

Telecommunications

Developments in Lebanon

- RIPE MENOG 5 25th – 29th October 2009
- Beirut Lebanon

- **Toufic Chebaro, PhD**
- **OGERO IT Director**
- **IEEE Senior Member**

Big Welcome

- We are very happy to host the RIPE MENOG 5 Meeting for the first time in Beirut.
- Around 240 participants (between organizers, speakers and attendees) from 29 countries and 100 organizations and companies
- We welcome all participants and wish them a fruitful and very productive meeting.

Few Words about MENOG 5

- Focus on four main hot topics:
 - IPV6
 - ISP Security
 - IXP and Peering
 - Broadband Deployments

Whether through the workshops, tutorials or general sessions of MENOG 5.

Introduction

- Provide a quick overview of the Internet and Telecom Sectors in Lebanon
- Elaborate on the Current Status of Broadband in Lebanon
- Partnership between Lebanese High Tech R&D and Lebanese Operators
- Set up the Expectations for the coming two years

Overview of Lebanese Telecommunications Sector

- OGERO is the de facto incumbent operator (fill the gap – LIBAN TELECOM which does not exist yet is already a RIPE LIR and has been granted until today two /17 IPV₄ allocations)
- TRA established almost three years ago
- Five Data Service Providers (Microwave based communications + Local Loop Unbundling for DSL access since 2007)
- Almost fifteen Internet Service Providers (Among which Six large ISPs).

Overview of Lebanese Telecommunications Sector - Continue

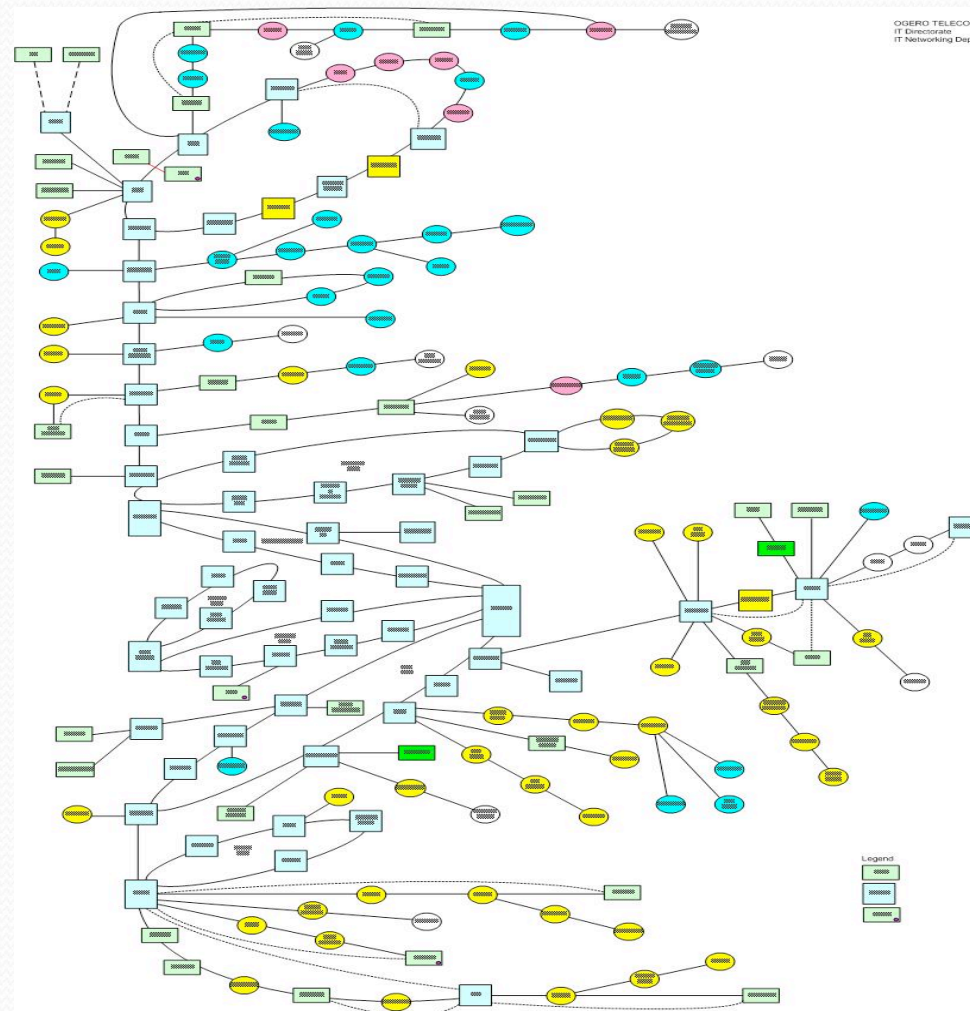
- OGERO is a fixed (both national and international) voice, Data and Internet Service Provider
- OGERO does not have mobile operations at this point in time
- Two Government owned mobile networks operated by two Private Companies (operations and management contracts)
- Third mobile operation will be granted to LIBAN TELECOM as per current Telecommunications Law 431

