

# Overview of Related ITU Activities

APT/ITU Joint Workshop on ENUM and IDN  
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# Agenda

- Introduction to ITU
- Understanding Network Trends
- Impact of Internet Protocol (IP) Networks on ITU
- ITU Mandates Relating to IP-based Networks and Internet Names and Addresses
- Some Specific ITU Activities
- Internet Governance

# Introduction to ITU

# International Telecommunication Union

- International organization within the United Nations (UN) system where governments and private sector coordinate global telecom networks and services
- Founded in 1865, 189 Member States and more than 700 private sector members
- Headquarters Geneva, 11 regional offices, 800 staff / 85 nationalities

# ITU mission

- Maintain and extend international cooperation in telecommunications
- Technical and policy assistance to developing countries
- To harmonize actions of Member States and promote cooperation between Member States and Sector Members

# ITU mission

- To promote at international level, the adoption of a broader approach to issues of telecommunications in the global information economy and society
- To extend the benefits of telecoms to all the world's inhabitants
- “Helping the world communicate”

# ITU structure: simple view

## Radiocommunication Sector (ITU-R)

Management of the radio-frequency spectrum and satellite orbits used by services such as fixed, mobile, broadcasting, amateur, space research, meteorology, global positioning systems, environmental monitoring and safety of life at sea and in the skies.

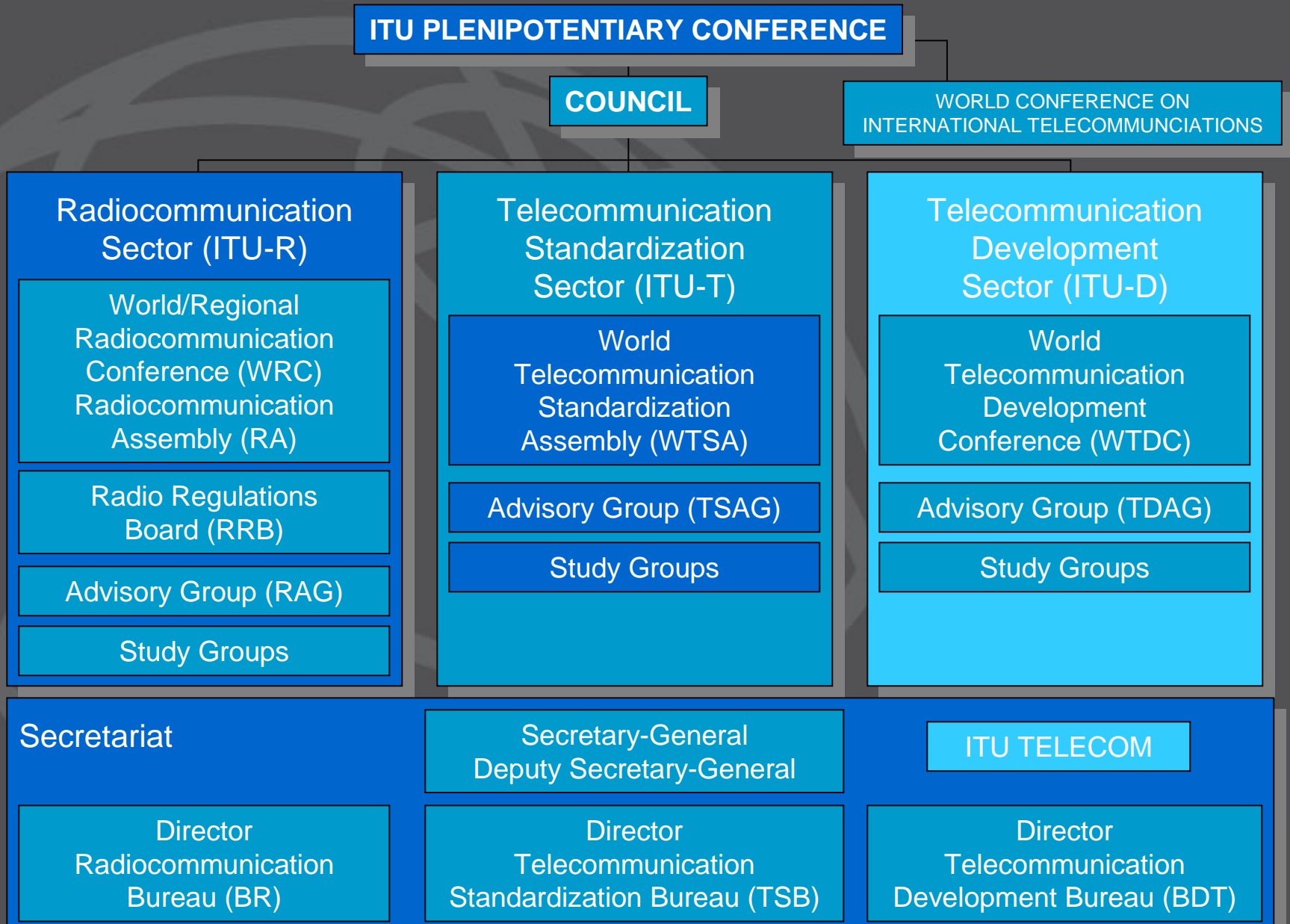
## Telecommunication Standardization Sector (ITU-T)

Establish internationally agreed technical and operating standards  
“Recommendations” for networks and services

## Telecommunication Development Sector (ITU-D)

Assistance to developing countries to facilitate connectivity and access, foster policy, regulatory and network readiness, expand human capacity through training programmes, formulate financing strategies and e-enable enterprises in developing countries

