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**Working Party on Telecommunication and Information Services Policies**

**TRENDS IN INTERNATIONAL CALLING PRICES IN OECD COUNTRIES**

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## **FOREWORD**

In June 2003 this report was presented to the Working Party on Telecommunications and Information Services Policy (TISP) and was recommended to be made public by the Committee for Information, Computer and Communications Policy (ICCP).

The report was prepared by Mr. Masayuki Matsui of the OECD's Directorate for Science, Technology and Industry. It is published on the responsibility of the Secretary-General of the OECD.

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## MAIN POINTS

This paper assesses current trends in international telephone pricing among OECD countries with the aim of describing the impact of liberalisation on the international telephony market, and addressing new issues which have a significant influence on international telephone pricing.

Liberalisation of the international telephony market, which began in the mid 1980s, brought a sharp decrease and increasing diversification in international telephony prices. The standard rates which are officially published by telecommunication carriers significantly decreased over the years. From 1993 to 2003, the OECD average calling rate for a one minute international call using incumbent carriers to other OECD countries at peak time decreased by 56%. However, traditional standard international calling rates no longer precisely indicate the charges which users pay in reality. International telecommunication carriers now offer many types of discount options for users as a consequence of market liberalisation and development of competition in international telephony services. It is necessary to take these discount options into account when international calling rates are assessed. The OECD average one minute rate with discount options in 2003 is 74% lower than the OECD average standard rate in 1993.

One of the new issues to be addressed regarding international calling prices is the different price of an international call depending on whether it is to a fixed or mobile network. Many carriers in OECD countries have higher international calling rates to foreign mobile phones. Among the incumbent carriers in OECD countries, 23 have an average additional charge of USD 0.10 per minute for international calls on mobile networks. As international traffic towards mobiles is increasing significantly, the differences in rates between fixed networks and mobile networks have a substantial influence on international calling prices.

Another factor which is resulting in a fundamental change in international telephony pricing is the development of IP telephony. IP telephony is increasingly impacting on international telephony using the PSTN in terms of reducing international calling charges due to its very low rates. Moreover, some IP telephony services allow users anywhere in the world to get a local number in another country. This means that IP telephony might change the concept of international telephony.

The analysis in this paper emphasises that liberalisation in international telephony services has brought tremendous benefits to users through price reductions.

## TRENDS IN INTERNATIONAL CALLING PRICES IN OECD COUNTRIES

### Introduction

International telephony was established by connecting the domestic public switched telecommunication networks (PSTN) of telecommunication carriers throughout the world. These telecommunication carriers all had monopolies in their home markets for the provision of international telecommunication services. Liberalisation of international telecommunication services began in the mid-1980s. By 2003, only one OECD country retained a monopoly over the provision of international telecommunication services. On the other hand, 1998 was the first year in which the majority of OECD countries had liberalised markets. In 2003, therefore, it seems timely to review trends in international prices.

It is also worth looking at the diverse development of the market in terms of the pricing of new international services such as Internet telephony. Historically all international calls were made from a telephone to a telephone over the PSTN. The advent of the Internet brought PC to PC calls over the Internet and then PC to telephone calls over both networks. Turning full circle an increasing proportion of voice over Internet protocol (VoIP) calls are now made telephone to telephone. This paper documents how prices have declined across all OECD countries. One instance can suffice here by way of example. In 1994 it cost USD 5.67 to make a three minute call from Japan to the United States. In 2003, the price was as low as USD 0.06 per three minutes using IP telephony. By using the Internet Protocol, IP telephony service providers are providing increasing competition to the traditional pricing of PSTN services.

The pricing of these calls has also undergone fundamental changes. Historically, the initiator of the call paid the full cost of making the call. Following liberalisation in some countries, competition brought prices down in some countries relative to others. This produced a relatively short-lived phenomenon known as 'call-back'. The call-back system meant that the initiator of the call paid prices set in the country from which the service was taken. Call-back drastically receded across the OECD as liberalisation took hold and reduced prices to more comparable levels. By 2003, services were offered whereby a user could nominate a telephone number in one country and pay a fixed monthly rate to receive unlimited calls, on that number, while being physically located in another country. If the originator of the call was in the country where the service was offered they might pay no more than the cost of a local call to make an international call.

A further aspect of international calls which has largely fallen by the wayside across the OECD is accounting rates. Historically, the accounting rate was used to compensate the costs of terminating an international call. In 2003 the vast bulk of traffic is not exchanged under the accounting rate system. Carriers use their own infrastructure to carry traffic on an end-to-end basis and either terminate it themselves (in those cases where they own access networks in each country) or use domestic interconnection arrangements. Another factor that has changed significantly, in recent years, is the different price of an international call depending on whether it is to a fixed or mobile network. In some countries mobile phone operators impose termination charges to complete international calls which are higher than the price for termination on the fixed network. Therefore, users who make international calls to mobile phones need to pay some amount of surcharge over and above the price of a call to a fixed network

in those countries where calling party pays<sup>1</sup> is applied. Accordingly, in examining pricing trends for international calls it is necessary to also review the price of calls to cellular mobile networks in those instances where they differ from fixed networks.

Comparing international telephony prices is not an easy task. For example, international telecommunications carriers have introduced many types of discount options for users as a consequence of competition. The traditional approach to analysing international telephone prices was to take the standard rates which are published by international carriers. In the monopoly era the standard published rates were precisely what all users paid. In 2003, in most cases, the standard rates no longer indicate how much users are paying for international calls because most users subscribe to some type of discount plan.

This paper assesses the current trends of international telephone pricing among OECD countries including structural changes in international charging practices. First, main trends in international telephone prices via PSTN are analysed. The discount options offered by international telecommunication carriers are then examined, followed by an analysis of the pricing differences for international calls towards fixed and mobile networks. Finally, some examples of IP telephony prices are examined. The analysis in this report focuses on residential users. In some countries rates for small and medium businesses may differ from these residential rates, while large business users may have a greater range of tariff options that involve commercially negotiated rates.

## **Trends in international calling prices**

### *Comparison of international calling prices<sup>2</sup>*

Reviewing the published standard rates is a traditional way to analyse international calling prices. This approach is no longer wholly appropriate for comparing international calling rates among different countries. Most international carriers offer many different types of discount options owing to intensive competition in the international telephony market. It can reasonably be expected that most users will choose a discount plan that best suits their needs. In the United States, for example, the proportion of traffic generated under international calling plans increased from 81% to 88% of all international traffic between 1997 and 2000.<sup>3</sup> On the other hand, as will be discussed later, some users still pay the standard charges and in some cases these have been rising.

One form of discount plans is those that are applied automatically by telecommunication carriers without any need for action by the user. The level of discounts sometimes varies depending on the volume of calls. The most common discount plans, however, generally involve the user paying a small fixed monthly fee, in return for lower usage charges. To be able to compare prices across discount plans it is necessary to fix some level of monthly consumption. The average rates, at peak times and at off-peak times in March 2003, which include possible discount options of main international PSTN operators<sup>4</sup> in OECD countries, are shown in **Table 1** and **Table 2**. Rates in these tables were calculated based on an expenditure of USD 50 per month. The user is also assumed to have subscribed to the best available discount options to lower usage charges. Some types of discount plans are excluded in this comparison. Discount options that involve a user selecting a certain country or a certain telephone number on which a discount will be applied, are not included in rates of these tables. These schemes are discussed elsewhere. The discount plans applied are indicated in the right hand column of each table.

As shown in **Table 1**, the OECD average for a one-minute call to OECD countries is USD 0.33 with an average additional monthly fee of USD 0.95. The least expensive average international calling rate per minute at peak times for other OECD countries is found in Canada, which is USD 0.14 per minute. Netherlands follow Canada with an average rate of USD 0.16 per minute. On the other hand, the most

expensive average rate is found in Japan: USD 1.07 per minute, followed by Turkey, which has an average rate of USD 0.72. One of the main reasons Japan appears expensive, on average, is that there are few neighbouring OECD countries. It costs users in Japan some USD 0.59 per minute at peak times to call Korea, their closest neighbouring country. Using the best available discount options the rate to call Korea is equal to the OECD average rate for all countries to call Korea.

The most expensive destination country when users make international calls from OECD countries, at peak times, is Mexico followed by Korea. Making one minute calls to Mexico costs, on average, some USD 0.68 from other OECD countries. On the other hand, the United States has the least expensive rate of USD 0.18 per minute for calls from other OECD countries. The United Kingdom follows the United States with USD 0.20. Geographic distances and the volume of traffic on certain routes are no doubt factors. However, the main reason for variations in price is likely to be the amount of competition in any individual market. This is readily evident when the price in one direction exceeds that for a call in the opposite direction by a significant amount.

During off-peak times, some carriers offer some discounts and these discounts lower international calling rates. From **Table 2**, the OECD average for a one-minute call with the least expensive international calling rates is USD 0.28 which is about 15% lower than the average at peak times. In addition, discounts on off-peak times make the average rate for the Netherlands the lowest among OECD countries with USD 0.12 per minute. Canada and Switzerland are second with USD 0.14 per minute. Japan is still the most expensive country but its average rate is lowered to USD 0.74, which is about 31% lower. Korea follows Japan with an average rate of USD 0.64 per minute at off-peak times.

The results expressed in purchasing power parity are shown in **Table 3** and **Table 4**. The recalculation with purchasing power parity increases the OECD average rate for a one-minute call to other OECD countries to USD 0.46 at peak times and USD 0.41 at off-peak times. The lowest one minute call rate at peak times is found in Norway and Switzerland: USD 0.15. The Netherlands and the United States have the second lowest rate: USD 0.18. On the other hand Turkey has the highest rate for a one-minute call at peak times: USD 1.56 followed by Korea with USD 1.09. At off-peak times, Switzerland has the lowest one minute rate of USD 0.12, followed by Norway with USD 0.15. Korea and Turkey have the highest off-peak one minute rate: USD 1.09.

A more traditional approach to compare international calling prices is shown in **Table 5** and **Table 6**. Here the published standard rates of the leading international PSTN operators in OECD countries are shown, at peak and off-peak times, as of March 2003. The OECD average for a one-minute call is increased from USD 0.33 to USD 0.54 at peak times and from USD 0.28 to USD 0.43 at off-peak times. **Table 7** shows a comparison for the average published standard rates and the average rates with possible discount options at peak times in OECD countries. Some 17 OECD countries have lower rates with discount options for an average fixed fee of USD 0.95. In return users received a 39% discount from standard peak time rates. The average monthly fee of USD 0.95 would be more economical for users, on average, if they made more than five minutes of international calls per month.<sup>5</sup>

Some carriers do not require a fixed monthly charge for discount plans. As shown in **Table 7**, of the 17 telecommunication carriers that have discount plans, just nine require fixed monthly fees. KT's discount plan, in Korea, is the only one that requires a registration fee. It seems more realistic and precise to include these discount options into an analysis on international calling prices, although they make comparisons of international telephone prices more complicated.

Table 1. The least expensive international collection charges per minute at peak times, March 2003  
in USD

From	To	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average	Monthly Change	Applied discount options	
Australia	Telstra Telecom	0.31	0.31	0.14	0.46	0.31	0.36	0.23	0.23	0.26	0.33	0.53	0.14	0.23	0.43	0.41	0.58	0.26	0.14	0.33	0.46	0.56	0.41	0.33	0.41	0.33	0.28	0.41	0.14	0.14	0.32	1.48	HomeLine Plus		
Austria	Austria Telecom	0.30	0.24	0.30	0.19	0.24	0.24	0.19	0.30	0.19	0.30	0.19	0.30	0.19	0.30	0.30	0.30	0.24	0.59	0.24	0.30	0.24	0.30	0.30	0.19	0.24	0.24	0.19	0.30	0.24	0.30	0.27	0.00	Tikkak International at peak times	
Belgium	Belgacom	0.40	0.21	0.16	0.49	0.21	0.21	0.10	0.10	0.21	0.49	0.40	0.21	0.10	0.40	0.54	0.10	0.68	0.10	0.68	0.10	0.35	0.21	0.49	0.10	0.21	0.40	0.10	0.10	0.28	1.54	Standard peak rates, Belgacom Benefit Partner			
Canada	Bell	0.12	0.10	0.37	0.18	0.12	0.14	0.08	0.08	0.11	0.27	0.25	0.14	0.08	0.12	0.10	0.18	0.16	0.06	0.06	0.06	0.11	0.17	0.24	0.09	0.06	0.14	3.15	FirRate Overseas						
Czech Rep.	Cesky Telecom	0.24	0.20	0.24	0.24	0.24	0.24	0.20	0.24	0.20	0.24	0.24	0.41	0.41	0.24	0.41	0.24	0.20	0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24	0.24	0.24	0.24	0.29	5.82	Home Maxi at peak times	
Denmark	Tele Danmark	0.43	0.18	0.18	0.18	0.30	0.10	0.18	0.14	0.30	0.30	0.25	0.25	0.18	0.68	1.12	0.18	1.12	0.18	0.81	0.06	0.23	0.30	0.30	0.25	0.06	0.18	0.35	0.14	0.18	0.31	0.00	Standard rates		
Finland	Sonera Telecom	0.31	0.22	0.22	0.19	0.27	0.09	0.22	0.19	0.25	0.25	0.31	0.22	0.22	0.52	0.97	1.24	0.22	1.24	0.36	0.09	0.27	0.25	0.27	0.25	0.43	0.19	0.19	0.30	0.00	990 Express				
France	France Telecom	0.41	0.22	0.20	0.20	0.37	0.22	0.22	0.20	0.22	0.37	0.45	0.22	0.20	0.41	0.41	0.20	0.67	0.20	0.41	0.22	0.37	0.22	0.37	0.20	0.22	0.20	0.37	0.20	0.20	0.29	0.00	Standard peak rates		
Germany	Deutsche Telekom	0.64	0.04	0.04	0.12	0.04	0.04	0.04	0.04	0.12	0.16	0.12	0.04	0.04	0.64	0.64	0.04	0.81	0.04	0.81	0.04	0.16	0.08	0.16	0.04	0.04	0.04	0.16	0.04	0.04	0.18	4.12	Aktiv Plus		
Greece	OTE	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23	0.00	Standard peak rates		
Hungary	Matav	0.26	0.17	0.21	0.17	0.26	0.17	0.17	0.17	0.17	0.17	0.40	0.26	0.17	0.51	0.45	0.17	0.51	0.17	0.67	0.26	0.21	0.17	0.21	0.17	0.21	0.17	0.21	0.17	0.21	0.26	0.00	Standard rates		
Iceland	Iceland Telecom	0.20	0.22	0.20	0.17	0.39	0.17	0.19	0.19	0.39	0.34	0.20	0.20	0.43	0.52	0.20	0.60	0.19	0.39	0.17	0.39	0.17	0.39	0.20	0.39	0.19	0.17	0.22	0.52	0.18	0.18	0.27	0.00	Standard rates	
Ireland	EIRCOM Telecom	0.50	0.28	0.22	0.11	0.28	0.28	0.22	0.22	0.28	0.28	0.28	0.28	0.28	0.28	0.50	0.72	0.22	0.45	0.22	0.50	0.28	0.28	0.28	0.54	0.28	0.28	0.54	0.09	0.11	0.31	0.00	eircom options gold world at peak times		
Italy	Telecom Italia	0.58	0.11	0.11	0.27	0.11	0.11	0.11	0.11	0.11	0.11	0.27	0.27	0.11	0.58	0.58	0.11	0.66	0.11	0.66	0.11	0.58	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.22	5.16	Telecomy 24, Opzione Internazionale (4)		
Japan	KDDI	0.90	1.16	1.16	0.66	1.36	1.16	1.16	0.93	0.93	1.16	1.36	1.16	1.16	0.59	1.16	1.10	1.16	1.00	1.16	1.35	1.16	1.35	1.16	1.36	1.16	1.16	1.16	1.16	1.07	1.60	Marutoku Light II at peak times			
Korea	Korean Telecom	0.40	0.79	0.79	0.46	0.88	0.79	0.43	0.43	0.79	0.88	0.79	0.43	0.29	0.79	0.78	0.44	0.42	0.79	0.88	0.79	0.88	0.44	0.79	0.44	0.79	0.44	0.79	0.39	0.16	0.64	0.00	001 Special DC (5)		
Luxembourg	EPT	0.20	0.12	0.12	0.20	0.12	0.12	0.12	0.12	0.12	0.12	0.20	0.20	0.12	0.12	0.20	0.40	0.40	0.12	0.40	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.00	Standard peak rates	
Mexico	TEL MEX	0.68	0.55	0.55	0.39	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.00	Lada Unica, Lada Ahorro	
Netherlands	KPN	0.14	0.13	0.06	0.07	0.21	0.09	0.10	0.06	0.06	0.21	0.22	0.27	0.10	0.11	0.26	0.40	0.09	0.50	0.17	0.10	0.24	0.21	0.27	0.11	0.07	0.09	0.28	0.06	0.16	0.00	Standard peak rates			
New Zealand	New Telecom	0.27	0.53	0.53	0.27	0.87	0.53	0.53	0.53	0.53	0.87	0.53	0.41	0.37	0.53	0.77	0.53	0.53	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.00	Standard peak rates	
Norway	Telenor	0.09	0.12	0.07	0.08	0.25	0.07	0.10	0.08	0.07	0.20	0.20	0.11	0.08	0.12	0.52	0.16	0.59	0.08	0.16	0.23	0.25	0.30	0.08	0.07	0.08	0.42	0.08	0.08	0.17	0.00	Standard rates			
Poland	TPSA	0.40	0.24	0.40	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	1.56	1.56	0.24	1.56	0.24	1.56	0.24	1.56	0.24	0.24	0.24	0.24	0.24	0.24	0.40	0.40	0.00	Za granice tniej		
Portugal	Marconi (PT)	0.43	0.14	0.14	0.11	0.30	0.14	0.11	0.11	0.14	0.30	0.30	0.14	0.14	0.43	0.43	0.14	0.72	0.14	0.72	0.14	0.30	0.30	0.09	0.14	0.11	0.11	0.11	0.11	0.24	0.00	Marconi Alegro Internacional			
Slovak Rep.	Slovak Telecom	0.26	0.19	0.21	0.19	0.21	0.21	0.19	0.26	0.19	0.26	0.19	0.42	0.21	0.21	0.42	0.62	0.21	0.62	0.21	0.62	0.26	0.19	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.27	0.00	Standard rates
Spain	Telefonica	0.46	0.13	0.13	0.25	0.22	0.13	0.13	0.13	0.13	0.22	0.27	0.13	0.13	0.46	0.46	0.13	0.30	0.13	0.46	0.27	0.22	0.22	0.13	0.22	0.13	0.13	0.13	0.13	0.14	0.21	0.00	Plan Hello		
Sweden	Telia	0.29	0.16	0.10	0.29	0.08	0.08	0.10	0.08	0.29	0.08	0.16	0.16	0.29	0.82	0.10	0.61	0.10	0.29	0.08	0.16	0.29	0.08	0.16	0.29	0.16	0.10	0.29	0.08	0.08	0.21	0.00	Standard rates		
Switzerland	Swisscom	0.15	0.07	0.15	0.07	0.39	0.15	0.07	0.07	0.15	0.39	0.15	0.15	0.07	0.15	0.15	0.15	0.39	0.15	0.39	0.15	0.15	0.15	0.39	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.00	Standard peak rates	
Turkey	Turk Telekom	0.93	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.93	1.59	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.00	Standard peak rates	
UK	British Telecom	0.28	0.32	0.22	0.19	0.32	0.23	0.22	0.22	0.22	0.28	0.32	0.53	0.18	0.25	0.53	0.86	0.23	0.86	0.23	0.86	0.23	0.28	0.32	0.27	0.32	0.25	0.22	0.22	0.50	0.18	0.33	2.54	BT Together at peak times (7)	
US	AT&T	0.14	0.14	0.07	0.29	0.14	0.14	0.14	0.14	0.14	0.14	0.29	0.51	0.14	0.14	0.12	0.14	0.21	0.14	0.14	0.21	0.14	0.14	0.25	0.14	0.28	0.14	0.14	0.45	0.09	0.18	2.95	AT&T AnyHour International Savings Plan		
Average		0.37	0.27	0.27	0.22	0.38	0.27	0.28	0.23	0.23	0.30	0.38	0.41	0.26	0.25	0.44	0.59	0.27	0.68	0.25	0.52	0.27	0.37	0.31	0.39	0.26	0.26	0.26	0.42	0.20	0.18	0.33	0.95		

