



ITU Activities Related to the Internet and IP-based Networks

Forum on Telecommunication Regulation in Africa
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Agenda

- ITU in brief and key trends
- ITU Activities Related to the Internet and IP-based Networks:
 - Telecommunication Standardization Sector
 - Telecommunication Development Sector
 - Strategy and Policy Unit



ITU in brief

- UN specialized agency, concerned with the development of telecommunication networks and services worldwide
- 137 years old
- 189 Member States; 600+ Sector Members
- Around 790 staff / 83 nationalities
- 2002 budget = circa CHF172m (USD 115m)
- Secretary-General: Yoshio Utsumi (Japan)
- Deputy Sec-General: Roberto Blois (Brazil)
- Website: <http://www.itu.int>



Impact of Internet Protocol (IP)-based networks and the Internet on the ITU

- Support for IP-related technologies is now strategic element in design, development and use of telecommunication networks;
- Impacts ITU's core activities in radiocommunication, telecom development and standardization sectors.



Impact of Internet Protocol (IP)-based networks and the Internet on the ITU

- ITU not only coordinates global telephony system, but also many other aspects of telecommunications, including spectrum, geostationary satellite orbit, as well as global Internet and IP networks services and technologies;
- Many examples to follow....



Key Trends (1)

- IP networks requirements for bandwidth and capacity driving continuous innovation in access and transport networks
 - leveraging copper wire “last-mile” networks through digital subscriber line (“DSL”) technologies
 - re-architecturing of cable networks to support IP services
 - driving advances in optical networking technologies



Key Trends (2)

- Integration and interoperability of IP-based and PSTN network services and applications
- Emergence of differentiated Quality of Service (“QoS”) IP-based services
- Managed end-to-end performance needed for new applications requiring isochronous (real-time) traffic (e.g., video, voice)
- New traffic engineering solutions, pricing & accounting models emerging

Key Trends (3)

- Mobile overtakes fixed
- Growth in wireless networks, mobile data services
- New generation of hundreds of millions of IP-enabled “appliances”





ITU Telecom Standardization Sector Activities

- See <http://www.itu.int/itu-t/>
- Director: Houlin Zhao (China)
- ITU-T has “Study Groups” focused on different topic areas (e.g., security, access & transport networks, multimedia, signalling, numbering and naming, tariffing, IP)
- During last 4 years, huge reorientation towards IP-related standardization and accelerated procedures
- Cooperative initiatives with many organizations including IETF, W3C, ICANN



ITU-T Study Group 2 (1)

- Working on naming, numbering, addressing, and routing (“NNAR”) issues
- Examples:
 - E.164 international numbering plan, E.212 mobile (“IMSI”) codes
 - ENUM: mapping between the Internet Domain Name System (DNS) and the PSTN E.164 numbering plan:
 - E.164 numbering resources related to IP telephony (e.g. UPT 878 code allocated for testing)
 - Future activities related to management of Internet names and addresses (MINA) issues

