

# ITU-D Regional Development Forum for the Americas Region NGN and Broadband, Opportunities and Challenges

Santo Domingo (Dominican Republic), 25 - 27 November 2009

Author: John Visser

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## Introduction

This Regional Development Forum took place as planned in Santo Domingo, Dominican Republic, 25-27 November 2009.

The Forum was hosted by Instituto Dominicano de las Telecomunicaciones ([INDOTEL](#).) All arrangements provided were excellent. The conference room was very well equipped with multiple screens so that all participants could easily see the material being presented. Audio amplification was clear and well-managed. Simultaneous English-Spanish and Spanish-English translation was provided. Internet access was provided to the participants and worked well.

Per the participant list, one hundred thirty-six people participated in the Forum (including audience and speakers but not local organizing staff or interpreters.) A summary is provided at Annex 3. Maximum participation was observed at the opening of the Forum in the opening session at which Dr. José Rafael Vargas, President, [INDOTEL](#), spoke. He provided not only a welcome to the Dominican Republic, but also an overview of the aggressive efforts by [INDOTEL](#) to provide high speed broadband access to even the remotest and poorest portions of the country. As a result of the efforts of the government, there is wide availability of internet access to many businesses and residences, plus schools and hospitals, and at other community centers where more widely available access is not yet available. Additional information on Dr. Vargas's speech as well as that of Dr. Juan Zavattiero, Head, ITU Americas Regional Office, is available on the [INDOTEL](#) web site at [<link>](#).

The author had the honour of being asked to be Chairman of the Forum and accepted this position. As such, he provided opening remarks along with Dr. José Rafael Vargas, President, [INDOTEL](#), and Dr. Juan Zavattiero, Head, ITU Americas Regional Office. The text of Dr. Vargas's speech is available at [<link>](#) and the text of the Author's opening remarks as Chairman of the Forum is available at [<link>](#).

## Summary of the Forum

The Forum consisted of nine sessions plus a panel discussion.

Session 1 focused on the potential of new technologies in NGN and Broadband, addressing opportunities and implementation in the region.

Session 2 covered ITU-D activities along with Regional Initiatives including a summary of the activities of the ITU-D Regional Office.

In session 3, ITU Standardization Activities on NGN and Broadband were discussed. The material presented included an overview of ITU standardization activities in the different ITU Sectors including current topics in standardization and the relationships among various standards bodies.

Session 4 discussed the status of ICT deployment in the Region and the role of broadband ICT in connecting the unconnected. Various aspects of frequency bands and their characteristics as applied in this area were provided.

Session 5 examined trends in NGN technology and migration to NGN. Presentations included material on planning processes and tools, updates on current activities on conformance and interoperability, and migration strategies and opportunities.

Session 6 looked at policy and regulatory matters with a focus on the challenges in these areas. Technology or service specific regulation has limitations, hence the focus should be on encouraging adoption of technologies through lower entry barriers, competition and encourage investment in infrastructure.

In Session 7, applications and new services available through use of NGN and broadband and related to the convergence being seen were considered. These provide opportunities to service providers for new revenue generating service offerings for consumers.

Session 8 looked at market opportunities and challenges for service providers, application providers and transport providers in the access and core or backbone networks. Challenges arise from competition, implementation costs, changing marketplaces, complex migration scenarios and regulatory uncertainties.

Session 9 looked at problems and solutions in the implementation of Broadband Wireless Networks. Security and aspects related to Infrastructure sharing were addressed.

The Panel Session looked at “Ways Forward: How to foster the development of NGN and Broadband in the Region?” The aim was to examine experience and lessons learned in the Region, and how the points raised in this Forum may be applied to address specific problems encountered or anticipated. An outline of the panel membership and the topic of each participant’s discussion are provided at Annex 2.

A lively Question and Answer session followed which slightly over ran the allocated time. This experience was positive for everyone, especially for the author who has been involved in a number of forums which have suffered from limited interaction with the audience, often due to cultural inhibitions. A relaxed and open environment contributed to the liveliness of the discussions.