## Notes:

- (1) Taxes are excluded.
- (2) One minute charge is calculated by (one initial minute + three additional minutes)/4.
- (3) The best available discounted rates which are applied for all other 29 OECD countries are used in this table. Discount options which are only applied to certain countries are not included.
- (4) Discount options which are applied suppose that a user spends USD 50 a month for international calls.
- (5) Two discount options - Teleconomy 24 (USD 4.39 per month) and Opzione Internazionale (USD 0.77 per month) are combined for Telecom Italia.
- (6) Korean Telecom charges a one-off payment of USD 7.99 as registration charges for 001 Special DC.
- (7) BT Together has an inclusive call allowance of USD 3.05 (tax excluded) per month and also provides discounts on national call rates.

Source: OECD.

DSTI/ICCP/TISP(2003)2/FINAL  
**Table 2. The least expensive international collection charges per minute at off-peak times, March 2003, in USD**

From	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average	Monthly Charge	Applied discount options		
Australia	0.31	0.31	0.14	0.46	0.31	0.36	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	1.48	HomeLine Plus		
Austria	0.25	0.19	0.25	0.15	0.19	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.00	Tikkak International at off-peak times	
Belgium	0.30	0.18	0.09	0.40	0.18	0.40	0.30	0.18	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.30	0.40	0.09	0.22	0.00	Standard off-peak rates		
Canada	0.12	0.10	0.37	0.18	0.12	0.14	0.08	0.08	0.11	0.27	0.25	0.14	0.08	0.12	0.10	0.18	0.16	0.06	0.06	0.16	0.12	0.23	0.18	0.11	0.17	0.24	0.09	0.06	0.14	3.15	FirsRate Overseas				
Czech Rep.	0.23	0.20	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	5.82	Home Maxi at off-peak times		
Denmark	0.43	0.18	0.18	0.30	0.10	0.18	0.14	0.30	0.30	0.25	0.18	0.68	1.12	0.18	1.12	0.18	1.12	0.18	0.68	1.12	0.18	1.12	0.18	0.68	1.12	0.18	1.12	0.18	1.12	0.18	0.31	0.00	Standard rates		
Finland	0.31	0.22	0.22	0.19	0.27	0.09	0.22	0.19	0.25	0.25	0.31	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.00	990 Express	
France	0.21	0.14	0.12	0.12	0.27	0.14	0.14	0.12	0.14	0.27	0.36	0.14	0.12	0.21	0.12	0.40	0.12	0.40	0.12	0.21	0.12	0.40	0.12	0.27	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.18	0.00	Standard off-peak rates	
Germany	0.64	0.04	0.04	0.12	0.04	0.04	0.04	0.12	0.16	0.12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.18	4.12	Aktiv Plus	
Greece	0.20	0.20	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23	0.00	Standard off-peak rates	
Hungary	0.26	0.17	0.17	0.21	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.26	0.00	Standard rates	
Iceland	0.20	0.22	0.20	0.17	0.39	0.17	0.19	0.19	0.39	0.34	0.20	0.20	0.43	0.52	0.20	0.60	0.19	0.39	0.17	0.30	0.20	0.39	0.19	0.17	0.22	0.52	0.18	0.18	0.27	0.00	0.00	Standard rates			
Ireland	0.26	0.24	0.17	0.09	0.24	0.24	0.17	0.17	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.26	0.17	0.36	0.17	0.26	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.00	eircom options gold world		
Italy	0.58	0.11	0.11	0.27	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.22	5.16	Telecomy24, Opzione Internazionale (4)	
Japan	0.57	0.85	0.85	0.52	0.85	0.85	0.29	0.29	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	1.60	Maruboku Light II at off-peak times		
Korea	0.40	0.79	0.79	0.46	0.88	0.79	0.43	0.43	0.79	0.88	0.79	0.43	0.29	0.79	0.78	0.44	0.42	0.79	0.88	0.79	0.88	0.44	0.79	0.44	0.79	0.44	0.79	0.44	0.79	0.44	0.79	0.64	0.00	001 Special DC (5)	
Luxembourg	0.16	0.10	0.10	0.16	0.10	0.10	0.10	0.10	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.00	Standard off-peak rates	
Mexico	0.68	0.55	0.55	0.39	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.00	Lada Unica, Lada Ahorro	
Netherlands	0.11	0.10	0.05	0.06	0.16	0.06	0.08	0.05	0.05	0.16	0.17	0.21	0.08	0.08	0.20	0.29	0.06	0.37	0.13	0.08	0.17	0.16	0.20	0.08	0.06	0.21	0.04	0.04	0.12	0.00	0.00	Standard off-peak rates			
New Zealand	0.19	0.37	0.37	0.22	0.63	0.37	0.37	0.42	0.77	0.22	0.37	0.33	0.28	0.37	0.55	0.37	0.37	0.63	0.37	0.63	0.37	0.63	0.37	0.63	0.37	0.63	0.37	0.63	0.37	0.63	0.37	0.39	0.00	Standard off-peak rates	
Zealand	0.09	0.12	0.07	0.08	0.25	0.07	0.10	0.08	0.07	0.20	0.25	0.20	0.11	0.08	0.12	0.52	0.16	0.59	0.08	0.16	0.23	0.25	0.30	0.08	0.07	0.08	0.42	0.08	0.17	0.00	0.00	Standard rates			
Norway	0.40	0.24	0.24	0.40	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.40	0.00	Za grance tnej	
Poland	0.36	0.11	0.11	0.10	0.23	0.11	0.11	0.08	0.10	0.11	0.23	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.19	0.00	Standard off-peak rates
Portugal	0.26	0.19	0.21	0.21	0.19	0.21	0.21	0.21	0.19	0.26	0.19	0.42	0.21	0.21	0.42	0.62	0.21	0.62	0.21	0.62	0.21	0.62	0.21	0.62	0.21	0.62	0.21	0.62	0.21	0.62	0.21	0.27	0.00	Standard rates	
Slovak Rep.	0.46	0.13	0.13	0.25	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.21	0.00	Plan Hello
Spain	0.29	0.16	0.10	0.10	0.29	0.08	0.08	0.10	0.08	0.29	0.29	0.08	0.16	0.16	0.29	0.82	0.10	0.61	0.10	0.29	0.08	0.16	0.29	0.16	0.10	0.29	0.08	0.21	0.00	0.00	0.00	0.00	0.00	Standard rates	
Sweden	0.12	0.06	0.12	0.06	0.30	0.12	0.12	0.06	0.06	0.12	0.30	0.12	0.12	0.06	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.00	Standard off-peak rates
Switzerland	0.74	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.00	Standard off-peak rates
Turkey	0.11	0.27	0.11	0.27	0.11	0.11	0.22	0.27	0.44	0.11	0.11	0.44	0.76	0.20	0.76	0.11	0.22	0.11	0.27	0.20	0.76	0.11	0.27	0.20	0.76	0.11	0.18	0.11	0.39	0.11	0.24	2.54	BT Together at off-peak times (7)		
UK	0.14	0.14	0.07	0.29	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.18	2.95	AT&T AnyHour International Savings Plan	
US	0.31	0.24	0.24	0.19	0.33	0.23	0.25	0.19	0.18	0.26	0.32	0.36	0.23	0.21	0.40	0.54	0.24	0.61	0.21	0.46	0.23	0.32	0.27	0.34	0.22	0.23	0.38	0.18	0.16	0.28	0.89	0.00	Standard off-peak rates		
Average	0.31	0.24	0.24	0.19	0.33	0.23	0.25	0.19	0.18	0.26	0.32	0.36	0.23	0.21	0.40	0.54	0.24	0.61	0.21	0.46	0.23	0.32	0.27	0.34	0.22	0.23	0.38	0.18	0.16	0.28	0.89	0.00	Standard off-peak rates		

Notes:

- (1) Taxes are excluded.
- (2) One minute charge is calculated by (one initial minute + three additional minutes)/4.
- (3) The best available discounted rates which are applied for all other 29 OECD countries are used in this table. Discount options which are only applied to certain countries are not included.
- (4) Discount options which are applied suppose that a user spends USD 50 a month for international calls.
- (5) Two discount options - Teleconomy 24 (USD 4.39 per month) and Opzione Internazionale (USD 0.77 per month) are combined for Telecom Italia.
- (6) Korean Telecom chargera one-off payment of USD 7.99 as registration charges for 001 Special DC.
- (7) BT Together has an inclusive call allowance of USD 3.05 (tax excluded) per month and also provides discounts on national call rates.

Source: OECD.

Table 3. The least expensive international collection charges per minute at peak times, March 2003  
in USD PPP

