

# Global Telecommunications Market Take, 1Q02

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Market Trends

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# Chapter 1

## Global Telecommunications Market Update

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The worldwide market for telecommunications equipment and services topped \$1.38 trillion in 2001, a figure comprising more than half of the total IT market (all amounts in this report are given in U.S. dollars). Over the forecast period through 2006, this prevalence will continue, as telecommunications grows at a CAGR of 9.2 percent to \$2.15 trillion. The services sector outpaced equipment in size by a factor of more than two to one, with revenue of \$1.02 trillion in 2001 compared with \$362 billion for equipment. By 2006, that proportion will only increase, as services experiences a CAGR of 10.2 percent, contrasted with 6.1 percent for equipment. Regionally, the largest market will remain North America (CAGR 9.3 percent), while the Middle East and Africa market will post the fastest growth worldwide (CAGR 12.7 percent). Tables 1-1 and 1-2 and Figures 1-1 and 1-2 demonstrate this in graphic form.

Gartner Dataquest provides a market size and forecast for each telecommunications segment to its clients, based on the most recent data compiled by all programs in the course of research. The forecasts are updated regularly in these Market Takes, to be of use to Gartner Dataquest's clients in making decisions. In the interests of consistency, the outer forecast year is modeled in some segments. This document updates the Market Take for the fourth quarter of 2001, as well as the year-end Telecommunications Services and Equipment Overview reports, with several regional and segment statistics reports that have been published in the interim.

### Changes Since the Last Take

Modifications to the numbers shown in the "Global Telecommunications Market Take, 4Q01," TCPS-WW-MT-0126, have resulted from the following:

- Incremental additions from updated Market Statistics reports as they are published, including the voice communications equipment and mobile terminal devices segments
- Transfer of the remote access equipment segment from the enterprise Cluster to the infrastructure Cluster (access segment)
- Removal of the mobile services segment from the public network services segment; mobile services are still represented in the mobile Cluster, and mobile services are still included with public network services as part of the total telecommunications services line wherever it is shown.
- The addition of the incremental forecast year, which is modeled in some cases

**Table 1-1**  
**Worldwide Telecommunications Market Revenue by Sector, 1999-2006**  
**(Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
Enterprise Systems and Applications	46,569	51,509	48,606	54,136	59,156	62,627	64,277	68,730	7.2
Infrastructure	188,433	230,421	223,467	226,563	239,929	264,111	302,962	323,162	7.7
Mobile	337,341	426,319	491,883	550,163	597,571	632,570	670,700	736,494	8.4
Public Fixed Services	588,073	626,134	677,329	738,585	811,587	890,413	967,216	1,099,794	10.2
<b>Total Telecom Equipment</b>	<b>310,585</b>	<b>380,997</b>	<b>362,236</b>	<b>371,474</b>	<b>391,016</b>	<b>417,550</b>	<b>461,934</b>	<b>487,753</b>	<b>6.1</b>
<b>Total Telecom Services</b>	<b>810,004</b>	<b>901,851</b>	<b>1,021,667</b>	<b>1,132,593</b>	<b>1,245,029</b>	<b>1,358,412</b>	<b>1,468,004</b>	<b>1,658,382</b>	<b>10.2</b>
<b>Total Telecom Market</b>	<b>1,120,590</b>	<b>1,282,849</b>	<b>1,383,903</b>	<b>1,504,066</b>	<b>1,636,045</b>	<b>1,775,962</b>	<b>1,929,938</b>	<b>2,146,135</b>	<b>9.2</b>

Note: The sector lines contain some overlap, which is removed from the total telecom equipment and total telecom services lines to prevent double-counting.