Status of Broadband in Lebanon

Main Infrastructure

- Availability of a state of the art nation wide 10 GbE based data network
- Some of the nodes of the above network contain 100 GbE ready slots
- The above data network is also in the process of being upgraded in the core to a 40G MPLS based architecture (DWDM can be used when needed to multiply the links' capacity)
- Availability of all flavors of DSL access in state of the art Multi Service Access Platforms (MENOG 5 Internet connection is relying on EFM type of access extended through the Data Network to one of the two National Internet Nodes): ADSL2+ pre-dominant flavor

Data Network General Layout



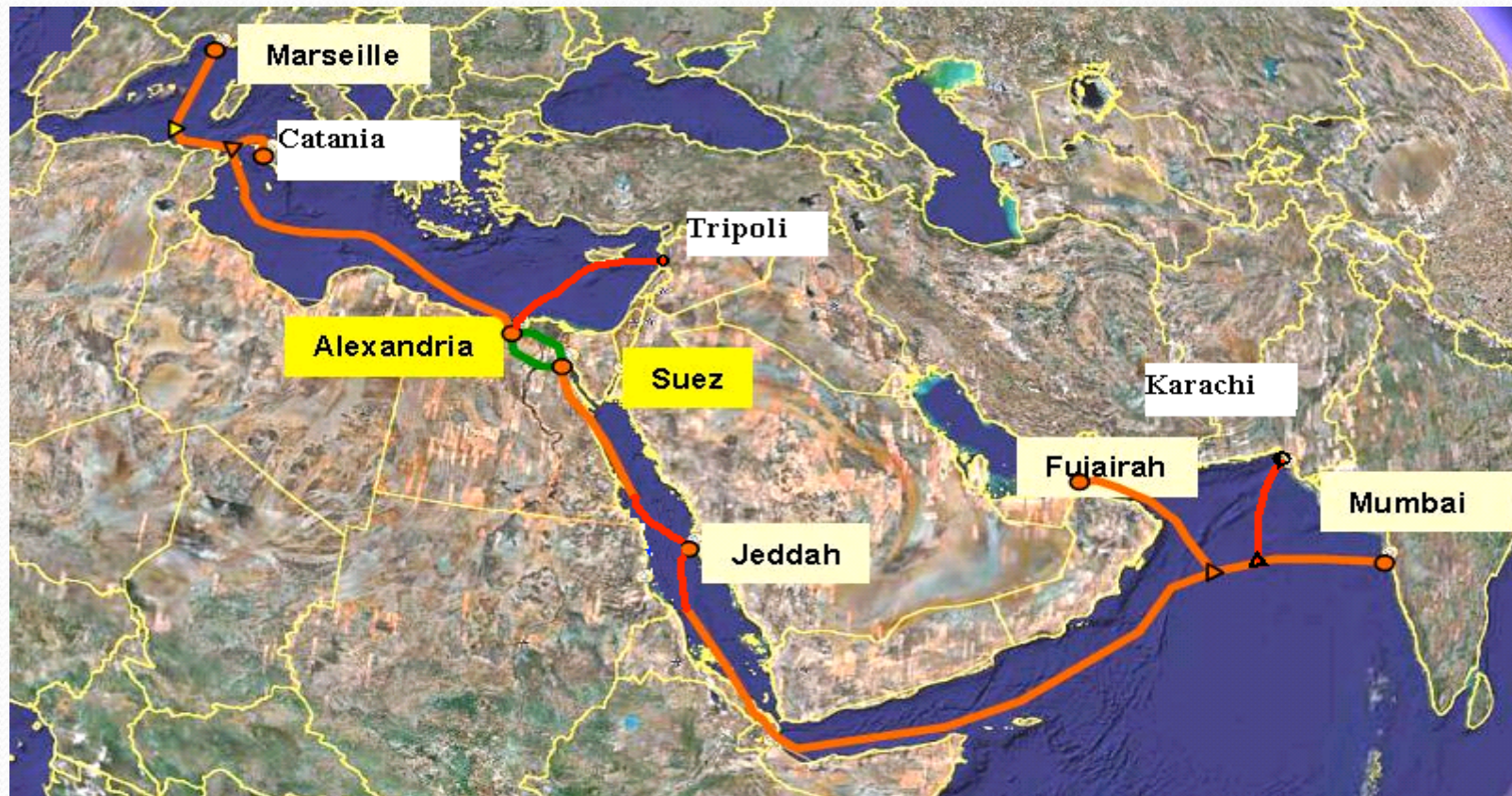
Status of Broadband in Lebanon

Main Infrastructure - Continue

- Down Town of Beirut is FTTH ready (SOLIDERE)
- GPON Based FTTH Pilot deployments by OGERO in certain areas of Beirut (no commercial service yet)
- IPTV Pilot deployments with Lebanese Content Providers (no commercial service yet)
- Lebanon participation through OGERO as Co-Owner together with eight other prestigious operators to the construction of the highest capacity submarine cable system of the world at this point in time (IMEWE with a design capacity of 3.84 Tb/s)
- IMEWE RFS expected end of February 2010



IMEWE Cable Map



Status of Broadband in Lebanon

Statistics

- DSL access is available in 89 relatively large central offices (covering 87% of the Telephone Customers' Base)
- Expansion of the DSL access to additional 75 smaller central offices during the first quarter of 2010
- Around 130,000 DSL Customers as of today
- Few hundreds of FTTH Customers in Down Town of Beirut

Status of Broadband in Lebanon

Statistics - Continue

- Three WIMAX like broadband networks with an acceptable national coverage (PESCO, CEDARCOMM and CABLE ONE)
- Ongoing rollout of two Mobile WIMAX networks (802.16e compliant)
- Almost 30,000 wireless broadband Customers (for the combination of all ISPs)
