



Successful IXPs and their future

- Commercial perspective -

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Examples of successful IXPs

AAIX (Alps Adria Internet Exchange) – 12 Members

IXPN Lagos – 44 Members

*DE-CIX Frankfurt – 842 Members **

3 very different IXPs – but they have one thing in common



They are successful!



** Source: PeeringDB*

Success indicators of an IXP

- ***They serve the need they are created for***
- ***They have a sustainable commercial model:***
 - ***They either make profit (or at least a „black“ zero) OR***
 - ***Their funding is clear and secured for a longer period of time***
- ***Free Peering is available for all peers (no restrictions or prohibitive regulations on IX side)***
- ***Traffic grows organic***
- ***Technically stable***

Biggest mistakes of an IXP

- ***IXPs are built for „wrong“ reasons:***
 - ***Me too – my neighbor has an IXP – I need one too***
 - ***This will fill my Datacenter***
 - ***This will help my IP Transit business***
 - ***...***
- ***The commercial model is not clear: start is funded, but growth is not***
- ***No passion for Peering and making it grow***
- ***Restrictive Rule set: only A or B are allowed to peer but C not...***

What is an IXP today?

- *A cheap alternative to IP Transit?*
- *The solution to get short latency for gaming?*
- *An asset that makes a Datacenter attractive?*
- *A community builder?*
- *A reason to learn more about BGP?*
- *...*

All true...but...



***Is this enough for an ISP
to survive in the future?***

Some facts about the market

- ***IP Transit is in some cases cheaper than Peering***
- ***OTTs are building Caching everywhere***
- ***Big traffic is done on PNI***
- ***Datacenter growth is still tremendous***
- ***Even Carriers are starting their own IXPs in some regions***

You could say today you rather build your own IXP than join one



So IXP's are a hot topic in the industry...

...but is this enough to survive?

IXPs are dead. Long live IXPs.

- *Future will see many more IXPs on even more regional level than today → we are going to the Edge*
- *The importance of IXPs will increase due to latency being crucial for 5G, AI and IoT → again, Edge becomes more important*
- *Traffic growth is not the (only) Holy Grail for an IXP – especially on the Edge*
- *Number of ASNs is important – but not so much on the Edge*
- *IXPs interconnect between cities*
- *Peering is not the only interconnection option an IX has (VLANs, Cloud Connect,)*



*Going beyond Peering: IXPs become **Interconnection platforms***



Interconnection? Isn't it the job of Carriers?

Do IXPs become Carriers now?

IXPs are not Carriers – but Carriers' best friends

- ***Distributed IXPs have bigger footprints in particular cities than most Carriers → Carriers can use IXPs for their inner-city-connectivity needs***
- ***Carriers are optimized to sell wavelength and bigger bandwidth between cities → IXPs are optimized for smaller bandwidth between IXPs (Remote Peering options)***
- ***IXPs need Carriers for their Transport needs***
- ***Ultimate goal of an IXP is to localize the traffic exchange – Remote Peering options are there to help the Edge node to be attractive for local networks to connect and to keep the local traffic local***



So, what's the conclusion?

Future trends for IXP

- *Many more small IXPs on the Edge (with a new definition of what is success...)*
- *Interconnection of Edge to attractive Hubs*
- *Decrease in IP Transit pricing putting pressure on IXPs → IXPs need to add services which are the logic evolution of Peering*
- *IXPs are important meeting points for networks who do business with each other – IXPs need to support that*
- *Automation and self service for peers*

What's the learning for small IXPs?

- *IXPs are about collaboration, so partnership between IXPs seems logical*
- *Multi-Service approach is not just something for big IXPs*
- *But most important – know your value and purpose*



***Thank you for
your attention!***

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