

FROM BEIRUT-IX TO LEB-IX – LEBANON'S JOURNEY IN INTERNET EXCHANGE

Advancing Lebanon's digital connectivity infrastructure



INTRODUCTION



TO INTERNET EXCHANGE POINTS

INTRODUCTION



Role of Internet Exchange Points

IXPs enable ISPs and networks to exchange traffic locally, improving speed and reducing costs. They are physical locations where ISPs, CDNs and networks directly exchange traffic through peering instead of sending it through third-party transit providers.



Benefits of Local Traffic Exchange

Keeping local traffic within local infrastructure:



Reduces cost (less usage of international bandwidth)



Leads to lower latency, and faster round-trip times, improving the quality of service for end-users



Increases resilience of local internet infrastructure

HISTORY

AND DEVELOPMENT

OF BEIRUT-IX



Establishment and Hosting

Beirut-IX was Lebanon's first Internet Exchange Point, launched in December 2007 and hosted in a neutral location in Berytech Technology Pole (Saint-Joseph University – campus Science of Science and Technologies). Not a legal entity. Managed by Berytech independently from all ISPs.

THE BIRTH OF BEIRUT-IX



Key Partners

The exchange was supported by key partners including Cisco Systems, Partnership for Lebanon, Packet Clearing House, and Professional Computer Association.

Goals and Benefits

Beirut-IX aimed to reduce international bandwidth costs, improve service quality, and grow local content through local traffic exchange.

EARLY OPERATIONS & TECHNICAL SETUP



Wireless Connectivity Constraints

Early use of wireless internal connectivity limited scalability and reliability for the network operations.

Voluntary Bilateral Peering

ISPs exchanged traffic voluntarily and bilaterally

Growth Barriers and Challenges

Technical limits, informal operations, and lack of pricing model hindered growth in membership and traffic. Absence of local content.

GROWTH PERIOD



CONTENT DELIVERY NETWORKS

Google Global Cache (GGC) was added in 2015
– Akamai in 2016 and Cloudflare in 2018

Growth

Traffic and number of members increased slowly

CONTENT DELIVERY NETWORKS

The 8 founding members had “veto” powers
limiting the access to new members

CHALLENGES & MISSED OPPORTUNITIES





Technical Limitations

Reliance on wireless infrastructure limited scalability and reliability of the internet exchange significantly.



Financial Operations

The IX is operating in a non-profit mode. All costs and charges are defined based on the traffic consumption of each member. CDNs do not pay any fee (colocation or international bandwidth). This model is very sensitive to any bandwidth change and prices fluctuate monthly.



Technical Limitations

Failure to integrate the incumbent and mobile operators



Competition

Most members started competing with the IX:

- Either by establishing another IX (Advanced-IX)
- Or offering CDN traffic at reduced prices



OPERATIONAL & STRATEGIC CHALLENGES

OPERATIONAL & STRATEGIC CHALLENGES



REGULATORY ENVIRONMENT

- The mandate of the board of the TRA in Lebanon ended in 2012.
- A new board has been appointed in 2025
- The telecommunications sector is administered by the Ministry of Telecommunications, which retains a monopoly over nearly all services, including international capacity, voice, and fiber infrastructure. Ogero serves as the Ministry's operational arm and exercises de facto Significant Market Power in the sector.
- Prices are set by a decree issued by the Council of Ministers.
- In 2017, a decree gave a 40% discount on the international capacity for IXP and 30% on the local loop (connecting members to the IX)
- This could not be applied because MoT did not have a “legal definition for an IX”
- These discounts were canceled in another decree in 2023

TRANSFORMATION INTO LEB-IX



THE LEGAL ENTITY



Need for a legal entity

- This was the main argument for Ogero for not joining the IX.
- Formalize the operations of the IX



On January 10, 2019

the memo (42 / 2019) was issued by the Ministry of Interior, officially creating LEB-IX as a not-for profit association in Lebanon



LEB-IX will operate in a



Non-for-profit mode



Neutral, member based



Open and inclusive



Open peering policy

2019 - 2024



**October
2019**

Political and
financial crisis
erupted in
Lebanon



**March
2020**

COVID crisis



**August
2020**

Beirut port
explosion



**2019 –
Present**

Practically, since
2019, LEB-IX was
dormant and
Berytech managed to
keep Beirut-IX “alive”
despite severe
economic conditions.



**Year
2024**

ISOC Foundation
grant to Berytech
in 2024:
infrastructure
upgrade (new
batteries, AC,
servers)



2025



- **ISOC Foundation Grant to ISOC Lebanon Chapter**
- **50,000 USD used to “revive” LEB-IX and update:**
- **New board elected**



Legal documents



Governance model



Technical design



Marketing and commercial plans

2025



- **25 members (all Lebanese ISPs) connected over fiber and microwave**
- **Transition from Beirut-IX has not started yet. Expected by the end of the year.**



- **The IX is currently hosting:**



CDNs (Akamai and Cloudflare)



Lebanon Domain Name registry platform (.lb)



PCH and Verisign platforms



RIPE tools (K-ROOT, Auth-DNS, Atlas probes)

STRATEGIC GOALS & NATIONAL IMPACT



Central Internet Hub

LEB-IX aims to be Lebanon's primary internet traffic exchange hub, boosting digital transformation and economic growth.

Equitable and Neutral Model

Operating on a carrier-neutral, non-profit basis ensures fair access for all network operators across Lebanon.

Infrastructure Expansion

Goals include integrating with the national backbone and hosting critical servers and caches.

Collaboration with Government and TRA

Lebanon has now a new President, a new Government and a new TRA. Ogero and the Mobile Operators are expected to join the IX



To Regulatory Authorities

- Issue regulatory framework
- Officially recognize LEB-IX as a national infrastructure asset
- Facilitate the participation of Ogero and Mobile Operators



To ISPs and CDNs

Join LEB-IX and actively participate in its governance



To donors and technical partners

Support capacity building, equipment upgrades and technical training



CALL FOR ACTIONS



Lebanon has the infrastructure, the expertise and the momentum to transition from a legacy exchange to a nationally recognized, neutral and resilient LEB-IX

THANK YOU!

