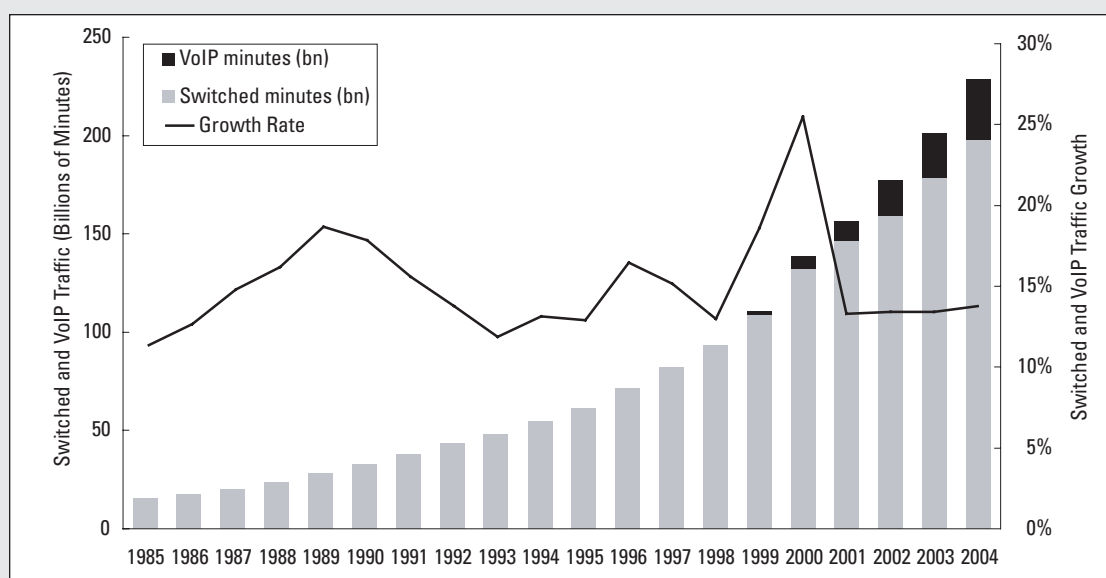


# Executive Summary

The international long-distance market has undergone dramatic changes over the past 20 years. While the majority of countries maintained monopoly ILD markets in 1985, by 2004, 92 percent of the world's traffic came from markets with competition. The status of mobile telephones has changed from expensive executive toy to basic necessity for 1.7 billion subscribers worldwide. Perhaps most fundamentally, the growth of the Internet has delivered a parallel and more flexible network that promises ultimately to subsume the traditional PSTN. Despite this turmoil, one feature of the international long-distance market has remained remarkably constant. For 16 of the past 20 years, aggregate international voice traffic has grown between 11 and 16 percent, reflecting the fundamental human need for communication (see Figure 1. International Call Volumes and Growth Rates, 1985-2004).

**Figure 1. International Call Volumes and Growth Rates, 1985-2004**



Source: TeleGeography research

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**Figure 2. Top 20 Countries, Outgoing International Traffic**

Rank	Country	Outgoing Minutes (bn)	Percent of Worldwide Traffic
1	United States	62,326	31.5%
2	United Kingdom	16,096	8.1%
3	Germany	11,900	6.0%
4	France	9,870	5.0%
5	Canada	9,035	4.6%
6	Italy	7,280	3.7%
7	Spain	5,435	2.7%
8	Hong Kong	4,937	2.5%
9	Switzerland	4,313	2.2%
10	Netherlands	3,725	1.9%
11	Australia	3,690	1.9%
12	United Arab Emirates	2,885	1.5%
13	China	2,807	1.4%
14	Japan	2,725	1.4%
15	Taiwan	2,694	1.4%
16	Belgium	2,668	1.3%
17	Saudi Arabia	2,550	1.3%
18	Singapore	2,295	1.2%
19	Mexico	2,256	1.1%
20	Sweden	2,095	1.1%
<b>Total</b>		<b>161,581</b>	<b>81.7%</b>

Note: Data are for switched traffic only.