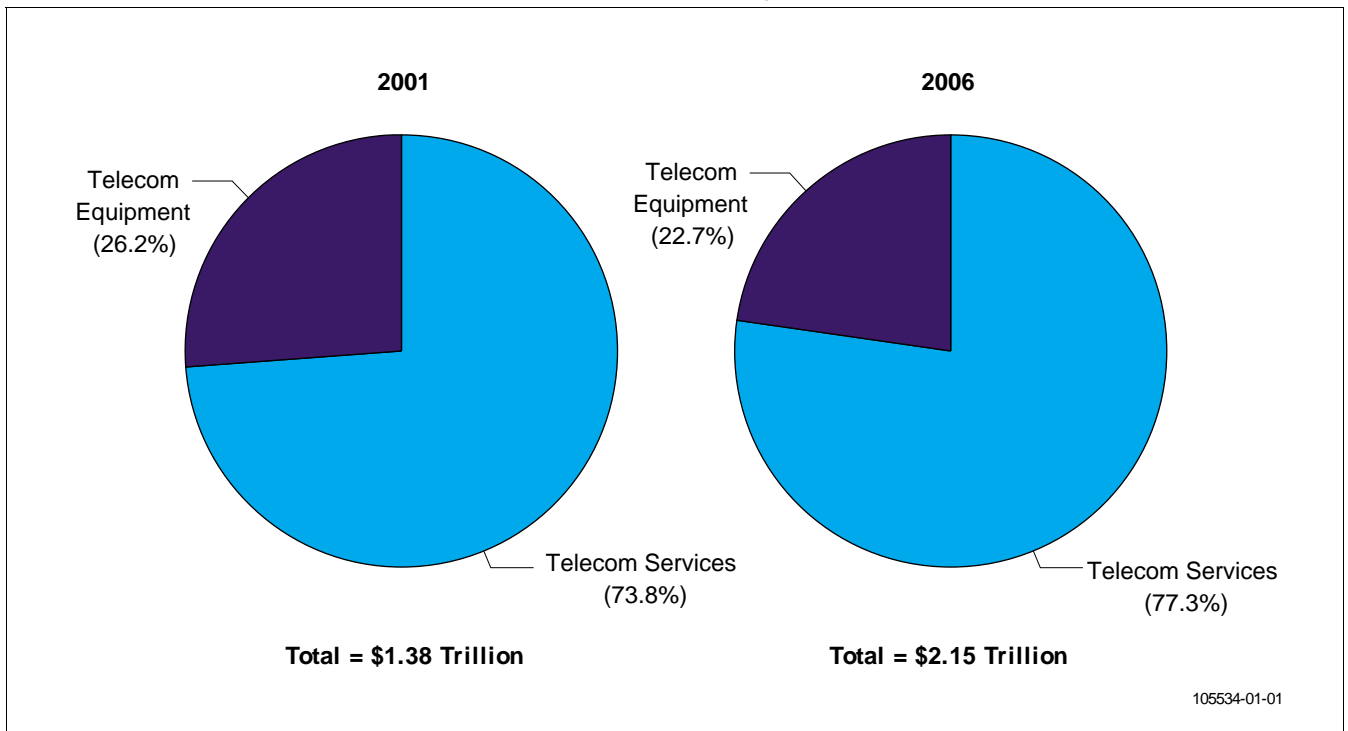
Source: Gartner Dataquest (April 2002)

**Table 1-2**  
**Worldwide Telecommunications Market Revenue by Region, 1999-2006**  
**(Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
Asia/Pacific	261,569	308,017	342,930	373,478	403,060	434,522	476,947	540,266	9.5
Central and Eastern Europe	36,466	42,504	51,167	56,667	63,186	67,119	70,677	80,182	9.4
Latin America	100,195	117,199	131,125	144,138	162,139	184,891	201,746	222,953	11.2
Middle East and Africa	56,139	69,311	75,025	83,776	93,685	104,138	118,422	136,351	12.7
North America	375,768	432,115	455,557	496,248	543,038	592,555	645,639	711,531	9.3
Western Europe	290,453	313,703	328,100	349,758	370,936	392,736	416,507	454,853	6.8
<b>Total Telecom Equipment</b>	<b>310,585</b>	<b>380,997</b>	<b>362,236</b>	<b>371,474</b>	<b>391,016</b>	<b>417,550</b>	<b>461,934</b>	<b>487,753</b>	<b>6.1</b>
<b>Total Telecom Services</b>	<b>810,004</b>	<b>901,851</b>	<b>1,021,667</b>	<b>1,132,593</b>	<b>1,245,029</b>	<b>1,358,412</b>	<b>1,468,004</b>	<b>1,658,382</b>	<b>10.2</b>
<b>Total Telecom Market</b>	<b>1,120,590</b>	<b>1,282,849</b>	<b>1,383,903</b>	<b>1,504,066</b>	<b>1,636,045</b>	<b>1,775,962</b>	<b>1,929,938</b>	<b>2,146,135</b>	<b>9.2</b>