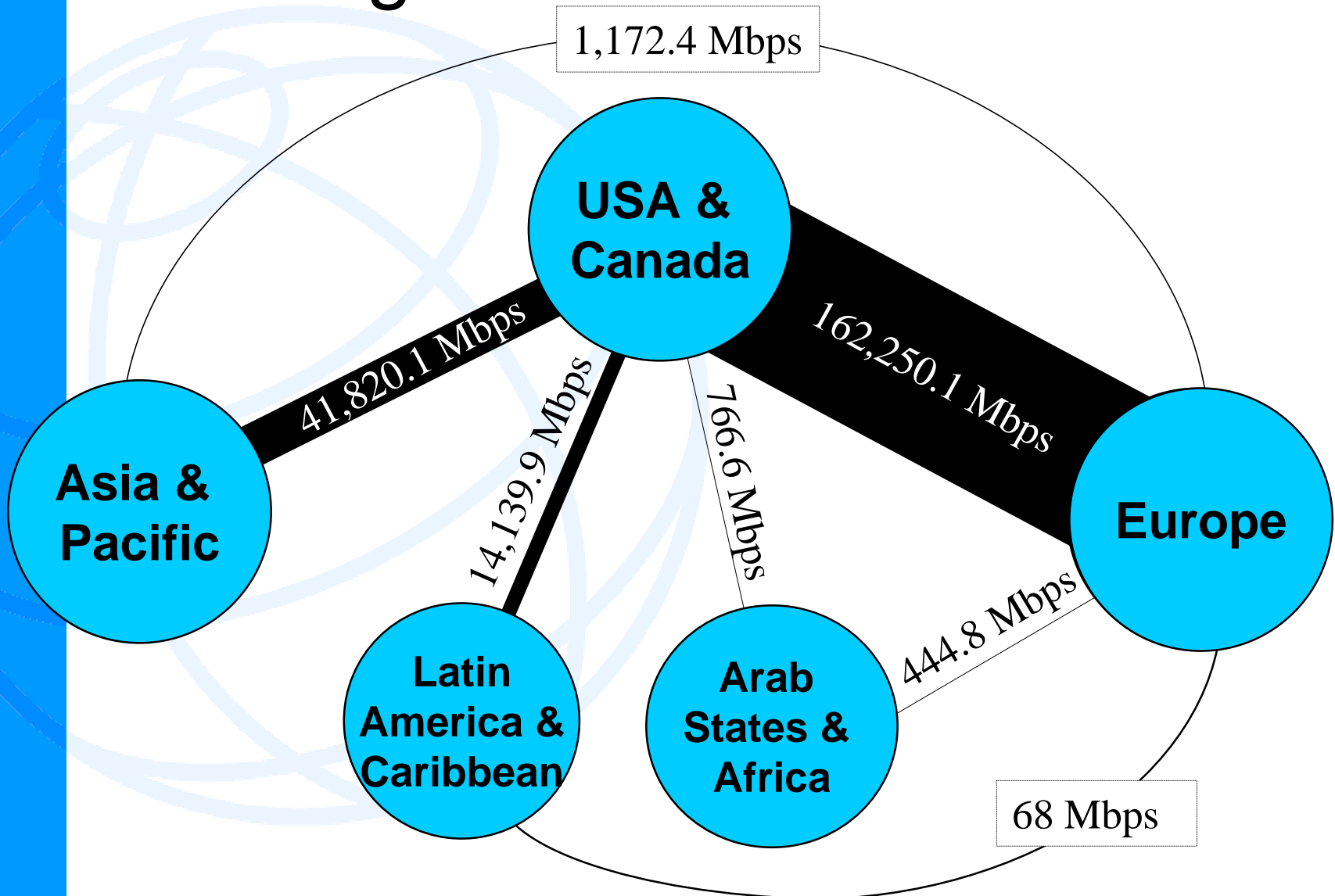


ITU-T Study Group 3

- In 2000, SG 3 adopted draft recommendation “D.50” on the cost sharing of international Internet connection between administrations, and continues the study on applicability of principles contained in Recommendation;
- Result of tensions over costs of full leased circuits to Internet “backbone” and lack of transparency over peering and interconnection rules;
- Some regulators applying “interconnect” rules for national Internet interconnections.



Interregional Internet backbone





ITU-T Study Group 4

- Lead Study Group on telecommunication management network (“TMN”) issues
- Framework for unified management of integrated circuit-switched and packet-based networks (with an initial emphasis on IP-based networks)
- Also active in IMT-2000 network management for service provisioning and security



ITU-T Study Group 8

- T.37: Procedures for the transfer of facsimile data via store-and-forward on the Internet
- T.38: Procedures for real-time Group 3 facsimile communication between terminals using IP networks



ITU-T Study Group 9

- J.83 and J.112, related to the provisioning of IP-based services over cable networks using cable modems
- J.120, defining a transmission protocol and configuration for distribution of sound and television programs (webcasting) over IP networks
- IPCablecom project specifies architecture and protocols for delivery of time-critical IP-based interactive services over cable television networks



ITU-T Study Group 11

- Standardized signalling for IP and advanced network applications, Intelligent Networks (“IN”)
- Key role in:
 - Signalling support of mobility services (e.g., IMT-2000)
 - IP related signalling (e.g., bearer independent call control (BICC), see Q.1901)
 - Virtual home environment...