# ITU structure: complex view





# Understanding Network Trends

# Impact of New Technologies

- Technology-driven industries like the communications sector historically been characterized by steady growth punctuated by “giant leaps” forward, usually when “new” technology is introduced
- Usually also corresponds to periods of rapid economic growth

# Impact of New Communication Technologies

- This historical pattern has been repeated numerous times:
  - 1840's: telegraph
  - 1870's: telephone
  - 1890's: radio telegraphy or "wireless"
  - 1920's: radio broadcasting
  - 1950's: television broadcasting
  - 1960's: geostationary satellite communications
  - 1970's: computer communications
  - 1980's: optical communications
  - 1990's: Internet and mobile communications

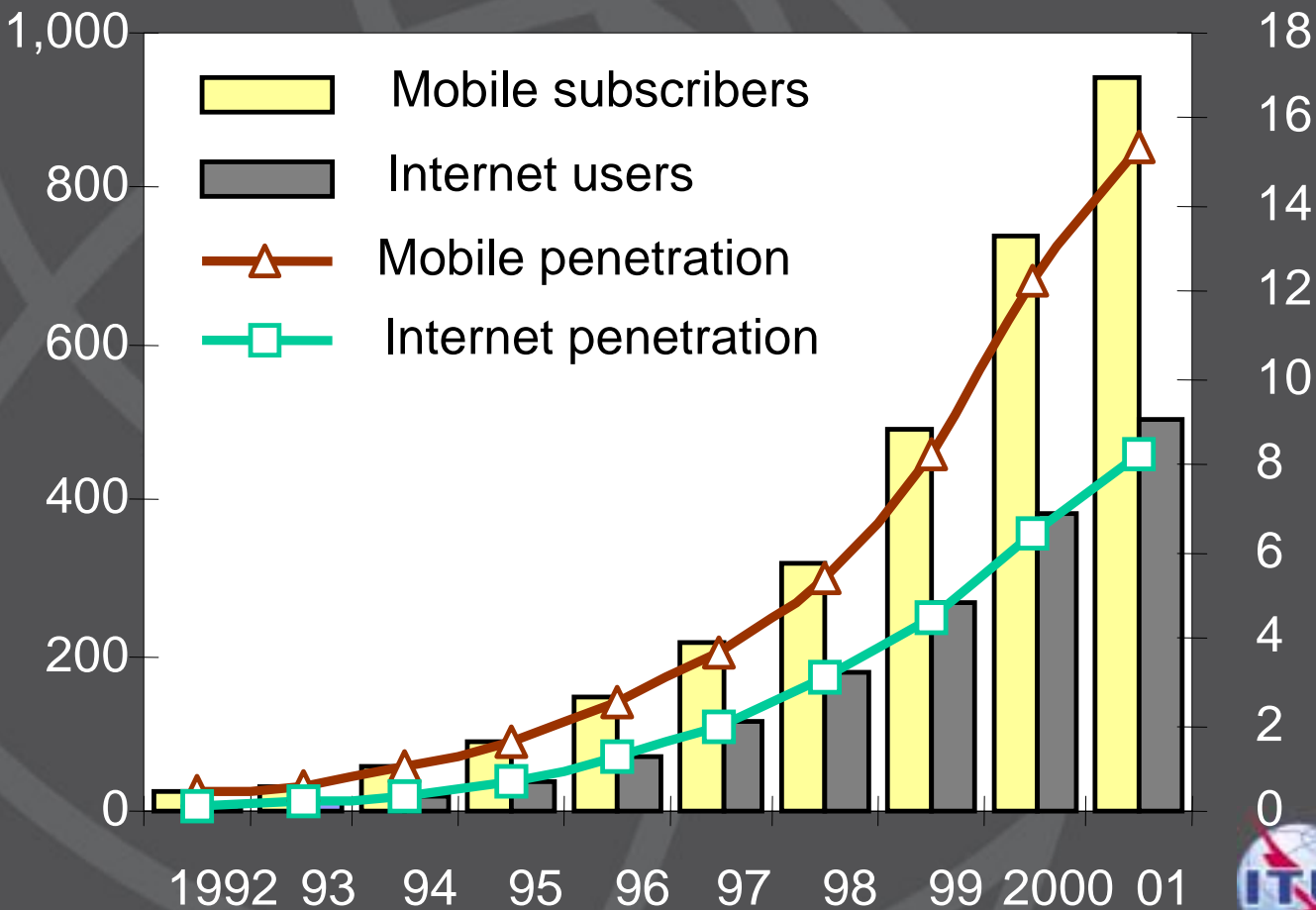
1865: ITU Created

# Impact of New Technologies

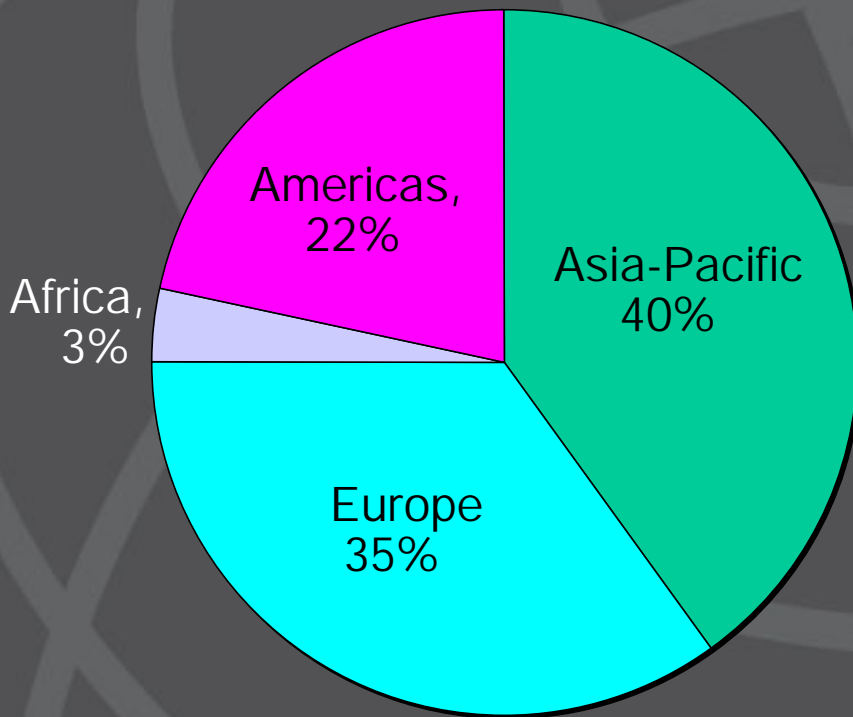
- In the last part of the twentieth century, the almost simultaneous arrival of two major innovations — mobile phones and the Internet — not only changed the face of communications, but also gave impetus to dramatic economic growth

# Mobile and Internet: identical twins born two years apart?

Users (millions) and penetration per 100 pop.

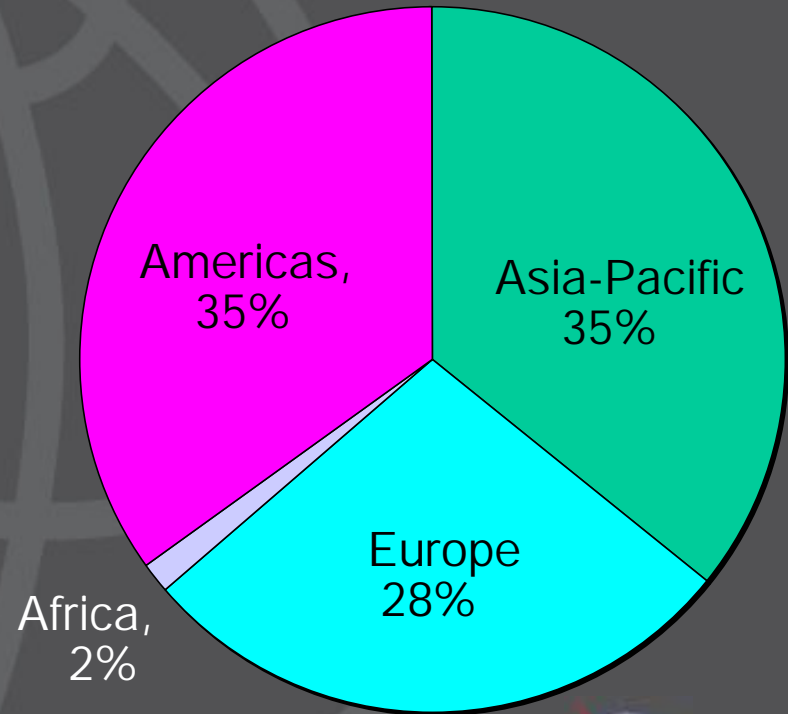


# Distribution of mobile and Internet users by region (end 2002)



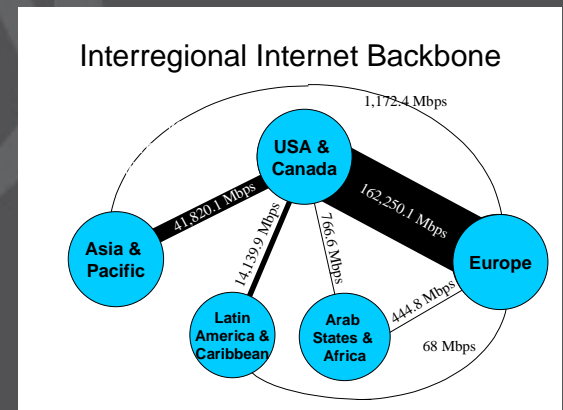
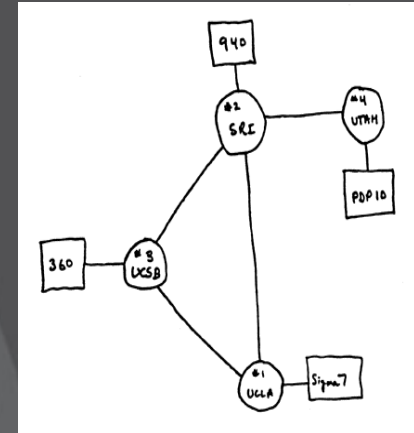
Mobile phone subscribers: 1.16 billion

