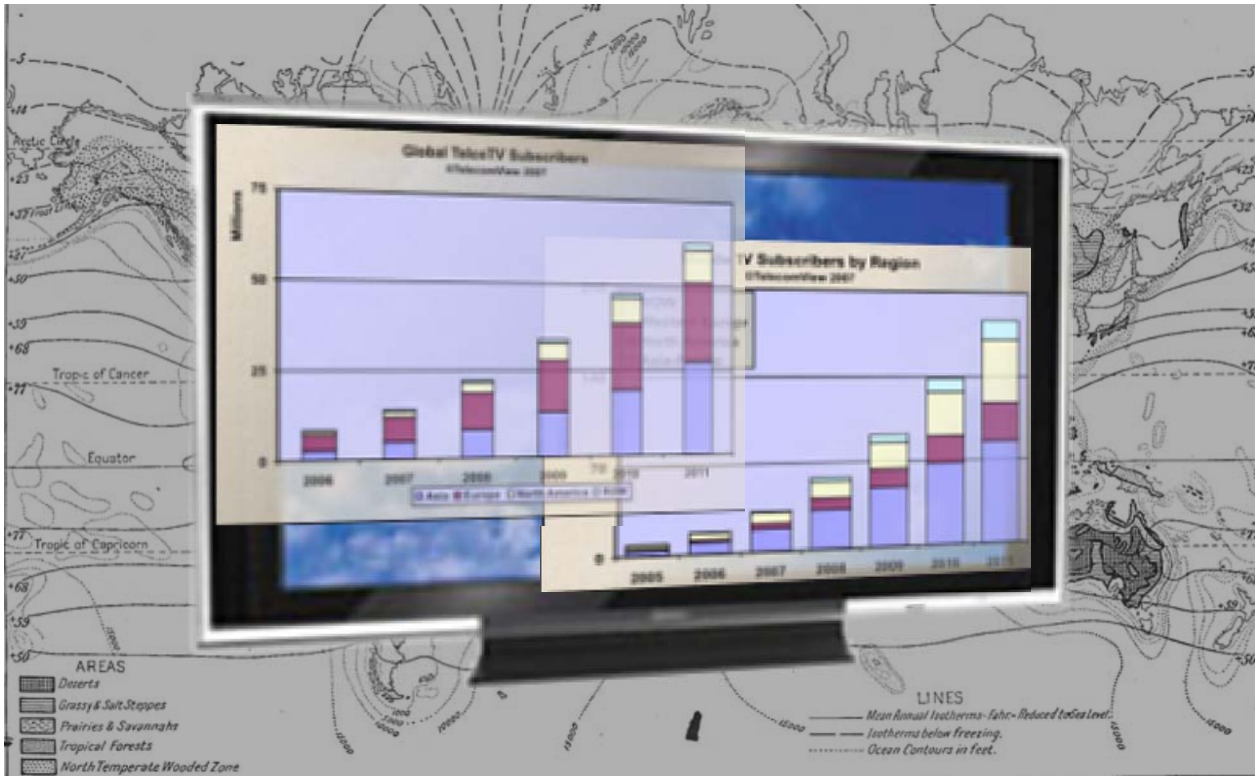
TelecomView
information, opinion, analysis

Telecom Opportunities
Broadband Networks

Global Opportunities in Wireline Broadband Networks: Analysis & Forecast:2007-2013

Analysis and forecasts for both the developed and emerging markets for wireline broadband networks.

Broadband services are approaching saturation in the developed countries of Europe, Asia, and North America. In these developed countries the opportunities are now being driven by new services such as IPTV very high speed data services. On the other hand, there is significant subscriber growth occurring in emerging countries. China and India will be the most important wireline broadband markets in the next few years. There will also be significant opportunities in smaller emerging countries.



