New Zealand Internet Exchange

Pacific IXP Workshop



2022

New Zealand Internet Exchange

Dave Mill – Chair
Chris Browning - Treasurer

NEW ZEALAND
INTERNET EXCHANGE INC

Welcome

- New Zealand landscape and NZIX
- Operations
- Costs
- Members/Peers
- Technical details
- How we can help?

NEW ZEALAND
INTERNET EXCHANGE INC

History

- Incumbent IXP with poor interconnection
- Lack of good Data Centres with IXP footprints
- Lack of IXP competition

- Multiple IXPs launched in 2016

- IAA (Internet Association of Australia) helped found NZIX Inc.

Society

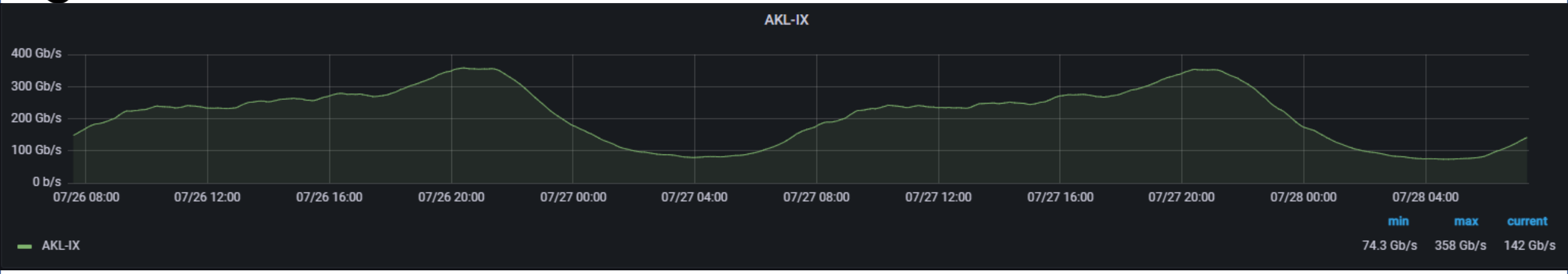
- Incorporated society
- Non-profit
- Member run
- Committee of 7 volunteers
  - 5 are elected
  - 2 appointed by IAA

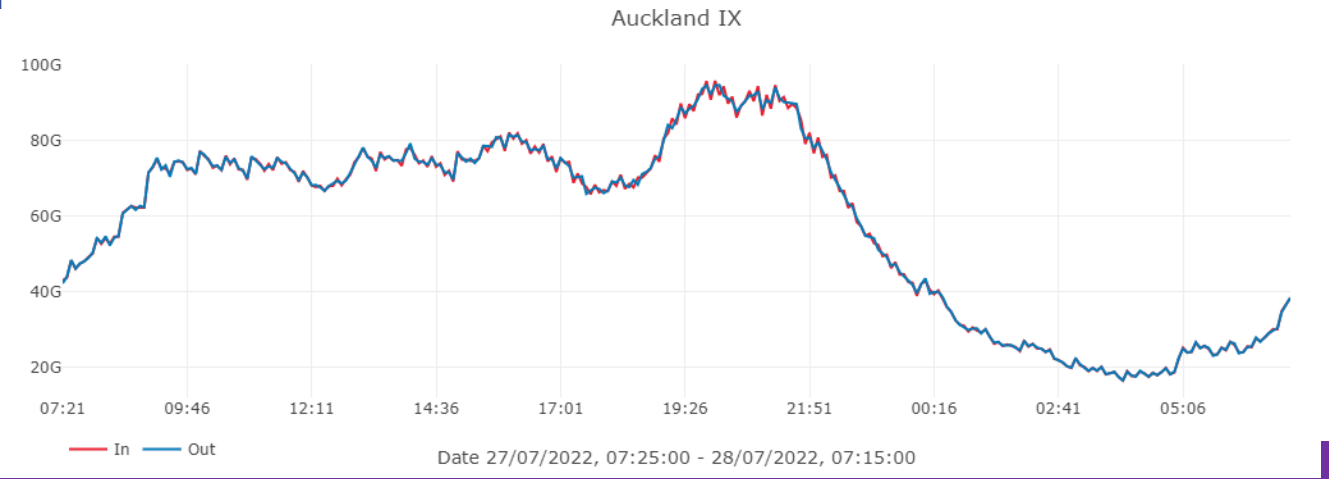
- Improve NZ Internet
- Serve our members
  - ISPs, enterprise and content providers