Estimated Internet users: 625 million



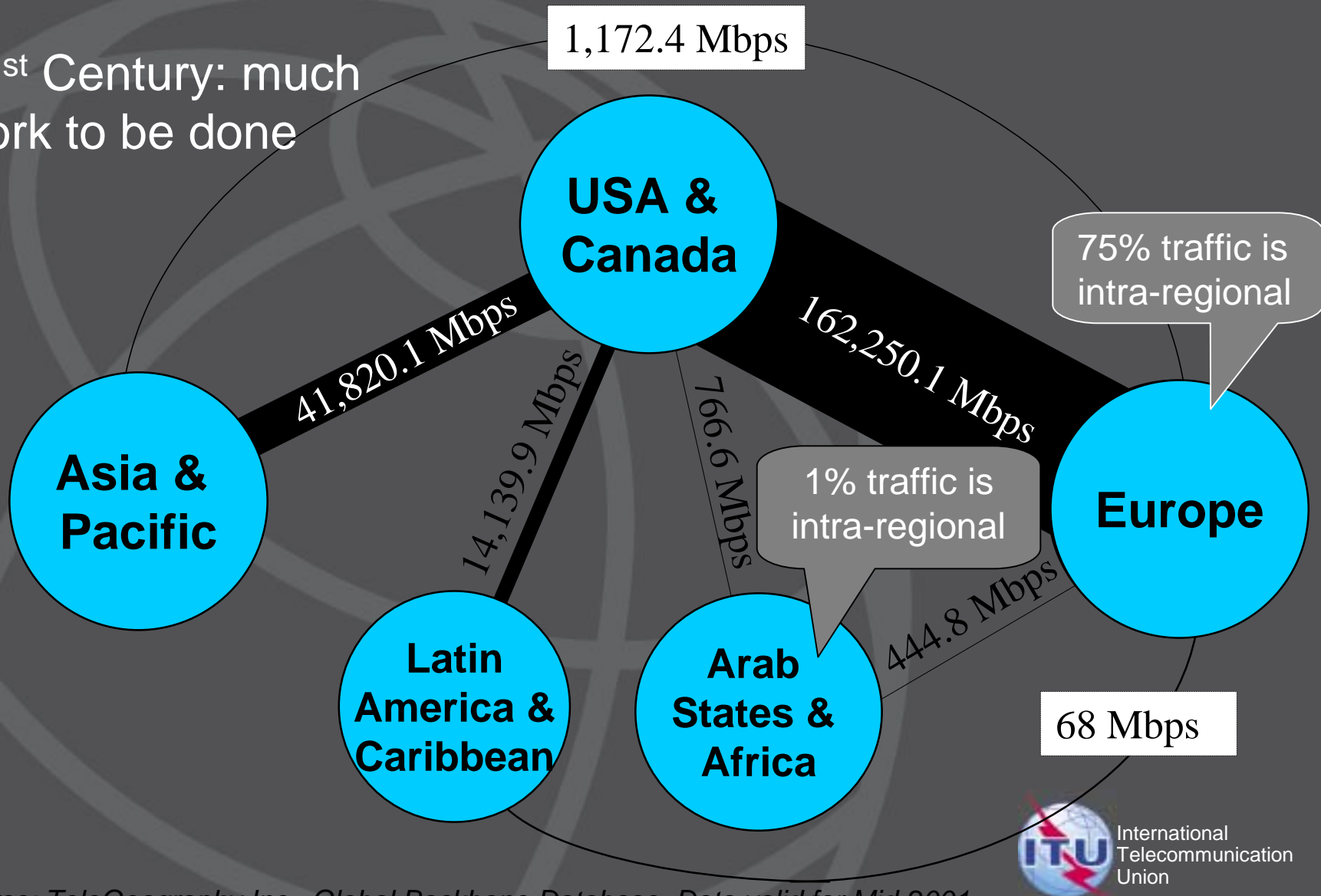
# Understanding telecommunication trends: growth of the Internet

- 10-15 years ago
  - Focused around academia and research
  - Primarily North American
  - Not-for-profit
  - Used primarily for email and file transfer
- 1990's
  - Growth throughout OECD countries
  - Begun “privatisation” of backbone
  - Primarily a channel for the Web and email
  - Wide disparity in connectivity
  - “Dot.com” mania rules
  - Some thought Internet was suitable platform to subsume all existing networks & services