TelecomView

Author: Bob Larribeau Principal Analyst

Global Opportunities in Wireline Broadband Networks: Analysis & Forecast:2007-2013

Author: Bob Larribeau Principal Analyst

Published by TelecomView
+1 415 259 5452
www.telecomview.info

info@telecomview.info

RR0802

Table of Contents

Table of Figures

Spreadsheet Annex

An Excel spreadsheet Annex accompanies this report. This report includes 43 forecast and market share charts and 20 tables. The Annex includes the charts in this report along with the data used to generate them as a spreadsheet table. The Annex also includes tables that provide the forecasts for each of the 170 countries analyzed in this report. This Annex includes the following worksheets:

Broadband Subscriber Tables

Broadband Subscriber Tables

New Broadband Subscriber Tables

New Broadband Subscriber Graphs

Broadband Spending Tables

Broadband Spending Graphs

Fiber Spending Tables

Fiber Spending Graphs

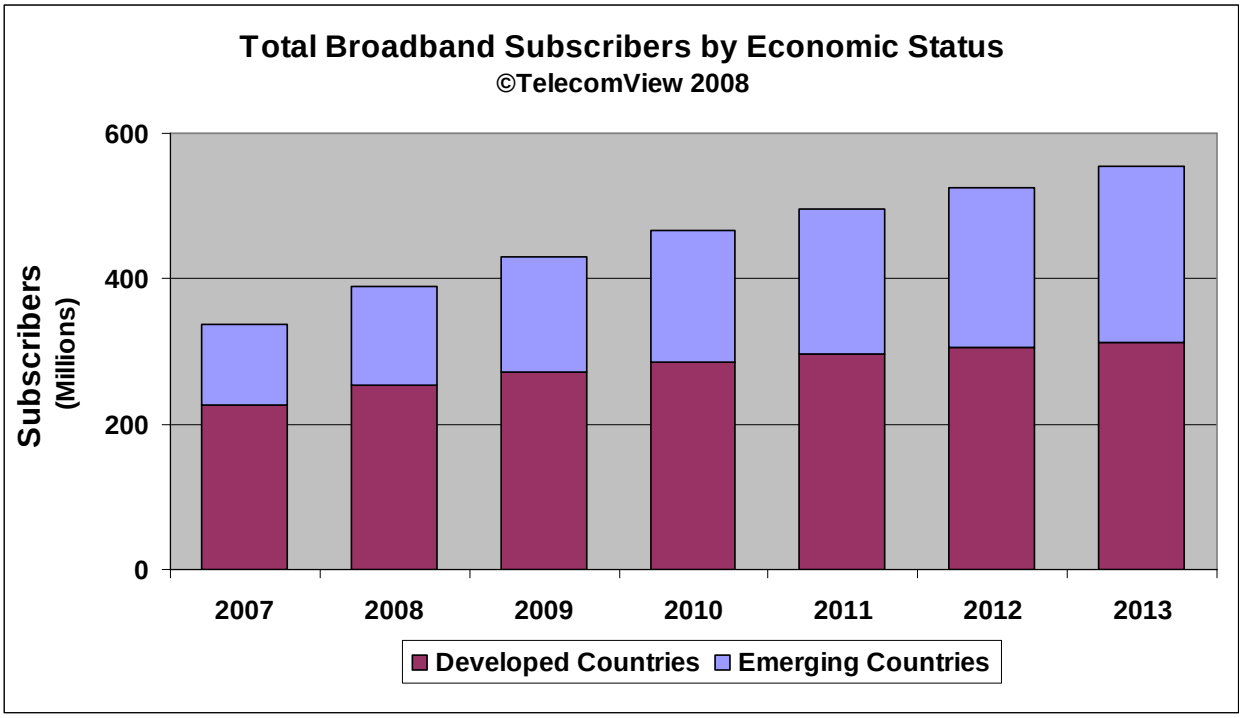
1 Global Opportunities

The wireline broadband services started being deployed ten years ago and have achieved a significant level of maturity in many markets, especially in the developed countries of the world. The momentum in the wireline broadband market is shifting to the developing countries, whish continue to show significant growth over the period through 2013 covered in this report.