From	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average	Monthly Change	Applied discount options			
Australia	0.42	0.42	0.19	0.62	0.42	0.49	0.32	0.32	0.32	0.35	0.46	0.72	0.19	0.32	0.32	0.59	0.56	0.79	0.35	0.19	0.46	0.62	0.76	0.56	0.46	0.39	0.39	0.56	0.19	0.19	0.44	2.02	HomeLine Plus			
Austria	0.34	0.28	0.34	0.23	0.28	0.28	0.23	0.34	0.23	0.34	0.23	0.69	0.28	0.23	0.34	0.34	0.28	0.69	0.28	0.34	0.28	0.34	0.34	0.23	0.28	0.28	0.23	0.34	0.28	0.34	0.32	0.00	0.00	Tikkak International at peak times		
Belgium	0.46	0.24	0.18	0.55	0.24	0.24	0.11	0.24	0.55	0.46	0.24	0.11	0.46	0.62	0.11	0.46	0.62	0.11	0.78	0.11	0.40	0.24	0.55	0.24	0.55	0.11	0.24	0.46	0.11	0.11	0.31	1.75	Standard peak rates, Belgacom Benefit Partner			
Canada	0.16	0.13	0.49	0.24	0.16	0.19	0.11	0.10	0.14	0.36	0.33	0.19	0.10	0.16	0.13	0.24	0.21	0.08	0.08	0.08	0.21	0.16	0.30	0.24	0.14	0.22	0.31	0.12	0.08	0.19	4.17	FirstRate Overseas				
Czech Rep.	0.52	0.45	0.52	0.52	0.52	0.52	0.45	0.52	0.52	1.18	0.52	1.18	0.52	0.52	0.89	0.52	2.04	0.52	0.89	0.52	0.45	0.45	0.45	0.45	0.52	0.45	0.52	0.45	0.52	0.64	12.76	Home Maxi at peak times				
Denmark	0.41	0.17	0.17	0.29	0.10	0.17	0.13	0.29	0.29	0.24	0.24	0.17	0.85	0.17	1.05	0.17	1.05	0.17	1.05	0.17	0.76	0.05	0.22	0.29	0.24	0.05	0.17	0.33	0.13	0.17	0.30	0.00	0.00	Standard rates		
Finland	0.33	0.23	0.23	0.21	0.27	0.27	0.27	0.27	0.27	0.33	0.23	0.23	0.23	0.23	0.56	1.04	0.23	1.33	0.24	0.39	0.09	0.29	0.27	0.29	0.23	0.09	0.27	0.46	0.21	0.21	0.32	0.00	0.00	990 Express		
France	0.46	0.25	0.23	0.41	0.25	0.25	0.23	0.25	0.41	0.50	0.25	0.23	0.46	0.46	0.46	0.46	0.23	0.75	0.23	0.46	0.25	0.41	0.25	0.41	0.23	0.25	0.23	0.41	0.23	0.23	0.32	0.00	0.00	Standard peak rates		
Germany	0.72	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.14	0.18	0.14	0.04	0.04	0.72	0.72	0.04	0.90	0.04	0.90	0.04	0.18	0.09	0.18	0.04	0.04	0.04	0.18	0.04	0.04	0.20	4.62	Aktiv Plus			
Greece	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.35	0.29	0.29	0.29	0.29	0.35	0.29	0.35	0.29	0.35	0.29	0.35	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.34	0.00	0.00	Standard peak rates		
Hungary	0.56	0.38	0.38	0.46	0.38	0.38	0.38	0.38	0.38	0.87	0.56	0.38	1.13	0.38	1.13	0.38	1.13	0.38	1.13	0.38	1.49	0.56	0.46	0.38	0.46	0.38	0.46	0.38	0.87	0.38	0.46	0.57	0.00	0.00	Standard rates	
Iceland	0.19	0.21	0.19	0.17	0.37	0.17	0.19	0.19	0.37	0.33	0.19	0.19	0.42	0.50	0.19	0.59	0.19	0.37	0.17	0.29	0.19	0.37	0.17	0.29	0.19	0.37	0.19	0.17	0.21	0.50	0.18	0.26	0.00	0.00	Standard rates	
Ireland	0.52	0.30	0.23	0.12	0.30	0.30	0.23	0.23	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.52	0.75	0.23	0.47	0.23	0.52	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.00	0.00	eircom options gold world at peak times	
Italy	0.77	0.15	0.15	0.36	0.15	0.15	0.15	0.15	0.15	0.36	0.36	0.15	0.77	0.77	0.15	0.87	0.15	0.87	0.15	0.77	0.15	0.36	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.30	6.85	Telecomy 24, Opzione Internazionale (4)			
Japan	0.78	1.00	1.00	0.57	1.17	1.00	1.00	0.80	1.00	1.17	1.00	1.00	1.00	1.00	0.51	1.00	0.95	1.00	0.87	1.00	1.16	1.00	1.17	1.00	1.17	1.00	1.00	1.00	0.59	0.25	0.92	1.38	Marubuku Light II at peak times			
Korea	0.69	1.35	1.35	0.79	1.50	1.35	0.74	0.74	1.35	1.50	1.35	1.35	0.74	0.49	1.35	1.32	0.75	0.71	1.35	1.50	1.35	1.50	1.35	1.50	1.35	1.50	1.35	1.50	0.75	1.35	0.66	0.27	1.09	0.00	0.00	001 Special DC (5)
Luxembourg	0.22	0.13	0.13	0.13	0.22	0.13	0.13	0.13	0.13	0.22	0.22	0.22	0.13	0.22	0.45	0.45	0.13	0.13	0.45	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.20	0.00	0.00	Standard peak rates			
Mexico	1.01	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	1.01	0.80	0.80	0.80	0.80	1.01	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.37	0.81	0.00	0.00	Lada Unica, Lada Ahorro		
Netherlands	0.16	0.15	0.07	0.08	0.24	0.10	0.11	0.07	0.06	0.24	0.25	0.30	0.11	0.12	0.29	0.44	0.10	0.56	0.19	0.11	0.26	0.24	0.30	0.12	0.08	0.10	0.31	0.06	0.06	0.18	0.00	0.00	Standard peak rates			
New Zealand	0.39	0.77	0.39	1.27	0.77	0.77	0.77	1.27	1.40	0.39	0.77	0.59	0.53	0.77	1.12	0.77	1.12	0.77	1.12	0.77	1.12	0.77	1.12	0.77	1.12	0.77	1.12	0.77	1.12	0.39	0.39	0.81	0.00	0.00	Standard peak rates	
Norway	0.08	0.10	0.07	0.07	0.22	0.06	0.09	0.07	0.06	0.17	0.22	0.17	0.09	0.07	0.10	0.46	0.14	0.52	0.07	0.14	0.21	0.22	0.27	0.07	0.06	0.07	0.37	0.07	0.15	0.00	0.00	0.00	Standard rates			
Poland	0.87	0.52	0.52	0.87	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	3.39	3.39	0.52	3.39	0.52	3.39	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.87	0.95	0.00	0.00	Za granice tleji		
Portugal	0.68	0.23	0.23	0.18	0.48	0.23	0.23	0.18	0.23	0.48	0.48	0.23	0.23	0.23	0.68	0.68	0.23	1.13	0.23	1.13	0.23	0.48	0.48	0.14	0.23	0.18	0.48	0.18	0.18	0.38	0.00	0.00	0.00	Marconi Alegro Internacional		
Slovak Rep.	0.75	0.55	0.60	0.60	0.55	0.75	0.55	1.19	0.60	0.60	1.19	0.60	0.60	1.19	1.75	0.60	1.75	0.60	1.75	0.60	1.75	0.75	0.55	0.60	0.60	0.60	0.75	0.60	0.60	0.77	0.00	0.00	0.00	Standard rates		
Spain	0.62	0.18	0.18	0.34	0.30	0.18	0.18	0.18	0.18	0.30	0.36	0.18	0.18	0.62	0.62	0.18	0.41	0.18	0.62	0.36	0.30	0.18	0.30	0.18	0.30	0.18	0.30	0.18	0.19	0.29	0.00	0.00	0.00	Plan Hello		
Sweden	0.29	0.16	0.10	0.29	0.08	0.08	0.10	0.08	0.29	0.29	0.08	0.16	0.16	0.29	0.83	0.10	0.62	0.10	0.62	0.10	0.29	0.08	0.16	0.29	0.16	0.10	0.29	0.08	0.08	0.21	0.00	0.00	0.00	Standard rates		
Switzerland	0.12	0.06	0.12	0.06	0.32	0.12	0.12	0.06	0.06	0.12	0.32	0.12	0.12	0.06	0.12	0.12	0.12	0.32	0.12	0.12	0.12	0.32	0.12	0.12	0.32	0.12	0.12	0.32	0.06	0.06	0.15	0.00	0.00	Standard peak rates		
Turkey	2.01	1.34	1.34	1.34	1.34	2.01	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	2.01	3.45	1.37	2.01	3.45	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.56	0.00	0.00	Standard peak rates		
UK	0.28	0.32	0.22	0.19	0.32	0.22	0.22	0.22	0.22	0.32	0.32	0.22	0.22	0.22	0.32	0.32	0.22	0.32	0.22	0.32	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.33	2.57	BT Together at peak times (7)			
US	0.14	0.14	0.07	0.29	0.14	0.14	0.14	0.14	0.14	0.29	0.51	0.14	0.14	0.14	0.14	0.14	0.14	0.21	0.14	0.14	0.14	0.14	0.25	0.14	0.28	0.14	0.14	0.45	0.09	0.18	2.85	AT&T AnyHour International Savings Plan				
Average	0.51	0.27	0.27	0.22	0.38	0.27	0.28	0.23	0.23	0.30	0.38	0.41	0.26	0.25	0.44	0.59	0.27	0.68	0.25	0.52	0.27	0.37	0.31	0.39	0.26	0.26	0.26	0.42	0.20	0.18	0.46	1.30	0.00	0.00		

Notes:

- (1) Taxes are excluded.
- (2) One minute charge is calculated by (one initial minute + three additional minutes)/4.
- (3) The best available discounted rates which are applied for all other 29 OECD countries are used in this table. Discount options which are only applied to certain countries are not included.
- (4) Discount options which are applied suppose that a user spends USD 50 a month for international calls.
- (5) Two discount options - Teleconomy 24 (USD 4.39 per month) and Opzione Internazionale (USD 0.77 per month) are combined for Telecom Italia.
- (6) Korean Telecom charges a one-off payment of USD 7.99 as registration charges for 001 Special DC.
- (7) BT Together has inclusive call allowance of USD 3.05 (tax excluded) per month and also provides discounts on national call rates.

Source: OECD.



Table 5. Published international standard calling rates per minute at peak times, March 2003, in USD

From	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average	
Australia	0.38	0.50	0.25	0.52	0.36	0.30	0.30	0.30	0.30	0.52	0.63	0.26	0.28	0.47	0.52	0.63	0.56	0.19	0.38	0.52	0.63	0.45	0.42	0.30	0.30	0.47	0.22	0.19	0.39			
Austria	0.34	0.30	0.34	0.24	0.30	0.30	0.24	0.34	0.24	0.30	0.30	0.24	0.34	0.34	0.30	0.30	0.50	0.30	0.34	0.30	0.30	0.34	0.24	0.30	0.30	0.30	0.30	0.34	0.30	0.34		
Belgium	0.40	0.21	0.16	0.49	0.21	0.16	0.21	0.16	0.16	0.21	0.49	0.40	0.21	0.16	0.40	0.54	0.16	0.68	0.16	0.35	0.21	0.49	0.21	0.49	0.16	0.21	0.40	0.16	0.16	0.29		
Canada	0.69	0.89	1.01	1.33	0.76	0.92	0.57	0.69	1.14	1.01	1.08	0.73	0.89	0.92	1.27	1.25	1.19	0.63	0.79	0.82	1.02	1.01	1.33	1.36	0.80	0.57	1.43	0.44	0.29	0.92		
Czech Rep.	0.26	0.23	0.26	0.26	0.26	0.26	0.23	0.26	0.23	0.26	0.26	0.26	0.26	0.26	0.44	0.44	0.26	0.93	0.26	0.44	0.26	0.23	0.23	0.26	0.23	0.26	0.55	0.26	0.26	0.32		
Denmark	0.43	0.18	0.18	0.30	0.10	0.18	0.14	0.30	0.30	0.30	0.25	0.25	0.18	0.68	1.12	1.18	1.12	1.18	0.81	0.81	0.06	0.23	0.30	0.30	0.25	0.06	0.18	0.35	0.14	0.18	0.31	
Finland	0.43	0.36	0.36	0.39	0.13	0.36	0.36	0.36	0.36	0.43	0.39	0.43	0.36	0.36	0.56	1.07	0.36	1.29	0.36	0.43	0.13	0.39	0.43	0.39	0.36	0.13	0.43	0.46	0.36	0.42		
France	0.41	0.22	0.20	0.37	0.22	0.22	0.20	0.22	0.20	0.22	0.37	0.45	0.22	0.20	0.41	0.41	0.20	0.67	0.20	0.41	0.22	0.37	0.22	0.37	0.20	0.22	0.20	0.37	0.20	0.20	0.29	
Germany	0.64	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.64	0.64	0.10	0.81	0.10	0.81	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.23	
Greece	0.20	0.20	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.23	0.20	0.47	0.20	0.70	0.20	0.23	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23
Hungary	0.26	0.17	0.17	0.21	0.17	0.26	0.17	0.17	0.17	0.17	0.17	0.40	0.26	0.17	0.51	0.45	0.17	0.51	0.17	0.67	0.26	0.21	0.17	0.21	0.17	0.21	0.17	0.40	0.17	0.21	0.26	
Iceland	0.20	0.22	0.17	0.39	0.17	0.19	0.19	0.19	0.19	0.39	0.34	0.20	0.20	0.43	0.52	0.20	0.60	0.60	0.19	0.39	0.17	0.30	0.20	0.39	0.19	0.17	0.22	0.52	0.18	0.18	0.27	
Ireland	0.67	0.38	0.30	0.38	0.38	0.38	0.30	0.30	0.30	0.38	0.38	0.38	0.38	0.38	0.67	0.96	0.30	0.60	0.30	0.67	0.38	0.38	0.38	0.72	0.38	0.38	0.72	0.12	0.15	0.42		
Italy	0.73	0.20	0.20	0.34	0.20	0.20	0.20	0.20	0.20	0.34	0.34	0.20	0.20	0.20	0.73	0.73	0.20	0.84	0.20	0.73	0.20	0.34	0.20	0.34	0.20	0.20	0.20	0.45	0.20	0.20	0.33	
Japan	1.50	1.93	1.93	1.10	2.25	1.93	1.54	1.54	1.54	1.93	2.25	1.93	1.93	1.93	0.98	1.93	1.83	1.83	1.93	1.67	1.93	2.25	1.93	2.25	1.93	1.93	1.93	1.14	0.48	1.78		
Korea	0.87	0.98	1.04	1.03	0.98	0.98	0.76	0.76	0.76	0.98	1.03	0.98	0.98	0.76	0.55	0.98	0.98	1.21	0.85	0.85	0.98	1.03	0.98	1.03	0.87	0.87	0.88	0.81	0.23	0.92		
Luxembourg	0.20	0.12	0.12	0.20	0.12	0.12	0.12	0.12	0.12	0.20	0.20	0.12	0.12	0.12	0.40	0.40	0.12	0.40	0.12	0.40	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.40	0.12	0.12	0.18	
Mexico	1.74	1.54	1.11	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.74	1.74	1.54	1.54	1.54	1.54	1.74	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	0.71	1.52		
Netherlands	0.14	0.13	0.06	0.07	0.21	0.09	0.10	0.06	0.06	0.21	0.22	0.27	0.10	0.11	0.26	0.40	0.09	0.50	0.17	0.10	0.24	0.21	0.27	0.11	0.07	0.09	0.28	0.06	0.06	0.16		
New Zealand	0.27	0.53	0.53	0.27	0.87	0.53	0.53	0.53	0.53	0.87	0.96	0.27	0.53	0.41	0.37	0.53	0.77	0.77	0.53	0.53	0.87	0.53	0.87	0.53	0.53	0.53	0.77	0.27	0.27	0.55		
Norway	0.09	0.12	0.07	0.08	0.25	0.07	0.10	0.08	0.07	0.20	0.25	0.20	0.11	0.08	0.12	0.52	0.16	0.59	0.08	0.16	0.23	0.25	0.30	0.08	0.07	0.08	0.42	0.08	0.08	0.17		
Poland	0.50	0.35	0.35	0.50	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	1.56	1.56	0.35	1.56	0.35	1.56	0.35	0.35	0.35	0.35	0.35	0.35	0.50	0.35	0.50	0.54		
Portugal	0.60	0.20	0.19	0.39	0.20	0.20	0.16	0.19	0.19	0.20	0.39	0.39	0.20	0.20	0.60	0.60	0.20	0.94	0.20	0.94	0.20	0.39	0.39	0.13	0.20	0.19	0.39	0.19	0.19	0.33		
Slovak Rep.	0.26	0.19	0.21	0.19	0.21	0.21	0.21	0.21	0.19	0.26	0.19	0.42	0.21	0.21	0.42	0.62	0.21	0.62	0.21	0.62	0.26	0.19	0.21	0.21	0.21	0.21	0.21	0.26	0.21	0.21	0.27	
Spain	0.68	0.14	0.14	0.38	0.33	0.14	0.14	0.14	0.14	0.14	0.33	0.28	0.14	0.14	0.68	0.68	0.14	0.45	0.14	0.68	0.28	0.33	0.14	0.33	0.14	0.14	0.33	0.14	0.14	0.28		
Sweden	0.29	0.16	0.10	0.10	0.29	0.08	0.08	0.10	0.08	0.29	0.08	0.16	0.16	0.16	0.29	0.82	0.10	0.61	0.10	0.29	0.08	0.16	0.29	0.16	0.10	0.10	0.29	0.08	0.08	0.21		
Switzerland	0.15	0.07	0.15	0.07	0.39	0.15	0.15	0.07	0.07	0.15	0.39	0.15	0.15	0.07	0.15	0.15	0.15	0.39	0.15	0.15	0.15	0.39	0.15	0.39	0.15	0.15	0.39	0.07	0.07	0.18		
Turkey	0.93	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	1.59	1.59	0.63	0.93	0.62	1.59	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.72		
UK	0.62	0.50	0.36	0.50	0.36	0.50	0.36	0.36	0.36	0.46	0.50	0.85	0.29	0.46	0.85	1.37	0.36	1.37	0.36	0.62	0.50	0.50	0.46	0.50	0.46	0.36	0.36	0.85	0.30	0.54		
US	2.85	2.73	2.92	0.88	3.53	2.75	2.77	2.52	2.33	3.65	3.15	3.12	2.54	2.83	2.74	3.41	2.30	1.86	2.49	3.65	2.53	2.97	3.11	3.36	3.05	2.49	2.84	3.45	2.05	2.78		
Average	0.60	0.48	0.49	0.34	0.63	0.47	0.49	0.43	0.43	0.55	0.61	0.63	0.46	0.47	0.65	0.84	0.49	0.86	0.46	0.79	0.48	0.59	0.54	0.64	0.52	0.45	0.47	0.68	0.37	0.24	0.54	

Notes:

1. Taxes are excluded.
2. One minute charge is calculated by (one initial minute + three additional minutes)/4.
3. Luxembourg (EPT) has discounted rates for calls to neighbouring areas in Belgium, France and Germany.
4. Netherlands (KPN) has discounted rates for calls to some large cities in Belgium, France, Germany, Italy, Spain, UK and US.
5. For Mexico (TELMEX) the average of all rates segments is used for calls to the United States.

Source : OECD.

The largest differences between published standard rates and discount rates are found in Canada and the United States. In Canada, Bell Canada's discount plan "FirstRates Overseas" gives about 84% average reduction from the standard rate. In return users pay a fixed monthly fee of USD 3.15 to subscribe to this plan. In the United States, AT&T offers "AT&T AnyHour International Savings Plan" which gives users around a 94% average reduction on the standard rate for a monthly payment of USD 2.95. In effect, it is more economical for users to subscribe to such plans even if they only make one short international call each month. The differences between the standard rates, and the prices available via discount plans, have drawn the attention of the FCC, which sees a role for consumer education (**Box 1**).

It might be supposed that this phenomenon occurs in the United States because of the historic separation of local exchange carriers and those providing international telephony. One factor may be that in the absence of a customer relationship, via local service, carriers in the United States want to ensure customer loyalty and therefore make it very attractive to join a discount plan. Unlike traditional carriers they may not have the option to bundle a discount plan with a line rental or simply raise the line rental to cover the cost of serving customers who might only make one or two international calls per month. On the other hand the similarly large differences between standard rates and discounted rates are evident in Canada. This raises the question of why this phenomenon occurs in North America. As is evident in **Box 1** there are simple solutions available to consumers in order not to have to pay standard rates. That many still do suggests they are either not well informed or indifferent to the higher prices, possibly because of the small volume of calls that they make.