Source: TeleGeography research

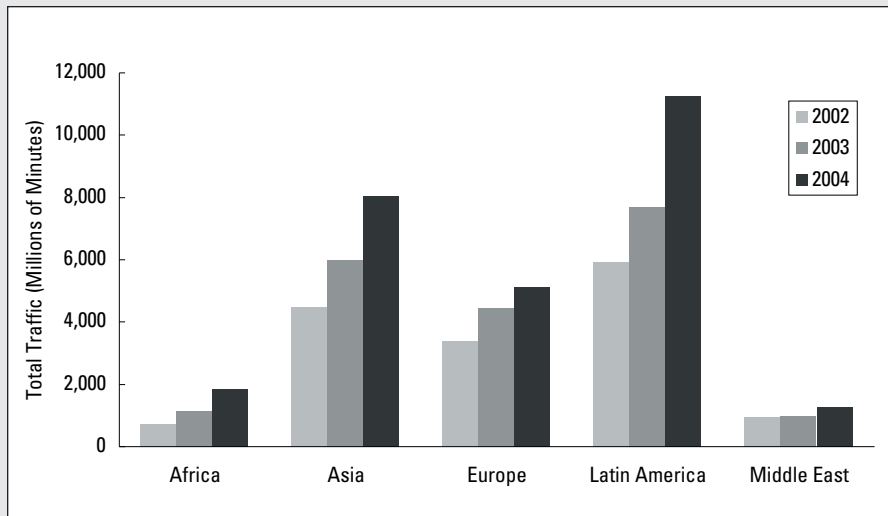
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## Traffic

Switched international traffic grew 11 percent in 2004 to 197.8 billion minutes. Aggregate worldwide trends primarily reflect developments in a surprisingly small number of countries. The 20 largest traffic-originating countries generated nearly 82 percent of total switched telephone traffic in 2004 (see Figure 2. Top 20 Countries, Outgoing International Traffic).

Between 1997 and 2001, international VoIP traffic skyrocketed, growing at a triple-digit clip every year. Not surprisingly, growth has moderated in recent years. VoIP traffic grew 35 percent in 2004, and is on track to grow 38 percent in 2005. While this pace is modest by historical standards, VoIP traffic is increasing three times faster than switched telephone traffic and accounts for a steadily growing share of the international long distance market.

While incumbent and competitive carriers have both embraced VoIP, the key destinations for VoIP traffic suggest that international termination-rate arbitrage remains a key driver. The majority of VoIP traffic is bound for developing countries in Latin America, Asia, Eastern Europe, and Africa (see Figure 3. Inbound International VoIP Traffic Totals by Region, 2002-2004).

**Figure 3. Inbound International VoIP Traffic Totals by Region, 2002-2004**

Notes: Voice-over-IP (VoIP) traffic includes all cross-border voice calls carried on IP networks but terminated on public switched telephone networks; PC-to-PC communications and private network traffic are excluded.

Source: TeleGeography research

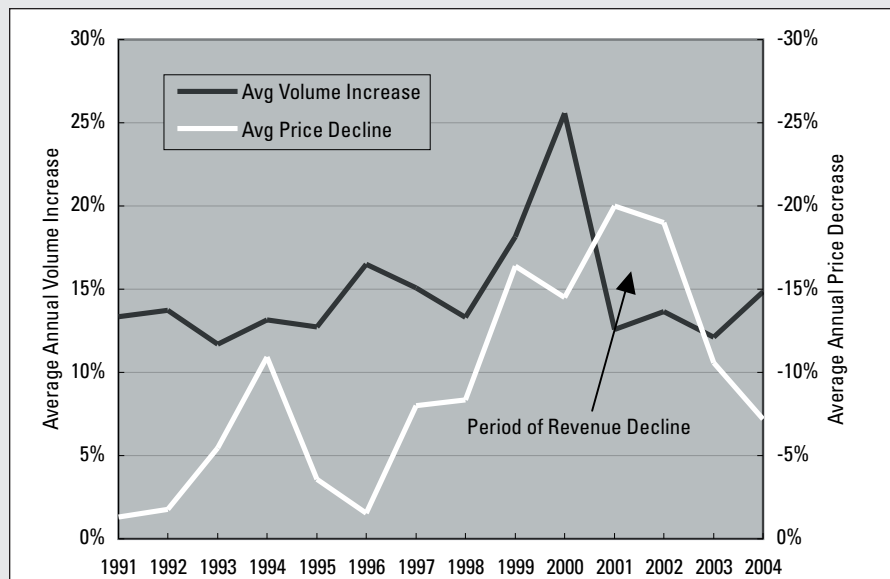
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## Mobiles

Mobile phones have outnumbered fixed line phones since 2002 and rapid subscribership advances continue. Mobile subscribers now account for 59 percent of worldwide phone lines. However, they only account for 24 percent of outgoing international calls, and 35 percent of incoming international calls are completed to mobile phones.

Mobile operators have emerged as something of a mixed blessing for international carriers. Few mobile operators maintain their own international networks; most rely on international wholesale providers to connect their calls. However, a significant amount of mobile subscriber and traffic increases has come at the expense of traditional fixed-line business. Furthermore, most wholesale long-distance service providers are, themselves, divisions of traditional fixed-line phone companies. Thus, while mobile operators are contributing to international carriers' wholesale revenues, they are simultaneously eroding higher revenue retail traffic.

Due to persistently high mobile termination rates, traffic *to* mobile subscribers has taken on even greater significance than traffic *from* mobiles. For example, while Western European mobile subscribers received 13 percent of all international calls, these calls accounted for 18 percent of international carriers' termination costs.