1.1 Total Subscriber Growth

Figure 1-1 shows that the total number of broadband subscribers flattens in the developed countries after 2009. Most of the developed countries will be at or near saturation in terms of broadband subscribers. On the other had, this figure shows that the number of broadband subscribers in the emerging countries continue to grow. These emerging countries started their broadband services later and have been growing at a lower rate than the developed countries and consequently, are likely to have significant growth potential beyond 2013.

Figure 1-1: Total Broadband Subscribers by Economic Class



Source: TelecomView 2008

The emerging countries in Asia are forecast to be the leading region globally in adding new wireline broadband subscribers between 2008 and 2013. China will be the dominant wireline broadband carrier in this region and by itself is forecast to add more new wireline broadband subscribers than Western Europe, North America, or any of the regions of the globe over this period. However, the analysis in this report indicates that the number of broadband wireless broadband subscribers China may be approaching the number of people that can afford to pay for the service. This may well limit the growth potential for wireline broadband services in China after 2013.

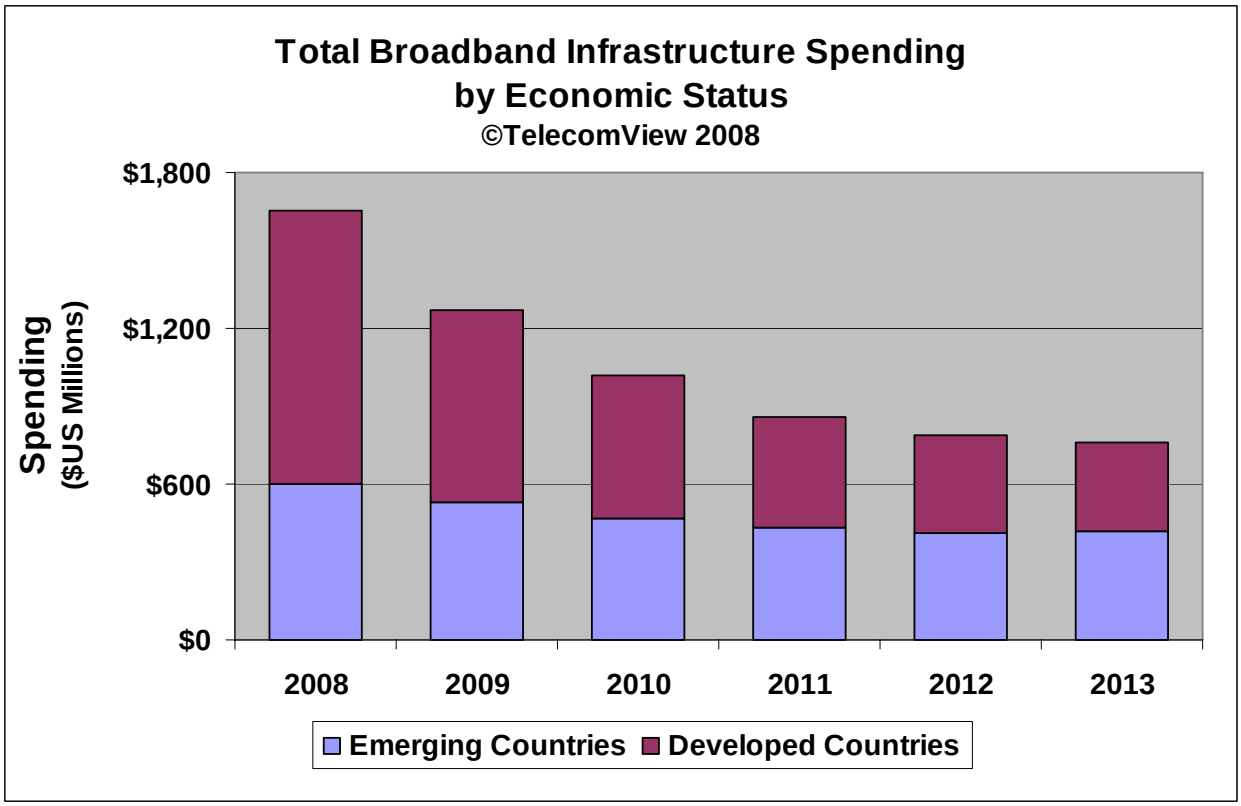
The rate of growth of broadband subscribers is flat or growing for virtually all of the rest of emerging countries in the world. The number of wireline broadband subscribers is forecast grow strongly in India and should surpass China in terms of new subscribers by 2013. India has only recently started strong wireline broadband growth, which should continue strongly after 2013.