- The National Internet Nodes have international links to Tier One Providers with a total capacity of almost 2 Gigabit/s (same order of magnitude as the IPV6 traffic at AMS-IX) on existing sub-marine fiber cable systems.
- No accurate data related to the Internet links via satellites (still used because of the current shortage of International capacity)

Lebanese High Tech R&D

Companies and Telecom Operators

- Design of High Tech broadband components and systems by Lebanese Companies inside Lebanon
- Broadband Networks and Services: Design, Integration and Deployment done by Lebanese Engineers
- Strategic partnership between Pioneer Lebanese Operators and Pioneer High Tech Lebanese Companies to develop innovative products: undergoing ambitious project

Expectations for the coming two years

- The number of DSL Customers is expected to reach 400,000 (penetration rate of 50% with respect to the number of telephone lines) *
- The total number of broadband subscriptions is expected to reach 600,000 subscriptions including few thousands of FTTH subscriptions *
- The average speed of the broadband connections to the Internet is expected to become 1.5 Megabit/s (compared to 256K for the time being) *
- The Incoming Internet traffic to Lebanon (and directed to the Lebanese market only) is expected to hit 40 Gigabit/s within two years from now*

* Conservative Figures

Expectations for the coming two years

Continue

- Early and aggressive adoption of IPV6: OGERO/LIBAN TELECOM as a relatively fresh ISP will think IPV6 each time a new service/application is offered/developed
- Use of the very high bandwidth made available through IMEWE to:
 - Serve the connectivity requirements of regional markets
 - Ensure a presence in the major IXPs of the world with the aim of becoming an Internet Regional Hub especially for IPV6
- Availability of state of the art infrastructure and services for both Residential and Corporate segments.