Role of the TRA in the introduction of IPv6 in Lebanon

Broadband Liberalization Agenda

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Summary

I. IPv6 Introduction in Lebanon

- **IPv6 is inevitable**
  - Drivers for drivers IPv6
  - Industry needs to have a migration roadmap
- **Challenges of IPv6 introduction**
  - Industry Challenges
  - Policy Challenges
- **Policy issues and Government initiatives**
  - Governments must lead by example
  - Industry and governmental initiatives
- **IPv6 readiness status in Lebanon**
- **Role of TRA**
  - Facilitator
  - Promote competition and protect consumer rights

II. Broadband Liberalization

- **Economic impact of broadband liberalization**
- **TRA Broadband Licensing Plan**
- **Governmental challenges and action plan**

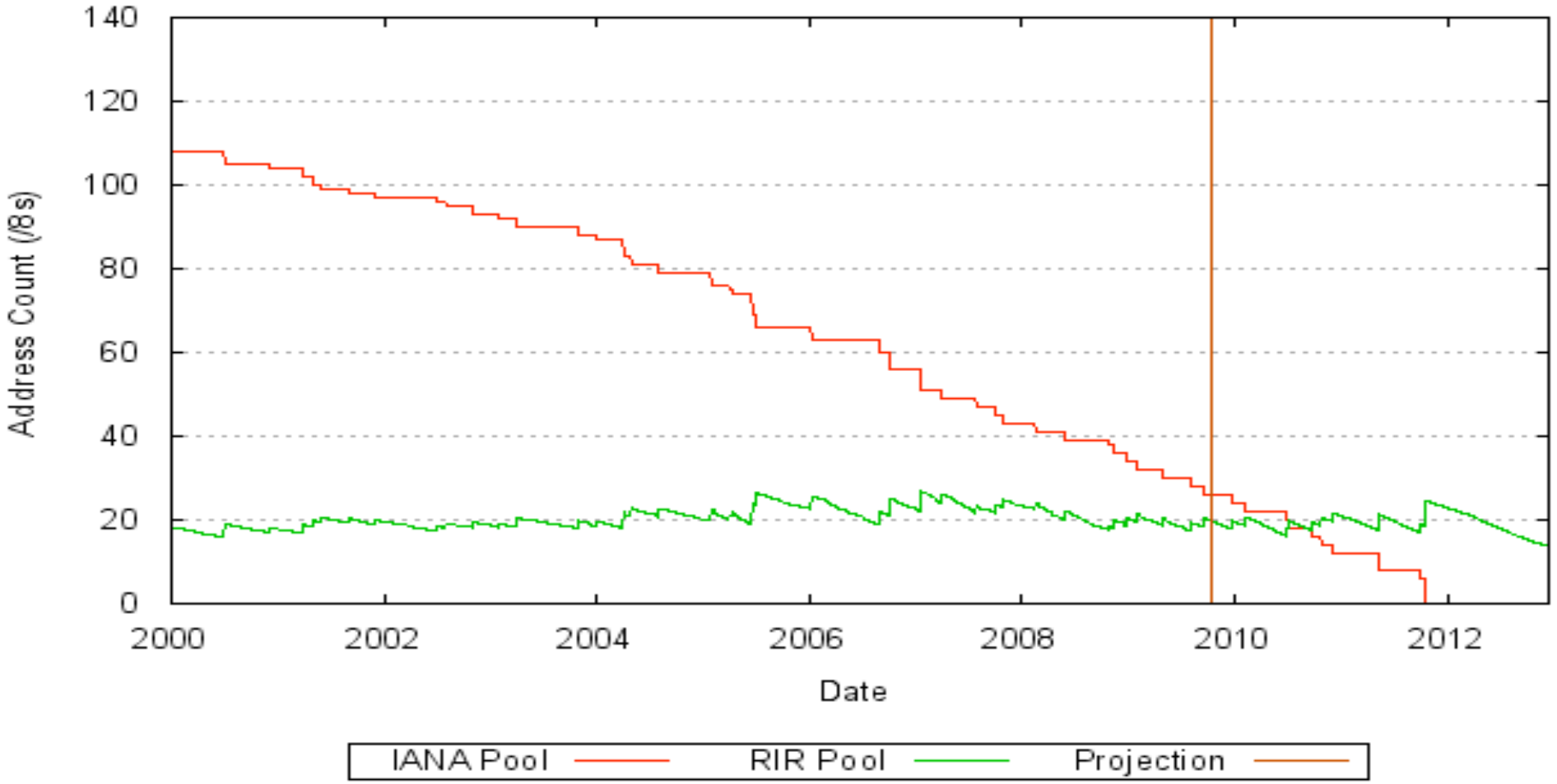
IPv6 is inevitable and migration has started