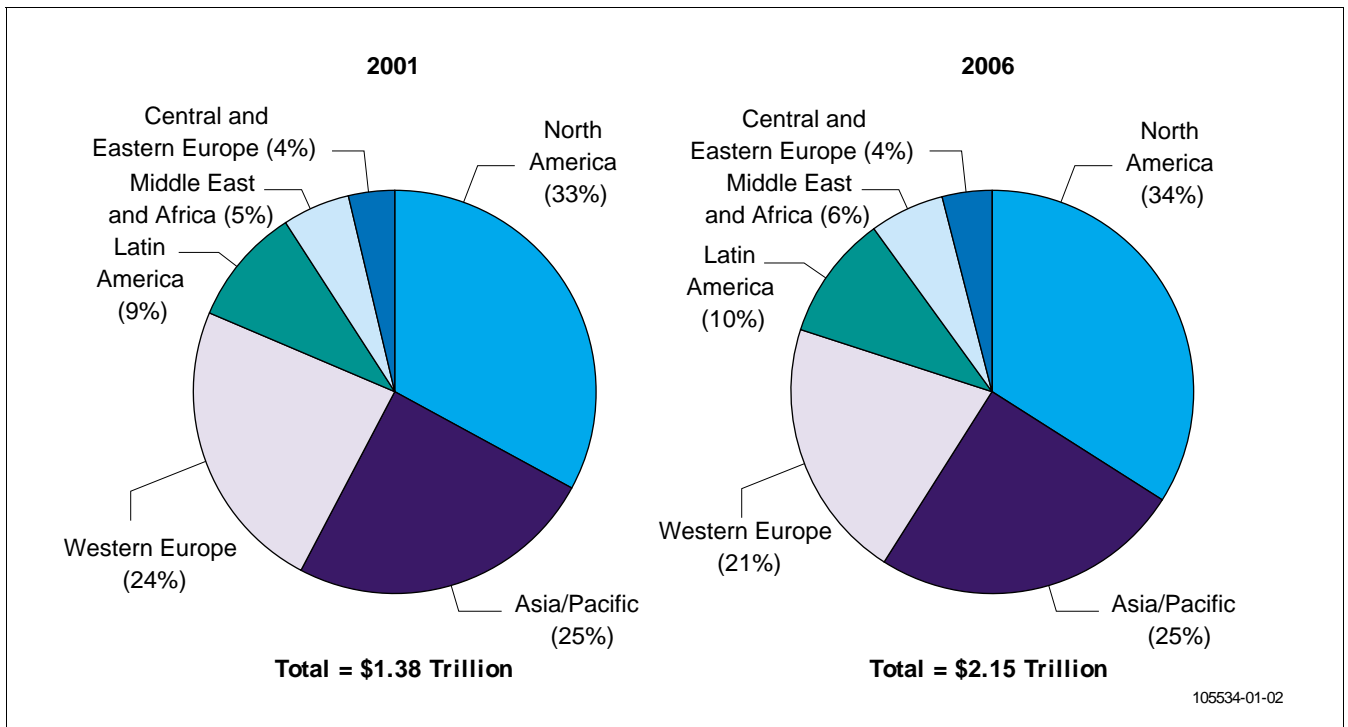
Source: Gartner Dataquest (April 2002)

**Figure 1-1**  
**Worldwide Telecommunications Market Revenue by Sector, 2001 and 2006**



Source: Gartner Dataquest (April 2002)

**Figure 1-2**  
**Worldwide Telecommunications Market Revenue by Region, 2001 and 2006**



Source: Gartner Dataquest (April 2002)



# Chapter 2

## Telecommunications Market Segmentation

Brief definitions of the market segment are provided here; much greater detail can be had through separate Gartner Dataquest Cluster research in these areas. Gartner Dataquest analysis divides the telecommunications market into the following equipment and services segments, referred to and available as Clusters.

### Enterprise Networking and Communications

This Cluster describes telecommunications equipment and systems that are based in consumer and business locations, and connecting either with the PSTN, or to private data or voice networks (see Table 2-1). Enterprise Networking and Communications includes the following major subsegments:

#### LAN Equipment

The LAN is the hardware, software and peripherals that enable connection of a device to a cable-based network system that serves a building or a campus environment. Excluded are point-to-point connections (half-duplex transmissions) or connections that use a PBX or data PBX as a medium.

Routers, LAN switches, shared media hubs and network interface cards are included in this category.

#### Voice Communications Equipment

Gartner Dataquest defines call routing systems as computer-based systems that provide call routing for high-volume call transactions, with specialist answering "agent" stations and a sophisticated real-time call management system. The definition includes all call center systems that provide call handling capabilities and automatic call distribution, combined with a high degree of sophistication in terms of dynamic call traffic management.