# Internet Interregional Backbone

21<sup>st</sup> Century: much work to be done

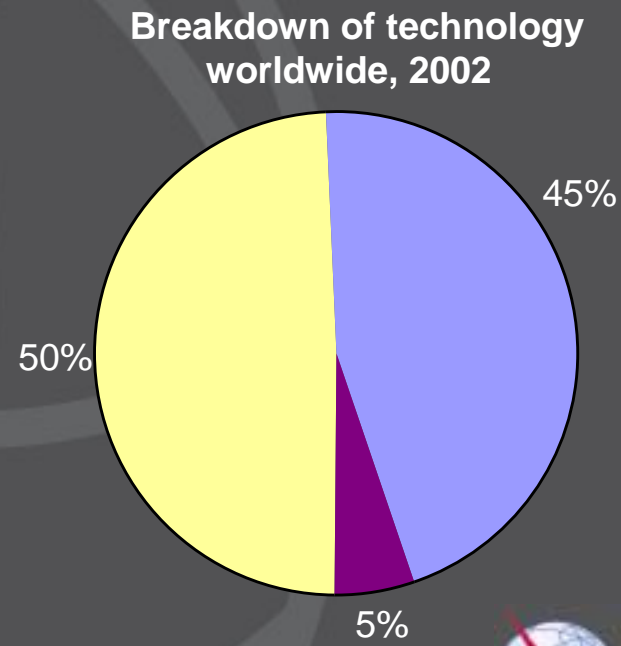
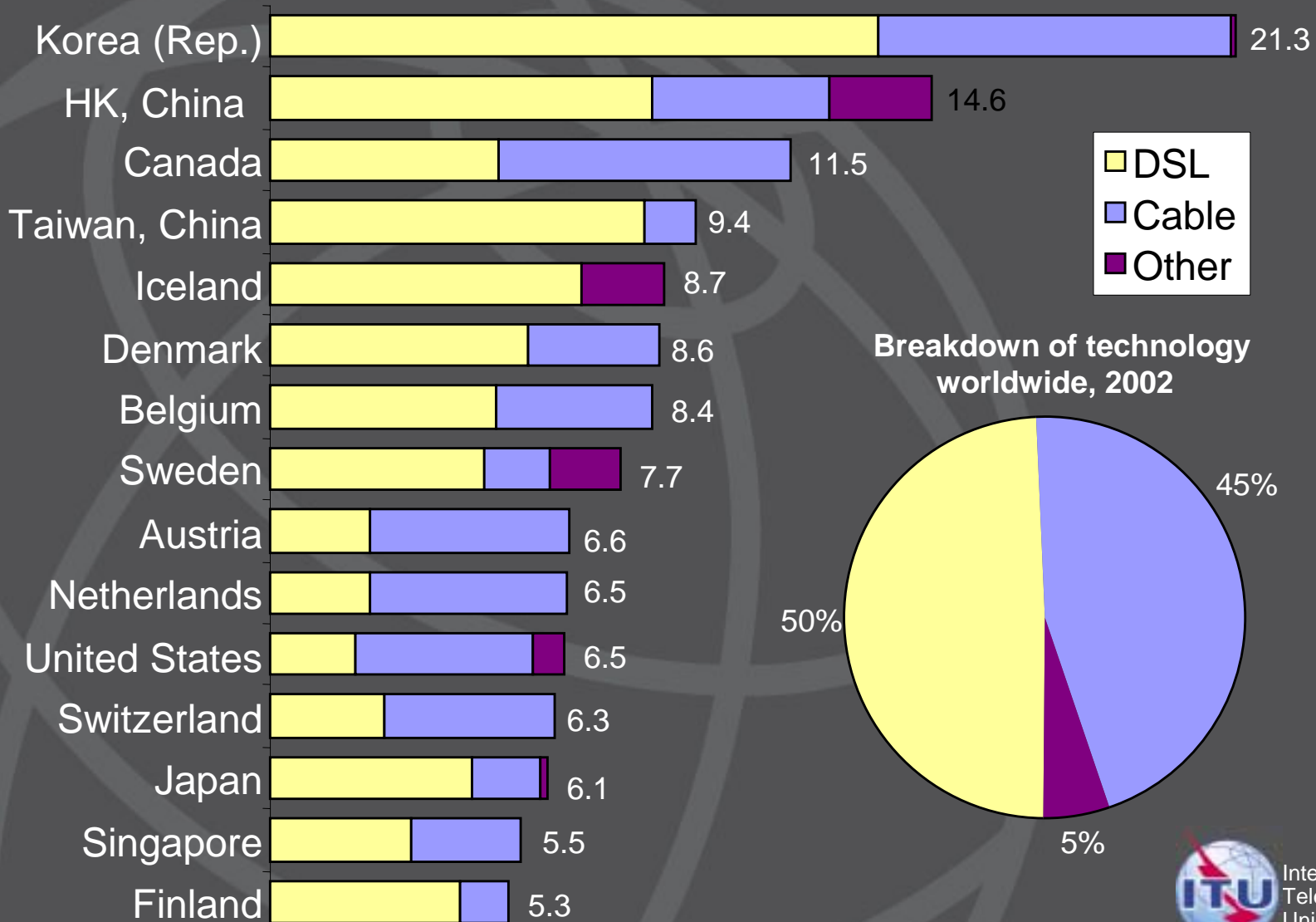




# More recent trends

- Birth of Broadband
- Growth in wireless networks and mobile data services
- Mobile overtakes fixed
  - LDCs have fastest growth in mobile (e.g. Africa)
  - Mobile Internet and multimedia applications
- Advent of “ubiquitous networks” & “portable Internet” (WiMax)
- Future of millions of IP-enabled “appliances”

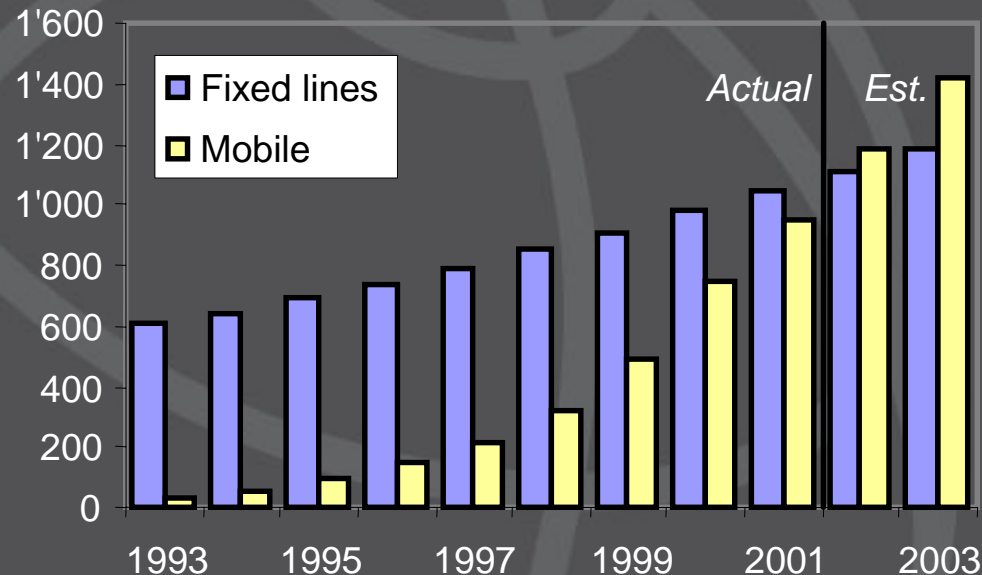
# Broadband penetration, per 100 inhabitants, 2002, by technology



# Mobile Overtakes Fixed

The year 2002 marked an historic turning point in the history of telephony: the year when mobile subscribers overtook fixed-line subscribers worldwide

**Global fixed lines and mobile subscribers, millions**



Source: ITU World Telecommunication Development Report, 2002: Reinventing Telecoms.

