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Report by the Secretary-General

ITU ACTIVITIES RELATED TO INTERNET PROTOCOL (IP)-BASED NETWORKS AND MANAGEMENT OF INTERNET DOMAIN NAMES AND ADDRESSES; INCLUDING ACTIVITIES RELATED TO INTERNET GOVERNANCE

Summary

This document reports on ITU activities related to Internet Protocol (IP)-based networks and management of internet domain names and addresses; including matters related to internet governance.

Action required

The Council is invited **to endorse** the activities described in this report and **to approve** the initiatives described in 12.4 and 13.10.

References

Res. 101 (Minneapolis, 1998), 102 (Rev. Marrakesh, 2002), 133 (Marrakesh, 2002), Council Res. 1222, WTSA-04 Res. 48, 49, 50, 51, 52, WTDC02 IsAP programme3, C99/51, C2000/27, C2000/27Add.A, C2000/27Add.B, C01/EP/8, C02/46, C03/27, C04/28, C05/32, C05/EP/10.

1. Introduction

1.1 Resolution 101 (Minneapolis, 1998) on Internet Protocol (IP)-Based Networks was adopted in 1998 and reported on in C2000/27 and C2000/27Add.A. Resolution 102 (Rev. Marrakesh, 2002) on Management of Internet domain names and addresses, originally adopted in 1998, was revised at the 2002 Marrakesh Plenipotentiary Conference. Related activities have been reported to Council in C99/51, C2000/27, C2000/27 Add.B, C01/EP/8, C02/46, C03/27, C04/28, C05/32 and C05/EP/10. Resolution 133 (Marrakesh, 2002) on the Role of administrations of Member States in the management of internationalized (multilingual) domain names was adopted in 2002 and reported on in C03/27, C04/28 and C05/32. Council Resolution 1222 (Geneva, 2004) on ITU activities relevant to WSIS was adopted in 2004 and reported on in C05/32 and Council Resolution 1244 (Geneva, 2005) on ITU role in the Tunis phase of WSIS and in implementation and follow-up reported in C05/93. This report describes ITU activities related to these resolutions since Council 2005, as well as ongoing developments in this field.

1.2 This report also describes activities relating to *Internet Governance*, as referred to in the *Declaration of Principles* and *Plan of Action*, adopted at the first phase of the World Summit on the

Information Society (WSIS) held in December 2003 in Geneva, and in paragraphs 29 – 82 of the *Tunis Agenda for the Information Society* for the Information Society, adopted at the second phase of WSIS held in November 2005 in Tunis.

2. ITU and its Activities Related to Internet-Protocol (IP) Networks

2.1 ITU's activities, policies and strategic direction are determined and shaped by ITU Member States and the interests of the ICT industry sectors it serves. Since the adoption of the resolutions referenced above, support for IP-based technologies has emerged as a strategic element in the design, development and use of the world's telecommunication networks. This has and continues to shape ITU's work programmes in its radiocommunication, standardization and development activities.

2.2 For example, the growing popularity of the Internet and its related applications has driven new requirements for telecommunications capacity and bandwidth. This is generating rapid innovation in access and transport network technologies; examples include the roll-out of broadband networks by leveraging copper wire networks with DSL technologies, the re-architecting of television cable networks to support bi-directional IP-based services, and enhancements in optical networking and mobile internet offerings. As an illustration of ITU's contributions since adoption of Resolution 101 in 1998, ITU-T standards (developed principally by Sector Members) have facilitated an increase of over 200 million new broadband subscribers during the 2000-2005 timeframe.

2.3 The rapid growth of IP-based networks is driving significant changes in the market. Faced with separate infrastructures for voice and data businesses, convergence and growing competition, almost all telecommunication operators are fundamentally re-examining their business models and making investments in a move to common IP-based core infrastructures with high-speed access for customers (e.g., through FTTx or xDSL technologies). These new *core* and *access* network infrastructures are being supplemented with efforts to build a new layer of *intelligent infrastructures* or *business layers* for IP networks capable of providing QoS, reliability and security assurances in a multi-service, multi-provider environment.