### *Time series analysis*

When international calling prices are compared over time, a constant decrease in international calling prices is evident. The trends of average OECD international calling rates from 1993 to 2003 are shown in **Table 8** and **Figure 2**. Based on standard rates the OECD average rate has declined from USD 1.24 in 1993 to USD 0.54 in 2003. Even though the OECD standard rates are on average decreasing, there are some countries where, on average, the rates have not decreased. For example, as mentioned in **Box 1**, standard rates have more than doubled in the United States from 1993 to 2003. The average standard rates in Canada, Korea, Mexico and the United Kingdom have not changed in that time.<sup>6</sup>

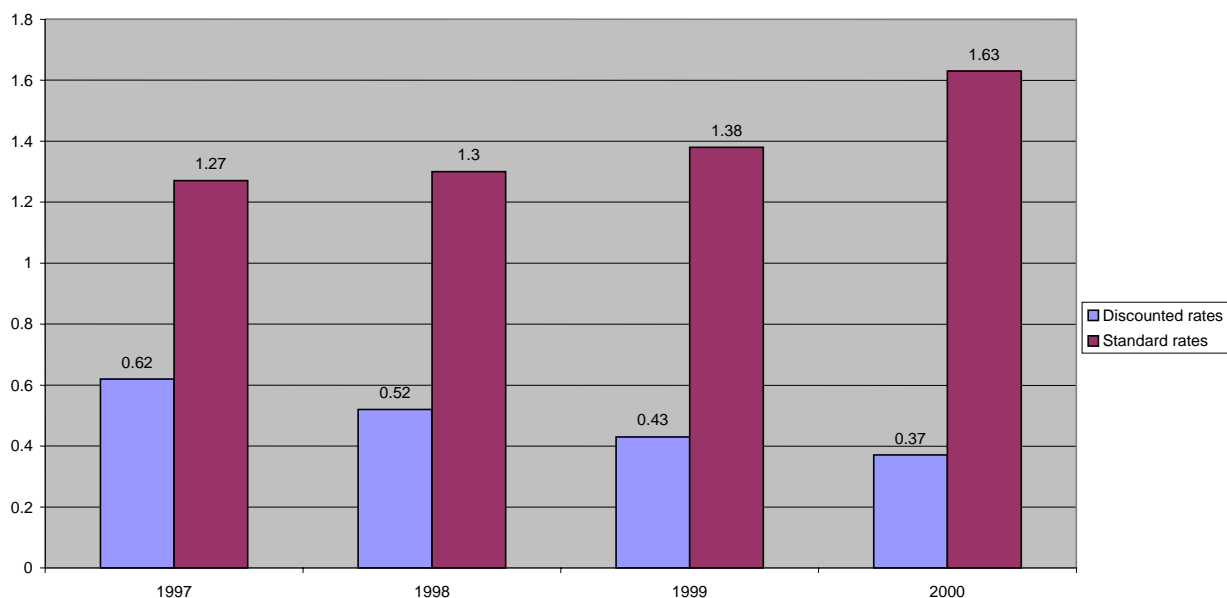
If discounted rates are taken into account, the average decline in international rates can be fully appreciated. In 2003, the average rate across the OECD was USD 0.33, which represented a 74% reduction since 1993. The majority of OECD countries have had more than 70% decreases in the average rates over the same period. Even in those countries where the average standard rates have not decreased, the average discounted rates have had much larger decreases. In addition, when discounted rates in 2003 are compared with standard rates in 1993 and 1998, it is much clearer that most of the reductions can be found after 1998. This reflects the fact that 1998 was the first year in which the majority of OECD countries had liberalised their telecommunications market.

### Box 1. The FCC'S consumer education role and international telephony

The FCC has noted the large and growing differences between the standard rates, known as basic rates in the United States, and the readily available discounted rates for international telephony.<sup>7</sup> Data gathered by the FCC shows that the average price to call from the United States to all international destinations has declined sharply in recent years due to discount plans. Consumer use of international calling plans is increasing as consumers become more aware of calling plan savings. The use of these plans is helping to drive down the average price of an international call.

Even though average prices are decreasing significantly and many consumers are switching to calling plans, the rates paid by consumers remain high if they do not subscribe to a discount plan. All consumers, whether high volume users, or occasional callers, have an alternative to basic rates. An occasional caller can use 'dial-around' and get a low rate without paying a monthly fee. Relatively inexpensive pre-paid calling cards are also available. The solution for anyone making more than one or two minutes of international calls per month, was to subscribe for a small fixed fee. On the other hand, if users did not subscribe to a discount plan basic international rates have been rising (**Figure 1**). In the ten years leading to 2000, basic international rates rose by 60%.

**Figure 1. Comparison between discounted rates and standard rates in the US**  
Rates per minute in USD

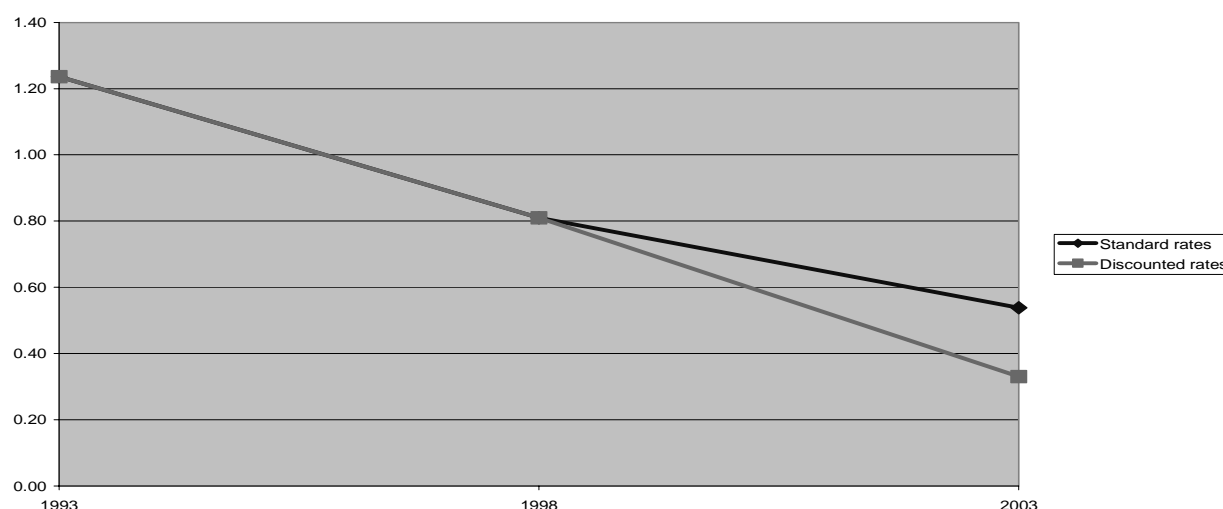


Note: Rates are weighted averages of the large US international carriers for all international routes combined. Monthly fees are included in discounted rates.  
Source: FCC.

The foregoing trend is one reason why the bulk of international traffic is carried at discounted prices. In 2000, some 88% of international minutes came under a discount plan. The FCC noted, in 2001, that minutes under standard rates still accounted for 37% of carriers' international revenue from dialled international services. In fact, one-third of households that used their regular carrier to make an international call in a typical month paid basic rates.

The FCC believes that households' failure to take advantage of discount plans reflects an information problem. Consumers find calling plans confusing or are not aware of the significant discounts they provide. Also, some consumers are reluctant to try new service plans due to concern that unanticipated charges may appear on their bills. The FCC's response to this situation is to try to raise consumers' awareness of the international pricing structures of international carriers. One example is by providing informative brochures in 13 different languages. Benchmarking standard rates against discounted rates provides another tool to inform consumers. The United States case shows that rates with discount options should be the main target for analysis on international calling prices taking into account that most informed users choose discount options or of available alternatives.

**Figure 2. Trends in international calling rates per minute at peak times**  
 OECD average rate to all other OECD countries, USD, 1993-2003



### Analysis of discount plans

Most international carriers offer various types of discount plans to attract users and try to retain their loyalty. Most users opt for the discount plan that best suits their needs though it may be of concern when they do not do so in significant numbers. Traditionally even standard rates contained peak and off-peak rates overtly designed to manage available capacity. In addition to discounts at off-peak times, most carriers offer different discount options for their users by asking them to register for a scheme or certain preferences (*e.g.* number, country) and sometimes to pay a monthly fee. The overview of discount plans among main OECD carriers is shown in **Table 9**. In the following sections, different types of discount options offered by the leading international carriers in OECD countries are examined.

### Off-peak times rates

Off-peak rates are one of the most common discounts offered by international carriers. As shown in **Table 10**, some 19 carriers in OECD countries provide off-peak rates for customers. The discount rates for off-peak rates vary widely among carriers. The largest discount is found in Japan. For example, it costs a user in Japan some USD 1.54 per minute at peak rates to call France or Germany. But at off-peak times the same call could be made for USD 0.48 per minute, which is 69% lower than the peak time rate.

There is a trend in OECD countries that international calling rates have become less time-sensitive. In 1998, all OECD countries, except Poland, had off-peak rates which were 21.1% lower than peak time rates (as the average among OECD countries which had off-peak rates). In 2003, there are some 11 OECD countries which provide single rates regardless of peak and off-peak times. Moreover, Canada, Finland, Mexico, Portugal and the United States have introduced discounted rates which are applied 24 hours a day, seven days a week. Therefore, more than half of OECD countries offer unified single rates with regard to time. However, the difference between peak rates and off-peak rates has become larger. In 2003, the off-peak rates are 26.7% lower than the peak rates as the average among OECD countries, which have off-peak rates. One question that is raised is whether the traditional reason given for peak and off-peak still applies or applies equally to all international routes. Given the large increases in international capacity is there still a need to manage traffic through peak and off-peak rates or is this simply a feature of pricing that consumers have learned to expect?

Table 6. Published standard international calling rates per minute at off peak times, March 2003, in USD

From	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average	
Australia	0.38	0.50	0.25	0.52	0.36	0.38	0.30	0.30	0.30	0.52	0.63	0.26	0.28	0.30	0.47	0.52	0.63	0.83	0.36	0.19	0.38	0.52	0.63	0.45	0.42	0.30	0.30	0.47	0.22	0.19	0.39	
Austria	0.30	0.25	0.30	0.20	0.25	0.25	0.20	0.20	0.20	0.34	0.20	0.45	0.25	0.20	0.30	0.30	0.40	0.25	0.30	0.25	0.30	0.34	0.30	0.20	0.25	0.20	0.20	0.34	0.25	0.30	0.28	
Belgium	0.30	0.18	0.09	0.40	0.18	0.18	0.09	0.09	0.18	0.40	0.30	0.18	0.09	0.30	0.40	0.30	0.40	0.09	0.18	0.18	0.18	0.40	0.18	0.40	0.09	0.18	0.18	0.30	0.09	0.08	0.22	
Canada	0.54	0.69	0.76	1.01	0.61	0.63	0.44	0.57	0.89	0.76	0.76	0.56	0.69	0.69	0.95	0.89	0.89	0.89	0.57	0.60	0.63	0.80	0.76	1.01	1.04	0.47	0.44	1.08	0.34	0.11	0.70	
Czech Rep.	0.23	0.20	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.34	0.34	0.23	0.81	0.23	0.34	0.23	0.20	0.20	0.20	0.23	0.20	0.23	0.47	0.23	0.23	0.27	
Denmark	0.43	0.18	0.18	0.30	0.18	0.18	0.14	0.30	0.30	0.25	0.25	0.18	0.68	1.12	0.18	1.12	0.18	1.12	0.81	0.81	0.68	0.23	0.30	0.30	0.25	0.06	0.18	0.35	0.14	0.18	0.31	
Finland	0.35	0.22	0.22	0.28	0.09	0.22	0.22	0.32	0.28	0.32	0.28	0.22	0.22	0.22	0.56	1.07	0.22	1.29	0.22	0.38	0.09	0.28	0.32	0.28	0.22	0.09	0.32	0.46	0.22	0.22	0.33	
France	0.21	0.14	0.12	0.27	0.14	0.14	0.12	0.12	0.12	0.12	0.27	0.36	0.14	0.12	0.23	0.23	0.12	0.40	0.12	0.21	0.14	0.27	0.14	0.27	0.12	0.12	0.12	0.27	0.12	0.12	0.18	
Germany	0.64	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.10	0.10	0.64	0.64	0.10	0.81	0.10	0.81	0.10	0.10	0.20	0.10	0.20	0.10	0.10	0.10	0.20	0.10	0.10	0.23	
Greece	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.23	0.20	0.42	0.20	0.66	0.20	0.23	0.20	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.23
Hungary	0.26	0.17	0.17	0.26	0.17	0.17	0.17	0.17	0.17	0.40	0.26	0.17	0.51	0.45	0.17	0.51	0.17	0.51	0.17	0.67	0.26	0.21	0.21	0.21	0.17	0.17	0.17	0.40	0.17	0.21	0.26	
Iceland	0.20	0.22	0.20	0.17	0.39	0.17	0.19	0.19	0.39	0.34	0.20	0.20	0.20	0.20	0.43	0.52	0.20	0.80	0.19	0.39	0.17	0.30	0.20	0.39	0.19	0.17	0.22	0.52	0.18	0.18	0.27	
Ireland	0.34	0.33	0.23	0.33	0.33	0.33	0.23	0.23	0.33	0.33	0.33	0.33	0.33	0.33	0.34	0.96	0.23	0.48	0.23	0.34	0.33	0.33	0.33	0.62	0.33	0.33	0.33	0.62	0.10	0.12	0.34	
Italy	0.73	0.20	0.20	0.34	0.20	0.20	0.20	0.20	0.20	0.34	0.34	0.20	0.20	0.73	0.73	0.73	0.20	0.84	0.20	0.73	0.20	0.34	0.20	0.34	0.20	0.20	0.20	0.45	0.20	0.20	0.33	
Japan	0.94	1.42	0.86	1.58	1.42	1.42	0.48	1.42	1.42	1.58	1.42	1.42	1.42	1.42	0.72	1.42	1.20	1.42	1.20	1.42	1.08	1.42	1.58	1.42	1.42	1.42	1.42	1.42	0.48	0.32	1.22	
Korea	0.79	0.89	0.93	0.89	0.89	0.89	0.68	0.68	0.89	0.89	0.89	0.89	0.89	0.68	0.50	0.89	1.09	0.87	0.76	0.89	0.89	0.93	0.89	0.93	0.87	0.87	0.87	0.89	0.72	0.21	0.83	
Luxembourg	0.16	0.10	0.10	0.16	0.10	0.10	0.10	0.10	0.10	0.16	0.16	0.10	0.10	0.16	0.40	0.40	0.10	0.40	0.10	0.40	0.10	0.10	0.10	0.26	0.10	0.10	0.10	0.40	0.10	0.10	0.16	
Mexico	1.16	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.16	1.16	1.03	1.03	1.03	1.03	1.16	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.02	
Netherlands	0.11	0.10	0.05	0.06	0.06	0.08	0.05	0.05	0.05	0.16	0.17	0.21	0.08	0.08	0.20	0.29	0.06	0.37	0.13	0.08	0.13	0.08	0.17	0.16	0.20	0.08	0.06	0.21	0.04	0.04	0.12	
New Zealand	0.19	0.37	0.22	0.63	0.37	0.37	0.37	0.37	0.37	0.42	0.77	0.22	0.37	0.33	0.28	0.37	0.55	0.37	0.55	0.37	0.37	0.63	0.37	0.63	0.37	0.37	0.37	0.55	0.22	0.22	0.39	
Norway	0.09	0.12	0.07	0.08	0.25	0.07	0.10	0.08	0.07	0.20	0.25	0.20	0.11	0.08	0.12	0.52	0.16	0.59	0.08	0.16	0.16	0.23	0.25	0.30	0.08	0.07	0.08	0.42	0.08	0.08	0.17	
Poland	0.50	0.35	0.50	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	1.56	1.56	1.56	1.56	1.56	1.56	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.50	0.54	
Portugal	0.36	0.11	0.11	0.23	0.11	0.11	0.08	0.10	0.11	0.23	0.23	0.11	0.11	0.11	0.36	0.36	0.11	0.81	0.11	0.61	0.11	0.23	0.23	0.23	0.06	0.11	0.10	0.23	0.10	0.10	0.19	
Slovak Rep.	0.26	0.19	0.21	0.19	0.21	0.21	0.21	0.21	0.21	0.26	0.19	0.42	0.21	0.21	0.42	0.62	0.21	0.62	0.21	0.62	0.26	0.19	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.27	
Spain	0.68	0.14	0.14	0.38	0.33	0.14	0.14	0.14	0.14	0.33	0.28	0.14	0.14	0.68	0.68	0.14	0.45	0.14	0.45	0.14	0.68	0.28	0.33	0.14	0.33	0.14	0.14	0.33	0.14	0.14	0.28	
Sweden	0.29	0.16	0.10	0.10	0.29	0.08	0.08	0.10	0.08	0.29	0.08	0.16	0.16	0.29	0.82	0.10	0.61	0.10	0.61	0.29	0.08	0.16	0.29	0.29	0.16	0.10	0.29	0.08	0.08	0.21	0.21	
Switzerland	0.12	0.06	0.12	0.06	0.30	0.12	0.12	0.06	0.06	0.12	0.30	0.12	0.12	0.06	0.12	0.12	0.12	0.30	0.12	0.12	0.12	0.30	0.12	0.30	0.12	0.12	0.12	0.30	0.06	0.06	0.14	
Turkey	0.74	0.40	0.40	0.40	0.40	0.74	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.74	1.24	0.41	0.74	0.41	0.74	1.24	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	
UK	0.50	0.41	0.29	0.41	0.29	0.41	0.29	0.29	0.33	0.41	0.69	0.23	0.33	0.69	1.22	0.29	1.22	0.29	1.22	0.29	0.50	0.41	0.41	0.33	0.41	0.33	0.29	0.29	0.69	0.27	0.44	
US	1.96	1.85	1.86	2.87	1.79	1.67	1.61	1.55	2.46	2.55	2.10	1.67	2.00	1.97	2.40	1.41	1.52	1.61	2.49	1.67	2.39	2.00	2.83	2.07	1.61	1.65	2.49	1.49	1.61	1.94	1.94	
Average	0.47	0.38	0.37	0.28	0.51	0.36	0.38	0.30	0.30	0.43	0.48	0.49	0.35	0.36	0.54	0.72	0.37	0.75	0.36	0.64	0.37	0.47	0.42	0.52	0.40	0.35	0.36	0.56	0.28	0.19	0.43	