1.2 New Subscriber Growth

Figure 1-2 shows total broadband system spending across the forecast period. It shows spending in the emerging countries as flat, while there is a significant decline in spending in the developed countries. This spending forecast reflects continuing price erosion as well as the rate of growth of new subscribers. This chart indicates that it will be the emerging countries that will provide a stable revenue stream over the forecast period.

The situation in the developed countries is more complex than Figure 1-2 indicates. There is likely to be a significant shift to fiber based technologies in the developed countries of the world. The developed countries of Asia such as Japan, South Korea, and Taiwan have had aggressive Fiber to the Home (FTTH) deployments underway for some time. In fact the copper based ADSL networks are starting to shrink and to be replaced by fiber based services. The primary application for fiber technology is very high speed Internet data services in these countries in Asia. They are primarily deploying Gigabit Ethernet PON technology today.

Figure 1-2: Total Broadband System Spending by Economic Status



Source: TelecomView 2008

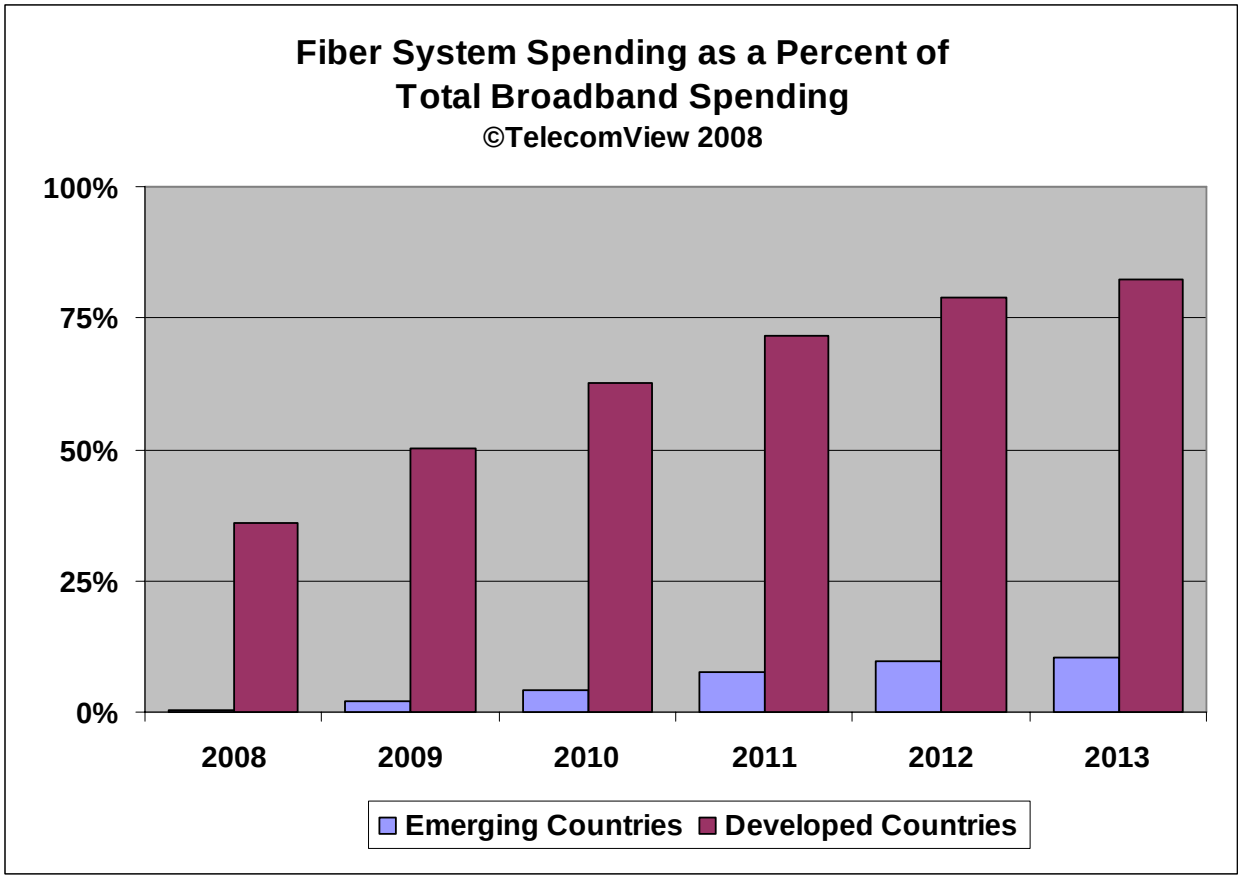
1.3 Fiber Growth

Western Europe and North America are taking a different approach. Their fiber deployments are being driven by new multimedia services, such as IPTV. They are deploying VDSL Fiber to the Node (FTTN) technologies in most cases, but there are also increasing amounts of GPON FTTH technologies being going in.

Figure 1-3 shows the percent of the total broadband spending as shown in Figure 1-2 that is going to fiber systems in both the developed countries and the emerging countries. The forecast shows that fiber system spending will be more than 80 percent of broadband spending in the developed countries in 2013. Fiber system spending is forecast to be more than 90 percent of total broadband spending for each year of the full 2008 to 2013 forecast period.

Fiber systems are forecast to occur in the emerging countries as well. The economically more advanced emerging countries are most likely to be the countries that start to deploy fiber technologies. These countries include China, India, Russia, and countries in Eastern Europe, the Arabian Gulf, and North Africa. The forecast is that 10 percent of total broadband system spending in emerging countries will go to fiber systems in 2013.