# 20 years of sector reform

- ~20 years ago, AT&T formally agreed to the break-up of the Bell system
- 10 years ago, around 10 countries had some measure of fixed-line competition
- 5 years ago, in concluding the WTO basic telecoms agreement, some 70 countries committed to telecoms market liberalization
- Countries with privatized operators and some degree of competition are in majority among ITU Member States
- World now numbers 123 separate regulatory bodies, up from 30 in 1994



# But many challenges to the policy & regulatory environment

- All policy makers and regulators - both new and old – both developed and developing economies - struggling to address changes resulting from convergence of information and communication (ICT) sectors
- Build-out of networked economies and national information societies have raised public policy stakes
- National telecommunication infrastructures are now platform for deployment of advanced national information communications networks
- Result: broader ICT perspectives from policy makers and regulators

# Impact of Internet Protocol (IP) Networks on ITU

# ITU Membership & Strategy

- ITU Membership encompasses telecom policy-makers, regulators, network operators, equipment manufacturers, hardware and software developers, regional standards bodies and telecom organizations, financing institutions
- ITU's activities, policies and strategic direction are determined and shaped by industry it serves

# How has the Internet impacted ITU?

- Support for IP-related technologies is now strategic element in design, development and use of most telecommunication networks;
- Has had major impact on ITU's core activities in radiocommunication, telecom standardization and development programmes
- Increased focus by ITU members on issues related to convergence and international coordination issues arising out of it:
  - includes IP-based networks such as the Internet



# Changing Profile of ITU

## Members: Most Active in ITU-T

- Scientific or Industrial Organizations (SIOs)
  - NTT ♦ Cisco ♦ Nortel ♦ ETRI ♦ Huawei ♦ Siemens ♦ L. M. Ericsson ♦ ZTE ♦ Alcatel ♦ Infineon ♦ Lucent ♦ NEC ♦ Fujitsu
- Recognized Operating Agencies (ROAs)
  - France Telecom ♦ Telekom. Polska ♦ China Telecommunication Corporation ♦ BT ♦ Deutsche Telekom ♦ KDDI ♦ Bharat Sanchar Nigam ♦ Telenor ASA ♦ AT&T ♦ NTT DoCoMo ♦ Telecom Italia ♦ TeliaSonera ♦ Belgacom

# Specific Mandates Relating to IP-based Networks and the Internet including Management of Internet Names and Addresses

- General
  - Resolution 101: Internet Protocol (IP)-based networks
  - Resolution 130: Strengthening the role of ITU in information and communication network security
- Internet Names and Addresses
  - Resolution 102: Management of Internet Domain Names and Addresses
  - Resolution 133: Role of administrations of Member States in the management of internationalized (multilingual) domain names
  - Resolutions give instructions to Secretary-General, TSB Director, the BDT Director and the ITU Council, as well as inviting Member States to contribute to certain activities
  - See [www.itu.int/osg/spu/mina/](http://www.itu.int/osg/spu/mina/)

# Example Instructs

- *instructs the Director of TSB*
  - to continue to liaise and to cooperate with appropriate entities on relevant Internet domain name and address management issues, such as the transition to IP Version 6 (IPv6), ENUM, and internationalized domain names (IDN);
  - to work with Member States and Sector Members, recognizing the activities of other appropriate entities, to review Member States' ccTLD and other related experiences;
  - to work with Member States and Sector Members, recognizing the activities of other appropriate entities, to develop a recommendation to clarify the management of the domain ".int";
  - to report annually to the Council on the activities undertaken on this subject

# Example Instructs cont'd

- *instructs the Director of BDT*
  - to organize international and regional forums, in conjunction with appropriate entities, for the period 2002-2006, to discuss policy, operational and technical issues on the Internet in general and the management of Internet domain names and addresses in particular for the benefit of Member States, especially for least developed countries;
  - to report annually to the Council on the activities undertaken on this subject

# Examples of Other Requests from ITU Member States

# ITU-Nepad Workshop

- ITU-NEPAD Workshop in April 2003 in Arusha, Tanzania, aimed at assisting Africa in elaborating ICT roadmap to meet NEPAD objectives
- Arusha Workshop was attended by delegates from 30 ITU Member States including regional organizations such as ATU and ECOWAS, and resulted in Declaration requesting, inter alia, the following actions to be undertaken:
  - “ITU should assist Africa to establish its own Regional Structure for the Management of Public Internet Resources (IP Addresses, country code top Level Domains)”

# IP Symposium in Kigali, Rwanda

- In July 2003 brought together representative from governments, industry and Internet organizations from more than 20 African Member States. Recommendations on actions ITU should undertake in addressing policies and strategies for Internet domain names and IP address management for Africa.
- See <http://www.itu.int/ITU-D/e-strategy/internet/Seminars/Rwanda/Info-en.html>