2.4 Specifically, substantial investments are being made by operators and equipment manufacturers in what can be referred to as *IP-Enabled Next Generation Networks (NGNs)*. IP-enabled NGNs can be seen as a logical progression from separate PSTN, mobile and IP-network infrastructures to unified networks for electronic communications based on IP. The fundamental difference between NGNs and today's data and PSTN networks is a shift towards new packet-switched multi-service networks. In the coming years, IP-enabled NGNs will be deployed by numerous service providers around the globe.

3. Policy and Regulatory Challenges

3.1 The technical and market developments described above also reflect growing convergence between the telecommunications, information technology and media sectors. The growth of broadband subscribers, VoIP and deployment of NGNs will clearly have an impact on national policies, market regulation and intergovernmental cooperation. For example, convergence across media distribution platforms (e.g., delivery of television over broadband networks) raises a number of issues at national and regional levels regarding policy and regulatory regimes established around previously distinct delivery platforms. This presents numerous challenges for policy makers and regulators and it may be useful to build additional international dialogue on the impact of convergence—including the sharing of national experiences and its impact on capacity building for developing economies.

3.2 As examples, as IP-enabled NGNs are deployed around the globe, and are used to provide critical public services, many questions are arising regarding the applicability to these new services of laws and policies being applied to services offered over current circuit-switched networks. Examples include provisions for public safety needs, disability assistance, law enforcement support (e.g., legal interception), competition considerations, fraud prevention, prioritization during emergencies, privacy and data protection, and consumer protection against unwanted intrusions. Identification of these requirements can also assist in focusing on areas where international cooperation or standardisation may be appropriate or needed.

3.3 As examples of specific ITU contributions in this area, BDT with *infoDev* are jointly developing the *ICT Regulation Toolkit*, an online resource for regulators and policy makers in developing countries, that contain a series of modules on key regulatory issues. The central module, entitled *New Technologies*, will focus on regulatory and policy challenges, as well as opportunities of IP networks. The Toolkit is expected to be available online by mid-year 2006 at:

- <http://www.ictregulationtoolkit.org>

3.4 Another example is the joint development by ITU-D and ITU-T of an IP policy manual entitled *A Handbook on Internet Protocol (IP) Based Networks and Related Topics and Issues*, published in accordance with a decision of Council 2005, and available in six languages at:

- <http://www.itu.int/ITU-T/special-projects/ip-policy/final/>

3.5 A further example is a workshop in March 2006 jointly organized by SPU, ITU-T and ITU-D entitled *What Rules for IP-enabled NGNs?*. The workshop will examine current market developments of IP-enabled NGNs and consider the future implications for policy and regulatory regimes. Further information can be found at:

- <http://www.itu.int/osg/spu/ngn/>

4. Top Level Domain Management of “.int”

4.1 As previously reported to Council, in accordance with Resolution 102 (Rev. Marrakesh, 2002), ITU-T Study Group 2 (SG2) has developed Recommendation E.910, *Procedures for registering within the domain “.int”*, to clarify the management of the internet top level domain “.int”. E.910 was approved using the traditional approval process (TAP) by SG2 in December 2005 and transmitted to the Internet Assigned Names Authority (IANA) and to the Internet Corporation for Assigned Names and Numbers (ICANN). For further information, see:

- <http://www.itu.int/md/meetingdoc.asp?type=mitems&lang=e&parent=T05-SG02-060503-TD-GEN-0187>

5. ITU-D Projects

5.1 In accordance with Resolution 102 (Rev. Marrakesh, 2002) and within the framework of the Istanbul Action Plan (WTDC 2002), a number of BDT projects since Council 2005 have been implemented or are underway that integrate IP-based applications and value-added services in the development of telecommunication networks, including, *inter alia*:

- E-government projects in Azerbaijan, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Cameroon, Egypt, Papua New Guinea and Rwanda.
- E-health projects in Venezuela and Papua New Guinea.
- Technical assistance to Oman on VoIP policy and strategies and introduction of broadband *triple play* applications on IP-based platforms.

