



**Report by the Chairman
World Telecommunication Policy Forum, 2001
IP Telephony**

Part I

1. The ITU World Telecommunication Policy Forum (WTPF) was established by Resolution 2 of the 1994 Kyoto Plenipotentiary Conference and was confirmed by Resolution 2 of the 1998 Minneapolis Plenipotentiary Conference. The purpose is to provide a forum where ITU Member States and Sector Members can discuss and exchange views and information on emerging telecommunication policy and regulatory matters arising from the changing telecommunication environment. Although the WTPF shall not produce prescriptive regulatory outcomes or outputs with binding force, it shall prepare reports and, where appropriate, opinions for consideration by Member States, Sector Members and relevant ITU meetings.

2. By Decision 498, the 2000 session of the ITU Council decided to convene the third World Telecommunication Policy Forum (WTPF-01) in Geneva, from 7 to 9 March 2001, in order to discuss and exchange views on the theme of Internet Protocol (IP) Telephony, with the following agenda:

- *the general implications of IP Telephony for the ITU membership with respect to: (a) the telecommunications policies and regulations of ITU Member States; (b) the implications of IP Telephony for developing countries, particularly with respect to policies and regulatory frameworks, as well as technical and economic aspects; (c) the impact of IP Telephony on the operations of Sector Members, notably in terms of the financial challenges and commercial opportunities it presents;*
- *actions to assist Member States and Sector Members in adapting to the changes in the telecommunication environment due to the emergence of IP Telephony, including analysing the current situation (e.g., by case studies) and formulating possible cooperative actions involving ITU Member States and Sector Members to facilitate adaptation to the new environment;*
- *actions to assist Member States and Sector Members in meeting the human resource development challenges presented by new telecommunication technologies such as IP Telephony, in particular, skills shortages and the need for education, and technology transfer.*

3. The third Policy Forum was held at the Geneva International Conference Centre from 7-9 March 2001. It was attended by 591 delegates, representing 121 Member States (including 25 of the Least Developed Countries) and 99 Sector Members. A total of 757 persons were present. Mr. Anthony S. K. Wong, Director-General of the Office of the Telecommunications Authority of Hong Kong SAR, China, was selected Chairman. The Policy Forum was preceded by an Information Session, held on 6 March 2001 and chaired by Mr. Henoch Aguiar, Secretary of Communications, Argentina.

4. Mr Yoshio Utsumi, Secretary-General of the ITU, presented his report on IP Telephony. In accordance with Council Decision 498, the Report of the Secretary-General incorporated contributions from the ITU membership and was to serve as the sole working document of the Policy Forum. Earlier drafts had been circulated to the membership in October and December 2000, in accordance with a procedure set by the Council. In addition, an Informal Group of Experts, chaired by Mr. Anthony Wong, held two meetings, on 16-17 November 2000 and 18-19 January 2001, to help revise the draft report and to prepare the draft Opinions. It was noted that, at future WTPFs, greater efforts should be made to achieve a better geographical balance in the composition of the Informal Expert Group and to ensure greater regional participation in the preparatory process.

5. In presenting his report, the Secretary-General underlined the following points, which had emerged from the contributions of the membership:

- a) IP-based networks represent a significant new opportunity for the membership of the Union and are already an important part of the emerging new market environment, in terms of volume of traffic carried and level of investment committed.
- b) From a technical perspective, IP-based networks hold the promise of providing multimedia telecommunications services and new applications, merging voice and data. IP may well become the unifying platform for emerging converged networks.
- c) From an economic perspective, the use of IP-based networks promises to reduce prices to consumers, and the costs of market entry for operators, especially for long-distance and international calls.
- d) From a regulatory perspective, the development of IP Telephony is forcing a reassessment of existing telecommunications regulation, which may need to be reviewed in the light of the opportunities opened up, and the challenges posed, by this new technology.
- e) IP Telephony poses a dilemma for developing countries: on the one hand it offers cheaper prices and lower costs, but it may also undermine the pricing structure of the incumbent public telecommunication operator. The transition to IP-based networks also poses significant human resource development challenges.