# IP Symposium in Kigali, Rwanda

- Kigali Declaration contains number of recommendations to ITU on its role in DNS management and IP address allocation, development of Internet policy handbook, cooperation with African Union on establishment of Afrinic, development of an international framework for ccTLD management recognizing the sovereign rights of ITU Member States, and the protection of country names.
- See <http://www.itu.int/ITU-D/e-strategy/internet/Seminars/Rwanda/documents/kigali-declaration%20E.pdf>



# IP Symposium in Moscow, Russia

- In September 2003 brought together representatives from government, industry and Internet organizations from more than 15 CIS and European States.
- Proposals actions ITU should undertake in addressing policies and strategies for Internet domain names and IP address management for the region
- Further information available at:
  - <http://www.itu.int/ITU-D/e-strategy/internet/Seminars/Moscow/>

# IP Symposium in Moscow, Russia

- Moscow Declaration contains number of recommendations on ITU's role in DNS management and IP address allocation, convergence in naming and addressing systems (ENUM), best practices and repatriation in ccTLD management, assistance to Member States in the protection of country names, and recommendations on best practices in fostering Internet deployment, VOIP, IPv6, and internationalized domain names
- Document available at <http://www.itu.int/ITU-D/e-strategy/internet/Seminars/Moscow/Docs/moscow-declaration-rev%20eng.pdf>

# Some Specific ITU Activities

# New Report: ITU and its Activities Related to Internet-Protocol (IP) Networks

- Report on how Internet Protocol (IP) networks and the Internet, as well as their convergence with other kinds of networks, have impacted ITU's activities
  - <http://www.itu.int/osg/spu/ip/>
- Provides overview (April 2004) of wide scope of the ITU's activities related to IP networks and the Internet—ranging from technical standards to regulatory and policy matters to development initiatives

# New Report: ITU and its Activities Related to Internet-Protocol (IP) Networks cont'd

- Description of ITU-T, ITU-D and Strategy and Policy Unit activities
- Case study on how ITU's Broadband Standards Improve Access to the Internet
- Case study on how ITU's Internet Training Centre Initiatives Provide Capacity Building in Developing Countries
- Maps overlaps of WSIS Declaration of Principles and Plan of Action with ongoing or planned ITU activities

# IP Policy Manual

- ITU Council 2003 requested ITU to prepare IP Policy Handbook
- To advise Member States, especially developing countries, on issues related to IP-based networks, including management of Internet domain names & related issues
- Intended audience is policy makers at national level who are or may be called upon to influence or decide national policies with respect to IP-based networks and/or services

# IP Policy Manual

- Full details, including questionnaire and draft table of contents in TSB Circular 168 and its Addendum 1 at:
  - <http://www.itu.int/md/meetingdoc.asp?type=sitems&lang=e&parent=T01-TSB-CIR-0168>
- The status of the work, including membership of the project team, replies to questionnaires, input contributions, and current draft of Handbook available at:
  - <http://www.itu.int/ITU-T/special-projects/ip-policy/>

# .int Top Level Domain

- In accordance with Resolution 102, Director of TSB organized workshop in September 2003, in cooperation with ICANN, to develop Recommendation (standard) to clarify the management of top level domain “.int”
- Workshop info and agreed output at:
  - <http://www.itu.int/ITU-T/worksem/int/>
- ITU-T developing “E.int” Recommendation
  - Discussed this week at ITU-T SG2 meeting



# DNS Root Server System

- Given recent discussions about DNS root server system (e.g., ref. 13(d) of the WSIS Plan of Action) attention is drawn to ITU-T SG2 Information Document 23, DNS Root Server Mirror Service
  - <http://www.itu.int/itudoc/itu-t/com2/infodocs/>
- Provides information for ITU Member States on the potential benefits of locating DNS root server mirror within their national context (for F root server)
- Potential benefits include: national infrastructure protection and self-sufficiency; performance; costs; resilience; and emergency response

# DNS Root Server System cont'd

- Also see information about the APNIC root server deployment (also F mirror) in the Asia-Pacific region available at:
  - <http://www.apnic.net/services/rootserver/>
- Also see guidelines for hosting a mirror instance of the Internet K root server are at:
  - <http://k.root-servers.org/>

# ENUM: ITU Reaction to Top Level Domains Affecting Management of E.164 Numbering Plan

- ICANN recently solicited applications for new top level domains.
- Some applications have implications for the management of the ITU-T E.164 numbering plan (e.g., .tel, others?)
- Resolution 133 instructs Secretary-General “to take any necessary action to ensure the sovereignty of ITU Member States with regard to country code numbering plans and addresses will be fully maintained, as enshrined in Recommendation E.164 of the ITU Telecommunication Standardization Sector, in whatever application they are used”.

# Top Level Domains Affecting Management of E.164 Numbering Plan

- In accordance with Resolution 133, ITU Secretary-General has sent letter to ICANN which can be found at:
  - <http://www.itu.int/osg/spu/mina/2004/lettertoicann-20041.pdf>
- This letter has been brought to the attention of ITU-T Study Group 2, via TD 168 (WP1/2)

# Some ENUM References

- Reports on ENUM trial activities within Member States can be found at:
  - <http://www.itu.int/ITU-T/inr/enum/trials.html>
- General information on ENUM, including tutorial paper, can be found at:
  - <http://www.itu.int/ITU-T/inr/enum>
- Recent news and reference material related to ENUM can be found at:
  - <http://www.itu.int/osg/spu/enum/>