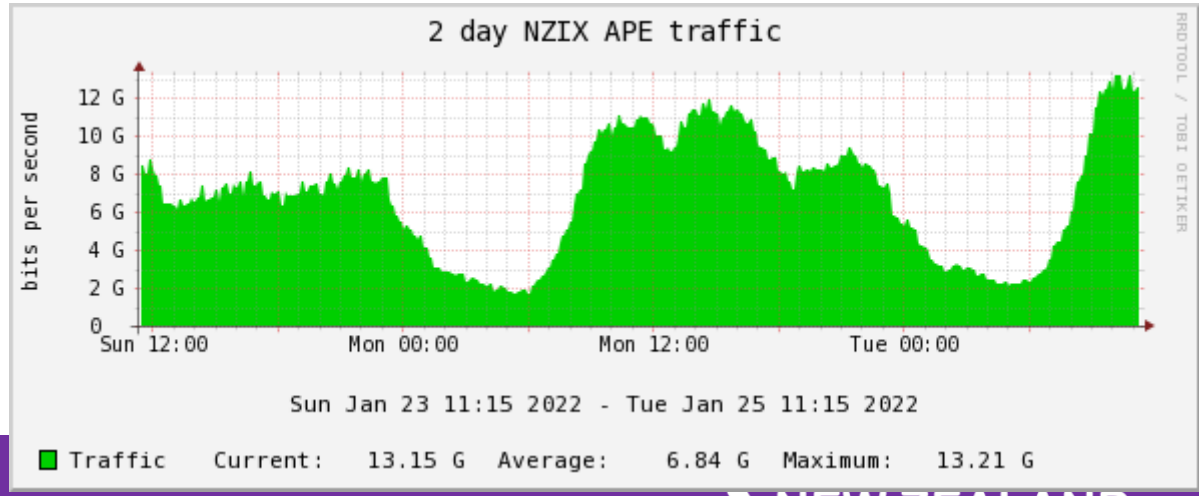
New Zealand IXPs

- 3 Organisations Operating IXPs
  - New Zealand Internet Exchange Inc
  - Megaport
  - Citylink / TeamTalk - Incumbent

3 IX Providers - AKL







NEW ZEALAND
INTERNET EXCHANGE INC

NZIX's 3 IXPs

AKL-IX



Current Traffic	Peak Traffic (90 Days)
279 Gb/s	499 Gb/s
Total Data (24 Hours)	**Total Data (90 Days)**
2.48 PB	210 PB

WLG-IX



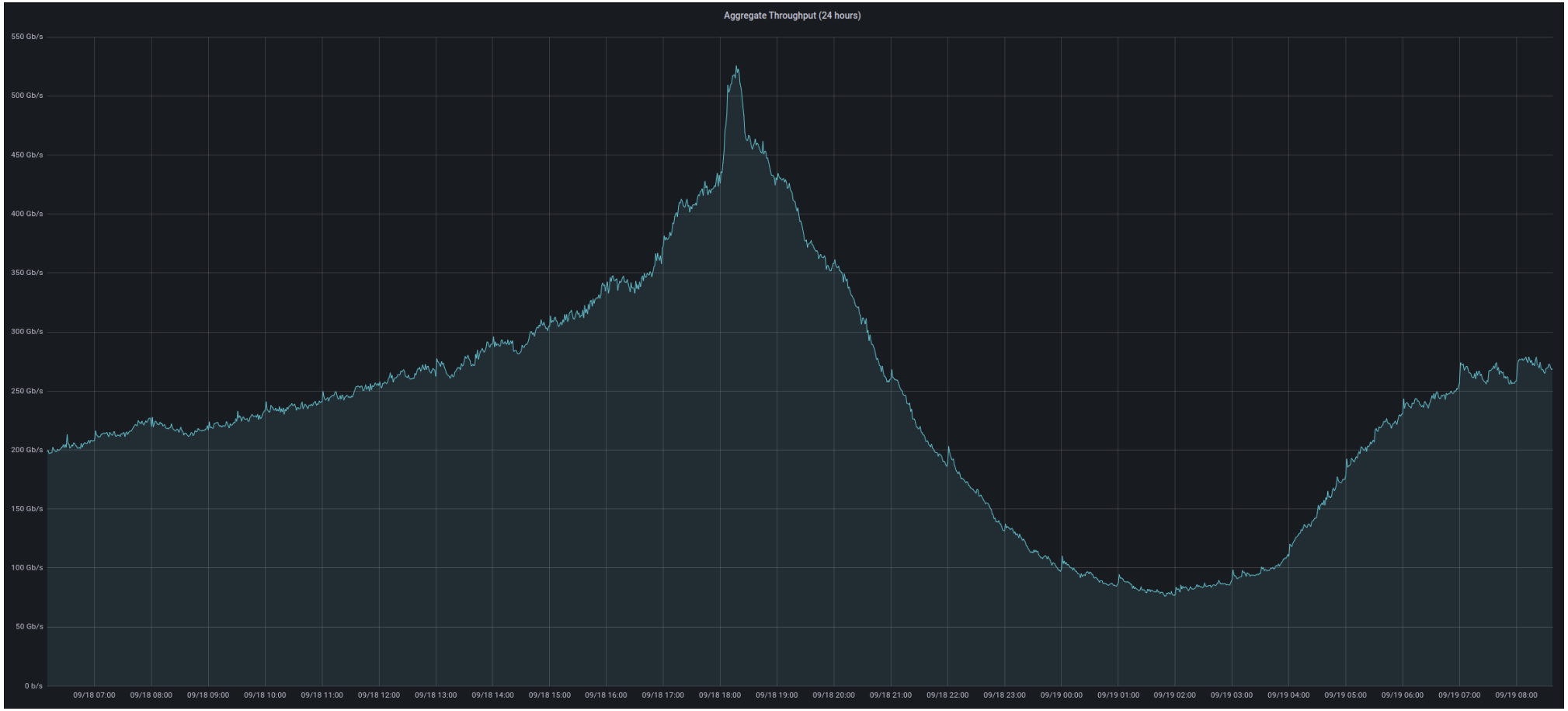
Current Traffic	Peak Traffic (90 Days)
4.58 Gb/s	7.06 Gb/s
Total Data (24 Hours)	**Total Data (90 Days)**
44.6 TB	3.53 PB