6. The chairman of the Forum presented the draft opinions, which had been prepared by the Informal Expert Group. He invited the Forum, if possible, to adopt opinions relating to:

- a) The general implications of IP Telephony for the membership of the Union;
- b) Actions to assist Member States and Sector Members;
- c) Human Resource Development issues.

A fourth opinion, relating to essential studies by the ITU to facilitate the introduction of "IP telephony", was proposed by Syria, Lebanon, Saudi Arabia and Jordan.

7. In addition to the presentation of the Secretary-General's report, the Forum heard opening presentations on the theme of IP Telephony from Mr. Björn Rosengren, Minister of Industry, Employment and Communications (Sweden), Mr. Leonid Reyman, Minister for Communications and

Informatization (Federation of Russia), Ms. Fatimetou Mint Mohamed Saleck, Secrétaire d'Etat auprès du Premier Ministre chargé des Technologies Nouvelles (Mauritania) and Ms. Virginia Sheffield, Assistant Vice-President, Regulatory Affairs, Genuity Inc.

8. Following these opening presentations, the Policy Forum engaged in a general discussion of the Secretary-General's report on IP Telephony. While this report served as the sole working document for the Forum, participants were also provided with a CD-ROM containing all the written contributions of the membership to the drafting of the report as well as the results of a series of country case studies that had been commissioned, in line with Council Decision 498.

9. During the course of the Forum, a number of changes were proposed relating to factual information in the Secretary-General's Report, including deletion of one phrase in para. 5.5 and changes to Annex B. These will be reflected in the version published on the ITU website.

10. The Policy Forum then considered the four draft Opinions and adopted them, with modifications, as presented in Part II of this Report.

11. Syria extended an invitation for a regional workshop to be held in Damascus, as foreseen under Opinion B.

12. The chairman extended his thanks to everyone who had helped make the meeting a success, in particular the rapporteurs and drafting group chairs, including Richard Thwaites, Valerie D'Costa, Svend Kraemer, Jane Coffin and Ahmed Laouyane, as well as all the members of the Informal Expert Group. He also extended his thanks to the Secretary-General and his staff for the good organisation and preparation of the meeting.

Part II

OPINION A

The general implications of IP Telephony for the ITU Membership with respect to:

- a) **the telecommunications policies and regulations of ITU Member States;**
- b) **the implications of IP Telephony for developing countries, particularly with respect to policies and regulatory frameworks, as well as technical and economic aspects;**
- c) **the impact of IP Telephony on the operations of Sector Members, notably in terms of the financial challenges and commercial opportunities it presents.**

The third World Telecommunication Policy Forum (Geneva, 2001),

considering

that, pursuant to the basic provisions of the ITU Constitution, that each member State has the sovereign right to develop policies related to telecommunications to meet its needs and objectives, and that the purposes of the Union include:

- to maintain and extend international cooperation among all members of the Union for the improvement and rational use of telecommunications of all kinds;
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunication services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to promote the extension of the benefits of the new telecommunication technologies to all the world's inhabitants;
- to facilitate the worldwide standardization of telecommunications, with a satisfactory quality of service;
- to foster collaboration among Member States and Sector Members with a view to the establishment of rates at levels as low as possible consistent with an efficient service and taking into account the necessity for maintaining independent financial administration of telecommunications on a sound basis,

recognizing (broader economic implications for a country)

- a) that the deployment of IP-based networks and applications has the potential to benefit users, industries, and the economy at large, because it fosters technical and market innovation, and diversity and growth in the economy; not forgetting the potential of upgrading of existing communication networks through use of other new technologies;
- b) that these new enhanced communication capabilities may be essential for the development of other service sectors, and for the production and distribution of goods in the global economy as a whole;