# Country Code Top Level Domains

- ITU Survey on ccTLDs along with complete set of replies published end 2003. Summary tabulation and complete set of replies at:
  - [http://www.itu.int/ITU-T/studygroups/com02/surveys\\_cctld.html](http://www.itu.int/ITU-T/studygroups/com02/surveys_cctld.html)
- Following ITU Workshop on Member States' Experiences with ccTLDs in 2003 there will be joint workshop with ICANN in July 2004, in Kuala Lumpur, Malaysia
- For further information, see:
  - <http://www.itu.int/ITU-T/worksem/cctld/kualalumpur0704/>

# Protection of ITU Member State Names

- Issue of protecting names of countries in DNS has been raised previously in ITU Council:
  - "No second-level domain name corresponding to the official or common name of a sovereign State should be registered by an entity other than the sovereign State in question. Country names are symbols of sovereignty and it is not unreasonable to request that they be given special protection, just as other aspects of heritage are protected by conventions"
  - 2.6 of Council 2002 Summary Record of the Thirteenth Plenary Session, 2 May 2002



# Protection of ITU Member State Names cont'd

- Member States of WIPO recently adopted two decisions in respect of Report of Second WIPO Domain Names Process.
- Recommendations that Uniform Domain Name Dispute Resolution Policy (UDRP) be amended to permit complaints to be filed in respect of the abusive registration, as domain names, of (i) the names and acronyms of international intergovernmental organizations, and (ii) country names.
- Full details of Second WIPO Internet Domain Name Process at <http://wipo2.wipo.int/process2/>
- Final report at <http://wipo2.wipo.int/process2/report/>



# Protection of ITU Member State Names cont'd

- On 6 October 2003, ICANN created committee, which included a representative of ITU, “for the purpose of analyzing the practical and technical aspects of implementing WIPO recommendations, and notably the implications for the UDRP”.
- No consensus reached within committee regarding whether or not to recommend implementation of the WIPO recommendations:
  - <http://www.icann.org/announcements/announcement-06oct03.htm>

# ITU Newslog Channel on Internet Names and Addresses

- Generic news on Internet Names and Addresses from ITU
  - <http://www.itu.int/osg/spu/newslog/categories/internetNamesAndAddresses>
  - RSS XML feed  
<http://www.itu.int/osg/spu/newslog/categories/internetNamesAndAddresses/rss.xml>

# ITU Newslog Channel on ENUM

- News related to ENUM from ITU
  - <http://www.itu.int/osg/spu/newslog/categories/enumer/>
  - RSS XML feed
  - <http://www.itu.int/osg/spu/newslog/categories/enumer/rss.xml>

# Some Specific IDN Reflections

- We're at early stage of IDN implementation
- Quite unclear whether there is broad take-up of current solutions
- The "ICT Superpowers" are advancing but developing countries will need much assistance
- Complexity means "one size fits all" policy approach will not work
- Current administrative drafts don't address some complex issues (e.g., character position sensitive variants in Greek and Hebrew)

# Some IDN Reflections cont'd

- IDN complexity exposes many weakness in DNS administration models
- Unclear alignment of ccTLD and gTLD policies
- Policy void for internationalized top level domains
  - Can concept of linguistic variant bundles be created for TLDs?
- In some cases, governments or regional political organizations need to act as facilitators, particularly there is often no clear “language authority”
- Often questions of legitimacy from private initiatives

# Some IDN Reflections cont'd

- By the time fully implemented, will DNS still be viable solution?
  - Do we need better model for a future world of billions of named objects?
- Is future path in non-hierarchical “federated” (Latin for trust) naming structures?
  - NB: History teaches that hierarchical federations usually not successful (examples: PKI, “The Directory”)
  - Are there lessons from E.164 naming/numbering plan that has no single technical root?

# ITU Newslog Channel on IDN

- News related to IDN from ITU
  - <http://www.itu.int/osg/spu/newslog/categories/internationalizedDomainNames/>
  - RSS XML feed  
<http://www.itu.int/osg/spu/newslog/categories/internationalizedDomainNames/rss.xml>

# Internet Governance



# Internet Governance and World Summit on the Information Society

- Lengthy and difficult negotiations concerning Internet governance during the preparatory meetings for the first phase of the World Summit on the Information Society (WSIS)
- Internet governance: no clear agreement on definition
- Depending on your perspective, either encompasses or equates with Internet resources management

# Internet Governance and World Summit on the Information Society

- As differences could not be resolved, WSIS Declaration of Principles (paragraphs 48-50) and Plan of Action (paragraphs 13 b-d) provide that the “Secretary General of the United Nations to set up a working group on Internet governance”.
- Relevant texts at:
  - [http://www.itu.int/wsis/documents/doc\\_multi.asp?lang=en&id=1161|1160](http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161|1160)

# Internet Governance and the World Summit on the Information Society

- ITU Workshop on Internet Governance was held in February 2004
- For complete information and access to contributions, see:
  - <http://www.itu.int/osg/spu/forum/intgov04/>
- Chairman's Report from workshop available at:
  - <http://www.itu.int/osg/spu/forum/intgov04/workshop-internet-governance-chairmans-report.pdf>

# Internet Governance and the World Summit on the Information Society

- ITU Internet Governance Related Resources
  - <http://www.itu.int/osg/spu/intgov/>
- ITU Newslog Channel on Internet Governance
  - <http://www.itu.int/osg/spu/newslog/categories/internetGovernance/>
  - RSS XML feed  
<http://www.itu.int/osg/spu/newslog/categories/internetGovernance/>

Thank you

International  
Telecommunication  
Union

Helping the world communicate