![linx]

CEO Update

Kurt Erik Lindqvist
CEO

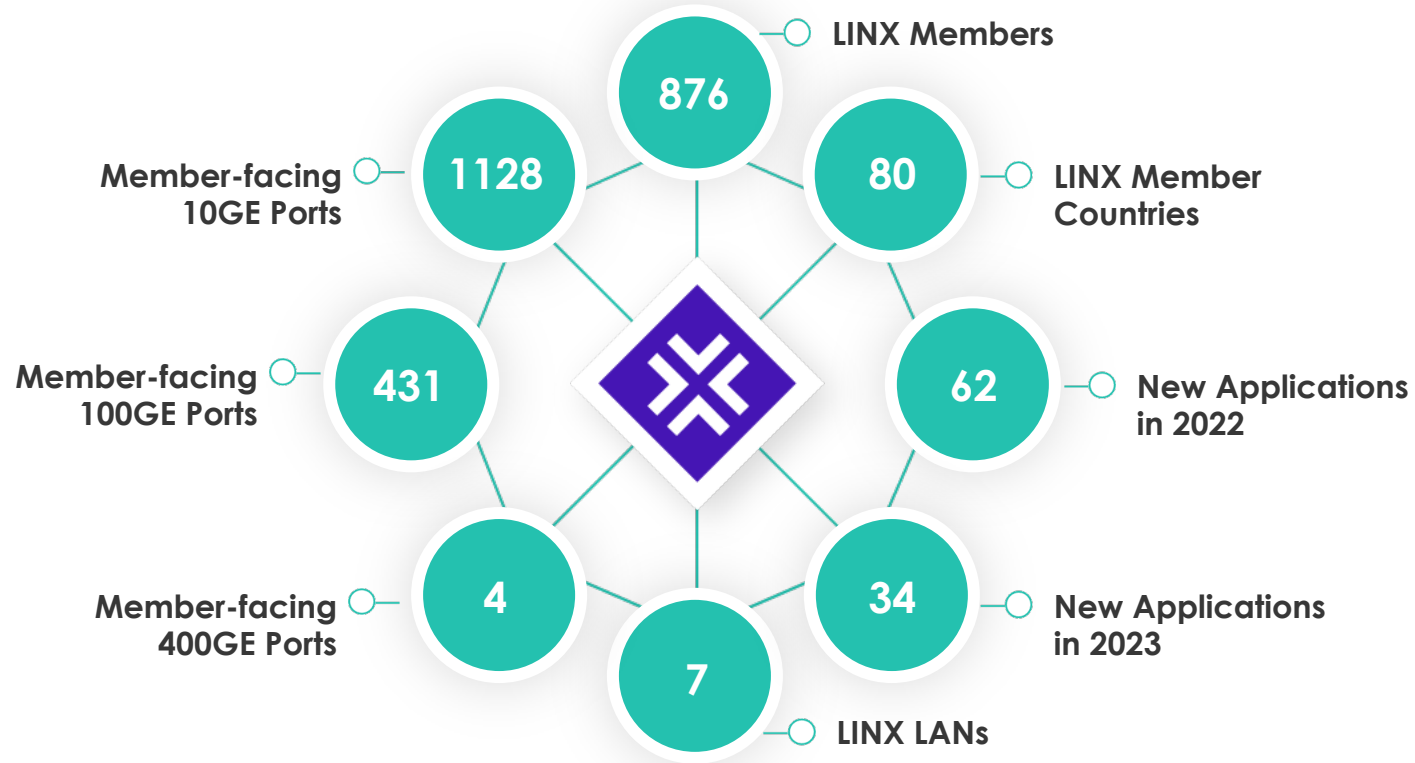16th May 2023
LINX119

LINX Statistics

15th May 2023

1780
Connected Member Ports

7.898Tbps
Peak Traffic

895
Member ASNs

56.197Tb
Connected Capacity

876 — LINX Members

80 — LINX Member Countries

62 — New Applications in 2022

34 — New Applications in 2023

7 — LINX LANs

4 — Member-facing 400GE Ports

431 — Member-facing 100GE Ports

1128 — Member-facing 10GE Ports

Growth

- New traffic peaks again on total, LON1, Scotland, JEDIX etc...