## Notes:

1. Taxes are excluded.
2. One minute charge is calculated by (one initial minute + three additional minutes)/4.
3. Luxembourg (EPT) has discounted rates for calls to neighbouring areas in Belgium, France and Germany.
4. Netherlands (KPN) has discounted rates for calls to some large cities in Belgium, France, Germany, Italy, Spain, UK and US.
5. For Mexico (TELMEX), the average of all rates segments is used for calls to the United States.

Source: OECD.

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Table 7. Comparison of average rates between standard rates and discounted rates at peak times

Country	Carriers	Standard rates at peak times (per minute in USD)	Discounted rates at peak times (per minute in USD)	% of discounts	Monthly charge (1) (in USD)	Applied discount options
Australia	Telstra	0.39	0.32	-18.68%	1.48	Homeline Plus
Austria	Telecom Austria	0.32	0.27	-13.06%	0.00	Tiktak International at peak times
Belgium	Belgacom	0.29	0.28	-6.02%	1.54	Standard peak rates, Belgacom Benefit Partner
Canada	Bell Canada	0.92	0.14	-84.42%	3.15	FirstRate Overseas
Czech Republic	Cesky Telecom	0.32	0.29	-8.50%	5.82	Home Maxi at peak times (2)
Denmark	Tele Danmark	0.31	0.31	0.00%	0.00	Standard rates
Finland	Sonera	0.42	0.30	-28.82%	0.00	990 Express
France	France Telecom	0.29	0.29	0.00%	0.00	Standard peak rates
Germany	Deutsche Telecom	0.23	0.18	-21.22%	4.12	Aktiv Plus
Greece	OTE	0.23	0.23	0.00%	0.00	Standard peak rates
Hungary	Matav	0.26	0.26	0.00%	0.00	Standard rates
Iceland	Iceland Telecom	0.27	0.27	0.00%	0.00	Standard rates
Ireland	eircom	0.42	0.31	-24.99%	0.00	eircom options gold world at peak times
Italy	Telecom Italia	0.33	0.22	-32.31%	5.16	Teleconomy 24, Opzione Internazionale (3)
Japan	KDDI	1.78	1.07	-40.00%	1.60	Marutoku Light II at peak times
Korea	Korean Telecom	0.92	0.64	-30.53%	0.00	001 Special DC (4)
Luxembourg	EPT	0.18	0.18	0.00%	0.00	Standard peak rates
Mexico	TELMEX	1.52	0.55	-63.95%	0.00	Lada Unica, Lada Ahorro
Netherlands	KPN	0.16	0.16	0.00%	0.00	Standard peak rates
New Zealand	Telecom New Zealand	0.55	0.55	0.00%	0.00	Standard peak rates
Norway	Telenor	0.17	0.17	0.00%	0.00	Standard rates
Poland	TPSA	0.54	0.44	-18.78%	0.00	Za granice tniej
Portugal	Marconi(PT)	0.33	0.24	-26.88%	0.00	Marconi Alegre Internacional
Slovak Republic	Slovak Telecom	0.27	0.27	0.00%	0.00	Standard rates
Spain	Telefonica	0.28	0.21	-23.07%	0.00	Plan Hello
Sweden	Telia	0.21	0.21	0.00%	0.00	Standard rates
Switzerland	Swisscom	0.18	0.18	0.00%	0.00	Standard peak rates
Turkey	Turk Telecom	0.72	0.72	0.00%	0.00	Standard peak rates
United Kingdom	British Telecom	0.54	0.33	-39.20%	2.54	BT Together at peak times
United States	AT&T	2.78	0.18	-93.53%	2.95	AT&T AnyHour International Savings Plan
OECD Average		0.54	0.33	-39.35%	0.95	

Notes:

- (1) Line rental charges are excluded.
- (2) Cesky Telecom offers Home Maxi Plus which has 3% lower international calling rates than Home Maxi with a monthly charge of USD 23.24. But Home Maxi Plus is offered for Internet users because this plan has much larger free credits of USD 15.27 per month which are intended for Internet connections. It is assumed that the difference of monthly charge of USD 8.37 between Home Maxi and Home Maxi Plus is too large for users who mainly use international calls to choose Home Maxi Plus.
- (3) Two discount options, Teleconomy 24 (USD 4.39 per month) and Opzione Internazionale (USD 0.77 per month) are combined for Telecom Italia.
- (4) Korean Telecom charges one-off payment of USD 7.99 as registration charges for 001 Special DC.

Source: OECD.

**Table 8. OECD trends in international calling rates from 1993 to 2003**  
Average of peak one-minute calls to all other OECD countries in USD

	1993 (Standard rates)	1998 (Standard rates)	2003 (Standard rates)	Change (%) 1993-2003	Change (%) 1998-2003	2003 (Discounted rates)	Change (%) 1993-2003	Change (%) 1998- 2003
Australia	1.30	1.25	0.39	-70%	-69%	0.32	-75%	-74%
Austria	1.28	0.52	0.32	-75%	-39%	0.27	-79%	-47%
Belgium	1.12	0.68	0.29	-74%	-57%	0.28	-75%	-59%
Canada	1.22	0.94	0.92	-25%	-2%	0.14	-88%	-85%
Czech Republic	..	0.97	0.32	..	-67%	0.29	..	-70%
Denmark	0.82	0.60	0.31	-62%	-48%	0.31	-62%	-48%
Finland	0.69	0.61	0.42	-39%	-31%	0.30	-56%	-51%
France	1.02	0.37	0.29	-72%	-22%	0.29	-72%	-22%
Germany	0.97	0.60	0.23	-76%	-62%	0.18	-81%	-70%
Greece	0.97	0.61	0.23	-76%	-62%	0.23	-76%	-62%
Hungary	..	0.50	0.26	..	-49%	0.26	..	-49%
Iceland	1.35	0.79	0.27	-80%	-65%	0.27	-80%	-65%
Ireland	1.37	0.64	0.42	-69%	-34%	0.31	-77%	-51%
Italy	1.37	0.69	0.33	-76%	-52%	0.22	-84%	-68%
Japan	2.51	1.96	1.78	-29%	-9%	1.07	-57%	-45%
Korea	..	0.92	0.92	..	0%	0.64	..	-31%
Luxembourg	0.97	0.53	0.18	-81%	-66%	0.18	-81%	-66%
Mexico	..	1.58	1.52	..	-3%	0.55	..	-65%
Netherlands	0.97	0.39	0.16	-83%	-58%	0.16	-83%	-58%
New Zealand	1.36	1.58	0.55	-59%	-65%	0.55	-59%	-65%
Norway	0.71	0.52	0.17	-76%	-67%	0.17	-76%	-67%
Poland	..	0.69	0.54	..	-22%	0.44	..	-37%
Portugal	1.56	0.72	0.33	-79%	-55%	0.24	-85%	-67%
Slovak Republic	..	..	0.27	..	..	0.27	..	..
Spain	1.57	0.63	0.28	-82%	-56%	0.21	-86%	-66%
Sweden	1.08	0.49	0.21	-81%	-58%	0.21	-81%	-58%
Switzerland	1.00	0.73	0.18	-82%	-75%	0.18	-82%	-75%
Turkey	2.35	1.00	0.72	-69%	-28%	0.72	-69%	-28%
United Kingdom	0.78	0.52	0.54	-31%	3%	0.33	-58%	-37%
United States	1.33	1.45	2.78	109%	92%	0.18	-86%	-88%
OECD Average	1.24	0.81	0.54	-56%	-34%	0.33	-74%	-60%

Source: OECD.

**Table 9. Availability of discount options**

Country	Carriers	Availability of off-peak rates	Discounted rates	Volume discounts	Discounts on selected countries or numbers	Other discount options
Australia	Telstra	No	Homeline Plus			0011 10 minute, 0018 Easy Half Hours
Austria	Telecom Austria	Yes	Tiktak International		Tiktak International Package	
Belgium	Belgacom	Yes		Belgacom Benefit Partner	Belgacom Benefit +	
Canada	Bell Canada	Yes	First Rate Overseas			
Czech Republic	Cesky Telecom	Yes	Home Maxi			
Denmark	Tele Denmark	Yes				
Finland	Sonera	No	990 Express			
France	France Telecom	Yes			Primaliste Pays Mon Numero Préféré Primaliste	
Germany	Deutsche Telecom	Yes	Aktiv Plus			
Greece	OTE	No				
Hungary	Matav	No			Favorite Country 0-24, Favorite Country 18-7 Friends & Family abroad	
Iceland	Iceland Telecom	No				
Ireland	EIRCOM	Yes	eircom options	International Volume Discount	Circle of friends	
Italy	Telecom Italia	No	Teleconomy 24, Opzione Internazionale			
Japan	KDDI	Yes		Danzen Talk II Marutoku Light 2	Danzen Talk II DX	
Korea	Korean Telecom	Yes	001 Special DC	001 Long term contract Discount	001 frequently called number service	
Luxembourg	EPT	Yes	Package Passport		Most called numbers, Most called countries Lada favorito	
Mexico	TELMEX	Yes	Lada Unica	Lada Ahorro	VoordeelNummers Buitenland	
Netherlands	KPN	Yes			Super Low Rate	\$4&\$8 International Weekends and Weeknights, Residential international calling - capped rates
New Zealand	Telecom New Zealand	Yes				
Norway	Telenor	No			Familie & Venner Utland	
Poland	TPSA	No			Wybeane numery TP	
Portugal	Marconi(PT)	Yes	Marconi Alegro Internacional	Marconi Alegro Internacional	Familia e Amigos, Marconi Relação Mais	
Slovak Republic	Slovak Telecom (1)	No				
Spain	Telefonica	No		Plan Hello		Bono Minuto (2), Europa 15, USA 15 (3)
Sweden	Telia	No				
Switzerland	Swisscom	Yes				Weekend Call International (4)
Turkey	Turk Telecom	Yes				
United Kingdom	British Telecom	Yes	BT Together	BT Call & Save	BT Together International Options, Friends and Family Overseas, Friends and Family	
United States	AT&T	Yes	AT&T AnyHour International Savings Plan			

**Notes:**

(1) Slovak Telecom offers three types of tariff plans, which are ST Mini, ST Standard and ST Maxi. Although ST Mini has more expensive rates with lower monthly charges, ST Standard is used as standard rates for international calls. Since ST Standard and ST Maxi have same rates for international calls, it appears no discount option is available in this table.

(2) Users can call to European countries and the United States for 200 minutes per month with a monthly payment of USD 17.01.

(3) Users can call to European countries or the United States for 15 minutes everyday by paying a monthly charge of USD 9.43 for the United States and USD 8.51 for Europe.

(4) This option offers discounts for international calls to Austria, Canada, France, Germany, Italy, Liechtenstein, UK and US during the weekend without registration. The first minutes of a conversation are charged normally until they add up to maximum of USD 1.92 then users can call for up to one hour with USD 1.92.

Source: OECD.

*Discounted rates*

Some 15 carriers in OECD countries have discounted rates which can be applied to calling other countries (**Table 11**). If users want to subscribe to these discount plans, they need to register with the carrier concerned. But only Korea charges a registration fee of USD 7.99. Some eight out of the 15 carriers charge users a monthly fee for applying discount rates. For their part users need to calculate their expected monthly usage and judge which discount plan is most beneficial. As noted, AT&T has the largest discounts relative to their standard rates. For example, the standard price for a peak rate call, from the United States to Greece, is USD 3.65 per minute. But if users in the United States subscribed to “AT&T AnyHour International Savings Plan” and paying USD 2.95 per month, they can make a call to Greece with a charge of USD 0.14 per minute at any time. This discount rate is just 4% of the standard rate at peak times. In other words, a one-minute call to Greece, with this saving plan, will give subscribers enough savings to justify paying the monthly fee.

Eight carriers among the 15 carriers offering discount rates do so without an additional fixed fee. In these cases users only need to register under a certain plan. This registration, and the resulting discount, gives users an incentive to choose that carrier when making international calls. One carrier in Ireland offers ‘eircom options world’ which gives users different discount rates according to a total monthly billed amount. If the monthly amount exceeds USD 9.98, users are placed into ‘eircom option bronze’ and then able to get less expensive rates for local and national calls. If the monthly amount exceeds USD 19.96 and USD 39.92, users are classified into ‘eircom option silver and gold’ respectively, which give them larger discounts. The rates of eircom ‘option gold world’ are about 25% cheaper than the basic rates. This scheme differentiates users by the monthly billed amount and provides more privileges to users with higher expenditure in order to retain their loyalty.

*Volume discounts on total monthly charges*

Some eight carriers in OECD countries have volume discounts on total monthly charges for users (**Table 12**). A volume discount on total monthly charges is one of the simplest discount plans. When users subscribe to the volume discount option, the total monthly charge will be reduced by some given percentage. Notably some six out of eight carriers provide volume discounts on total monthly charges without an additional fee. Only Belgacom and KDDI charge monthly fees for volume discounts. Four of the eight carriers provide volume discounts according to how much a user spends in a month. This means that if users spend more on international calls, carriers will increase the level of discount.

*Discounts on selected countries or numbers*

Another common discount plan for international calls is for discounts to be applied on selected countries or numbers. These plans allow users to get discounts on calls to certain countries or numbers which they choose or carriers automatically select as being the most frequently called countries or numbers. In many cases, especially for residential users, the majority of international calls are placed to a small amount of numbers such as family or friends. Accordingly, this type of discount plan matches their pattern of international calls and essentially tailors discounts for their usages.