## Areas of Special Interest

Session 3 saw questions about the long term perspective on the number of for a and consortia. The opinion was offered that this may be expected to stabilize due to the loss of ability to garner participation when resources are spread too thinly over too many bodies. This may be expected to lead to mergers and shut-downs. A question on human exposure was answered by pointing to the work of ICNIRP and WHO in this area. A question on lawful intercept was answered by pointing to the work done under CALES in the USA and the related activities in ETSI and involving Interpol and various national authorities.

Infrastructure sharing, specifically covered in Session 9 and touched on elsewhere, elicited significant interest in relation to the cost reduction opportunities afforded by this approach, especially for developing countries who may have limited financial resources to work with.

A question from the audience on health issues related to radio frequency exposure indicated an ongoing concern in this area as has been seen multiple times and in multiple locations. The audience was referred to the [World Health Organization](#) web site where information can be found on extensive review of studies conducted in this area along with links to WHO Fact Sheets and other information: [link](#).

## **Achievements of the Forum**

This Regional Development Forum served to significantly raise the profile of ITU in the Americas Region. It provided considerable breadth and depth of information for the participants and enabled them to direct their research and investigations in a more coherent and effective manner. It provided many direct references for additional information on topics of concern to the participants.

The program was very full as it normally is for these events. It provided a substantial opportunity for local personnel to present on their direct experiences and needs, an aspect which was very valuable to not only the participants but also to the presenters as it assisted in making the presentations more meaningful to the audience.

The organizers within the ITU-BDT, especially Mr. Riccardo Passerini, are deserving of considerable credit in the planning and execution of this event, particularly when noting that many of the speakers are volunteering their time and energy.

## Annex 1 - Forum Program



**INTERNATIONAL TELECOMMUNICATION UNION**

ITU-D Regional Development Forum for the Americas Region  
**NGN and Broadband, Opportunities and Challenges**  
Santo Domingo (Dominican Republic), 25 (afternoon) - 27 November 2009

Venue: Hotel Santo Domingo

## Final Draft Programme

### Day 1, 25 November 2009

<b>14:00 – 14:30</b>	<b>Opening Ceremony</b>  <b>Opening Remarks</b> <ul style="list-style-type: none"><li>• <b>Jose Rafael Vargas, President, INDOTEL</b></li><li>• <b>John Visser, Chairman of the Forum</b></li><li>• <b>Juan Zavattiero, Head, ITU Americas Regional Office</b></li></ul>
<b>14:30 – 17:00</b>	<b>SESSION 1: New Telecommunication Technologies: Promise and Potential for Leapfrogging Digital Divide</b>  <b>Session Chairman:</b> Alberto A. Zetina Veléz  <b>Objectives:</b> This session will focus on the potential of new technologies NGN and Broadband and will address the development experiences and opportunities in the Region. Issues will include: <ul style="list-style-type: none"><li>• Convergence Opportunities and Technology Leapfrogging, <b>Oscar Gonzalez Soto</b></li><li>• Leapfrogging with New Telecommunication Technologies, <b>John Visser, (Chairman, TSAG)</b></li><li>• New IMT Air Interfaces as NGN, <b>Javier Silvestre Camargo Fernandez (UMTS Forum)</b></li><li>• Role of ITU-R in bridging the digital divide, <b>Nelson Malaguti (ITU/BR)</b></li><li>• Implementation of NGN and Broadband for Rural and Remote Areas. Best practice based on experiences of developed and developing countries, <b>Alberto A. Zetina Veléz</b></li></ul>
<b>17:00 – 17:30</b>	<b>Coffee-break</b>

**17:30 – 19:00**

**SESSION 2: The AMS Regional Developmental issues and Regional Initiatives**

**Session Chairman:** Juan Zavattiero, Head, ITU Americas Regional Office

**Objectives:** This session will focus on ITU-D activities with special reference to Regional Initiatives. In addition, the activities of the ITU-D Regional Office will be highlighted.