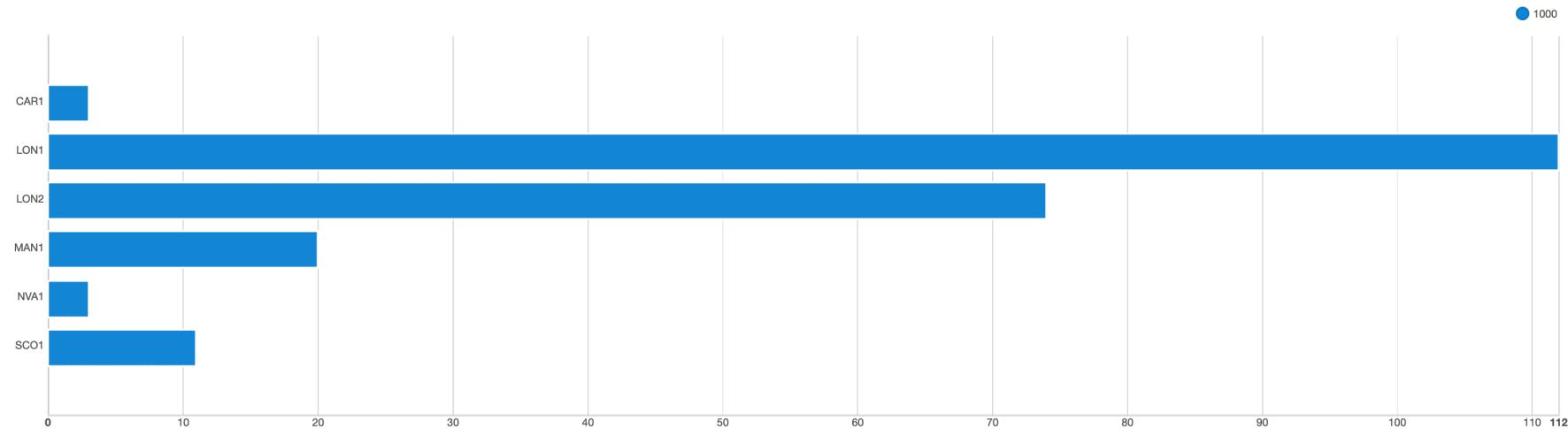| IXP	Networks
LON1	854
LON2	342
LINX Manchester	128
LINX Scotland	42
LINX Wales	12
LINX NovA	45
JEDIX	20