Some 16 carriers in OECD countries provide discounts on selected countries or numbers (**Table 13**). Ten carriers have discounts on selected numbers and eight carriers have discounts on countries. Nine carriers allow users to choose countries or numbers to be discounted. Six carriers choose discounted countries or numbers automatically according to the number of times calls are made or the total amount of charges.<sup>8</sup>

**Table 10. Comparison on time-sensitivity of published standard rates**

Country	Carriers	Types of standard rates	% of discounts at off-peak times
Australia	Telstra	single rate	
Austria	Telecom Austria	peak and off-peak rates	0%~17%
Belgium	Belgacom	peak and off-peak rates	18%~44%
Canada	Bell Canada	peak and off-peak rates	10%~60%
Czech Republic	Cesky Telecom	peak and off-peak rates	12%~21%
Denmark	Tele Denmark	single rate	
Finland	Sonera	peak and off-peak rates	0%~38%
France	France Telecom	peak and off-peak rates	19%~48%
Germany	Deutsche Telecom	single rate	
Greece	OTE	peak and off-peak rates	0%~10%
Hungary	Matav	single rate	
Iceland	Iceland Telecom	single rate	
Ireland	EIRCOM	peak and off-peak rates	0%~49%
Italy	Telecom Italia	single rate	
Japan	KDDI	peak and off-peak rates	2%~69%
Korea	Korean Telecom	peak and off-peak rates	about 10%
Luxembourg	EPT	peak and off-peak rates	0%~20%
Mexico	TELMEX	peak and off-peak rates	33%
Netherlands	KPN	peak and off-peak rates	17%~27%
New Zealand	Telecom New Zealand	peak and off-peak rates	17%~51%
Norway	Telenor	single rate	
Poland	TPSA	single rate	
Portugal	Marconi(PT)	peak and off-peak rates	20%~54%
Slovak Republic	Slovak Telecom	single rate	
Spain	Telefonica	single rate	
Sweden	Telia	single rate	
Switzerland	Swisscom	peak and off-peak rates	17%~23%
Turkey	Turk Telecom	peak and off-peak rates	20%~36%
United Kingdom	British Telecom	peak and off-peak rates	4%~28%
United States	AT&T	peak and off-peak rates	9%~40%

*Notes:*

1. Carriers which have a single rate apply one single published standard rate regardless of time and day.

2. The percentage of discounts is calculated by comparing the one minute average of the first 4 minutes between peak and off-peak rates.

Source: OECD.

**Table 11. Availability of discounted rates**

Country	Carriers	Availability	Name of a discount option	Monthly charge (in USD)	% of discounts (1)
Australia	Telstra	Yes	Homeline Plus	1.48	5%~45% off
Austria	Telecom Austria	Yes	Tiktak International	0.00	17%~30% off
Belgium	Belgacom	No			
Canada	Bell Canada	Yes	First Rate Overseas	3.15	64%~92% off
Czech Republic	Cesky Telecom	Yes	Home Maxi	5.82	0%~13% off
Denmark	Tele Denmark	No			
Finland	Sonera	Yes	990 Express	0.00	4%~47% off
France	France Telecom	No			
Germany	Deutsche Telecom	Yes	Aktiv Plus	4.12	0%~63% off
Greece	OTE	No			
Hungary	Matav	No			
Iceland	Iceland Telecom	No			
Ireland	EIRCOM	Yes	eircom options	0.00	up to 25% off (2)
Italy	Telecom Italia	Yes	Opzione Internazionale	0.77	Reduced rate of \$0.05 for 18 OECD countries
			Teleconomy 24	4.39	18%~22% off
Japan	KDDI	No			
Korea	Korean Telecom	Yes	001 Special DC	0.00 (3)	14%~56% off
Luxembourg	EPT	Yes	Package Passport	8.19	up to 40% off rates for 21 countries (4)
Mexico	TELMEX	Yes	Lada Unica	0.00 (5)	11%~52% off
Netherlands	KPN				
New Zealand	Telecom New Zealand	No			
Norway	Telenor	No			
Poland	TPSA	Yes		0.00	14~43% off
Portugal	Marconi (PT)	Yes	Marconi Alegro Internacional	0.00	13%~31% off plus max 10% off as volume discounts
Slovak Republic	Slovak Telecom	No			
Spain	Telefonica	No			
Sweden	Telia	No			
Switzerland	Swisscom	No			
Turkey	Turk Telecom	No			
United Kingdom	British Telecom	Yes	BT Together(6)	2.54	30%~79% off
United States	AT&T	Yes	AT&T AnyHour International Savings Plan	2.95	84%~96% off

(1) The percentage of discounts is calculated by comparing the one minute average of the first 4 minutes at peak time.

(2) Different discounted rates will be applied according to monthly charge.

Additional discounts are applicable with world select options.

(3) Korean Telecom charges a one-off payment of USD 7.99 as registration charges for 001 Special DC.

(4) Only applicable 8am-7pm from Monday to Friday.

(5) A monthly consumption above USD 10.16 in long distance during the last 6 months is required.

(6) BT Together has an inclusive call allowance of USD 3.05 (tax excluded) per month.

Source: OECD.

EPT of Luxembourg has discounts on both three frequently called countries and numbers automatically selected by the number of times calls are made. EPT offers 20% discounts for calls to the three most frequent countries automatically chosen in terms of the frequency of calls among 21 countries. EPT also offers 30% discount for calls to the three most frequent numbers if the total monthly charges for international calls exceeds USD 113.20. KDDI of Japan has the largest discount rate for selected numbers.

KDDI offers a 45% discount for calls to the most frequently called number automatically chosen according to the charges, with a monthly charge of USD 1.68. In addition, calls to the second most frequently called number receive a 35% discount and the rest of calls get a 25% discount.

If carriers automatically apply discounts users are in most cases certain to receive the best available rate from that carrier. This is not, however, always the case. For example if a discount is applied on the frequency of the call rather than the actual cost then the greatest discount may be applied to lower cost areas of usage. In Luxembourg, if a carrier chooses countries or numbers according to the total number of calls, the largest discounts are not guaranteed. If a user calls from Luxembourg to France for a minute everyday and calls to Mexico for 100 minutes just once in a month, calls to France will get discounted. In this case the user will not receive the largest discounts. Country or number selection by users gives them discretion. But users may not know in advance how many minutes they are going to call to those selected countries or numbers. So the optimum discounts might not be achieved with selection by users.

### *Discounts on a block of time*

This is another type of discount option, especially in the Oceania region. Carriers in Australia and New Zealand provide discount options for users on individual blocks of time. For example, Telstra's "0018 Easy Half Hours" option gives a half hour block with the average of USD 7.05 for other OECD countries and users will get another half hour for free. In other words, users can get the block of one hour with a fixed charge, which is 67% lower, on average, than 60 minutes at standard rates. Telecom New Zealand has introduced capped rates for 21 OECD countries. If users subscribe to the capped rates option, they can make a call for two hours at off-peak times with the fixed rate. In cases where they do not exceed the fixed rate, users will be charged at standard rates for the duration of the call. The fixed rates are 86% lower, on average, than standard rates if users call exactly for two hours at off-peak times.

### **International calling rates to mobile phones**

As the penetration of mobile phones has increased so has the amount of international traffic towards mobile phones. If an international call is made to a mobile phone there can be a significant difference in price compared to an international call to a fixed network. In these cases the price difference is because the mobile carrier charges a higher fee than a fixed network operator to terminate the call in that country. International carriers often handle negotiations for international termination on mobile networks. In these cases the receiving international carrier must also negotiate with its domestic mobile operator for domestic termination charges. Therefore, mobile termination charges and their resulting impact on end-user prices are different among carriers and destinations. Although the termination charges may be different across both fixed and mobile networks, international carriers average these prices so that users only pay one rate depending on whether they are calling a fixed or mobile network. In order to assess the current pricing structure of international calls to mobile phones, the difference between charges for international calls to fixed networks and mobile phones are calculated across the OECD (**Table 14**). In addition, **Table 15** summarises some main findings in respect to the additional charges where they apply. For example, it is notable that international calls to some countries incur the same charges whether they are to fixed or mobile networks. On the other hand the majority of OECD countries charge different rates for international calls depending on network termination.

**Table 12. Availability of volume discounts on total monthly charges**

Country	Carriers	Availability	Name of a discount option	Monthly Charge (in USD)	% of discounts
Australia	Telstra	No			
Austria	Telecom Austria	No			
Belgium	Belgacom	Yes	Belgacom Benefit Partner	1.94	40% (1)
Canada	Bell Canada	No			
Czech Republic	Cesky Telecom	No			
Denmark	Tele Denmark	No			
Finland	Sonera	No			
France	France Telecom	No			
Germany	Deutsche Telecom	No			
Greece	OTE	No			
Hungary	Matav	No			
Iceland	Iceland Telecom	No			
Ireland	EIRCOM	Yes	International Volume Discount	0.00	0%~30%
Italy	Telecom Italia	No			
Japan	KDDI	Yes	Danzen Talk II	0.00	25% (2)
			Marutoku Light II	1.60	40%(3)
Korea	Korean Telecom	Yes	001 Long term contract Discount	0.00	10% (4)
Luxembourg	EPT	No			
Mexico	TELMEX	Yes	Lada Ahorro	0.00	12%~39%
Netherlands	KPN	No			
New Zealand	Telecom New Zealand	No			
Norway	Telenor	No			
Poland	TPSA	No			
Portugal	Marconi(PT)	Yes	Marconi Alegro Internacional	0.00	0%~10% off
Slovak Republic	Slovak Telecom	No			
Spain	Telefonica	Yes	Plan Hello	0.00	0%~33%off
Sweden	Telia	No			
Switzerland	Swisscom	No			
Turkey	Turk Telecom	No			
United Kingdom	British Telecom	Yes	BT Call & Save	0.00	10% off (5)
United States	AT&T	No			

Source: OECD.

Notes:

(1) Limited to calls to neighbouring countries, Italy, Spain, UK and US during peak time.

(2) 25% discount is applied when the total monthly charge for domestic and international calls exceeds USD 8.4.

(3) 40% discount is applied when the total monthly charge for domestic and international calls exceeds USD 8.4.

(4) Discounts are applied when the total monthly charge exceeds USD 15.99.

Additional discounts up to 20% are available with a longer contract with Korean Telecom.

(5) 10% discount on eligible direct dialed calls including international calls over a threshold of USD 31.75 (tax excluded).

Table 13. Availability of discount options for selected countries or numbers

Country	Carriers	Availability	Name of a discount option	Monthly charge (in USD)	# of selected countries/numbers	Selection of countries/numbers	Description of a discount scheme
Australia	Telstra	No					
Austria	Telecom Austria	Yes	Tiktak International Package	1.37 per country	Up to 5	by users	UDS 0.11 per minute for calls to selected countries (1)
Belgium	Belgacom	Yes	Belgacom Benefit +	0.77 per country		by users	20% off on calls to the selected countries
Canada	Bell Canada	No					
Czech Republic	Cesky Telecom	No					
Denmark	Tele Denmark	No					
Finland	Sonera	No					
France	France Telecom	Yes	Primaliste Pays	0.00	1	by users	25% off on calls to the selected country
			Mon Numéro Préféré	0.00	1	by users	50% off on calls to one selected number
			Primaliste	1.42	6	by users/automatic	25% off on calls to selected numbers
Germany	Deutsche Telecom	No					
Greece	OTE	No					
Hungary	Matav	Yes	Favorite Country 0-24	2.48	1	by users	
			Favorite Country 18-7	0.62	1	by users	
Iceland	Iceland Telecom	Yes	Friends & Family abroad	0.00	3	automatic	10% off on the three most frequently called numbers
Ireland	EIRCOM	Yes	Circle of friends	0.00	5	by users	10% off on selected numbers (applicable to any local, national or international calls)
Italy	Telecom Italia	No					

Table 13. Availability of discount options for selected countries or numbers  
(Cont'd)

Country	Carriers	Availability	Name of a discount option	Monthly charge (in USD)	# of selected countries/numbers	Selection of countries/numbers	Description of a discount scheme
Japan	KDDI	Yes	Danzen Talk II DX	1.68	all	automatic (by the amount of charges)	45% off for the most frequently called number
							35% off for the second most frequently called number
Korea	Korean Telecom	Yes	001 frequently called number service	0.00	5	automatic	10% - 30% off for the most frequently called number (2)
Luxembourg	EPT	Yes	Most called numbers	1.02	3	automatic	30% off for most frequently called (in terms of times of calls) numbers among 21 countries
			Most called countries	0.00	3	automatic	20% off for calls to most frequently called (in terms of times of calls) countries if the total monthly charge exceeds USD 113.20.
Mexico	TELMEX	Yes	Lada favorito	0.00	1 (3)	by users	Off-peak rates are applied for 24 hours to international calls to a selected city in the United States or a country except the United States
Netherlands	KPN	Yes	VoordeelNummers Buitenland	0.00	3		25% off to selected numbers
New Zealand	Telecom	Yes	Super Low Rate	2.06 per country	unlimited	by users	around 50% off to a selected country
Norway	Telenor	Yes	Familie & Venner Utland	0.01	5	automatic	20% off for most frequently called numbers
Poland	TPSA	Yes	Wybeane numery TP				20% off to selected numbers

Table 13. Availability of discount options for selected countries or numbers  
(Cont'd)

Country	Carriers	Availability	Name of a discount option	Monthly charge (in USD)	# of selected countries/numbers	Selection of countries/numbers	Description of a discount scheme
Portugal	Marconi (PT)	Yes	Familia e Amigos	0.74	5	by users	10% or 15% off for calls selected numbers based on total monthly charge
			Marconi Relação Mais	4.78 (Annual)		by users	0% - 20% off for calls to one selected country based on total monthly charge to the country
Slovak Republic	Slovak Telecom	No					
Spain	Telefonica	No					
Sweden	Telia	No					
Switzerland	Swisscom	No					
UK	British Telecom	Yes	BT Together International Options	1.27 per country	17	by users	USD 0.06 per minute rate will be applied by selecting one country among 17 countries
			Friends & Family Overseas	1.49 for a quarter (4)	6	by users	20% off for calls to one selected number and 10% to the rest of the selected numbers
			Friends & Family	0.00	1	by users	10% off on up to ten selected numbers, including one international and one mobile number
US	AT&T	No					

## Notes:

- (1) Selected countries are limited among the international groups from 1 to 3.
- (2) Not applicable to France, Germany, Italy, Japan and the United States
- (3) If monthly long distance charges exceed USD 50.81 one more city in the United States or one more country except the United States can be chosen.
- (4) It is free of charge if subscribers have BT Together.

Source: OECD.

The incumbent carriers, in 23 OECD countries, have introduced different rates for international calls to mobile phones than they have for calls to fixed networks. On the other hand, seven carriers in Austria, Canada, Greece, Japan, Korea, Mexico and Turkey do not have additional charges for calls to mobile networks in foreign countries. Slovak Telecom has on average the largest difference between standard rates and rates for mobile phones among the 23 carriers that differentiate rates. Slovak Telecom charges, on average, an additional USD 0.25 per minute at peak times using standard rates for international calls to mobile phones, in other OECD countries. Telenor has the largest difference in rates for fixed and mobile networks to one country. Telenor adds USD 0.56 per minute to the standard fixed phones rates for calls to mobile phones in Mexico.

Some 10 carriers among the 23 carriers which have additional charges, impose a flat additional charge on the standard rates for international calls to mobile phones. For example, Iceland Telecom charges an additional USD 0.16 per minute and Slovak Telecom charges an additional USD 0.36 per minute for international calls to mobile phones in other OECD countries. The 'averaging' of charges may have some beneficial aspects (*e.g.* simplified pricing for users) but it might not reflect costs if there are large differences across countries in their mobile termination rates.

It should be noted here that carriers which have introduced different rates to mobile phones do not charge the additional charge for all countries. **Table 15** shows the number of OECD countries to which international carriers have additional charges for international calls to mobile phones. For example, Telenor charges a different rate towards 27 other OECD countries. By way of contrast, eircom charges different rates towards only five OECD countries. The reasons for these patterns across countries are not very clear.

There are many cases which reveal seeming anomalies with rates for international calls to mobile phones. While Marconi (PT) charges an additional USD 0.05 per minute for terminating calls to mobile phones in Turkey, KPN does not charge any extra fees for calls to mobile phones in Turkey. On the other hand, while KPN charges an additional USD 0.19 per minute for calls to mobile phones in New Zealand, Marconi does not charge additional fees for calls to mobile phones in New Zealand.

Why do these kinds of differences exist? No clear answer can be given because in most cases the mobile termination charges are not transparent. In countries with calling party pays, each international carrier needs to pay a mobile termination charge to the mobile phone operator in destination countries, when a call is terminated with a mobile phone. Therefore, international carriers need to charge this amount to their customers. As noted, 23 carriers in OECD countries adopt this method. The other method is to charge the same amount for all calls irrespective of whether they are towards fixed or mobile phones. This would seem unfair to users calling fixed networks, where there is a difference in termination charges, as they may be paying higher charges to subsidise users calling mobile networks. Here it needs to be noted that receiving party pays is used for mobile networks in Canada and the United States. Accordingly it would be expected that calls to these countries would cost the same as calls to the fixed network. For other countries it might be expected that there would be differences if the charging were oriented towards recovering termination charges. Some seven carriers in OECD countries do not have additional charges for calls to mobile phones but it is not also evident that additional costs for terminating calls to mobile phones are included in standard rates. This raises the question of whether users calling to fixed networks are paying prices that are too high in order to cover the costs of others calling mobile networks.