5.2 In accordance with Resolutions 102 and 133, the BDT also organized several workshops, with support from TSB and SPU, to discuss general policy, operational and technical issues concerning the Internet, including management of internet domain names and addresses:

- IP Symposium for Asia and Pacific Region: An *IP Symposium for Asia and Pacific Region* was organized in Bangkok in November 2005. The *Bangkok IP Symposium Statement* is at:
 - http://www.itu.int/ITU-D/e-strategy/Seminars/Bangkok/Bangkok-Statement_30Nov2005.pdf
- IP Symposium for Americas Region: An *IP Symposium for Americas Region* was organized in Buenos Aires in December 2005. The *IP Symposium Report for Americas Region* is at:
 - http://www.itu.int/ITU-D/e-strategy/Seminars/Argentina/Buenos_Final%20Report_Eng.pdf

6. ENUM

6.1 ENUM continues to merit close attention by ITU Member States, due to its potential impact on national policy, regulatory and/or legislative frameworks with regard to numbering resources. A draft ITU-T Recommendation provisionally entitled E.A-ENUM is under preparation in ITU-T SG2. A discussion of issues related to administrative control of ENUM took place during the December 2005 SG2 meeting: a summary is available in TD 136 Rev. 2 (GEN/2). Additional materials are available at:

reports on ENUM trial activities within Member States:

- <http://www.itu.int/ITU-T/inr/enum/trials.html>,

approved ENUM Delegations:

- <http://www.itu.int/itudoc/itu-t/enum/enum-app.html>

general information on ENUM, including a tutorial paper:

- <http://www.itu.int/ITU-T/inr/enum/>

recent news and reference materials related to ENUM:

- <http://www.itu.int/osg/spu/enum/>

7. Internationalized Domain Names

7.1 Although the majority of Internet users are now non-native English speakers, certain components of the Internet remain English-centric, creating barriers to access. One barrier is the lack of internationalized capability within the internet domain name system (DNS). The deployment of internationalized domain names (IDN) raises a number of issues including technical and interoperability issues, administrative arrangements (particularly for internationalized top level domains), intellectual property, dispute resolution and cultural or social issues. For a general background on IDN, see:

- http://en.wikipedia.org/wiki/Internationalized_domain_names

7.2 There are indications that deployment of IDNs at the top level of the DNS may now be taking place through establishment of additional DNS root server systems. In this regard, see:

- <http://icann.org/announcements/idn-global-deployment-17nov05.pdf>
- <http://icann.org/announcements/announcement-17nov05.htm>
- <http://icann.org/announcements/adnpp-v02-12dec05.pdf>
- <http://www.icann.org/announcements/idn-cctld-12dec05.pdf>

7.3 Recently, ICANN adopted IDN guidelines which call, *inter alia*, for strict compliance with certain IETF RFCs, see:

- <http://www.icann.org/general/idn-guidelines-14nov05.htm>

7.4 Following adoption of WTSA Resolution 48 on IDNs, ITU-T Study Group 17 (SG17) agreed on the text of a new Question on IDN at its October 2005 meeting and submitted it to TSAG (TSAG TD 129 (GEN)). The Question was approved with some amendments by TSAG at its November 2005 meeting and the definitive text is in the final approval stage in ITU-T SG 17. A questionnaire on use and experiences of IDN is planned to be sent to the membership further to the SG17 April 2006 meeting. Collaboration with other bodies (e.g., UNESCO) is also underway.

7.5 In line with WSIS Tunis Agenda action lines C2, C3 and C8, ITU and UNESCO are planning to jointly organize a *Global Symposium on Promoting the Multilingual Internet* from 9-11 May 2006 at the Geneva International Conference Center. Additional information will become available at:

- <http://www.itu.int/osg/spu/>

8. Country Code Top Level Domains

8.1 As previously reported, a contribution on this topic had been submitted to the 16-24 February 2005 meeting of ITU-T Study Group 2 (see 13 of 3.2 of COM 2-R1), but it was not fully discussed. This contribution was subsequently submitted to the 14-18 March 2005 meeting of the Telecommunication Standardization Advisory Group (TSAG), but was not fully discussed there either. At the invitation of TSAG (see 5.3.3 of TSAG R-3), a subsequent discussion was held at the 6-15 December 2005 Study Group 2 meeting. The results of that discussion can be found in TD 136 Rev. 2 (GEN/2).