Figure 1-3: Fiber System Spending as a Percent of Total Broadband Spending



Source: TelecomView 2008

1.4 Conclusions and Recommendations

The primary conclusions from this report are:

- There will be strong growth in the number of subscribers to wireline broadband services in the developed countries of the world over the forecast period that will have run its course by the end of the forecast period..
- There will also be strong growth in the number of subscribers to wireline broadband services in the emerging countries of the world that will extend beyond the forecast period through 2013.
- It appears that China is approaching a high penetration of the number of households that can afford wireline broadband services between 2008 and 2013. Consequently, it is likely that the subscriber growth of these services will decline sharply over this period.
- The growth of wireline broadband subscribers should be strong in India well past 2013.
- Broadband systems spending in the developed countries will shift to fiber technologies based on new bandwidth intensive services such as IPTV and very high speed data services. This fiber spending should continue well beyond the end of the forecast at 2013.

The recommendations of this report are:

- Broadband service providers in developed countries should shift their priorities from adding subscribers to adding new services that will increase customer spending.
- Broadband service providers in developed countries should develop long term fiber strategies to support new services.
- Broadband systems companies should be careful to maintain their customer relationships in developed countries. There is a significant amount of revenue to be gained in these countries between now and 2013.
- Broadband systems companies should establish themselves in the emerging countries to take advantage of the long term growth potential in these countries.
- Broadband systems companies participating in emerging countries should keep a careful eye on these markets in order to insure that their investment in these markets is proportionate to the available opportunity.