- c) that IP-based applications are likely to become more readily available at cost-effective prices, for the benefit of all users and industries, particularly when supplied under competitive market conditions in which multiple, alternative sources or means are available to address user and industry needs;
- d) that IP Telephony and other IP-based applications could be viewed as a significant opportunity for all countries to respond to the convergence of information and communication technologies and evolve their networks in order to expand the availability and use of a broader range of modern communication capabilities,

noting ***(implications for operators)***

- a) the continued development of the Internet and IP-based networks as a significant medium for communications and commerce;
- b) that the flexibility of IP technologies will contribute to an integration of voice and data networks, thereby allowing suppliers to take advantage of synergies and possible cost reductions, which will enable the provision of new innovative services and applications for the benefit of all citizens;
- c) that networks that can support IP Telephony are being designed with a variety of core network and access technologies and capabilities, including wireless technologies;
- d) that mobile wireless systems are expected to migrate towards an IP-based architecture in order to deliver integrated voice, data and multimedia services, as well as access to the Internet;
- e) that Sector Members face both challenges and opportunities during this transition to a market-driven industry,

conscious ***(implications for government policies and regulation)***

- a) that Member States pursue policies that seek to:
 - (i) attract capital investment so as to fund infrastructure that serves users and society as a whole;
 - (ii) stimulate innovation in order that applications and products that meet the needs of people can be offered in the marketplace;
 - (iii) exploit the synergies between capital investment and innovation so as to promote sustainable economic development that can attract further investment and create the environment necessary to promote more innovation;
- b) that Member States have national public policy goals in the telecommunication sector, including universal access and service, competitive markets, technology innovation and transfer of technical know-how, and the development of human resources; in addition public interest goals (for example, access to emergency services, security and privacy);
- c) that IP Telephony has created some negative impacts on voice revenues generated by a number of communication operators, particularly in some developing countries; there could also be a revenue gain for other communication operators and service providers;

- d) that the dynamic growth of IP-based networks, applications and services has been due to a combination of private and public sector investment and innovation, and an effective competitive environment;
- e) that initiatives and policies dealing with IP-based networks would benefit from input from users (consumers and business organizations),

is of the view

- a) that IP Telephony applications are best supplied in a market in which consumers have choices among multiple, alternative sources or means to address their needs, because only then will citizens, businesses and the overall economy reap the benefits of innovation and cost effectiveness;
- b) that government regulation should aim to foster an effective competitive environment and that regulation may be appropriate where there is market failure or when public interests cannot be adequately met by industry (e.g. universal access and service); for some countries, there may be other reasons for regulators to intervene, for example to ensure the rebalancing of tariffs;
- c) that Member States should examine the implications of applying existing regulatory regimes to IP-based services and applications,

invites

- 1 Member States and Sector Members to consider the possibility of the introduction and deployment of IP technologies and IP applications, including the exchange of information;
- 2 all Member States to review their current regulatory frameworks with a view to:
 - (i) encouraging investment, spurring innovation and advancing development;
 - (ii) achieving public policy goals in the context of a converged communication services environment;
 - (iii) considering the possibility of opening their communication services market with respect to IP Telephony by adopting a competition-oriented approach in order to achieve clearly defined public policy goals, taking into account, among other things, the concept of technology neutrality for fully-substitutable services.

OPINION B

Actions to assist Member States and Sector Members in adapting to the changes in the telecommunication environment due to the emergence of IP Telephony, including analysing the current situation (e.g. by case studies) and formulating possible cooperative actions involving Member States and Sector Members to facilitate adaptation to the new environment

The third World Telecommunication Policy Forum (Geneva, 2001),

considering

that, for several years, technology analysts have observed a tendency for telephony services and other forms of communications to converge and that, in recent years, IP appears to have emerged as one of the possible unifying platforms,

noting

- a) that some global telecommunications operators have announced that they are migrating their traffic to IP-based platforms;
- b) that the introduction of competition within the telecommunication market benefits the consumer;
- c) that ITU, in its service definitions, has been careful not to imply or specify any particular implementation technology,

conscious

- a) that increasing access to the Internet is a policy goal in some Member States;
- b) that emerging IP technologies offer opportunities for the development of new multimedia applications, including voice;
- c) that deployment of such technologies may offer particular benefits to small and medium-sized enterprises,

encourages Member States

to share experiences in developing new methodologies and approaches that recognize the market conditions of advanced technologies, such as IP Telephony, including, but not limited to:

- (i) approaches towards making any sector-specific regulation technology-neutral;
- (ii) the application of domestic competition laws as part of a pro-competitive policy designed to establish a level playing field;
- (iii) establishing sustainable bases to generate financing for universal access/service,

invites the Secretary-General and the Directors of the Bureaux

- 1 to promote understanding of the potential benefits of IP-based technologies and IP applications and, within existing budgetary resources, to assist Member States and Sector Members, particularly in developing countries:
 - (i) by updating previous IP Telephony case studies and carrying out further country case studies, as required;
 - (ii) by carrying out cost studies and establishing a process to assist members in performing cost-benefit analyses in order to plan for investment in converged telecommunication networks on IP platforms, on request;
 - (iii) by helping to attract investment and promoting the use of international lending, such as attractive, flexible, low-interest, long-term loan arrangements, and donor organization resources,

- 2 in the pursuit of the above, to conduct regional workshops in partnership with Member States and Sector Members, and concerned regional telecommunication organisations, complementing existing ITU activities, on the following basis:
 - The workshops should provide forums on:
 - (i) how telecommunication infrastructure build-out and the evolution of existing networks can be facilitated by deployment of IP-based technologies;
 - (ii) technologies that can support IP Telephony;
 - (iii) how to create an environment that will attract investment in infrastructure development;
 - (iv) issues such as cost structures, pricing mechanisms, interconnection, numbering, quality of service and market considerations, etc.

 - ITU may call upon voluntary contributions from Member States, Sector Members and other industry participants to support such activities.

 - The workshops should bring together regulators, government officials responsible for economic development and telecommunication issues, incumbent and new entrant network operators, Internet Service Providers (ISPs), equipment suppliers, consumers and consumer organizations.

OPINION C

Actions to assist Member States and Sector Members in meeting the human resource development challenges presented by new telecommunications technologies such as IP Telephony, in particular skill shortages and the need for education, and technology transfer

The third ITU World Telecommunication Policy Forum (Geneva, 2001),

considering

- a) that the purposes of the Union include promoting the extension of the benefits of new telecommunication technologies, encouraging continued participation by the private sector in telecommunication development, offering technical assistance in the field of telecommunications, and promoting the mobilization of the material, human and financial resources needed for implementation of telecommunication systems;
- b) that Council-2000 requested that action be taken to assist Member States and Sector Members in meeting the human resources development challenges presented by new telecommunication technologies such as voice over IP,

recognizing

- a) that economic, social, technical and regulatory environments are changing in the context of ongoing telecommunication and information technology developments;
- b) that transition to an IP environment places new demands on the management and operation of Member States and Sector Members as well as other private entities;
- c) that these new challenges need to be addressed by ITU, and in particular ITU-D/BDT, which plays a crucial role in assisting countries that are developing and building institutional, physical and organizational telecommunication capacity,

further recognizing

- a) that the speed with which countries can extend the benefits of telecommunication technologies will depend on their ability to deploy skilled personnel who are able to meet the operational and policy challenges stemming from the new environment;
- b) that, in today's environment of globalization, shortages of skilled personnel and the absence of comprehensive human resources policies are impeding the transition to a new IP environment in all countries;
- c) that technology transfer from Sector Members and Member States may help reduce the knowledge gap, although the problem is exacerbated by the "brain-drain",

encourages Member States and Sector Members to take into account

that training and education of a broad range of people benefits individuals, the communications system, communities and the economy as a whole, in particular, training and education for staff members of small and medium-sized communication enterprises, and keeping gender perspectives in consideration;

invites the ITU, particularly ITU-D

to facilitate the sharing of knowledge and views, by Member States and Sector Members, of global trends in all new technologies, in particular IP applications, including the activities of other standardisation bodies, infrastructure development, IP-based services and applications, and regulatory activities and policies.