Migration of 1GE Ports to 1 Gbps over 10GE

- 47% of 1GE Ports migrated so far

- Target to stop 1GE ports by end of year still there

Total is 223

● 1000

CAR1	
LON1	
LON2	
MAN1	
NVA1	
SCO1	

0   10   20   30   40   50   60   70   80   90   100   110 112

Staff Changes

Starters

- Katie Robinson - Product Owner

Leavers

Vacancies

- DBRE
- SRE

LINX Nairobi Update

- License application has been approved and received

- Will need to submit and get a service approval

- Working on deployment at the IXAfrica DC towards the end of the month

- IX Africa opening event on May 30th

- Receiving orders / applications already

JEDIX Expansion

- As announced a year ago we are supporting STC in expanding JEDIX
  - Riyadh
  - Dammam
- We are waiting on the completion of the datacenter space for launch
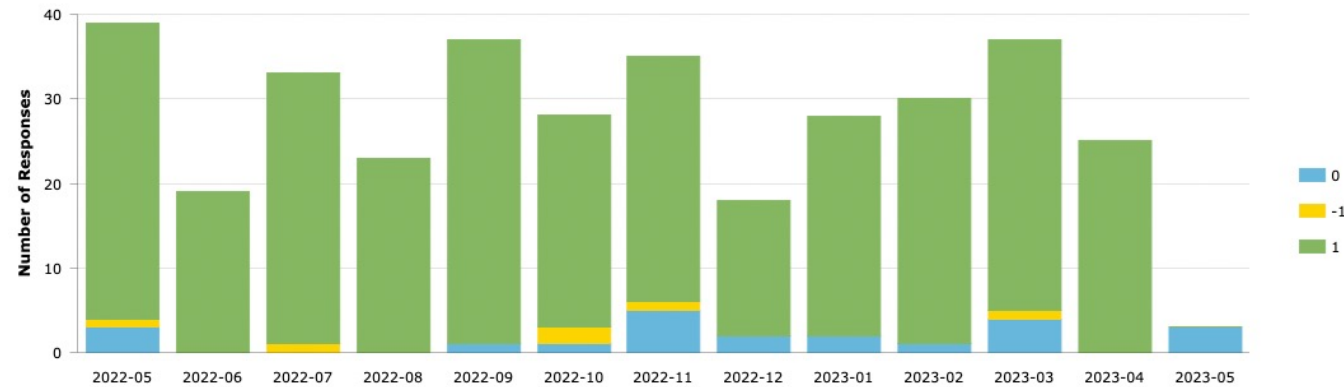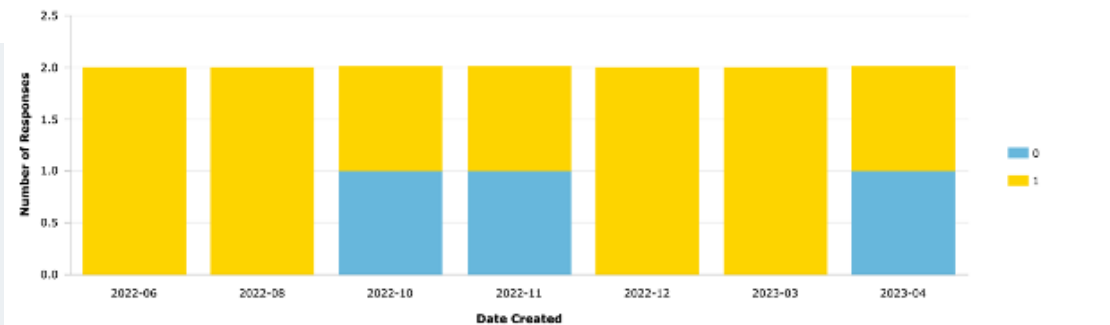
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Feedback

- We track feedback on all our public ticket queues
  - These are reported on monthly
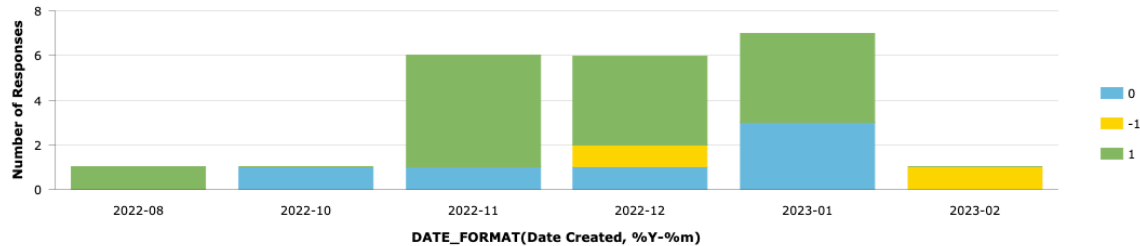 - Comments are read and published internally

Support/Provisoning Feedback (1 = Good, 0 = Ok, -1 = Not Good)