2 Methodology and Assumptions

2.1 Coverage of Report

This global report looks at the prospects for wireline broadband services in 170 countries that account for 6.4 billion of the 6.5 billion population of the globe. These 170 countries account for 99 percent of world population today.

This analysis is based on specific statistics for each country that include:

- Total population
- Number of telephone lines
- Number of mobile telephones
- Number of wireline broadband subscribers
- Gross domestic product (GDP) per person with the share of income going to the lowest 10 percent and the highest 10 percent of the population.

The general economic and network numbers listed above are used with a quarterly history of wireline broadband subscribers in the major countries for the six years 2002 through 2007.

2.2 Opportunity Analysis

The total potential number of subscribers to wireline broadband services is estimated for each of these 170 countries. This analysis assumes that there are about 2.5 people per household on the average and that households at the lower end of the income scale are much less likely to subscribe to wireless broadband services.

The broadband subscriber forecast generally uses the total potential number of subscribers as a limit assuming that this maximum will not change over the 2008 through 2013 forecast interval. In a few cases, such as China, where the economy is growing rapidly, this assumption has been relaxed.

This report also looks at opportunities for fiber based technologies such as Fiber to the Node (FTTN) VDSL technologies and Fiber to the Home (FTTH) PON and active Ethernet technologies. It assumes that the deployment of new services such as Telco IPTV services will be the primary driver for these fiber based services in North America and Western Europe. It also assumes that high speed data services will be the primary driver in Asia.

The report also looks at the number of telephone lines deployed in each country's telephone network. It assumes that these existing wireline networks will not be extended significantly during the forecast period. This means that the number of telephone lines is an upper limit on the number of broadband lines. The lower quality of the copper plant generally means that the number of broadband lines that can be deployed will be significantly smaller than the number of telephone lines in many emerging countries.

The forecast in this report uses historical growth rates to estimate future growth rates for each country. These growth rates are moderated as the number of subscribers gets closer to the available market in each country. This process causes the growth of wireline broadband services in countries approaching saturation to decline at significant rates.

2.3 Developed Countries

This report assumes that the developed countries include:

- North America
- Western Europe
- Israel in the Middle East
- Japan, Korea, Taiwan, Hong Kong, and Singapore as the developed countries in Asia
- Australia and New Zealand in Oceana

The assumption is that income is not a significant barrier to broadband usage in these developed countries. Broadband services are forecast to be used by nearly all households by the end of the forecast period in 2013. The opportunities are shifting to fiber technologies in several developed countries that are already near saturation.

New services such as IPTV are expected to be the justification for fiber deployments in Western Europe and in North America. The increased number of High Definition (HD) broadcasts over these services will be a significant factor in justifying the increased bandwidth that fiber technologies bring. Qwest in the U.S. is one of the few service providers in Western Europe or North America that has declared that it will use fiber to increase the speed of its Internet data services. Many other service providers in Western Europe and North America are using fiber to support IPTV services.

2.4 Emerging Countries

This report assumes that the emerging countries include:

- Latin America
- Eastern Europe
- The Commonwealth of Independent States (CIS) that were formerly part of the Soviet Union
- The Middle East except for Israel
- Africa
- The remaining countries in Asia

Household income and the number of existing telephone lines are significant barriers to broadband deployment in many emerging countries. This report assumes that broadband penetration will be quite low in countries where per capita income is low. It also assumes that only a few companies are likely to have more broadband lines than telephone lines by the end of 2013. These limitations mean that a large number of households will not subscribe to wireline broadband services either because they cannot afford them or because the telephone companies do not have the facilities to provide them. Many of these people are good prospects for wireless broadband services.

Emerging countries with significant natural resources, such as oil producers, and those that are rapidly industrializing such as Eastern Europe or China and India are forecast to have strong wireline broadband growth. Many of emerging countries already have strong mobile penetration. Emerging countries are also expected to develop fiber technologies during the forecast period, although at a lower rate than the developed countries.

3 Appendix II: Glossary

The following terms and organizations have been referred to in the text.