- **IPv4 address exhaust and resulting routing issues** forced vendors, operators as well as governments to commence the preparations for the introduction of IPv6

- **Demand for IP addresses is mainly driven by**
  - Internet global growth
  - Wireless and Broadband growth
  - Convergence towards IP-centric communication networks

- Forecasts predict that **IANA** will run out of IPv4 addresses in late **2011** and **RIRs** a year later in **2012**

IPv6 is inevitable and migration has started (2)



Many additional drivers for IPv6 adoption exist

- Deployment of IPv6 is vital to bridging the Digital Divide and essential for **Wireless Internet and Broadband** services
- **Legal Interception** in the context of tracking each user by a native IP address – NATTING is no longer adequate
- **IPv6 features** (such as auto-configuration) makes it a very good candidate to support new innovative services

There are a number of challenges to IPv6 transition

I. Industry Challenges

- **Technical**
  - Lack of IPv6 expertise and know-how
  - Network complexity due to the need to run IPv4 & IPv6 concurrently

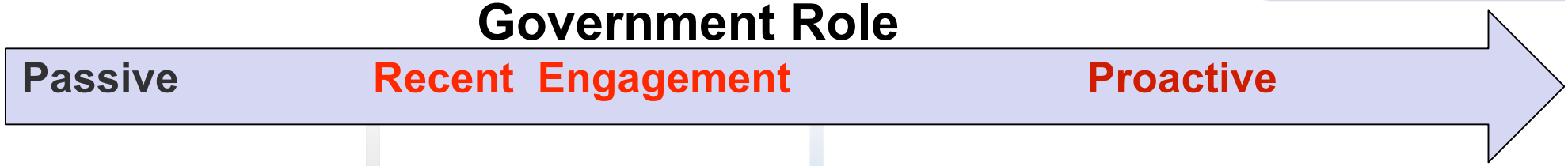
- **Financial**
  - Cost of equipment replacement or upgrades for SPs as well as end-users
  - Training costs
  - Operational costs due to parallel running of IPv4 and IPv6

II. Policy Challenges

- Ensuring fair and open competition in the telecom market
- Protecting consumer rights
- Maintaining interoperability of networks – nationally and internationally
- Safeguarding national security thru legal intercept capabilities at the level of each user native IP address

Governments should lead by example

Government Role



- **No or very limited** government initiative on policy level
- **Lebanon, Algeria, etc**

Became active recently

- **Malaysia** Government played a catalyst role to help ISPs be ready by 2006
- Many other countries are accelerating the pace towards IPv6: **Australia, Egypt, KSA, UAE**, etc.

First to take the initiative for IPv6

- **Japan:** IPv6 as integral part of ICT since 2000 and hosts the largest commercial IPv6 deployments.
- **Korea** has a roadmap to have pure IPv6 by 2011
- **Taiwan** mandated IPv6 into the e-Taiwan project whose budget was $1 billion since 2002
- **United States**: The only Government to mandate that Federal Agencies networks to comply to IPv6 by June 2008