9. IP Addresses

9.1 An IPv6 Workshop was held in Geneva from 22-23 June 2005. The workshop presentations and summary report (also available in TSB Circular 42) are available at:

- <http://www.itu.int/ITU-T/worksem/ipv6/200506/>

9.2 A proposal by the TSB Director to introduce *dual systems* for allocation of IPv6 addresses has received comments from Regional Internet Registries (RIRs) and other organizations. Similar proposals have been made by others (see for example the contribution to ITU-T Study Group 2 COM 2 – C 22 from Korea) and discussion on this issue is continuing.

9.3 References to current discussions going on within the RIRs with respect to IPv6 allocation policies can be found at:

- <http://www.icann.org/announcements/ipv6-report-03jan06.htm>

10. ITU Participation in ICANN Activities

10.1 The ITU-T continues its participation in the ICANN Technical Liaison Group, of which ITU-T is a member. Consistent with its status as observer and budgetary constraints, representatives of SPU, TSB, and BDT also participate in ICANN's Governmental Advisory Committee (GAC).

11. Protection of Country Names

11.1 The issue of protecting the names of countries in the DNS has been raised previously in Council (see 2.6 of Council 2002 Summary Record of the Thirteenth Plenary Session, 2 May 2002).

11.2 On 6 October 2003, ICANN created a committee on this topic, which included a representative of ITU. The committee worked primarily by electronic methods and presented its report to the ICANN Board in July 2004. The ICANN Board considered this matter in December 2004 and resolved to invite further comment. See:

- <http://www.icann.org/announcements/announcement-06oct03.htm>
- <http://www.icann.org/committees/JWGW2/>

11.3 On 15 November 2005, Mr Francis Gurry, Deputy Secretary General of the World Intellectual Property Organization (WIPO), wrote to the Chairman of the ICANN Board, to the President of ICANN, and to the Chairman of ICANN's GAC to inform ICANN that, at the 26 September-5 October 2005 WIPO General Assembly, a number of delegations expressed concern with regard to the apparent lack of progress in the implementation of the said recommendations and inquiring as to how ICANN intended to proceed in this matter. Mr Gurry recalled that the said recommendations (WIPO-2 Recommendations) had been transmitted to ICANN in February 2003, and that they had been supported by ICANN's GAC on a number of occasions. Mr Gurry further recalled the concerns of countries with regard to the abuse of their country's names and the very real concerns of intergovernmental organizations concerning the protection of their names and acronyms. This letter can be found at:

- http://www.icann.org/correspondence/gurry-to-cerf_twomey-15nov05.pdf

11.4 On 1 December 2005, the President of ICANN announced that ICANN will continue to consult with interested constituencies to determine if a way forward exists regarding the implementation of the

WIPO II recommendations. As of February 2006 ICANN had not taken any decisions regarding this matter.

12. Internet Governance and the World Summit on the Information Society

12.1 The first phase of the World Summit on the Information Society (WSIS) could not resolve all differences on Internet governance. The WSIS Declaration of Principles (paragraphs 48-50) and Plan of Action (paragraphs 13 b-d) tasked the “Secretary General of the United Nations to set up a working group on Internet Governance”. See:

- http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161|1160

12.2 As follow-up to Council Resolution 1244, ITU submitted a comprehensive package of contributions available at:

- <http://www.itu.int/wsis/docs2/pc3/contributions/itu.html>

12.3 On 15 August 2005, the Working Group on Internet Governance (WGIG) presented its report. That report, along with contributions from many countries and other stakeholders, were discussed during the preparatory process for WSIS. During the Tunis Summit, a text was agreed on and can be found in paragraphs 29-82 of the *Tunis Agenda for the Information Society* at:

- http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=2266|2267

12.4 Paragraph 71 in the Tunis Agenda calls for a “...process towards enhanced cooperation, to be started by the UN Secretary-General, involving all relevant organisations by the end of the first quarter of 2006, will involve all stakeholders in their respective roles, will proceed as quickly as possible consistent with legal process, and will be responsive to innovation. Relevant organisations should commence a process towards enhanced cooperation involving all stakeholders, proceeding as quickly as possible and responsive to innovation. The same relevant organisations shall be requested to provide annual performance reports.” As ITU has a mandate to undertake work related to IP-based networks, including management of internet names and addresses, ITU is a relevant organization in this regard. As called for in paragraph 71, the ITU has already been providing annual reports to Council on related activities. **Council is requested to approve public availability of these documents.**

12.5 Paragraphs 72-82 of the Tunis Agenda also call for the establishment of a new Internet Governance Forum (IGF). In that regard, paragraph 78 makes specific reference to ITU:

78. The UN Secretary-General should extend invitations to all stakeholders and relevant parties to participate at the inaugural meeting of the IGF, taking into consideration balanced geographical representation. The UN Secretary-General should also:

- a) draw upon any appropriate resources from all interested stakeholders, including the proven expertise of ITU, as demonstrated during the WSIS process; and*
- b) establish an effective and cost-efficient bureau to support the IGF, ensuring multi-stakeholder participation.*

12.6 Additional information for the ITU Membership related to internet governance can be found at:

- <http://www.itu.int/osg/spu/intgov/>
- <http://www.itu.int/ITU-T/tsb-director/itut-wsis/index.html>.

13. Cybersecurity and Countering Spam Activities

13.1 With regard to cybersecurity, an ITU *WSIS Thematic Meeting on Cybersecurity* was held 28 June-1 July 2005 at ITU. The event website provides links to the final agenda, background papers, presentations, electronic contributions, Chairman’s Report and complete audio archives. The website contains a wealth of related materials and constantly updated cybersecurity news:

- <http://www.itu.int/cybersecurity/>

13.2 The four-day meeting was structured to consider and debate six themes in promoting international dialogue and cooperative measures among governments, the private sector and other stakeholders and the promotion of a global culture of cybersecurity. These include information sharing of national and regional approaches, good practices and guidelines; developing watch, warning and incident response capabilities; technical standards and industry solutions; harmonizing national legal approaches and international legal coordination; privacy, data and consumer protection; and developing countries and cybersecurity. The first day of the meeting focused on countering spam as follow-up to the *Thematic Meeting on Countering Spam* reported on in C05/32.

13.3 Following a decision by Council 2005, *Promoting Global Cybersecurity* is the theme for the World Telecommunication Day 2006 (WTD 2006). In preparation, ITU plans a series of related themed initiatives.

13.4 In conjunction with WTD 2006, and in the context of facilitation of WSIS Tunis Agenda action line C5, ITU plans to host a cybersecurity event at Headquarters tentatively entitled *Partnerships for Global Cybersecurity*. Further information will become available at:

- <http://www.itu.int/cybersecurity/>

13.5 Within the framework of WTDC02 IsAP programme 3, assistance was provided by BDT in the implementation and use of cybersecurity solutions to a number of countries including Azerbaijan, Barbados, Bulgaria, Cameroon, Georgia, Jamaica, Paraguay and Zambia. In addition, workshops/seminars aimed at assisting in the formulation of national and regional approaches to dealing with the prevention of cybercrime, identity theft, malware, spam, privacy, data integrity, authentication and data protection were organized in Chile, Latvia, Paraguay, Peru, United Arab Emirates and Zambia. A report containing best practices on legislation for cyber crime was produced and a publication aimed at providing cybersecurity reference material for developing countries will be released at WTDC 2006. For further information, see:

- <http://www.itu.int/ITU-D/e-strategy/e-security>

13.6 With regard to countering spam, following the adoption of related WTSA Resolutions, ITU-T Study Group 17 (SG17) agreed the text of a new Question on Countering spam at its October 2005 meeting and submitted it to TSAG (see TSAG TD 132 (GEN)). The Question was approved with some amendments by TSAG at its November 2005 meeting and the definitive text is in final approval stage in ITU-T SG 17. Regular liaison is taking place between SG17, SG2, and the Organization for Economic Cooperation and Development (OECD) and will be further developed with other bodies such as IETF and the Messaging Anti-Abuse Working Group (MAAWG). Five draft Recommendations on technical means for countering spam, including email and IP multimedia spam are currently being developed in SG 17.