- An overview of the ITU-D Sector: AMS Regional Initiatives and Activities, **Juan Zavattiero**
- ITU-D Study Group Activities, **Riccardo Passerini (ITU/BDT)**
- Estimulando Nuevas Tecnologías y Servicios en Áreas Rurales, **Edwin San Román (Instituto Dominicano de las Telecomunicaciones)**

**19:00 – 20:00**

**WELCOME DINNER**

**Day 2, 26 November 2009**

**08:30 – 10:00**

**SESSION 3: ITU Standardization Activities on NGN and Broadband**

**Session Chairman:** Paolo Rosa, ITU/TSB

**Objectives:** This session will provide an overview of ITU standardization activities from different ITU Sectors. Focusing on current standardization topics from ITU Sectors, it will specifically address:

- WTS-08 Resolutions for Developing Countries and Americas region, **Paolo Rosa (ITU/TSB)**
- ITU Collaboration with other organizations, **John Visser (Chairman, TSAG)**
- ITU-R Standardization activities, **Nelson Malaguti (ITU/BR)**

**10:00 – 10:30**

**Coffee Break**

**10:30 – 13:15**

**SESSION 4: Bridging the Digital Divide by Broadband**

**Session Chairman:** Luis Scheker, INDOTEL

**Objectives:** This session will discuss the status of ICT deployment in the Region and role of ICT in connecting the unconnected with specific focus on broadband. The role of technology, policy and enabling regulatory environment for encouraging widescale deployment of broadband in the AMS Region will be also discussed. Issues will include:

- Case Study on Broadband Access Network Planning, **Ignat Stanev (International Teletraffic Congress, Bulgaria)**
- Emerging Trends in Broadband Technologies – Next Generation Access (NGA), **Satya N. Gupta (BT Global Services)**
- ITU-R Standards development on Broadband Wireless Access, **Nelson Malaguti (ITU/BR)**
- Case Study on Economic Impact of Broadband Implementation, **Ignat Stanev (International Teletraffic Congress, Bulgaria)**

	<ul style="list-style-type: none"> <li>• Current and Next Generation Broadband Access to support bridging the digital divide, <b>Alberto A. Zetina Veléz</b></li> <li>• Banda Ancha en Rep. Dominicana y Reducción de la Brecha Digital, <b>Luis Scheker (Instituto Dominicano de las Telecomunicaciones)</b></li> </ul>
<b>13:15 – 14:15</b>	<b>Luncheon</b>
<b>14:15 – 16:30</b>	<p><b>SESSION 5: Trends of NGN Technology and Migration aspects</b></p> <p><b>Session Chairman:</b> Ignat Stanev (International Teletraffic Congress)</p> <p><b>Objectives:</b> This session will present the evolution of NGN and future perspectives in the relevant access technologies, service and network architecture with special focus on convergence, home, office and mobile applications, Internet protocol-based platforms and multiple access networks. It will be devoted to the evolution of the network architecture towards NGN (IMS based or otherwise), fixed-mobile convergence, evolution: towards a new generation of broadband mobile, PSTN/ISDN evolution to NGN, cases studies and scenarios taking into consideration the relevant business models and opportunities. Moreover, Number Portability and Network Address, Translation and Protocol Translation issues will be considered as well as Interconnection of NGN and legacy networks. Emphasis will be on:</p> <ul style="list-style-type: none"> <li>• NGN and Broadband Planning Tools, <b>Ignat Stanev (International Teletraffic Congress, Bulgaria)</b></li> <li>• NGN Planning Process and Tools, <b>Oscar Gonzalez Soto</b></li> <li>• WTSA-08 Resolution 76: conformance, Interoperability testing and capacity building, <b>Paolo Rosa (ITU/TSB)</b></li> <li>• NGN Migration Strategies and Scenarios, <b>Oscar Gonzalez Soto</b></li> <li>• NGN Migration Strategies, Scenarios and Challenges, <b>John Visser (Chairman, TSAG)</b></li> </ul>
<b>16:30 – 16:45</b>	<b>Coffee-break</b>
<b>16:45 – 19:30</b>	<p><b>SESSION 6: NGN and Broadband: Policy and Regulatory Issues</b></p> <p><b>Session Chairman:</b> Julián Gómez Pineda, INDOTEL</p> <p><b>Objectives:</b> This session will focus on the challenges that the policy makers and regulators face while considering introduction of NGN and Broadband technologies. Current regulatory frameworks based on technologies and/or service specific licenses have limitations. In order to ensure investment in NGN and Broadband, regulators need to encourage conditions, which lower entry barriers, promote competition and encourage investment in infrastructure. Emphasis will be on</p> <ul style="list-style-type: none"> <li>• Universal Service Wireless Broadband Policy, <b>Natasa Gospic (University of Belgrade, Transport and Traffic Engineering Faculty, Serbia)</b></li> <li>• Interconnection Issues pertaining to NGN Migration, <b>Satya N. Gupta (BT Global Services)</b></li> <li>• NGN and Spectrum Reform: tools to promote broadband deployment, <b>Jaime Estrada (Intel)</b></li> <li>• Developing NGN Regulatory Ecosystem for Emerging Markets, <b>Satya N.</b></li> </ul>