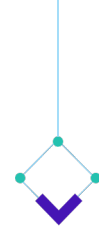Finance Feedback (1 = Good, 0 = Ok, -1 = Not good)
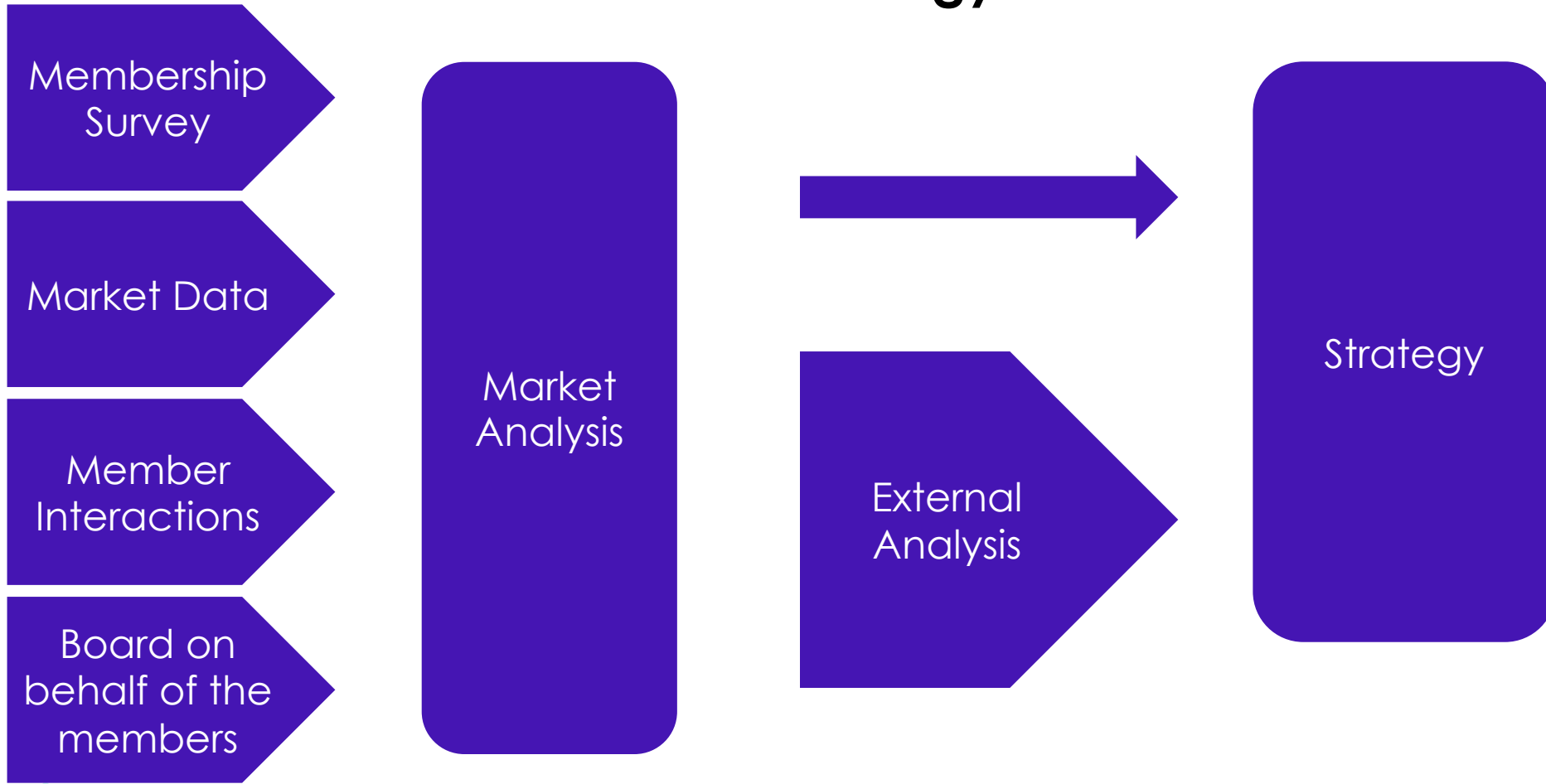
Sales Feedback (1 = Good, 0 = Ok, -1 = Not good)

