



**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 ?

⇒ Identify the context

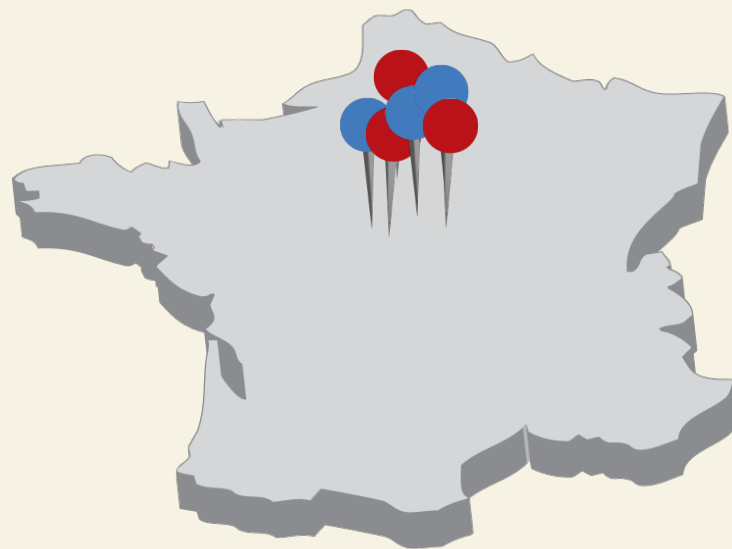
- Free IXPs
- Very cheap IXPs
(business-model issue)

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.

Till 2009-2010



Is there a need for a new IXP ? Are players ready to connect (and pay for it) ? 2/2

⇒ Make a market study

- 1 Survey on a federative IXP in France



- 2 A **workgroup** has been conducted to foster the change.



France-IX was born

Which organization should I setup to run the IXP ?

1/2

⇒ **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

Role of founding members

Provide human resources
for the 1st 1-2 years



Pay for invoices for
1st year, while
France IX was saving
up all the recurring
costs.



Take part into the 1st
board of directors, and
then renewal by third
after 3 years.




Donation and/or loan of
equipment to start

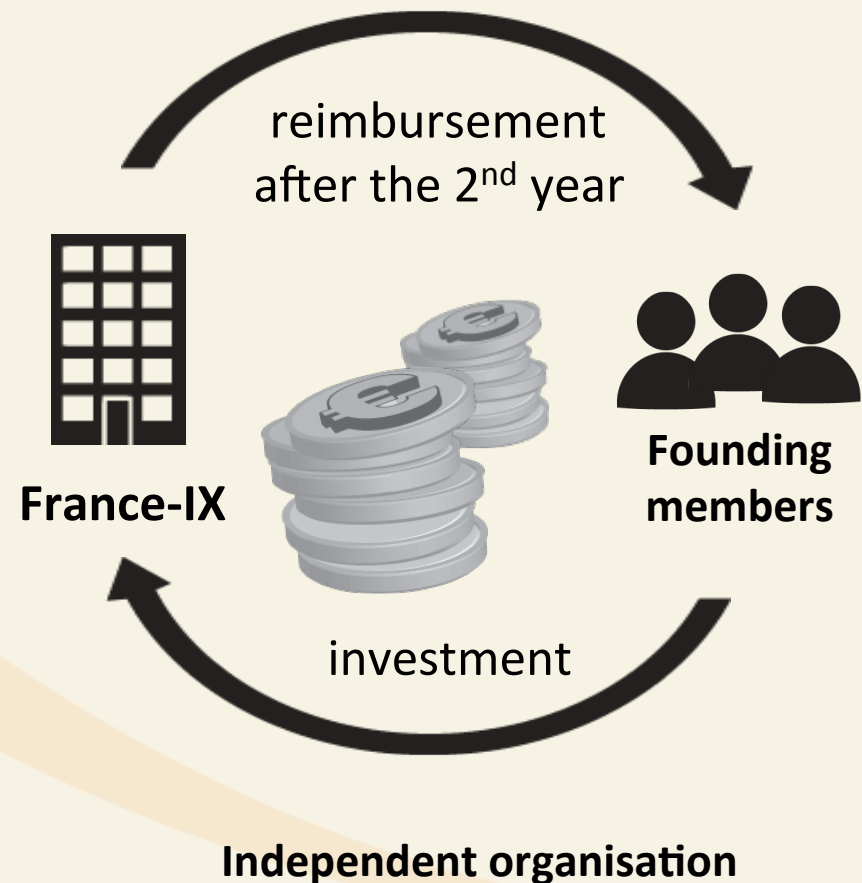


Pay their connection in
advance to generate treasury.