13.7 In response to a liaison from SG17, ITU-T Study Group 2 noted at its 6-15 December 2005 meeting that it is working on the definition of the term “spam” and it invited contributions on this topic (see TD 148 (GEN/2)).

13.8 New approaches on the ways that ITU and its Member States can cooperate in countering spam were one of the topics addressed at the November 2005 Global Symposium for Regulators (GSR). A Discussion Paper on spam was presented to the 2005 GSR. The paper focused on development of enforceable codes of conduct for ISPs and asserted:

“ISPs should be encouraged to establish and enforce narrowly-drawn codes of conduct that prohibit their users from using that ISP as a source for spamming and related bad acts, such as spoofing and phishing, and not to enter into peering arrangements with ISPs that do not uphold similar codes of conduct. Rather than continue to rely upon chasing individual spammers, regulators in the most resource-constrained countries in particular would be more likely to succeed by working with and through the ISPs that are closer to the source of the problem, to their customers, and to the technology in question. The regulator’s job would be to ensure that ISPs within their jurisdiction adopt adequate codes of conduct as a condition of their operating license and then to enforce adherence to those codes of conduct...”

The paper can be found at:

- <http://www.itu.int/ITU-D/treg/Events/Seminars/2005/GSR05/Documents/GSR%20Discussion%20Paper%20Spam.pdf>

13.9 On the basis of invited comments, a revised version of the paper will be published with updated versions of GSR Discussion Papers in the 2006 edition of *Trends in Telecommunication Reform*, to be released at WTDC 2006.

13.10 Council is invited to approve forwarding to the United Nations Commission on International Trade Law (UNCITRAL) the revised version of the paper referenced in 13.8-13.9 above containing elements of a model law for UNCITRAL's consideration and further action as appropriate.

13.11 Participants in 2005 GSR also discussed as a complement to anti-spam measures, that regulators can focus on consumer education in order to enlighten users on norms of appropriate use of technology. This would include teaching consumers about the dangers of compromised PCs and promoting that 'computer security is my responsibility'. A summary of the GSR 2005 discussions can be found in the 2005 GSR Chairman's report at:

- <http://www.itu.int/ITU-D/treg/Events/Seminars/2005/GSR05/documents.html>

14. Internet Exchange Points (IXPs)

14.1 Based on a discussion paper presented to the 2004 GSR and comments received, ITU in partnership with IDRC has published the final report entitled *Via Africa: Creating local and regional IXPs to save money and bandwidth* at:

- <http://www.itu.int/ITU-D/treg/publications/AfricaIXPRep.pdf>

14.2 With respect to a request made by Council 2004 (see 3.2 of C04/78), a workshop was held in conjunction with the ITU-T Study Group 3 Regional Tariff Group meeting for Africa where international internet connectivity was one of the main items, see:

- <http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/south-africa-05/presentations.html>

14.3 The joint ITU-UNDP partnership project on *Cost effective Internet Access in Africa* (see C05/32) continues. The objective of this project is to contribute towards the building of affordable Internet infrastructure backbone in Africa through the implementation of national and regional IXPs with the sharing of experiences and best practices. Another ongoing initiative is focused on building out IXPs in the Arab region.

15 Voice over IP (VoIP)

15.1 A GSR Discussion Paper on VoIP regulation was presented to the 2005 GSR, highlighting current national practices with regard to how to regulate VoIP, and how the rise of VoIP traffic is changing current regulatory practices such as interconnection, universal access/service, numbering, network security, lawful interception practices and its impact on traditional business models in the telecommunication sector, such as time-based retail and interconnection charges.

15.2 On the basis of invited comments, a revised version of the paper has been produced, and will be published together with updated versions of GSR Discussion Papers as the 2006 edition of *Trends in Telecommunication Reform*, to be released at WTDC 2006.

15.3 VoIP regulation was also the topic of two sessions of the 2005 GSR. A summary of the GSR VoIP discussions included in the GSR Chairperson's Report may be found at:

- <http://www.itu.int/ITU-D/treg/Events/Seminars/2005/GSR05/documents.html>
-