LINX Strategy
2023-2025

LINX Strategy Process

Membership Survey

Market Data

Member Interactions

Board on behalf of the members

Market Analysis

External Analysis

Strategy

LINX Strategy Process

- LINX Strategy is developed by a wide range of LINX staff

- Presented to all LINX Managers

- Agreed by the LINX SMT

- Finally the market analysis and strategy is presented to the LINX Board for approval

- Every year the strategy is evaluated against
  - Objectives
  - Market developments
  - Member Satisfaction Survey
  - Member interaction
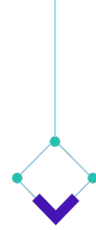
Member feedback and input

- We (LINX Board and management) collect feedback and input from our members and prospects from many sources throughout a year.

- The most valuable and telling are probably the personal interactions we have with members at conferences, events and meetings on a 1-2-1 basis where members are free to share thoughts and asks.

- We also have the LINX meetings, mailing lists, IRC channels, Slack etc. where even if I or others don't reply, we read and listen.

- Lastly, we conduct the membership survey every year that is discussed in depth
  - First with the Board
  - Then with the members at the member's meeting

Member feedback and input

- All feedback we receive is used for both strategy development and strategy evaluation

- With over 900+ members from over 80 countries with a mix of business models, needs, reach etc. the views are very varied

- The role of the LINX Executives and Board is to balance these views. The objectives are that the strategy:
  - Maximises value for as many members as possible
  - Supports the ongoing financial sustainability of LINX
  - Does not target a strategy that is not in the interest of no members at all

- Even though some parts might be contradictory to what some members want

- The Board then approves a strategy with the Executives for the CEO to lead the execution of

Market Observations

Evolution of interconnects

The emergence of in-network caching in early to mid-2000 changed interconnects
- (Traffic) Growth shifted to be inside access networks
- Rate of (traffic) growth at IXPs slowed

Initially IXPs had been important in scaling and delivering content
- Gradually the role of IXPs shifted to provide access for CDNs to the "long-tail"

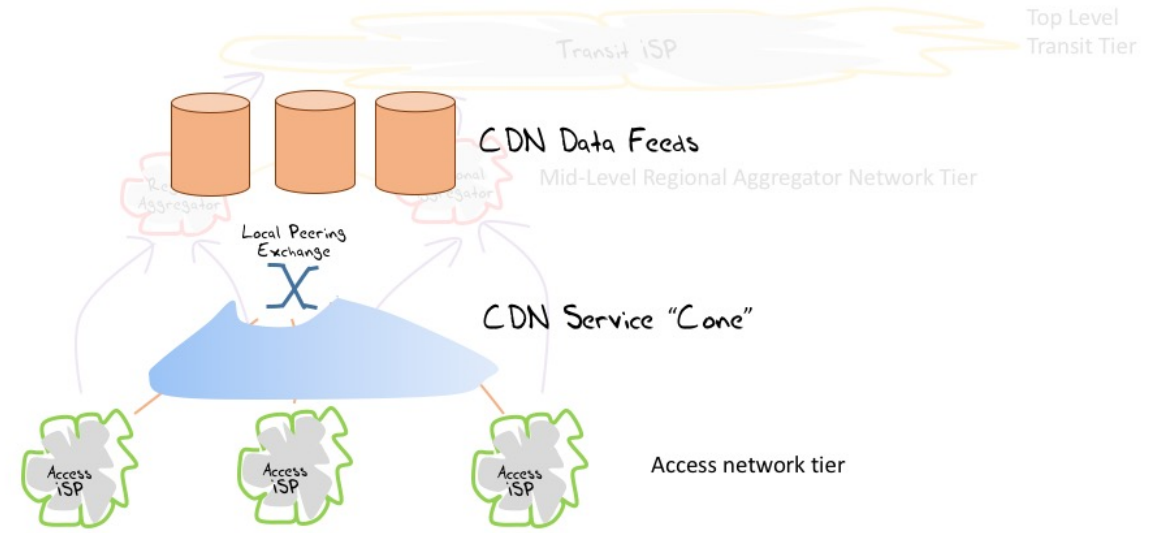This also shifted the economics of IXPs
- Growth in ports was complemented with growth in number of participants
- This change continued to create value for both content producers and consumers
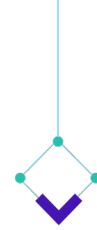
Evolution of interconnects