Canada and the United States use the receiving party pays system for mobile telephony. In **Table 14**, as noted, no carrier has different rates for calling fixed and mobile networks in Canada and the United States. For Mexico, where calling party pays has been introduced, carriers in only two countries, Belgacom and Telenor, charge additional rates to call mobile phones.

Under what terms carriers in Canada negotiate termination rates with foreign mobile carriers is not known. However, the current arrangements appear to be benefiting users as the rates to call foreign mobiles are often less expensive than for domestic users in those countries. By subscribing to a discount plan a user in Canada can call a mobile or fixed network in France for USD 0.08. At the same time, a user in France can call a fixed or mobile network in Canada for USD 0.15 at peak times and USD 0.09 at off-peak times. By way of contrast, if a France Telecom or SFR user calls a France Telecom's mobile network they will pay USD 0.20 at peak times and USD 0.10 at off peak times.<sup>9</sup> If the same user calls Bouygues, another mobile operator in France, the prices are USD 0.26 and USD 0.13. The seeming anomaly is that a user in Canada can call a French mobile user at much lower prices than for a French domestic user. This is not to single out France as this situation is fairly common. A fixed network user of Telstra in Australia would pay USD 0.18 to call a mobile network in Australia. A Canadian user would pay USD 0.12 to make the same call to a mobile network in Australia.

### **Influence of IP telephony on international calling rates**

The development of IP-based networks has brought many new applications for communications. IP telephony is one of the new applications over IP based networks. IP telephony is based on VoIP (Voice over Internet Protocol) which enables conversion of analogue voice data to Internet protocol (IP) packets in digital format for transmission over IP-based networks. By converting analogue voice data to IP packets, users can communicate over packet-switched IP based networks instead of PSTN. Since the cost for transmission of voice data over IP based networks is much lower than the cost for transmission over PSTN, IP telephony services have been launched with much lower fees than PSTN telephony services and they became big competitors against PSTN telephony services. IP telephony is often called Internet telephony. Strictly speaking, IP telephony and Internet telephony are not exactly the same. Internet telephony is one type of IP telephony over the Internet that is one type of IP based networks. However, because the Internet is the most common IP based network for residential users, Internet telephony is frequently used.

Various forms of IP telephony have been available since the mid-1990s. The primary form of IP telephony was communication between PC and PC. This PC to PC IP telephony can be used between users whose computers are connected to the Internet (or IP based networks). PC to PC IP telephony is rather inconvenient because users must simultaneously connect their computers to the Internet so that computers can recognise who is calling whom via servers. PC to Phone IP telephony has been invented and this IP telephony enables PC users to call regular phones. Voice data from PC users are transmitted through the Internet to a gateway which connects the Internet and PSTN in digital packets. From a gateway to a regular phone, voice data are transmitted through PSTN in an analogue format. Finally Phone to Phone IP telephony has expanded IP telephony users to regular phone users. By installing gateways between PSTN and IP-based networks of both the calling and receiving parties, voice data can be seamlessly transmitted over PSTN and IP-based networks.

Currently, the main accelerator of residential IP telephony is the growth of broadband connections to the household by such platforms as DSL, Cable, Wi-Fi and fiber to the home. These households are consequently receiving "always-on" Internet access. "Always-on" Internet access enables residential users to use IP telephony more conveniently. By using IP telephony devices which can be directly connected to the Internet and with "always-on" access through broadband connections, users can make and receive a call between IP telephony devices and also make a call to regular phones without connecting the Internet each time they make and receive a call. This "always-on" capability is a major step forward in terms of IP telephony being viewed as a potential substitute for PSTN telephony.

IP telephony has an increasing impact on international telephony over the PSTN in terms of reducing international calling charges. Although IP telephony has rich possibilities for additional features and services one of the main benefits attracting users is the lower cost. Most IP telephony companies promote themselves as carriers that have rates which are much less expensive than for the PSTN. The main focus of the following section is on the influence on international calling charges of international IP telephony.

### *Examples of companies providing IP telephony*

Dialpad, a company offering services in Korea and the United States, has both PC to Phone and Phone to Phone IP telephone services. In the United States, Dialpad introduced a prepaid card system and services do not require a subscription contract with Dialpad. In the case of PC to Phone IP telephony, users can call from any country to any other country in the world. For Phone to Phone service users in the United States can call to any country. To use the service for an international call it is necessary to call a 1-800 free dial number, then input a code on calling cards of either USD 15 or USD 25. This means users can make a phone call from anywhere in the United States including public phones. A call from the United States to Germany was priced at USD 0.069 in April 2003.

Another United States company, Vonage<sup>10</sup>, provides IP telephone services through subscriber broadband networks. Users who have a broadband Internet access can make an IP telephone call by connecting a regular telephone handset through a router and a phone adapter, which converts the voice from an analogue signal to a digital signal. Because Vonage provides a phone adapter for free, broadband Internet users just need to prepare a router for making IP telephone calls. The Vonage service is priced at USD 39.99 flat rate per month for all domestic calls.<sup>11</sup> As such it might not have been considered in this paper except for the fact that the flat rate service also includes all international calls to Canada. So a user in New Mexico can call a user in Nova Scotia. Calls to other countries are also much less expensive than PSTN rates, *e.g.* USD 0.06 for calls to Australia or France.

As long as users have a broadband connection their geographic location in the United States does not matter for getting the Vonage IP telephone service. Worthy of note is that Vonage users can choose their own area code no matter where they are located. They can choose the area code of New York City even though they are living in California. In this case, people who live in New York City can make a local call to a user in California.

Virtual phone numbers<sup>12</sup> is another interesting service offered by Vonage. This service allows people to make virtual local calls by calling a secondary telephone number of Vonage users in their local areas. Users who have a primary IP telephony number with Vonage can have secondary numbers in certain local areas which they want in the United States for USD 4.99 per month. Vonage networks will transfer calls to secondary numbers to primary numbers. For example, this service works as follows; A Vonage user who has a primary number in New York City can have a secondary number in Chicago. His or her friends in Chicago can make a local call by calling a secondary number in Chicago, while friends in New York City can make a local call by calling a primary number in New York City.

In Japan, IP telephony services are growing based on ADSL connection at households. Yahoo!BB, a company which has brought intensive competition into the Japanese broadband market with its ADSL subscriber lines services, is offering an IP telephone service called BB phone. BB phone uses ADSL subscriber lines and the IP backbone networks of Yahoo!BB, and offers very competitive rates compared to other telecommunication carriers. At the end of March 2003, BB phone had about two million subscribers and Yahoo!BB some 2.4 ADSL subscribers. Remarkably, it only took 12 months for Yahoo!BB to sign up that number of telephony subscribers.

BB phone users do not have to subscribe to Internet access. If they want to just use IP Telephony the prices are as follows. Stand-alone Yahoo!BB users would pay USD 9.95 per month, composed of USD 3.11 as a basic monthly charge, USD 5.50 as a rental fee for the modem and USD 1.34<sup>13</sup> as a fee for using NTT lines<sup>14</sup>. If they were a Yahoo!BB ADSL user they would not pay any additional charges because a basic monthly charge for BB phone is included in a monthly charge for Yahoo!BB ADSL service. In return, the usage charges are as follows: BB phone users can call each other free of charge; For calls terminating on other domestic networks they pay a flat rate of USD 0.06 per 3 minutes to call anywhere in Japan regardless of time of day or distance. This rate is the cheapest among Japanese carriers in the local call market and about 60% to 90% cheaper than other main long distance carriers in Japan.

If BB phone was just a domestic service it would not be included in this paper. Regarding international calls, **Table 16** compares rates with KDDI standard rates and KDDI IP telephone service. Yahoo!BB has 87% lower average international calling rates for OECD countries than KDDI standard peak time rates. Yahoo!BB rates are also 81% lower than KDDI standard off-peak rates and even 61% lower than KDDI IP telephone rates. Details about KDDI IP telephone service will be explained in the following section. The most striking Yahoo!BB charge is that calls to the United States are charged at the same rate as domestic calls in Japan. Accordingly, a user in Nagasaki could call a user in New Mexico for USD 0.06 per three minutes.

ISPs are the main driving force for IP telephony in Japan. For example, BIGLOBE, one of the biggest ISPs in Japan, has launched the IP telephony service for private users in March 2003. This service is provided by using ADSL and the tariff is different according to the company chosen for the ADSL connection. The basic tariff is USD 2.23 for a monthly charge, USD 0.06 per three minutes for national calls to fixed telephones and around USD 0.06 per minute for overseas calls to the United States. National calls between users connected by allied ISPs are free of charge. Allied ISPs are OCN, BIGLOBE, hi-ho, @nifty and So-net, which are the main ISPs in Japan. One of the biggest merits which attract customers is the free-of-charge calls between ISPs users and it is expected that alliances among ISPs, for providing IP telephony, will increase.

Table 14. Price differences for international calls to mobile phones at peak times, March 2003

per minute in USD

From	To	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Average		
Australia	Telstra	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Austria	Telecom Austria	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Belgium	Belgacom	0.19	0.19	0.00	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.18
Canada	Bell Canada	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Rep.	Cesky Telecom	0.08	0.11	0.08	0.00	0.08	0.08	0.08	0.08	0.11	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.11	0.11	0.11	0.08	0.11	0.08	0.00	0.08	0.00	0.00	0.00	0.07
Denmark	Tele Denmark	0.18	0.18	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.20	0.18	0.18	0.18	0.20	0.18	0.20	0.18	0.00	0.18	0.00	0.15	
Finland	Sonera	0.16	0.16	0.00	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
France	France Telecom	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.16
Germany	Deutsche Telecom	0.12	0.18	0.18	0.18	0.18	0.18	0.20	0.20	0.20	0.18	0.12	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.20	0.18	0.18	0.20	0.18	0.18	0.20	0.20	0.12	0.20	0.00	0.16	0.16	
Greece	OTE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hungary	Matav	0.26	0.22	0.28	0.00	0.22	0.26	0.28	0.34	0.22	0.28	0.00	0.26	0.28	0.28	0.00	0.28	0.28	0.28	0.28	0.28	0.26	0.47	0.34	0.19	0.28	0.24	0.34	0.06	0.28	0.00	0.20	0.20	
Iceland	Iceland Telecom	0.00	0.16	0.16	0.00	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.10
Ireland	EIRCOM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Italy	Telecom Italia	0.12	0.17	0.17	0.00	0.11	0.17	0.17	0.17	0.17	0.11	0.11	0.11	0.11	0.17	0.12	0.12	0.17	0.17	0.17	0.17	0.17	0.11	0.17	0.11	0.17	0.17	0.17	0.12	0.17	0.00	0.14	0.14	
Japan	KDDI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Korea	Korean Telecom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Luxembourg	EPT	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.09
Mexico	TELMEX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Netherlands	KPN	0.21	0.17	0.19	0.00	0.21	0.19	0.20	0.22	0.15	0.25	0.17	0.27	0.21	0.21	0.25	0.28	0.20	0.00	0.00	0.19	0.18	0.25	0.23	0.18	0.21	0.19	0.21	0.00	0.25	0.00	0.18	0.18	
New Zealand	Telecom New Zealand	0.14	0.04	0.00	0.20	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.14	0.04	0.04	0.25	0.29	0.00	0.00	0.00	0.04	0.04	0.20	0.04	0.00	0.04	0.04	0.04	0.04	0.30	0.14	0.00	0.08	
Norway	Telenor	0.28	0.25	0.30	0.00	0.19	0.20	0.16	0.29	0.20	0.17	0.19	0.14	0.30	0.26	0.33	0.41	0.12	0.56	0.29	0.24	0.21	0.19	0.23	0.19	0.23	0.29	0.30	0.29	0.32	0.29	0.00	0.24	
Poland	TPSA	0.00	0.07	0.07	0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.21	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.21	0.00	0.14	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.06	
Portugal	Marconi(PT)	0.00	0.07	0.07	0.00	0.05	0.07	0.07	0.11	0.09	0.07	0.05	0.05	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.05	0.05	0.15	0.07	0.09	0.05	0.09	0.00	0.06	0.06	
Slovak Rep.	Slovak Telecom	0.36	0.36	0.36	0.00	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.25	
Spain	Telefonica	0.00	0.17	0.17	0.00	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.09	0.09
Sweden	Telia	0.00	0.13	0.19	0.00	0.00	0.08	0.08	0.19	0.21	0.00	0.00	0.33	0.25	0.13	0.00	0.19	0.00	0.19	0.00	0.19	0.00	0.15	0.00	0.12	0.00	0.13	0.19	0.00	0.21	0.00	0.09	0.09	
Switzerland	Swisscom	0.24	0.24	0.24	0.00	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.16	0.16
Turkey	Turk Telecom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UK	British Telecom	0.25	0.25	0.25	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.23	0.23
US	AT&T	0.15	0.20	0.18	0.00	0.11	0.15	0.14	0.19	0.16	0.17	0.14	0.15	0.18	0.15	0.14	0.03	0.17	0.00	0.22	0.18	0.14	0.20	0.19	0.08	0.18	0.16	0.21	0.08	0.22	0.15	0.15	0.15	
Average		0.11	0.13	0.13	0.00	0.09	0.12	0.12	0.13	0.12	0.11	0.09	0.08	0.14	0.13	0.09	0.08	0.12	0.03	0.13	0.08	0.12	0.12	0.14	0.07	0.13	0.13	0.13	0.06	0.14	0.00	0.10	0.10	

Note:

Taxes are excluded.

Source: OECD.

In addition to DSL, a cable Internet connection is another source for providing IP telephony. In Korea, Thrunet provides an IP telephony service called “e-call” through its cable Internet access service<sup>15</sup>. Users who subscribe Thrunet’s cable Internet access service can connect their regular phones with its “e-call” telephone device which can be purchased for about USD 120. Subscribers can make local, long-distance and international calls by just dialling numbers they wish to call, with a monthly charge of USD 2.4. Subscribers get eight digit “e-call” numbers to make free-of-charge calls between “e-call” users and can receive calls from fixed and mobile phones.

In November 2002, ‘pluver.com’ launched a new service called Free World Dialup with a peertopeer Internet telephony network.<sup>16</sup> Signed up users can call any other signed up users free of charge as long as they have broadband Internet access and SIP (Session Initiation Protocol)<sup>17</sup> devices. Specialised numbers of Free World Dialup will be assigned to signed-up users to call each other. However, users are not able to call regular telephones and mobile phones via this service.

**Box 2. Get the US local number wherever you are in the world**

iConnectHere offers an SIP-based phone-to-phone IP telephone service called Broadband Phone service to 218 countries world wide. This IP telephone service has a distinctive service which offers users the ability to choose some United States local numbers wherever they live in the world for a fee of USD 8.95 per month<sup>18</sup>. This service allows a person in the local area, where an iConnectHere user has a local number, to call that user for the price of a local call. In addition, customers can get a US toll free number for a fee of USD 10.95 per month. Moreover, the company is trying to expand this service into other countries. Phone numbers in the United Kingdom and Israel are offered with a fee of USD 15.95 and USD 18.95 respectively. Although only one local area code can be chosen in only two countries at this stage, this case indicates that IP telephony can turn international calls into local calls.

***International IP telephony pricing***

The most attractive point for users when they choose international IP telephony services are less expensive rates than PSTN international rates. This raises the question of how much cheaper these rates are from such providers. Average international calling rates to other OECD countries of the IP telephony service providers and PSTN incumbents in Australia, Japan, Korea, Poland and the United States are compared in **Table 17**. As shown in this table, IP telephony companies have significantly cheaper international calling rates than PSTN incumbents. For example, Global Dial, one of IP telephony service providers in Australia, offers IP international telephony services for members who subscribe to their Internet connection services. Members can make a call with about 64% lower rates than Telstra’s standard fixed phone rates to other OECD countries by dialling the Global Dial access number before a number they wish to call. As noted earlier, Yahoo!BB has 87% cheaper rates than KDDI’s standard peak rates. This is also 81% cheaper than KDDI’s standard off-peak rates. In Korea, Thrunet offers about 85% lower rates than Korean Telecom to nine OECD countries. In Poland there are already around 80 operators which provide international telephone services using Voice-over-IP technology.<sup>19</sup> C3 Global is one of many IP telephony service providers in Poland and it offers about 78% cheaper average international calling rates than those of TPSA. The average for international calling rates to other OECD countries from dialpad is 33% cheaper than “AT&T AnyHour International Savings Plan” and 96% cheaper than AT&T standard rates.

It can be noted that the price structure of IP telephony service providers is much simpler than PSTN carriers. The three IP telephony service providers, Yahoo!BB, C3 Global and dialpad, all have a single rate for 24 hours and seven days a week. Moreover IP telephony service providers tend not to have discount schemes but simply offer just cheapest rates for users.