ITU-T Study Group 12

- Lead Study Group on QoS
- End-to-end transmission performance of networks
- Transmission planning for interconnected networks
- Perceptual appreciation of quality of speech (e.g., delay...)
- Involved in QoS issues related to IP networks....(e.g., G.1010)
- Multimedia QoS/performance



ITU-T Study Group 13

- ITU-T lead Study Group for IP, B-ISDN, GII and satellite matters, for example:
 - Y.1310: Transport of IP over ATM in Public Networks
 - Y.1221: Traffic control and congestion control in IP networks
 - Y.1310.2: IP-MPLS transfer and control protocols
 - Y.1541: Network performance objectives for IP-based services allocations (relates to QoS classes)
- ITU-T “IP Project”
 - www.itu.int/ITU-T/studygroups/com13/ip/documents/IPprojV7.pdf
- “Next Generation Networks 2004 Project”
 - www.itu.int/ITU-T/studygroups/com13/ngn2004



ITU-T Study Group 15

- Lead Study Group on Access Network Transport and related to the Optical Networking technologies
- Standardizes high-speed access over copper wire loops using Digital Subscriber Line (“DSL”)
- Standardizes optical access networks for delivery of broadband services
- Working on optical transport of Internet packets (“IP over Wavelength Division Multiplexing (“WDM”), DWDM, CWDM)



ITU-T Study Group 16 (1)

- Lead Study Group on multimedia services and systems
- Produced Recommendations that are widely used in IP-based and other (including mixed) network architectures.
- Examples include:
 - standards for IP telephony (e.g., H.323 series)
 - modems (e.g., V.90, V.92)
 - audio and video codecs (e.g., G.723.1 and G.729 series, H.260 series)
 - H.248 “media-gateway” series for interworking between IP networks & PSTN



ITU-T Study Group 16 (2)

- H.264: advanced new video coding
 - half bandwidth requirement for same quality as MPEG-2 (e.g., used on DVDs)
 - Important for future streaming applications over IP-based networks
 - Used in MPEG-4
- V.MOIP (V.150.1 or “modem or IP”) for allowing efficient transport of modem (dial-up) data over IP networks
- Wideband voice codecs (killer app for 3G?)



ITU-T Study Group 17 (1)

- Lead Study Group on frame relay (fast packet), communication systems security and language description techniques (e.g., ASN.1)
- Responsible for X.509; reference standard for authentication services using asymmetric cryptography and Public Key Infrastructure (“PKI”) services
- X.509 is widely used in digital signature technologies and for E-commerce on IP-based networks



ITU-T Study Group 17 (2)

- Some recent work:
 - X.85/Y.1321: IP over Synchronous Digital Hierarchy (SDH) Networks
 - New versions of frame relay standards offering improved support for IP networks
 - X.842: Information technology - Security techniques - Guidelines on the use and management of trusted third party services
 - X.843: Information technology - Security techniques - Specification of TTP services to support the application of digital signatures



ITU-T Study Group 17 (3)

- Fostering security related activities, new work started in
 - Security management
 - Telebiometrics
 - Mobile security