**Figure 4. Rate of Price Decline versus Volume Growth, 1991-2004**

Notes: Data reflect both switched and VoIP volumes. Periods where volume increases outpace average price declines mark a period of revenue growth. When price declines outpace volume increase, revenue declines.

Source: TeleGeography research

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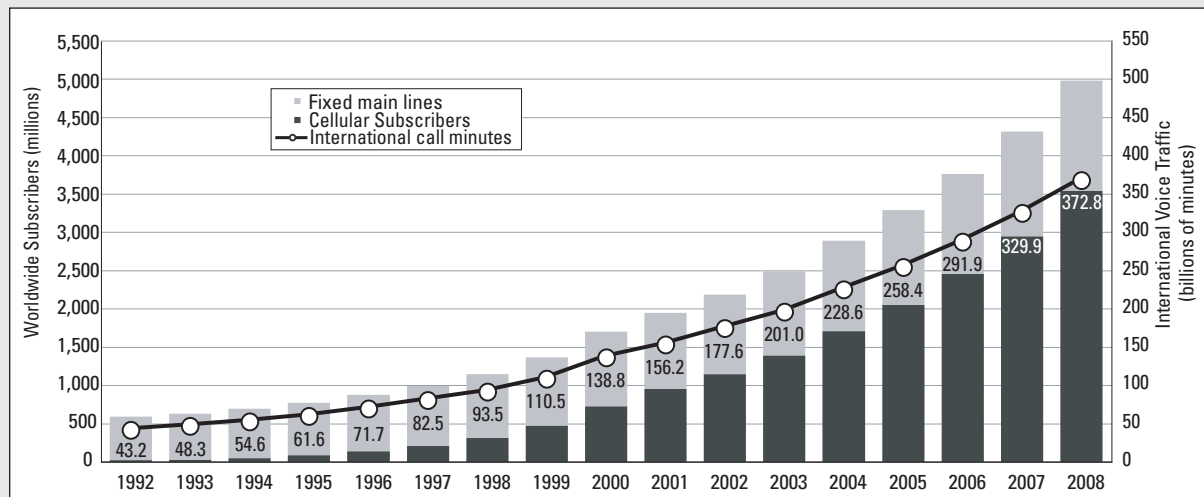
## Revenues

International call prices have declined every year since 1988, when TeleGeography began tracking prices. The consequences have been disastrous for many long distance carriers. For example, while AT&T's outgoing traffic from the United States grew 28 percent between 2002 and 2004, revenues from this traffic plunged from \$5.5 billion to \$3.3 billion.

However, countervailing trends have emerged in recent years. Between 2002 and 2004, average calling prices fell by 17 percent, a modest decline by the recent standards of the market. This decline has been more than offset by aggregate traffic growth of almost 29 percent. Consequently, worldwide retail revenues from international traffic actually increased for the second consecutive year (see Figure 4. Rate of Price Decline versus Volume Growth, 1991-2004).

## Outlook for International Long Distance

While voice-over-IP has the potential to revolutionize the long distance industry, change has, thus far, remained evolutionary. A growing number of carriers have substituted private IP networks or IP transit for traditional TDM networks. However, their underlying business models have not changed. Irrespective of the means of transport, the vast majority of international traffic is originated and terminated on the switched telephone network, and international carriers provide the bridge between domestic networks worldwide.

**Figure 5. International Traffic and Mainline Growth Trends and Projections**

Notes: Data include both switched and VoIP traffic. Projections assume 13 percent traffic growth, 5 percent main line growth, and 20 percent mobile subscriber growth annually.

Source: TeleGeography research

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The rapid growth of voice over broadband (VoBB) in Japan, the U.S., and Europe holds the promise of revolutionizing this market. However, the all-IP future remains a distant dream, particularly with respect to international long-distance calling. While VoBB providers connect to their own customers via a broadband connection, most of their subscribers' calls are made to "off-net" telephone numbers on the PSTN. Consequently, even VoBB providers must rely on wholesale carriers to terminate their international traffic.

At present, it seems likely that aggregate (switched plus VoIP) traffic will continue to increase at a predictable 12 to 15 percent annual rate over the next two to three years. At that pace, international traffic can be expected to exceed 370 billion minutes by 2008 (see Figure 5. International Traffic and Mainline Growth Trends and Projections). Over the longer term, however, the growth of IP-to-IP voice communications promises to reshape the market.

In 2005, TeleGeography initiated coverage of the U.S. consumer voice over broadband market in its *US VoIP Report*. TeleGeography will conduct a major study of the consumer VoBB market outside the U.S. in the first half of 2006. This study will evaluate the state of the VoBB market, as well as the potential impact of VoIP on established service providers. If you would like to find out more about this study, please email us at [voip@telegeography.com](mailto:voip@telegeography.com).