**Gupta (BT Global Services)**

- Regulating NGN and Broadband, **Bruno Ramos (ANATEL, Brazil)**
- Adecuaciones propuestas al Marco Regulatorio de Rep. Dominicana para favorecer el Desarrollo de Servicios Fijos y Móviles de Banda Ancha, **Julián Gómez Pineda (Instituto Dominicano de las Telecomunicaciones)**

## Day 3, 27 November 2009

**08:30 – 10:30**

### **Session 7: Services and Applications offered by NGN and Broadband**

**Session Chairman:** Oscar Gonzalez-Soto

**Objectives:** This session discusses applications and new services offered by NGN and broadband due to convergence. These applications and services provide opportunities to the service providers for offering new revenue generating services as well as for offering new competitive service for consumers. This session explores:

- NGN Deployment Scenarios: Progress on Implementing NGNs, **John Visser (Chairman, TSAG)**
- IMT-Advanced Standardization Process, **Nelson Malaguti (ITU/BR)**
- Multimedia Traffic Modeling and QOS in NGN, **Oscar Gonzalez-Soto**
- Voice Evolution and Fixed-Mobile-Internet Convergence, **John Visser (Chairman, TSAG)**

**10:30 – 11:00**

### **Coffee-break**

**11:00 – 13:30**

### **SESSION 8: Market Opportunities and Challenges**

**Session Chairman:** Satya N. Gupta, BT Global Services

**Objectives:** NGN provides a number of opportunities for variety of businesses. Those include service providers, application providers, transport providers in the access and the backbone. NGN also provides mechanisms to offer services to residential and business users as well as to re-sellers. Challenges arise from a number of sources like competition, implementation costs, changing marketplaces, complex migration scenarios and regulatory uncertainties. This session aims to provide a state-of-the-art overview on global trends with a focus on the AMS region from different perspectives. This session will also include discussion on:

- NGN Planning and Migration , **Natasa Gospic (University of Belgrade, Transport and Traffic Engineering Faculty, Serbia)**
- NGN and Broadband Opportunity for the market, **Bruno Ramos (ANATEL, Brazil)**
- Business Planning Case for Access, **Oscar Gonzalez Soto**
- Emerging Trends in NGA Policy and Innovative Financing Models – Case Study from Emerging Market, **Satya N. Gupta (BT Global Services)**
- Tariffs and Accounting Issues under discussion in ITU, **Georges Sebek (ITU/TSB)**