**Table 15. Comparison on price differences for terminating international calls to mobile phones**

Country	Carriers	The number of countries to which carriers impose surcharges to mobile phones	The number of carriers which impose surcharges to mobile phones toward the country	Average differences between rates to fixed networks and to mobile phones (1) (in USD)	Range of differences (2) (in USD)
Australia	Telstra	23	16	0.11	0.13
Austria	Telecom Austria	0	22	0.00	
Belgium	Belgacom	27	22	0.18	0.19
Canada	Bell Canada	0	0	0.00	
Czech Republic	Cesky Telecom	21	14	0.07	0.08,0.11
Denmark	Tele Denmark	24	21	0.15	0.18,0.20
Finland	Sonera	19	21	0.11	0.16
France	France Telecom	26	22	0.16	0.18
Germany	Deutsche Telecom	26	22	0.16	0.12~0.20
Greece	OTE	0	20	0.00	
Hungary	Matav	22	16	0.20	0.06~0.47
Iceland	Iceland Telecom	18	13	0.10	0.16
Ireland	eircom	5	22	0.01	0.01,0.15
Italy	Telecom Italia	26	21	0.14	0.11~0.17
Japan	KDDI	0	14	0.00	
Korea	Korean Telecom	0	11	0.00	
Luxembourg	EPT	21	19	0.09	0.13
Mexico	TELMEX	0	2	0.00	
Netherlands	KPN	25	22	0.18	0.15~0.28
New Zealand	Telecom New Zealand	22	12	0.08	0.04~0.30
Norway	Telenor	27	20	0.24	0.12~0.56
Poland	TPSA	19	17	0.06	0.07~0.21
Portugal	Marconi(PT)	22	21	0.06	0.05~0.15
Slovak Republic	Slovak Telecom	22	12	0.25	0.36
Spain	Telefonica	15	21	0.09	0.24
Sweden	Telia	16	21	0.09	0.08~0.33
Switzerland	Swisscom	20	21	0.16	0.24
Turkey	Turk Telecom	0	11	0.00	
United Kingdom	British Telecom	26	22	0.23	0.25
United States	AT&T	27	0	0.15	0.03~0.22

Note:

(1) Average differences are calculated including all OECD countries, even though some carriers do not impose additional charges for calls to mobile phones in some countries.

(2) If a carrier applies more than two different amounts of additional charges for calls to mobile phones in different countries, the range of difference is shown by using "~".

Source: OECD.

### *Transition to IP telephony by incumbents*

As new entrants have increasingly launched international IP telephony services with significantly cheaper rates than for the PSTN, incumbent carriers have been forced to consider the introduction of their own international IP telephony services. The launch of international IP telephony services by incumbents means an internal competition between PSTN telephony and IP telephony services. This is, however, not the first time this has occurred with some incumbents launching their own low-priced PSTN telephony services using other brands rather than bringing down national prices to compete with new entrants.

Cesky Telecom has introduced an international IP telephony service called “Xcall<sup>20</sup>” to 30 countries. This service is only available during off-peak times and not available for calls to Iceland, Japan and Korea among OECD countries. Users dial the prefix “952 00” to make international IP telephony calls without any registration and additional fees.<sup>21</sup> As shown in **Table 18**, Xcall has about 53% lower average rates for calls to other OECD countries than the same company’s ‘Home Standard’ rates. Therefore, users who do not mind calling the prefix (and do not forget to dial the prefix) will choose Xcall for making international calls at off-peak times. However, Xcall imposes higher fees for terminating calls to mobile phones. While users need to pay an average USD 0.09 per minute for a call to a mobile phone in other OECD countries, Xcall charges an average USD 0.13 per minute for the same call to a mobile phone. Why this is the case is not clear. Telecom New Zealand offers “0161 international calls<sup>22</sup>” which is very similar to “Xcall”. This gives users who dial the prefix “0161” on average 60% lower rates than standard rates without any registration or additional fees.

KDDI launched “KDDI IP telephony services” in April 2003. This service is based on its Internet connection services through ADSL or FTTH. Users can subscribe to this IP phone service by paying about USD 6.22 for renting a modem in addition to the fee for KDDI’s ADSL or FTTH services, which usually cost about USD 25 per month. As mentioned before, **Table 16** compares KDDI’s international calling rates for the IP telephony service and the regular PSTN service. KDDI’s IP telephony service has a single rate for international calls regardless of time of day which is about 66% lower than its PSTN peak time rate and about 51% lower than the off-peak time rate. KDDI provides this IP telephony service as a new service for their ISP business and want to differentiate their IP telephone service from their PSTN regular telephone service. However, as the penetration of broadband Internet connections grows in Japan, by ADSL and FTTH, the KDDI IP telephony service will certainly be a strong internal competitor against their PSTN international call prices.

When KDDI IP telephony rates are compared with Yahoo!BB’s BB phone rates, the difference reveals that international telephony is in transition from PSTN telephony to IP telephony. KDDI has set its rates of IP telephone services in between KDDI standard rates and BB phone rates as shown in **Table 16**. Incumbents which launched IP telephone services need to promote their IP telephone services as well as keeping their PSTN international telephone services. The rates of KDDI show that incumbents are in a difficult situation in this transitional period from PSTN telephony to IP telephony.

**Table 16. Rates comparison between Yahoo!BB and KDDI per minute in USD**

	Yahoo!BB		KDDI		% of differences	
	IP Phone	Peak Rates	Off-Peak Rates	Yahoo!BB and KDDI IP phone rates	Yahoo and KDDI peak rates	
Australia	0.18	0.40	1.50	0.94	-54.00%	-87.73%
Austria	0.25	0.73	1.93	1.42	-66.30%	-87.22%
Belgium	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Canada	0.10	0.12	1.10	0.86	-20.00%	-91.27%
Czech Republic	0.37	0.81	2.25	1.58	-53.92%	-83.36%
Denmark	0.25	0.73	1.93	1.42	-66.30%	-87.22%
Finland	0.18	0.73	1.93	1.42	-75.00%	-90.52%
France	0.18	0.16	1.54	0.48	15.00%	-88.05%
Germany	0.18	0.16	1.54	0.48	15.00%	-88.05%
Greece	0.31	0.73	1.93	1.42	-57.61%	-83.92%
Hungary	0.31	0.81	2.25	1.58	-61.76%	-86.19%
Iceland	0.25	0.73	1.93	1.42	-66.30%	-87.22%
Ireland	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Italy	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Korea	0.25	0.24	0.98	0.72	3.33%	-74.69%
Luxembourg	0.31	0.73	1.93	1.42	-57.61%	-83.92%
Mexico	0.31	0.62	1.83	1.20	-50.00%	-83.04%
Netherlands	0.18	0.73	1.93	1.42	-75.00%	-90.52%
New Zealand	0.22	0.57	1.67	1.08	-61.11%	-86.67%
Norway	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Poland	0.35	0.81	2.25	1.58	-56.86%	-84.42%
Portugal	0.31	0.73	1.93	1.42	-57.61%	-83.92%
Slovak Republic	0.37	0.81	2.25	1.58	-53.92%	-83.36%
Spain	0.25	0.73	1.93	1.42	-66.30%	-87.22%
Sweden	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Switzerland	0.18	0.73	1.93	1.42	-75.00%	-90.52%
Turkey	0.37	0.73	1.93	1.42	-48.91%	-80.62%
United Kingdom	0.18	0.16	1.14	0.48	15.00%	-83.86%
United States	0.02	0.07	0.48	0.32	-72.22%	-95.83%
Average	0.23	0.60	1.78	1.22	-61.10%	-86.84%

Note:

One minute charge is calculated by (one initial minute + three additional minutes)/4.

Source: OECD.

**Table 17. Comparison of rates between IP telephony companies and PSTN incumbents average rates to other OECD countries per minute(1), in USD**

Country	IP Telephony (Phone to Phone)		PSTN Telephony				% of Difference	
	IP tel providers	Fixed	Mobile	PSTN Incumbents	Fixed	Mobile	Fixed	Mobile
Australia	Global Dial	0.14	0.23	Telstra	0.39	0.51	-64.10%	-54.90%
Japan	Yahoo!BB	0.23	0.23	KDDI (2)	1.78	1.78	-86.84%	-86.84%
Korea (3)	Thrunet	0.10	0.10	Korea Telecom (2)	0.66	0.66	-84.85%	-84.85%
Poland	C3 Global	0.12	0.23	TPSA	0.54	0.60	-77.78%	-61.67%
United States	dialpad	0.12	0.25	AT&T (4)	0.18	0.33	-33.33%	-24.24%

Note:

(1) One minute charge is calculated by (one initial minute + three additional minutes)/4.

(2) Peak time rates are used for KDDI and KT.

(3) Average rates are rates for Australia, Canada, France, Germany, Italy, Japan, New Zealand, the United Kingdom and the United States.

(4) AT&T AnyHour International Savings Plan is used.

Source: OECD.

**Table 18. Comparison of rates between Xcall and Home Standard in Cesky Telecom**  
per minute rates in USD

	Xcall		Home Standard		% of Difference in fixed phone rates at off-peak times
	Fixed	Mobile	Fixed (Off-Peak)	Mobile (Off-peak)	
Australia	0.11	0.28	0.23	0.35	52.50%
Austria	0.11	0.28	0.20	0.35	44.93%
Belgium	0.11	0.28	0.23	0.35	52.50%
Canada	0.11	0.11	0.23	0.23	52.50%
Denmark	0.11	0.28	0.23	0.35	52.50%
Finland	0.11	0.28	0.23	0.35	52.50%
France	0.11	0.28	0.23	0.35	52.50%
Germany	0.11	0.28	0.20	0.35	44.93%
Greece	0.11	0.28	0.23	0.35	52.50%
Hungary	0.11	0.28	0.23	0.35	52.50%
Iceland	not available	not available	0.47	0.47	
Ireland	0.11	0.28	0.23	0.35	52.50%
Italy	0.11	0.28	0.23	0.35	52.50%
Japan	not available	not available	0.34	0.34	
Korea	not available	not available	0.34	0.34	
Luxembourg	0.11	0.28	0.23	0.35	52.50%
Mexico	0.28	0.28	0.81	0.81	66.07%
Netherlands	0.11	0.28	0.23	0.35	52.50%
New Zealand	0.28	0.28	0.34	0.34	19.49%
Norway	0.11	0.28	0.23	0.35	52.50%
Poland	0.11	0.28	0.20	0.35	44.93%
Portugal	0.11	0.28	0.20	0.35	44.93%
Slovak Republic	0.11	0.28	0.20	0.35	44.93%
Spain	0.11	0.28	0.23	0.35	52.50%
Sweden	0.11	0.28	0.20	0.35	44.93%
Switzerland	0.11	0.28	0.23	0.35	52.50%
Turkey	0.28	0.28	0.47	0.47	40.63%
United Kingdom	0.11	0.28	0.23	0.35	52.50%
United States	0.11	0.11	0.23	0.23	52.50%
Average	0.13	0.26	0.27	0.36	52.61%

Note:

One minute charge is calculated by (one initial minute + three additional minutes)/4.

Source: OECD.

## **Conclusion**

The structure of international telephone charges is changing because of competition among international carriers and in some countries between PSTN carriers and IP telephony service providers. International telephone charges are much more diverse than the traditional standard rates. While this trend brings benefits for users it makes comparisons more complicated. In addition, many of the carriers in OECD countries have higher international calling rates to call foreign mobile phones. As more and more international traffic will be toward mobile phones the difference between fixed phone rates and mobile phone rates is increasingly significant for users. The price differences will also come under increasing scrutiny if there is not sufficient competition in the termination of international calls to mobile networks. There are already a number of apparent anomalies in terms of the pricing for international calls to mobile networks.

In contrast to the PSTN, many of the new IP telephony pricing structures are very simple and this is part of their attraction for users. IP telephony service providers also have much less expensive international calling rates than PSTN international telecommunication carriers. Many believe this derives from structural differences between IP networks and PSTN but it is also true that the market is extremely competitive. It looks more and more as if like IP networks have an inherent cost advantage over circuit switched networks. Telecommunication carriers with circuit switched networks are increasingly shifting to IP based networks. So to will users increasingly shift from using PSTN international calls to IP international calls given the very large price differences.

Incumbent PSTN carriers are being increasingly driven by competition to offer IP telephone services. Some carriers in OECD countries have already launched international IP telephony services, even though this implies internal competition with their own PSTN services. Incumbents will need to decide how long they are going to keep PSTN international telephone services, as their primary service, before shifting to IP telephony. In order to compete with the cheaper international calling rates of IP telephony, international telephone rates of PSTN carriers will be reduced further. For their part IP telephony service providers may try to reduce their international rates to attract more users but this may depend on reductions in termination rates. In summary, international telephone prices need to be assessed across a range of services. In most markets, it is very clear that liberalisation has brought tremendous benefits to users through price reductions.

## NOTES

- <sup>1</sup> Calling party pays and receiving party pays are arrangements to decide the share of costs for terminating a call from a fixed phone or a mobile phone to a mobile phone between a calling party and a receiving party. With calling party pays, the party making the call pays the full cost for calling to a mobile phone or a fixed phone. By way of contrast, with receiving party pays, the calling party pays the standard cost for making a comparable call from a phone and receiving party pays the rest of the cost for terminating a call on a mobile phone.  
See, [http://www.oftel.gov.uk/publications/mobile/ctm\\_2002/rpp\\_cpp190402.pdf](http://www.oftel.gov.uk/publications/mobile/ctm_2002/rpp_cpp190402.pdf)
- <sup>2</sup> In this paper per minute charges are calculated on the basis of (one initial minute + three additional minutes)/4. The prices shown are for all routes between OECD countries. Elsewhere in the OECD's basket for international price comparisons, the weight of traffic for individual routes is also used. In other words, the high destination routes are given greater weight.
- <sup>3</sup> FCC, "Launching the Consumer Education Initiative for US International Telephone Calling", Consumer Information Bureau and International Bureau, 11 October 2001.
- <sup>4</sup> Incumbents providing international telephony in each member country are chosen as the main PSTN carriers.
- <sup>5</sup> Average monthly fees for discount options of USD 0.95 divided by the difference of OECD average rate per minute between standard rates and discounted rates of USD 0.21 (USD 0.54-USD 0.33) gives 4.52.
- <sup>6</sup> The slight increase in the United Kingdom from 1998 to 2003 is not due to price increases but changes in exchange rates.
- <sup>7</sup> See, [http://www.fcc.gov/ib/files/11\\_27\\_01/consumer\\_education\\_website.pdf](http://www.fcc.gov/ib/files/11_27_01/consumer_education_website.pdf)
- <sup>8</sup> France Telecom's discount option for selected numbers, 'Primaliste', allows users to select their favourite numbers. Otherwise, numbers will be automatically chosen according to the total amount of charges.
- <sup>9</sup> Prices exclude taxes to make them comparable with rates in tables.
- <sup>10</sup> See, <http://www.vonage.com>
- <sup>11</sup> Vonage also offers a USD 25 per month service for unlimited local and regional calls plus 500 minutes of United States nationwide long distance calls and calls to Canada every month. The price for additional minutes is USD 0.039 per minute after the first 500 monthly minutes.
- <sup>12</sup> See, [http://www.vonage.com/features\\_virtual\\_phone\\_number.php](http://www.vonage.com/features_virtual_phone_number.php)
- <sup>13</sup> This is for NTT East. NTT West charges USD 1.40.
- <sup>14</sup> Like any ADSL services in the world, BB phone users need to pay a monthly line rental fee to NTT.
- <sup>15</sup> See, [http://english.thrunet.com/service/multi\\_ecall.asp](http://english.thrunet.com/service/multi_ecall.asp)
- <sup>16</sup> See, <http://www.pulver.com/fwd/index.html>
- <sup>17</sup> SIP (Session Initiation Protocol) is an application-layer control (signalling) protocol regulated by IETF RFC2543 for creating, modifying and terminating sessions such as Internet telephone calls. IETF RFC2543 is available at <http://www.ietf.org/rfc/rfc2543.txt?number=2543>.

18 See, <http://www.icconnecthere.com/NonMembers/services/receive.asp>

19 See, <http://www.europemedia.net/shownews.asp?ArticleID=12661>

20 See, [http://www.telecom.cz/sluzby\\_home\\_e/telefonni\\_sluzby/xcall/index.php](http://www.telecom.cz/sluzby_home_e/telefonni_sluzby/xcall/index.php)

21 Korean Telecom also has a similar IP telephony service called “00727 Internet Phone”. As for “Xcall”, users dial the prefix “00727” before a number which they want to call and the call will be automatically transferred through IP networks.

22 See, <http://www.telecom.co.nz/content/0,3900,101974-1462,00.html>