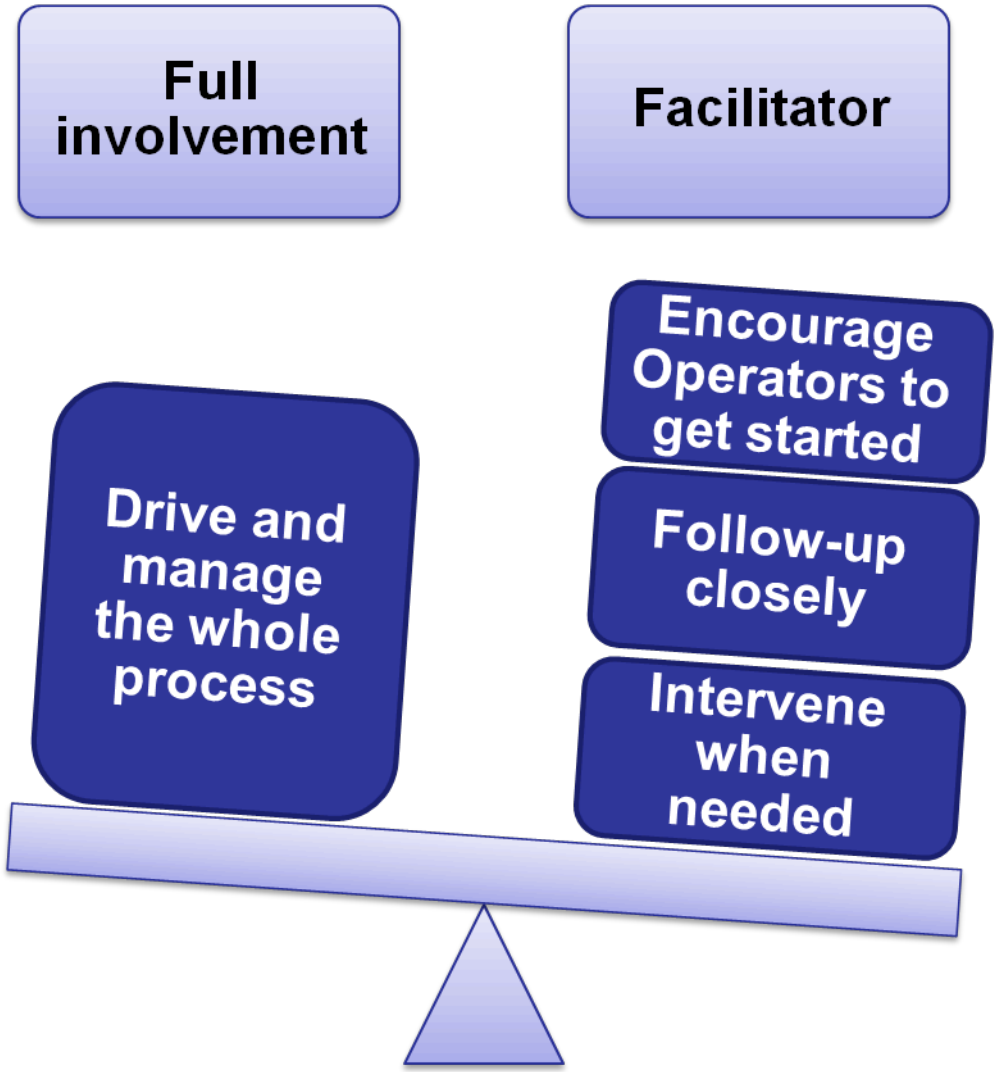
Lebanon could benefit from several Industry and Governmental initiatives

Initiatives	Relevance to Lebanon
Inclusion of IPv6 into ICT initiatives and strategies	➢ Include this initiative in the Governmental Declaration as a national priority ➢ COM to mandate IPv6 compliance from Ministry of Telecom (International Gateways, Core Routers, etc.)
National IPv6 Forum	Industry and concerned public and private parties must take the initiative to form an IPv6 Taskforce
e-Government compliance to IPv6 plans	Relevant Ministries should promote IPv6 adoption in all e-government initiatives
Establishment of an IPv6 test lab	The industry (mainly ISPS/DSPs) must lead the effort to establish the required IPv6 test-bed benefiting from the successful IXP implementation

There is an imminent need for a IPv6 roadmap in Lebanon

- **TRA's brief due diligence revealed:**
  1. IPv6 is not a priority for ISPs
     - Many of them do not feel the urgency of the situation
     - Deployment of NATTING solution in DSL has freed-up a lot of IPv4 addresses
     - MoT/Ogero is a crucial player in this transition and need to be on board
  2. However, the deployment of IPv6 is required because:
     - IPv4 addresses are running out
     - NATTING without concurrent deployment of IPv6 results in severe restrictions on the scalability and security of the Internet
- **Therefore, Service Providers in Lebanon need to collaborate – in a similar way to the IXP implementation – to prepare an IPv6 roadmap taking into account DNS administration needs**

TRA prefers the role of a *facilitator* and leave the roadmap to the Industry



TRA's facilitating role is meant to promote *competition* and protect *consumer rights*

- TRA will be ready to accompany industry measures and support them when needed
- TRA will continue to assume a *technology neutral* position and has no intention to mandate any IPv6 strategy on Industry but will continue to monitor the market
- If situation warrants (competition, consumer rights, national security, etc.), then TRA will revisit its role and may mandate certain actions