<b>13:30 – 14:45</b>	<b>Luncheon</b>
<b>14:45 – 16:15</b>	<p><b>SESSION 9: Broadband Wireless Problems and Solutions</b></p> <p><b>Session Chairman:</b> Javier Silvestre Camargo, UMTS Forum</p> <p><b>Objectives:</b> This session will present some of the challenges and problems related to the implementation of Broadband Wireless Networks. Security and aspects related to Infrastructure sharing will be analysed among other issues. This session will explore:</p> <ul style="list-style-type: none"> <li>• Frequency allocation and Spectrum Management Requirements, <b>Nelson Malaguti (ITU/BR)</b></li> <li>• Mobile Broadband Evolution: Sharing experience gained in competitive markets, <b>Javier Silvestre Camargo Fernandez (UMTS Forum)</b></li> <li>• Infrastructure sharing, <b>Satya N. Gupta (BT Global Services)</b></li> </ul>
<b>16:15 – 16:45</b>	<b>Coffee-break</b>
<b>16:45 – 18:00</b>	<p><b>SESSION 10: Panel Discussion</b></p> <p><b>Ways Forward:</b> How to foster the development of NGN and Broadband in the Region?</p> <p><b>Objective:</b> This discussion aims to examine experience and lessons learned in the Region, and how the points raised in this Forum may be applied to address specific problems encountered or anticipated.</p> <p>The Forum will close with a brief summation by the Chairman of the Forum</p>
<b>18:00 – 18:15</b>	<p><b>Closing Ceremony</b></p> <ul style="list-style-type: none"> <li>• Closing remarks: ITU/BDT</li> <li>• Closing remarks: Joelle Exarhakos Casasnovas, Executive Director, INDOTEL</li> </ul>

For electronic version of presentations and other information on this workshop:  
<http://www.itu.int/ITU-D/tech/indexDevelopmentForum.html>

For more information on ITU-D: [www.itu.int/ITU-D](http://www.itu.int/ITU-D)

## Annex 2 - Panel Session Participants and Topics

### Ways Forward: How to foster the development of NGN and Broadband in the Region?

Moderator: John Visser

Objectives: This discussion aims to examine experience and lessons learned in the Region, and how the points raised in this Forum may be applied to address specific problems encountered or anticipated. The Forum will close with a brief summation by the Chairman of the Forum

#### Panellists:

- Satya Gupta (BT Global Services, India) : Experience of an operator fostering broadband and NGN development and related services. The importance of convergence
- Satya Gupta (BT Global Services, India): How Policy makers and Regulatory bodies can facilitate the development of NGN and Broadband in the Region
- Javier Camargo (UMTS Forum): Operators experience and path for introducing new technology facilitating the development of Broadband
- Edwin San Román (Instituto Dominicano de las Telecomunicaciones): Challenges and Actions for facilitating the development of Services and Applications in Rural Areas
- Nelson Malaguti (ITU/BR): How ITU may assist the developing countries for the development of Broadband in the Region
- Ignat Stanev (ITC, Bulgaria): How a correct Network Planning Approach can facilitate the development of NGN and Broadband in the Region
- Bruno Ramos (ANATEL, Brazil): Broadband as a lever to modify the regulatory framework
- John Visser (Chairman TSAG): NGN Migration Strategies and Scenarios, step-wise and/or fast approach?
- Oscar Soto: Importance of QoS Aspects for NGN
- Nataša Gospić: Universal Service for Broadband access, challenges for Operators, Regulators and Policy Makers
- Julián Gómez Pineda (Instituto Dominicano de las Telecomunicaciones): Regulation and challenges in Rep. Dominicana for facilitating the development of Fixed and Mobile Broadband
- Paolo Rosa (ITU/TSB): ITU assistance to Conformity and Interoperability capacity building in the Region

### Annex 3 - Overview of Participation

The Participant List is available at <[link](#)>.

Participations came from:

Country	Government / Regulator	Industry	Other
Brazil	1		ITU: 2
Canada	1		ITU Consultant: 1
Colombia	1	ETB: 1 EPM Tel: 1	CINTEL: 1
Cuba	1		
Dominican Republic	INDOTEL: 63 INDOTEL staff (local organizers): 22 Policía Nacional: 8 Interpreters: 4	CODETEL: 21 Gadget Dominicana: 2	Unified Communications: 2 HUB: 1 PRODETEL: 1 Unspecified: 3
Ecuador	6		
Guyana	1		
Honduras	1		
India		BT: 1	
Mexico		Ericsson: 1	
Panama	1		
Salvador			Periodista: 1
Serbia			ITU Consultant: 1
Spain		Telefonica: 1	AHCIET: 1 ITU Consultant: 1
Switzerland			ITU: 4
Tanzania	1		
Trinidad & Tobago	2		
Turks & Caicos Islands	3		