Premises-based switching systems, interactive voice response equipment, voice messaging systems and automatic call distribution equipment are included in this category.

**Table 2-1**  
**Worldwide Enterprise Networking and Communications Cluster by Segment, 1999-2006**  
**(Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
<b>Total</b>	<b>46,569</b>	<b>51,509</b>	<b>48,606</b>	<b>54,136</b>	<b>59,156</b>	<b>62,627</b>	<b>64,277</b>	<b>68,730</b>	<b>7.2</b>
LAN Equipment	25,299	30,596	31,228	36,178	40,350	43,107	43,966	48,125	9.0
Voice Communications Equipment	21,270	20,914	17,378	17,958	18,807	19,521	20,311	20,605	3.5

Note: The remote access segment has been moved from the enterprise Cluster to the infrastructure Cluster, resulting in a changed market size.

Source: Gartner Dataquest (April 2002)

## Public Network Infrastructure

The Public Network Infrastructure Cluster comprises all forms of equipment (and some systems and even integrally related services) that combine to form the communications networks used by public service operators worldwide (see Table 2-2). A famous example, though by no means the only one, is the PSTN; others include IP and other data networks as well as mobile networks. The infrastructure Cluster is segmented into five major building blocks: switching, transport, access, signaling and support. A sixth segment, mobile infrastructure, is included in the market size of this Cluster but kept apart from any of the building blocks for clarity and consistency in comparing to other Clusters.

### Switching

Switching is defined here in its most general sense, functions performed in the network that alter the path, either in real time or near real time, that information takes as it traverses a given network.

The markets tracked under the switching discipline include well-known ones such as circuit switches, IP routers, ATM switches, frame relay switches and evolution offers, as well as emerging ones such as softswitches and media gateways.

### Transport

Transport comprises the high-capacity systems that tie switching nodes in a network together over relatively long distances. In other words, transport provides the paths/pipes to which the switching discipline steers information.

Transport includes all forms of transport technology such as optical transport, fixed or mobile wireless transport and terrestrial nonoptical transport. Also, the pure transport technology, cross-connect and multiplexing technology is covered under the transport discipline.

### Access

The access discipline is the technology that allows end users to be connected to a public network. As such, the access function provides the initial customer interface and experience. Access is truly the "face" of the service provider to the customer.

Equipment in this area includes various types of integrated access technology, digital loop carrier technology, fiber to the premises technology and wireless access technology. Also included are segments of the remote access sector (formerly included in the enterprise Cluster), such as analog modems, digital subscriber line equipment, cable modems, ISDN modems, remote access concentrators and remote access servers.

### Signaling

The signaling discipline defines the control plane of a network and can include in-band or out-of-band connections. Signaling is a specialized, rapidly changing and important topic. Signaling deals with the protocols and required technology used to allow equipment in a network to communicate for the purpose of altering network connectivity or to receive database information.

As such, it includes topic areas such as Signaling System 7 common channel signaling, session initiation protocol, H.323, media gateway control protocol and intelligent network/advanced intelligent network. Data topics include Q.931 (broadband), multiprotocol label switching, multiprotocol lambda switching and routing protocols such as open shortest path first, border gateway protocol and routing information protocol.

## Support

The support systems' discipline is the network management and operations dimension of public network infrastructure. It is migrating from a single-focused system into customer- and network-focused systems.

This sector includes business support systems and operations support systems for public service operators.

## Mobile Infrastructure

This sector comprises cellular systems made up of mobile switching centers and antenna cell sites (radio base stations). Interconnection between cell sites and MSCs is typically done via microwave links, fiber optics or landline high-capacity lines.

Cell sites, base stations and MSCs are included in this category.