invites ITU-D

- 1 to encourage Member States and Sector Members to create integrated human resources transition plans for new technologies, business operations and regulatory and policy activities;
- 2 to assist Member States and Sector Members in evaluating and identifying new and changing human resources requirements in order to meet the challenges of an evolving communications environment;
- 3 to draw upon existing BDT research and skilled personnel to identify:
 - (i) HRD/HRM and training issues related to network evolution;
 - (ii) HRD/HRM and training issues related to new technologies, including IP;
 - (iii) skills leading to the creation of a business environment that will attract infrastructure investment,

invites ITU-T and ITU-R

to collaborate with and assist the Director of BDT in creating the technical training components of ITU-D workshops, seminars, training projects, and modules,

invites Sector Members

to suggest, initiate, and/or participate in ITU-D human resources development and infrastructure investment programmes,

invites Sector Members and Member States

to work with educational institutions, NGOs and other organizations in order to draw upon resources, studies and expertise and to collaborate in assisting countries with training, resource retention and other HRD/HRM issues,

invites the Secretary-General and the three Directors

- 1 to disseminate widely information on the urgent need for the United Nations and Member States to review and develop policies that lead to:
 - (i) recognition of the widespread opportunities for people skilled in information and telecommunication technologies;
 - (ii) widespread training and education of all levels of their citizens, taking account of human factor aspects, in all domains of information and telecommunications technologies;
- 2 to encourage Associates and in particular the academic community to become actively involved in knowledge sharing and skills development;

- 3 to develop virtual capabilities for global knowledge-sharing, training and skills development;
- 4 to co-ordinate with regional telecommunication entities in identifying and developing programmes to advance regional skills bases.

OPINION D

Essential studies by the ITU to facilitate the introduction of “IP telephony”, including inter-operability considerations and implications, when implementing “IP telephony” in association with the existing circuit-switched national and international telecommunications network in developing countries

The third World Telecommunication Policy Forum (Geneva, 2001),

considering

- a) that important technical, economic and regulatory decisions are essential, by developing countries in order to introduce “IP telephony”;
- b) that the ITU Sectors should undertake further studies to facilitate the introduction of “IP telephony” by analysing inter-operability and interconnection issues with existing circuit-switched telecommunication networks, especially in the developing countries in order for them to take the proper decisions in due course,

invites the three ITU Sectors

each, for matters within its competence, and based on contributions from ITU Member States and Sector Members, to initiate new studies or pursue current ones, and to present any findings as soon as possible, to facilitate the introduction of “IP telephony” on a global basis, particularly with respect to:

1 in ITU-R,

compatibility and inter-operability of radio access between IP networks and PSTNs,

2 in ITU-T,

- a) a clear working definition of “IP telephony” and “Internet telephony”;
- b) whether, and to what extent:
 - (i) to require compatibility of “IP telephony” with the existing international telephone service and not place additional requirements on existing circuit-switched international networks;
 - (ii) compatibility should also include, but not be limited to, aspects of performance metrics, and other aspects as detailed in the relevant ITU-T Recommendations, in particular those on quality of service;
- c) whether, and to what extent:
 - (i) to consider the possibilities of how “IP telephony” can be a part of national PSTNs;
 - (ii) aspects of traffic identification and measurement need to be considered for interworking of IP-based networks and PSTN/ISDN;

- d) identifying the cost elements of international IP connectivity with respect to the introduction of "IP telephony",

3 In ITU-D,

taking account of the need of developing countries to plan a strategy of migration for their networks into IP-based networks, establishing a group of experts especially from developing countries to carry out the following tasks:

- a) to prepare, as soon as possible, a checklist of Factors which developing countries may use in the process of accelerating the introduction of IP networks, thus facilitating the introduction of "IP telephony";
- b) to advise and assist in response to the concerns and needs of the developing countries on the technical, socio-economic and policy impacts on the introduction of "IP telephony";
- c) to prepare a report to the forthcoming World Telecommunication Development Conference, in order for this Conference to take the necessary action.