Acronym	Definition
AAA	Authentication, Authorization and Accounting
ABC	American Broadcasting Company
API	Application Program Interface
ARPU	Average Revenue per User (Usually monthly)
ATCA	Advanced Telecom Computing Architecture
ATIS	Alliance for Telecommunications Industry Solutions
ATV	Asia Television Limited
Billion	1,000,000,000 (1,000 Million)
BRAS	Broadband Remote Access Server
BT	British Telecom
CAPEX	Capital Expenditure
CNBC	Consumer News and Business Channel
CNN	Cable News Network
CNO	Cable Network Operator (See also MSO)
CPE	Customer Premise Equipment
CPGA	Cost per gross add
CSCF	Call Session Control Function
DS3	NA transmission standard for wideband communications
DSL	Digital Subscriber Line
EBU	European Broadcasting Union
ESPN	Entertainment and Sports Programming Network
ETSI	European Telecommunications Standards Institute
EU	European Union
FA	Football Association
FCC	Federal Communications Commission
FNO	Fixed Network Operator
GHz	Giga Hertz
HBO	Home Box Office
HD	High Definition
Hz	Hertz
IDP	Intrusion Detection and Protection
IETF	Internet Engineering Task Force
IMS	IP Multimedia Subsystem
INO	Integrated Network Operator
IP	Internet Protocol
IP v 6	IP version 6
IP/MPLS	IP/ Multi Protocol Label Switching
IPDC	Internet Protocol Data Casting

Acronym	Definition
IPTV	Internet Protocol TeleVision
ISP	Internet Service Provider
ITN	Independent Television News
ITU	International Telecommunications Union
kbps	Kilo bits per second
KDDI	Japanese Mobile Operator
kHz	Kilo Hertz
km	Kilometer
kW	Kilowatt
L2CP	Layer 2 Control Protocol
LG	Lucky Goldstar
LLU	Local Loop Unbundling
MAC	Media Access Control
Mbps	Mega bits per second
MHz	Mega Hertz
Million	1,000,000
MPEG	Moving Picture Experts Group
MPLS	MultiProtocol Label Switching
MSNBC	Microsoft NBC network
MSO	Multimedia Services Operator (See also CNO)
MTV	Music Television
NGN	Next Generation Networks
NPV	Net Present Value
NPVR	Network Personal Video Recorder
NRA	National Regulatory Authority
NTT	Nippon Telegraph and Telephone Corporation
OPEX	Operating Expenditure
OSA	Open System Architecture
OSS/BSS	Operational Support System/Billing Support System
PATS	Publicly Available Telephone Service
PBX	Private Branch Exchange
PCCW	Pacific Century CyberWorks Limited
PDA	Personal Digital Assistant
PRD	Product Requirements Definition
PSTN	Public Switched Telephone Network
PTT	See PoC
PVR	Personal Video Recorder
QoE	Quality of Experience
QoS	Quality of Service
QVGA	Quarter Video Graphics Array
RAI	Radiotelevisione Italiani
RTE	Radio Telefís Éireann
SCCAN	Seamless Converged Communication Across Networks
SDH	Synchronous Digital Hierarchy
SHE	Super HeadEnd

Acronym	Definition
SIP	Session Initiation Protocol
SK Telecom	Korean mobile operator
SMS	Short Message Service
SONET	Synchronous Optical NETworking
SS7	Signaling System 7
TE	Traffic Engineering
TIM	Telecom Italia Mobile
TISPAN	See ETSI
TV	Television
UK	United Kingdom
US	United States
VCR	Video Cassette Recorder
VHO	Video Hub Office
VLAN	Virtual Local Area Network
VoD	Video on Demand
VoIP	Voice over Internet Protocol
VPLS	Virtual Private LAN System
VPN	Virtual Private Network
VSO	Video Serving Office
WACC	Weighted Average Cost of Capital
WAN	Wide Area Network
ZDF	Zweites Deutsches Fernsehen