- Today CDN traffic inside ISP networks is 85-90% of all user generated traffic.
  - "Inside" can still cover a large geographical area with relatively high RTT between end-user and content distribution

- Threshold for PNI has gone down significantly

- In London the threshold is around 700Mbps of traffic for some content
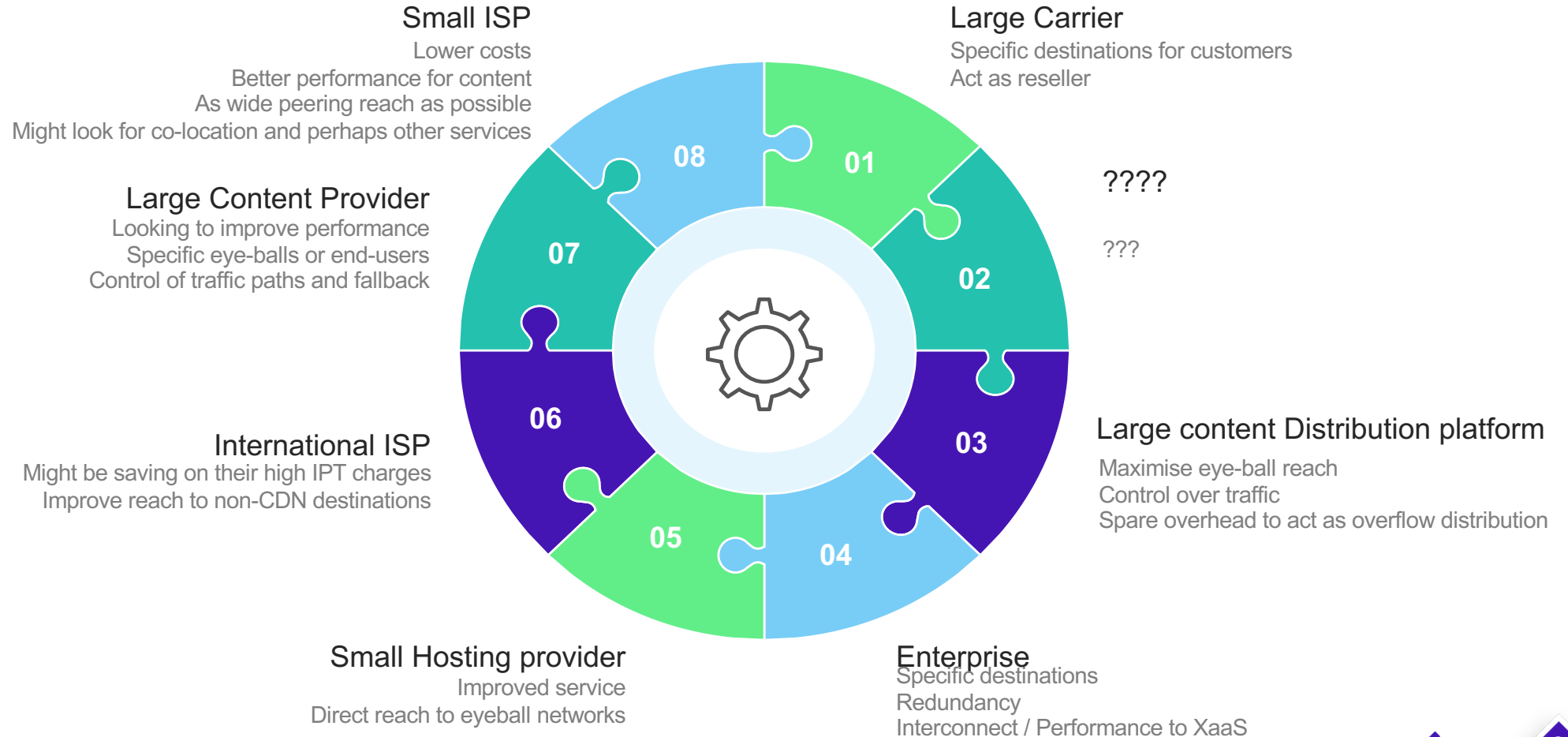

