Challenges of setting up a new IXP &
International connectivity of Africa to Europe

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AIS Conference @ Lusaka
Challenges of setting up a new IXP: feedback from France-IX

Before you get started...

1. **Is there a need for a new IXP?**
   Are players ready to connect (and pay for it)?

2. **Which organization** should be setup to run the IXP?

3. How to start an IXP with little or no cash and **deploy a robust infrastructure on day one**?

4. **Which services** should be run?
   Human resources needed to operate the IXP?

5. How to **make sure the IXP will last**?
   How to **keep on expanding** and connect new members?
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Is there a need for a new IXP?

⇒ Identify the context

- Free IXPs
- Very cheap IXPs (business-model issue)

and/or managed by operators (neutrality and independence issue)

France/Paris was not seen as a credible peering place: several players were peering abroad on wider and more efficient IXPs.
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Is there a need for a new IXP? Are players ready to connect (and pay for it)?

- Make a market study
  - Survey on a federative IXP in France
    - No
    - Yes
  - A workgroup has been conducted to foster the change.

France-IX was born
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Which organization should I setup to run the IXP?

⇒ Keep in mind to have a neutral and independent organization

- It can be an association
- It can also be a private company
- It can be both
France-IX is a dual organization

The association ‘France IX’
- 6 board members representing a company
- 2 seats coming soon for individuals and not companies

The private company ‘France IX Services’
- dealing with contracts, marketing, operations ...
- customers do sign a contract with France IX
- become members of the association during general assemblies
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How to start an IXP with little cash or no cash?

Role of founding members

- Provide human resources for the 1st 1-2 years
- Take part into the 1st board of directors, and then renewal by third after 3 years.
- Pay for invoices for 1st year, while France IX was saving up all the recurring costs.
- Donation and/or loan of equipment to start
- Pay their connection in advance to generate treasury.
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How to start an IXP with little cash or no cash?

Role of founding members

The investment from founding members helped to give legitimacy to the project because they were well-known players putting their names and reputation on the line.

Feedback from France-IX

Investment

Reimbursement after the 2nd year

Independent organisation

Founding members

France-IX
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How to deploy a robust infrastructure on day one?

⇒ Establish partnerships and get support from the community

- Convince neutral datacenters to support the project: provide free racks and hosting for 3 years.
- Convince operators and datacenters to provide free dark fibers for PoPs interconnections.
- Setup interconnections and partnerships with other French national IXPs to get a critical mass quicker and solve the issue of a French fragmented peering market.

Since then, additional partnerships with regional French IXPs and also with foreign cross-border IXPs have been setup.
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Which services should be run?

⇒ Start with basic services

- **Unicast IPv4/IPv6 & Multicast**
  (if needed)

- **Quarantine VLAN**
  (important to integrate in the connecting process of new members)

- **NOC support**

- **NTP service**
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Which services should be run?

⇒ **Integrate additional added-value services**

- **Routes servers**
  (to ease peering for new members)

- **Routes collectors**
  (to count/show routes)

- Develop a nice and friendly portal for members & develop an Information System

- **Access to DNS resources**
  (national DNS extensions, TLD’s, DNS root servers...)

- **Private VLANs**
  (to allow private interconnect, and possibly allow IP transit delivered through such VLANs)

- **Looking-glass**

- **Reseller program**
Keep in mind you can **get support from the community** (useful to start with).

As soon as the IXP is increasing the best-effort model for human resources is not scalable.
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Human resources needed to operate the IXP?

Current human resources for France IX Services

- Managing director
- Senior network engineer (technical manager)
- Senior systems engineer (systems manager)
- Senior developer
- Marketing/communication manager
- Multimedia project manager
- Outsourced human resources
  - 24/7 NOC
  - External accountants
  - Legal advisors

Every France IX staff member has a backup
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How to make sure the IXP will last?

Organization

- Keep and guarantee **neutrality** and **independence**
- Keep **diversity of representatives** and members type within the board
- Remain **transparent** about the way the IXP is run and managed (including accounts presentation to members)

Services

- Provide a professional service as soon as the IXP is increasing (and not only a best-effort service), with a real NOC
- Listen to your members and their expectations, but also be proactive to propose new services
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How to make sure the IXP will last?

Business-model

- Avoid free models (scalability issue)
- Apply fair and transparent prices (public prices)
- Keep in touch with the market and the real players
- Identify new players/prospects
- Integrate a marketing/communication process (public relations, website, social networks, events...)

2/2
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How to keep on expanding and connect new members?

 Establishment of **partnerships with external IXPs** (regional, national, international)
 Development of **new PoPs** in France, around Paris, and also in other French regions

**Importance of submarine cables infrastructure:**
- Plans for France IX extension in Brittany, as there are some other submarine cables landing in this French region.
- Setup of Marseille PoP to catch players from Africa, Middle East and Asia, brought via submarine cables landing there. Marseille is then a natural gateway to interconnect players coming from such areas.
How to keep on expanding and connect new members? 2/3

Mainly cables landing in:
- England (London)
- France (Marseille & Brittany)
- Italy and some extractions in Portugal and Spain

Source: http://manypossibilities.net/african-undersea-cables/
Reseller program

- Bringing members both from French PoPs not covered by France IX and members from foreign countries.

- Useful for players who do not want to contract with several parties (one single contract with a reseller providing long-haul connectivity/capacity + remote France IX port).
In less than 3 years

- over 220 members
- 8 PoPs in Paris, 1 in Marseille
- 200 Gbps of aggregated traffic
- 5 partnerships with other regional, national and international IXPs
There was a gap on the French market, but France IX success is not entirely due to this fact. France IX’s team has worked hard to develop the adequate services, attract and build the community and remain independent.

Every market is different and nobody holds the truth but there’s a generic trend and a common sense to follow.
Thank you for your attention

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