See www.itu.int/itu-t/studygroups/com17/cssecurity.html

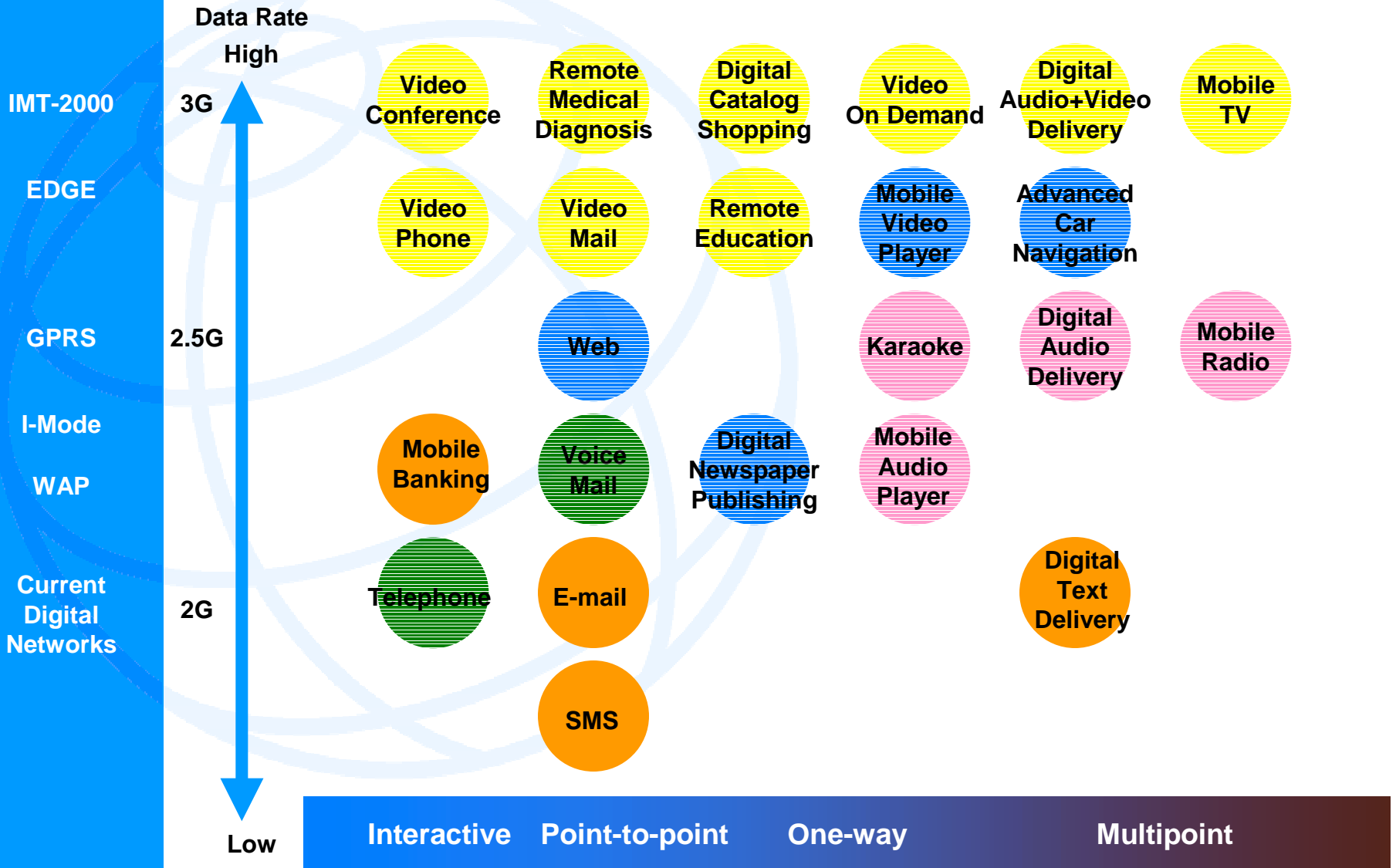


Special Study Group (SSG) on IMT-2000 and Beyond

- ITU's IMT-2000 initiative is a cross-sector project with technology defined in interdependent set of ITU-R and ITU-T Recommendations (e.g., standard radio transmission technologies like CDMA 2000, W-CDMA)
- Interworking with IP networks
- Interworking with other fixed networks
- Multimedia terminals and services
- Emergency and priority calls
- Geographic position/location services



Wireless Services and Applications





Telecommunication Development Sector

- See <http://www.itu.int/itu-d/>
- Director: Hammadoun Touré (Mali)
- Many IP and Internet related initiatives
- Internet Training Centres Initiative for Developing Countries
- E-Strategy Unit
- Future activities related to management of Internet names and addresses (MINA) issues
- “Industry standard” telecommunication indicators reports and databases
- Regulatory assistance & Technical cooperation
- Regional offices (11)



Telecommunication Development Sector cont'd

- Study Groups Period 2002-2006
- Examples of IP-related activities:
 - 19/1: Implementation of IP telephony in developing countries
 - 12-1/2: Examination of broadband communications over traditional copper wires, taking into account certain aspects of technologies, systems and applications
 - 19/2: Strategy for migration from circuit-switched networks to packet-switched networks
 - 20/2: Examination of access technologies for broadband communications



Changing Regulatory Environment

- The world now numbers 102 separate regulatory bodies, up from 30 in 1994
- New regulators striving to increase knowledge to be more effective
- All regulators – both established and new – struggling to address changes resulting from convergence of information and communication (ICT) industries