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.



How to deploy a robust infrastructure on day one ?

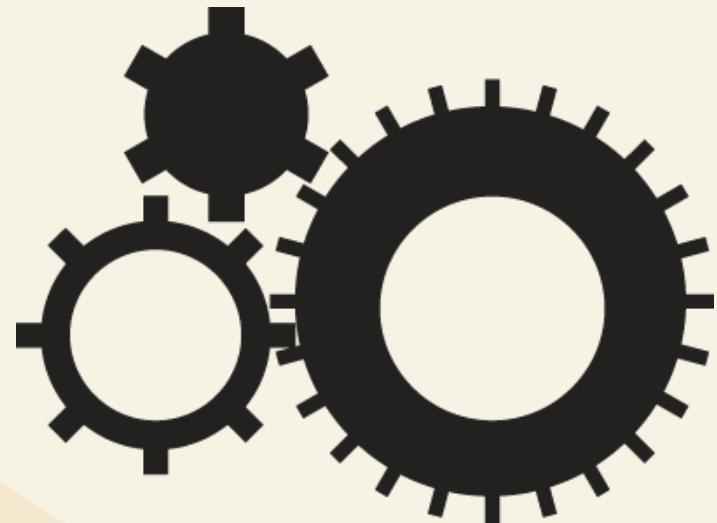
⇒ **Establish partnerships and get support from the community**

- 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.

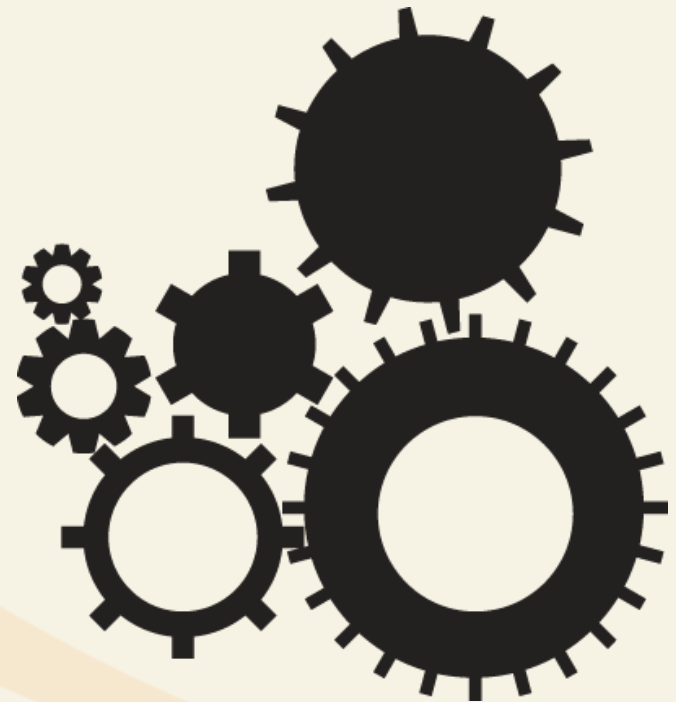
⇒ Start with basic services

- **Unicast IPv4/IPv6 & Multicast**
(if needed)
- **Quarantine VLAN**
(important to integrate in the connecting process of new members)
- **NOC support**
- **NTP service**



⇒ 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.

Current human resources for France IX Services



Managing director

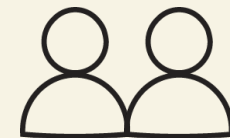
Outsourced human resources



24/7 NOC




External accountants



legal advisors



Senior network engineer
(technical manager)



Senior systems engineer
(systems manager)



Marketing/communication
manager






Senior developer





Multimedia project
manager

Every France IX staff member has a backup






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

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...)