Source: https://blog.apnic.net/2016/10/28/the-death-of-transit/

Diverse Membership means diverse needs

Small ISP
Lower costs
Better performance for content
As wide peering reach as possible
Might look for co-location and perhaps other services

Large Content Provider
Looking to improve performance
Specific eye-balls or end-users
Control of traffic paths and fallback

International ISP
Might be saving on their high IPT charges
Improve reach to non-CDN destinations

Small Hosting provider
Improved service
Direct reach to eyeball networks

Large Carrier
Specific destinations for customers
Act as reseller

????

???

Large content Distribution platform
Maximise eye-ball reach
Control over traffic
Spare overhead to act as overflow distribution

Enterprise
Specific destinations
Redundancy
Interconnect / Performance to XaaS

01 02 03 04 05 06 07 08

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General Market trends

- The value take away for each category on the previous slide might be different
  - Yet it is the whole of the value constellation that generates the attraction and value

- Clusters of value takeaway could be seen as
  - Accessing long-tail
  - Accessing content and Cloud / XaaS
  - Savings
  - Reach

- Increasingly we are seeing asks for
  - Automation
  - Service and contract standardisation
  - One-stop-shop for interconnection needs
  - LINX services under one contract in a wider geography
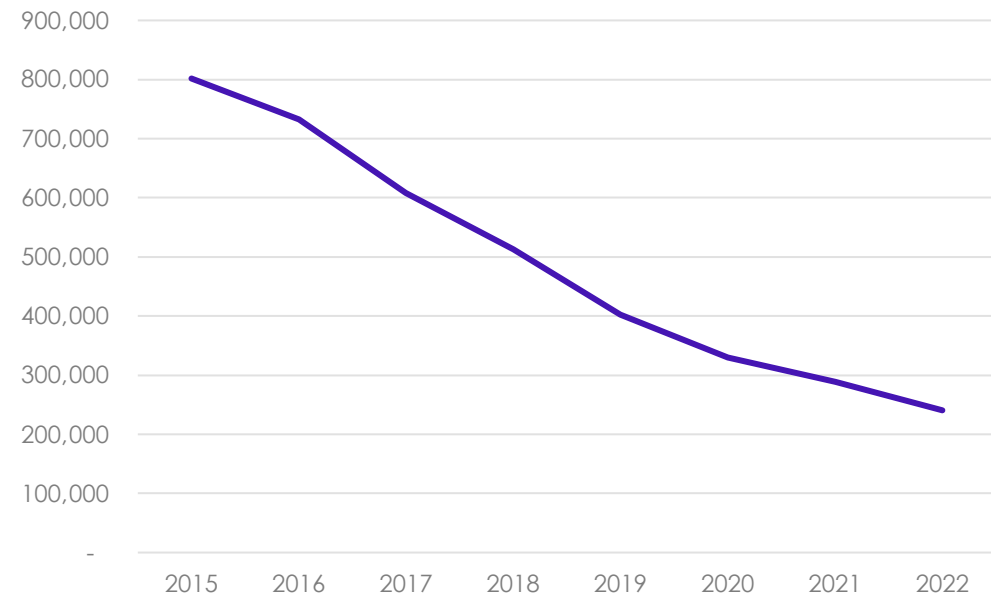
General market trends