Conclusion on IPv6 introduction

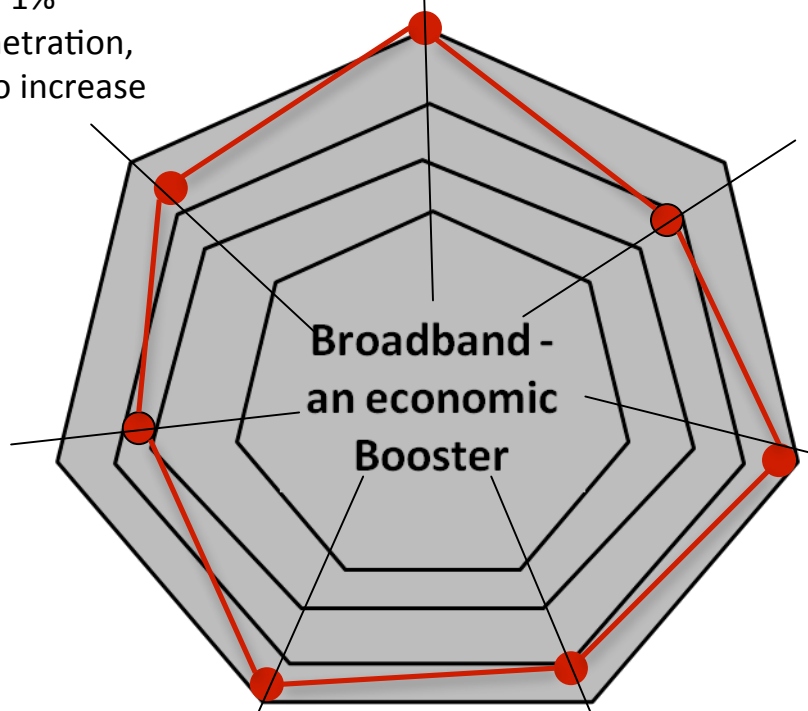
- **IPv6 adoption is inevitable and the industry must soon take the initiative to have a migration roadmap**
- **TRA recognizes that Industry must take the initiative to form an IPv6 independent taskforce**
- **The candidates for such taskforce will involve concerned public and private parties such as ISPs, DSPs, Ogero, MoT, major universities, equipment vendors, ESCWA, OMSAR and TRA**
- **The primary tasks of the taskforce are:**
  - Assess existing situation in the country and suggest a migration roadmap
  - Raise awareness among SP community, government agencies, users, etc.
  - Oversee the implementation of IPv6 Introduction
- **Other policy initiatives are required for public sector adoption and national security and TRA will lead the effort for the policies to be adopted**

The TRA is committed to open and liberalize the Broadband market and has recognized it as an important lever for economic development

GDP: 1.38% increase per year for every 10% point increase of Broadband Penetration

Increase in Jobs: For every 1% increase in Broadband Penetration, employment is expected to increase by 0.2% to 0.3%

Social Inclusion: Helps develop regions and creates jobs in remote areas



Business Productivity: Lebanese SMEs waste thousands of hours a year due to poor connection

Fiscal Returns: 90 million USD per year for every 10% point increase of Broadband Penetration[1]

