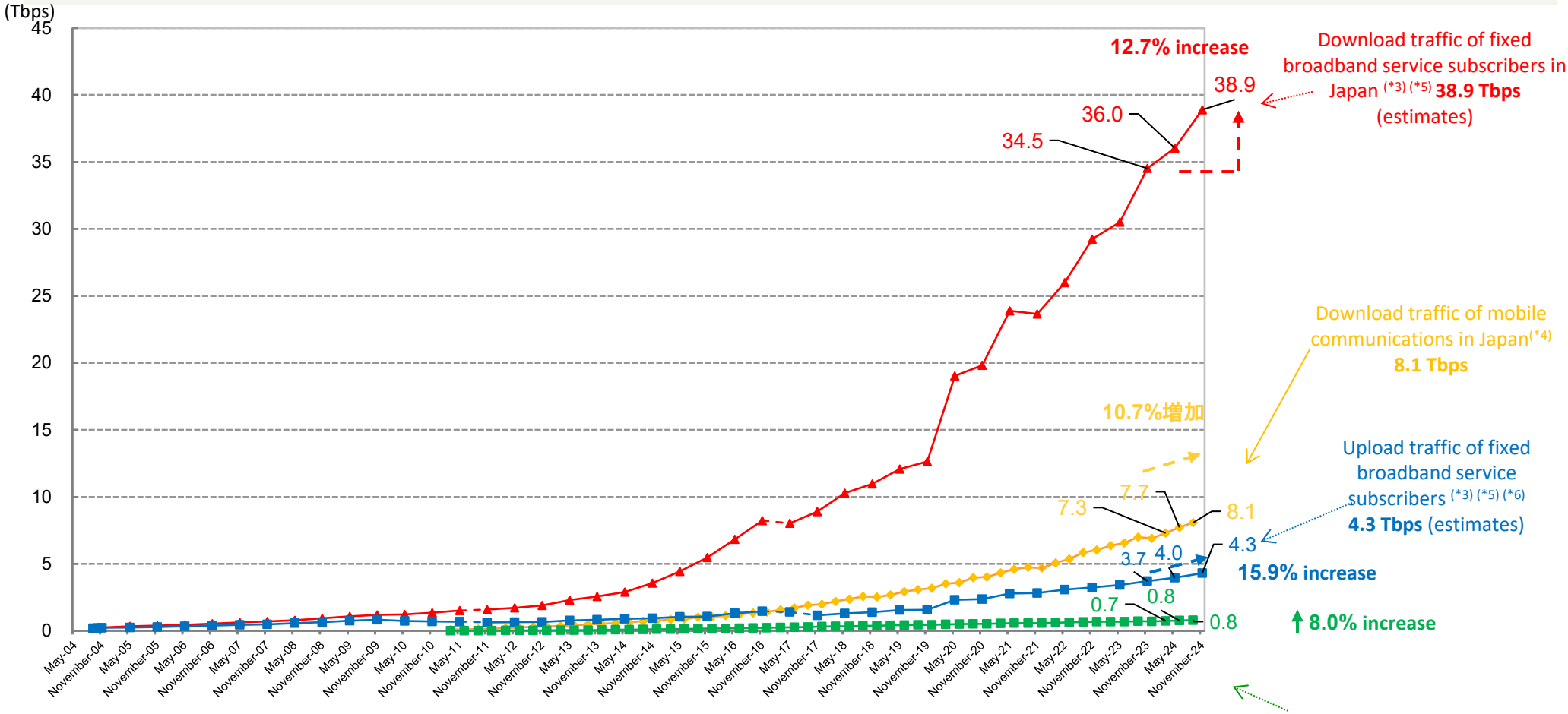
Changes in traffic [B3] exchanged with overseas IXs



(*1) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs

7. Fixed communication traffic and mobile communication traffic (some are estimates)

- **Download traffic [A1, Out]** of fixed broadband service(*1) subscribers(*2) in Japan increased by 12.7% from the volume of the same month last year.
- Download traffic of mobile communications in Japan (as of September 2024) increased by 10.7% from the volume of the same month last year.



(*1) Fixed broadband services for individual users (FTTH, DSL, CATV and FWA)
(*2) Including some corporate subscribers
(*3) Before May 2011, part of mobile communication traffic to and from cell phone networks was included
(*4) From "MIC Current State of Mobile Communications Traffic in Japan (September 2024)" (measured in March, June, Sept., and Dec.)
(*5) Since May 2017, the number of cooperating ISPs increased from five to nine, resulting in discontinuities due to aggregated and estimated values based on information from the nine ISPs
(*6) Discontinuations have occurred due to a change in measurement methods by some cooperating ISPs during the period from May to November 2017