- Competition in the overall market is increasing
  - Direct competition – at least 24 IXPs in the UK according to PeeringDB
  - Direct competition ranges from extremely well-capitalised competitors with free ports to very small more or less hobby projects
- Substitutes
  - PNI, caches, Internet Transit
  - Substitutes are not directly comparable in all cases but still affect the market

Port Revenue (GBP) / Edge Capacity (Tbps)

General Market Trends

- Scaling operations
  - Despite significant growth in Edge capacity, number of members and cost of services have grown with or below inflation
  - Increased automation and tooling has allowed us to grow at scale

- Operating an IXP at scale becomes operating with economy of scale

- Pre inflation increase – Revenue growth outpaced cost growth which allowed for ~10% annual price reductions

- With 10% inflation keeping prices unchanged is effectively 10% price reductions

2023-2025 Strategy

2023-2025 Strategy

- Strategy builds on three pillars
  - The first two are looking to strengthen our current operations and competitiveness the third is forward looking exploration

- These are not equal in weight or size and neither are the supporting actions
- Strengthening and growing our current business will ensure continued value for all members
  - Will build on our economies of scale to delivery services
- Optimising our products and operations further will ensure we deliver the services members want
  - Will ensure that we can scale for the future

2023-2025 Strategy

Sustain

- Pricing Strategy
- Service Quality
- Attractiveness
- Geographical Expansion
- Our Partnerships
- Membership relations
- Market place development

Optimise

- Automation and self-service
- Effective employment of working capital
- Growth Scaling metrics and long-term goals
- Partnerships
- Business evolution
- Leverage synergies
- Compliance and risk management
- IXP standardised tooling

Grow

- Edge Compute Networks
- Data Exchanges
- Edge / Cloud Router
- Co-location at more DCs
- Managed IXP
- Data analytics platform

2023-2025 Strategy

- For each pillar and each action in support of the strategy a number of metrics are identified

- These are tracked and reported on to evaluate the success of the strategy

- Market development and member jobs to be done are also tracked, reported and analyzed

- The Growth pillar are areas to monitor, understand, investigate and where there is an opportunity / or member needs build a business case
  - This does not mean that we intend to do all of these – or perhaps even any of these

Business cases

Business case process

- When an opportunity is identified the process to build a business case starts
  - Opportunities can be new DC reach, products, larger tools development or purchase, regional IXPs, partnerships, Managed IXPs etc.
- We identify stakeholders and members that would benefit from this opportunity
  - We sound these out to make sure we understand their "jobs to be done", and that we can have a successful outcome
  - Once the value proposition is clear we build a business case
  - Including COGS, SG&A CAPEX
  - Calculating NPV, IRR
  - Is this right for LINX and LINX Members?
- Opportunities are then presented to CEO / SMT and depending on type and size, to the Board for approval

Business case process

- Why isn't this made public?
  - The membership as per the articles have delegated the running and oversight of the company to the Board
  - Many opportunities are commercially sensitive and we would not be able to even enter into preliminary discussions without NDAs

- What member feedback is sought?
  - Many members can't or don't want to make their views public
  - May be listed companies, company policies or processes, competition issues that prevents them from speaking in public
  - Still these members will provide feedback to us in private so we seek views from a mixed set of members who we think would get value out of an opportunity

Business case process

- If an opportunity fits with LINX's purpose and strategy we will consider it

- ***If an opportunity fits with strategy, creates value for members, has an acceptable risk associated with it, and is financially viable, then the SMT or Board usually approves the business case***

- For example: We have turned down many more requests to build an IXP than we have agreed to even explore, and even fewer have been built.
  - Some of these opportunities have been picked up by others.

linx

Thank you!

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