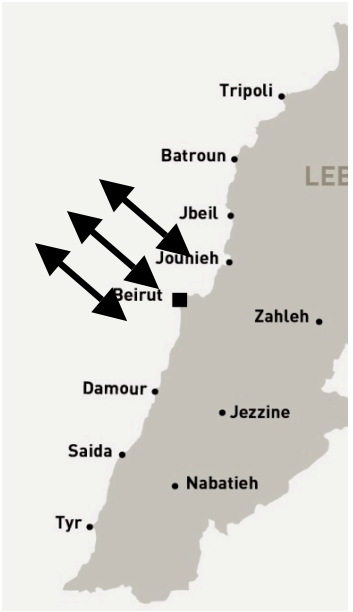
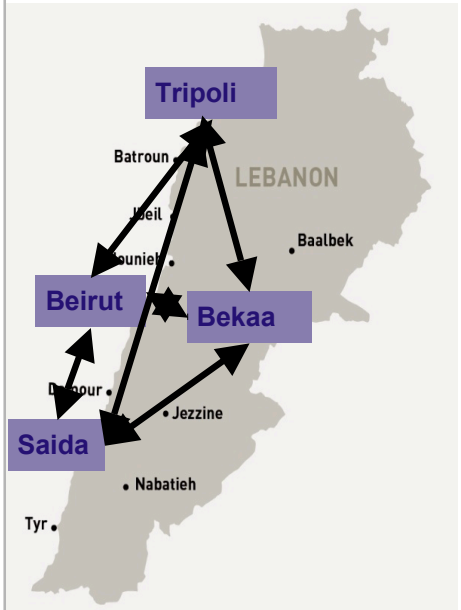
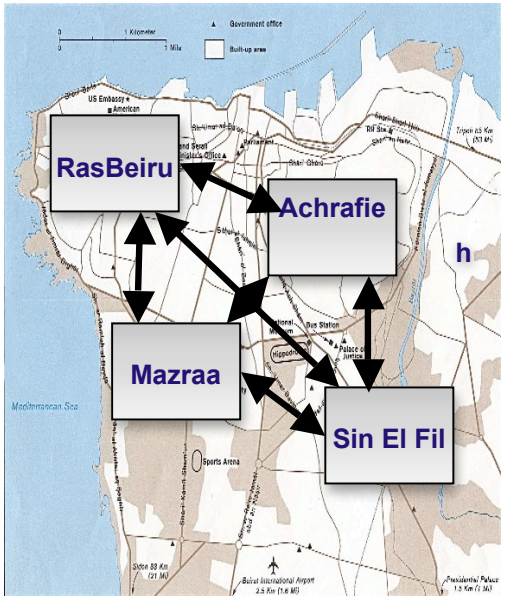
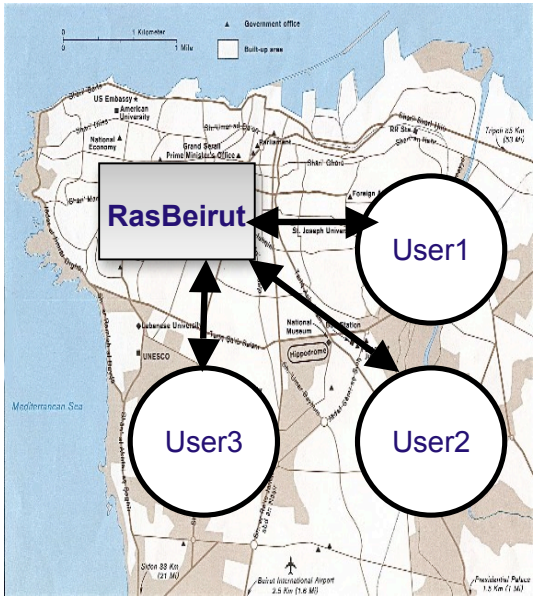
Brain Drain: less youth migrate overseas with Lebanon as a hub for communication

Government Revenues: new sources of revenues to the GoL will be generated (auction proceeds, RTU fees, RoW fees, revenue sharing …)

Sources: Economic & Fiscal Impact of Introducing Broadband Networks and Services in Lebanon – World Bank 2009

The NBCLs will ensure high speed connectivity between the major towns, whereas NBLs will ensure competition in access to broadband services all over Lebanon

- urban coverage of Lebanon can be completed within **12 to 18 months** , National coverage within **3-5 years.**

International	Core	Metropolitan	Access
			

National Broadband Licenses

Existing operational DSPs

National Broadband Carrier Licenses

Liban Telecom (with exclusivity over national fixed calls for an initial period TBD)

The success of the Broadband Plan depends on a number of policy issues to be decided by the Council of Ministers

TRA preparatory work

- Issued the Re-farming and Packaging Plan for public consultation
- Issued the Broadband Licensing Plan for public consultation
- Issued the technical requirements for NBCLs and NBLs for public consultation
- Issued the study on Access to Public Property for public consultation
- Drafted the decrees for Right to Use Fees and Access to ROW and Public Property
- Issued the requirements for new buildings to be ready for fiber access

→ **The TRA is currently finalizing all documents issued for public consultation**

MoT and GoL - Telecom Sector policy

Timing of NBCL Auction	• Broadband to be liberalized as soon as possible (WB last report) • After or before privatization ?
Liban Telecom Exclusivity	Agree with the TRA on the period of Exclusivity for Basic Telephony Services
Mobility or No Mobility	• Authorize of mobile services for NBLs and NBCLs • Should be included in the licenses (WB last report)
Access to Ducts decree	• Adopt TRA proposal of Rights of Way Decree • Costs to new operators will be reduced significantly
Building Code Decree	Enable new building to be ready for Fiber Access
Spectrum Re-farming	• Reallocate Spectrum to allow for new entrants • Efficient utilization of national resource • Adopt TRA proposal of Spectrum Right to Use fees and Administrative Charges Decree

TRA – Action Plan

Finalize Spectrum Re-farming → Finalize NBL and NBCL RFA and technical requirements →
- NBL and NBCL Auctions
- DSP Long Term Licenses

THANK YOU

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