ITU-D Sector Reform Unit

- See <http://www.itu.int/ITU-D/treg/>
- Country Case Studies on Effective Regulation
 - ITU Member States request information and models with regard to independence and operation of regulatory agencies
 - With assistance of Member States, ITU prepares and publishes case studies on how administrations established regulatory bodies and the results
- Third Global Symposium for Regulators to be held at TELECOM ASIA in Hong Kong in December 2002



Effective Regulation Case Studies

- 2001 Case Studies at http://www.itu.int/ITU-D/treg/Case_Studies/
 - Morocco
 - Peru
 - Botswana
 - Brazil
 - Singapore
- Other country case studies at www.itu.int/osg/spu/



Global Symposium for Regulators

- The third Global Symposium for Regulators (GSR) will be held at TELECOM ASIA in Hong Kong in December 2002.
- Forum for world's regulators to share experiences and learn from each other experiences



ITU Strategy and Policy Unit Activities



- See <http://www.itu.int/osg/spu/>
 - Competition Policy in Telecommunications
 - **Improving IP Connectivity in the Least Developed Countries**
 - Trust in Critical Network Infrastructures
 - Multilingual Domain Names (with WIPO)
 - 3G Licensing
 - Broadband
 - Fixed Mobile Interconnect
 - IP Telephony
 - Electronic Signatures and Certification Authorities



- About SPU
- Workshops and Symposia
- Publications and Reports
- Statistics and Analysis
- ITU Strategic Plan
- Country Case Studies
- Telecom and Internet Policy
- Other SPU Activities



ITU Strategy and Policy Unit

- About the Unit
- About the New Initiatives Programme

Workshops and Symposia

- Main Page
- November 2002: [Competition Policy in Telecommunications](#)
- May 2002: [Creating Trust in Critical Network Infrastructures](#)
- April 2002: [Improving IP Connectivity in Least Developed Countries](#)
- [more...](#)

Publications and Reports

- Main Page
- [World Telecommunication Development Report 2002: Reinventing Telecoms](#)
- [ITU Internet Reports, 2001: IP Telephony](#)
- [more...](#)

Statistics and Analysis

- Main Page
- [ITU Telecommunication Indicators \(statistics and analysis\)](#)

Other SPU Activities

What's New

- [Policy and Strategy Trends](#) (Jan-March 2002) Click [here](#) to subscribe.
- June 12 2002:** [Proposed themes for the World Summit on the Information Society](#)
- June 7 2002:** [Results of Questionnaire on Possible Topics for New Initiatives Workshops in 2003](#)
- ITU announces a new publication, the [World Telecommunication Development Report 2002: Reinventing Telecoms](#) ([press release](#)).

ITU Strategic Plan

- Main Page
- [Preparation of the ITU Strategic Plan 2003-2007](#)

Country Case Studies

- Main Page
- [Case Studies by Topic](#)
- [Case Studies by Region](#)

Telecommunication and Internet Policy



Thank You!

A screenshot of a Microsoft Internet Explorer browser window. The title bar reads "Forum on Telecommunication Regulation in Africa - Ouagadougou, Burkina Faso, 19 - 21 November - Microsoft Internet Explorer". The address bar shows "D:\index.html". The page content includes the ITU logo, a header for the forum, and three main sections: "ITU Activities related to the Internet and IP-based Networks" with links to ITU-T, ITU-D, and the Strategy and Policy Unit; "ITU Resolutions and Activities on Internet Names & Addresses, Security" with a link to the Main Page; and "WIPO Activities on Internet Domain Name Dispute Resolution" with a link to the Main Page.

International Telecommunication Union

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ITU Activities related to the Internet and IP-based Networks

- [ITU Telecommunication Standardization Sector \(ITU-T\)](#)
- [ITU Telecommunication Development Sector \(ITU-D\)](#)
- [ITU Strategy and Policy Unit](#)

ITU Resolutions and Activities on Internet Names & Addresses, Security

- [Main Page](#)

WIPO Activities on Internet Domain Name Dispute Resolution

- [Main Page](#)

See materials/links on
Ouagadougou Forum CD!