**Table 2-2**  
**Worldwide Infrastructure Cluster by Segment, 1999-2006 (Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
<b>Total</b>	<b>188,433</b>	<b>230,421</b>	<b>223,467</b>	<b>226,563</b>	<b>239,929</b>	<b>264,111</b>	<b>302,962</b>	<b>323,162</b>	<b>7.7</b>
Access	20,393	31,427	30,322	30,779	33,560	35,359	38,051	39,534	5.4
Switching	40,833	43,042	38,661	35,358	34,960	36,933	41,089	40,709	1.0
Transport	24,037	33,720	30,308	32,633	36,017	45,122	55,854	61,785	15.3
Support	60,048	66,660	62,758	58,504	59,165	68,597	87,871	92,863	8.2
Signaling	3,296	4,038	4,037	3,908	4,030	4,340	4,881	5,069	4.7
Mobile Infrastructure	39,827	51,535	57,382	65,380	72,198	73,759	75,217	81,125	7.2

Notes: The remote access segment has been moved from the enterprise Cluster to the access segment of the infrastructure Cluster, producing a change in the size of this sector. Mobile infrastructure revenue is included in the mobile Cluster as well as in infrastructure (the total equipment line adjusts this overlap to avoid double-counting).

Source: Gartner Dataquest (April 2002)

## Mobile Communications

The Mobile Communications Cluster combines large portions of the telecommunications equipment and services sectors, which provide mobile connectivity to end users (see Table 2-3).

### Mobile Terminal Devices

Terminal devices provide voice and data connectivity through a wireless link to a mobile access network.

Mobile cellular phones, handheld portable phones, smartphones and pagers are included in this category. PDAs are not included unless wireless connectivity is built into the device (for example, Palm VII).

### Mobile Infrastructure

This sector comprises cellular systems made up of mobile switching centers and antenna cell sites (radio base stations). Interconnection between cell sites and MSCs is typically done via microwave links, fiber optics, or landline high-capacity lines.

Cell sites, base stations and MSCs are included in this category.

### Mobile Services

The cellular services sector defines income from mobile telephone calls and mobile data usage (short message service and mobile data access) from all mobile operators in that regional market.

Income from mobile telephone calling charges, mobile data access, mobile messaging charges, line rental/subscription and connection fees are included in this category.

**Table 2-3**  
**Worldwide Mobile Cluster by Segment, 1999-2006 (Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
<b>Total</b>	<b>337,341</b>	<b>426,319</b>	<b>491,883</b>	<b>550,163</b>	<b>597,571</b>	<b>632,570</b>	<b>670,700</b>	<b>736,494</b>	<b>8.4</b>
Infrastructure	39,827	51,535	57,382	65,380	72,198	73,759	75,217	81,125	7.2
Terminal Devices	75,583	99,067	90,163	90,774	91,930	90,812	94,696	95,862	1.2
Services	221,931	275,717	344,338	394,008	433,442	467,998	500,788	558,588	10.2

Notes: Mobile infrastructure revenue is included in the infrastructure Cluster as well as in the Mobile Cluster (the total equipment line adjusts this overlap to avoid double-counting). Mobile services are no longer included in the Services Cluster as well as in the Mobile Cluster (the total services line combines both elements to produce total telecommunications services). Mobile services are not included as part of the total equipment line.

Source: Gartner Dataquest (April 2002)

## Public Network Services

The public network services Cluster comprises all services revenue in telecommunications; this sector combines public fixed voice and public fixed data services (see Table 2-4).

Calling charges, line rental/subscription and connection fees are included in this category.

**Table 2-4**  
**Worldwide Public Network Services Cluster by Segment, 1999-2006**  
**(Millions of U.S. Dollars)**

	1999	2000	2001	2002	2003	2004	2005	2006	CAGR (%) 2001-2006
<b>Total</b>	<b>588,073</b>	<b>626,134</b>	<b>677,329</b>	<b>738,585</b>	<b>811,587</b>	<b>890,413</b>	<b>967,216</b>	<b>1,099,794</b>	<b>10.2</b>
Fixed Voice	478,345	485,727	497,669	516,038	541,313	569,230	603,991	639,155	5.1
Fixed Data	108,065	136,828	172,381	210,408	250,224	290,975	322,392	384,105	17.4

Note: Mobile services are no longer included in this Cluster: the two service elements are combined in the Total Telecommunications Services line.

Source: Gartner Dataquest (April 2002)



# Appendix A

## Glossary of Terms

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Table A-1 lists the definitions of the acronyms and abbreviations that appear in this report.

**Table A-1**  
**Report Glossary**

Acronym/Abbreviation	Definition
ATM	asynchronous transfer mode
CAGR	compound annual growth rate
H.323	a standard for transmitting audiovisual conferencing data
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LAN	local-area network
MSC	mobile switching center
PBX	private branch exchange
PDA	personal digital assistant
PSTN	public switched telephone network
Q.931	a connection control protocol for ISDN
U.S.	United States

Source: Gartner Dataquest (April 2002)