Establishment of **partnerships with external IXPs** (regional, national, international)



Development of **new PoPs** in France, around Paris, and also in other French regions

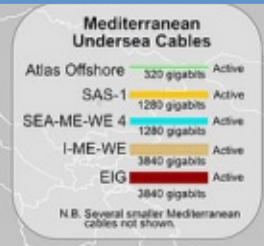
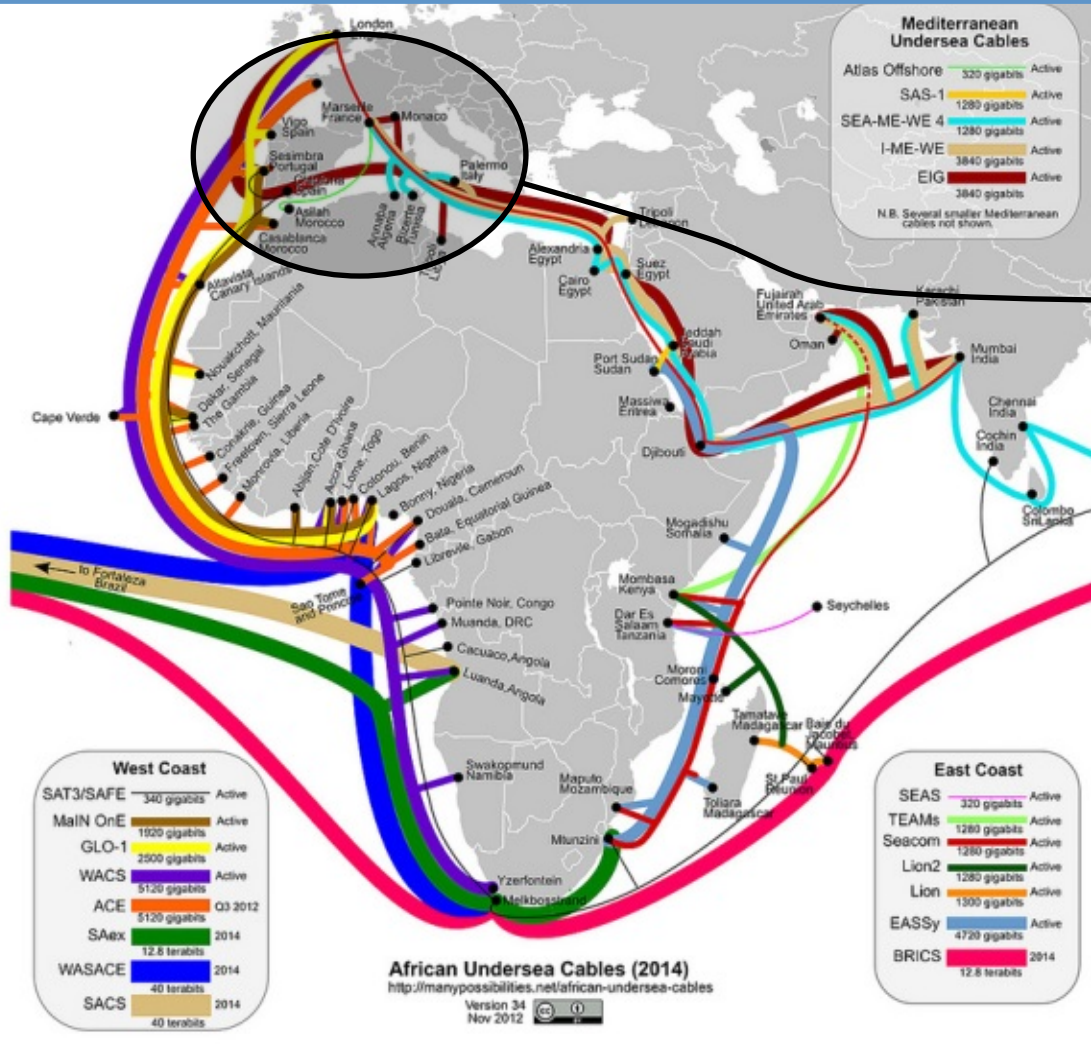


Importance of submarine cables infrastructure:

- Plans for France IX extension in Brittany, as there are some other submarines 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



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



5 partnerships with other regional,
national and international IXPs



8 PoPs in Paris,
1 in Marseille



200 Gbps
of aggregated traffic

- 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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