CHC-IX



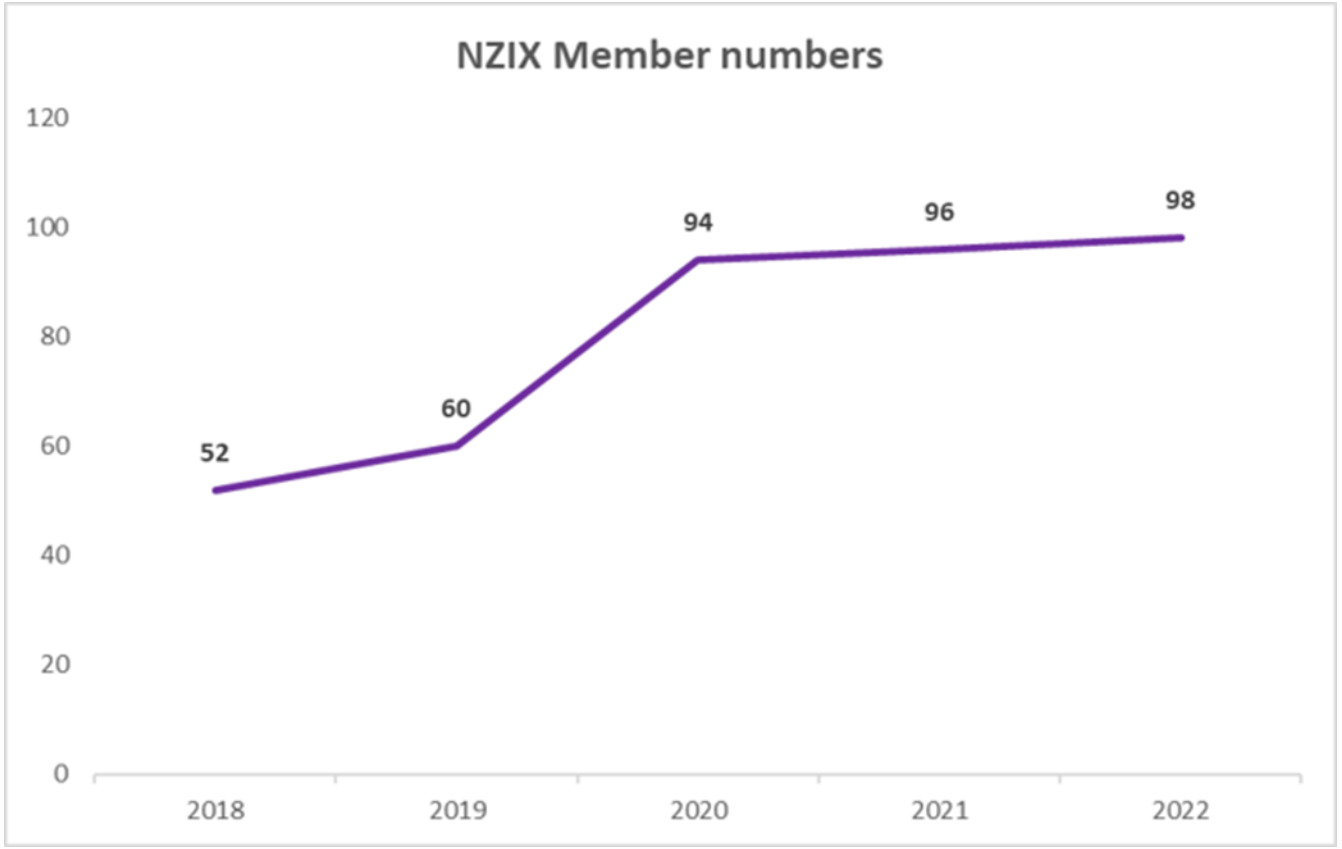
Current Traffic	Peak Traffic (90 Days)
2.69 Gb/s	5.44 Gb/s
Total Data (24 Hours)	**Total Data (90 Days)**
27.6 TB	2.30 PB

AKL Peak 526Gbps Sept



Member growth

Growth rate of 88.5% since 2018 and 2.08% since 2021



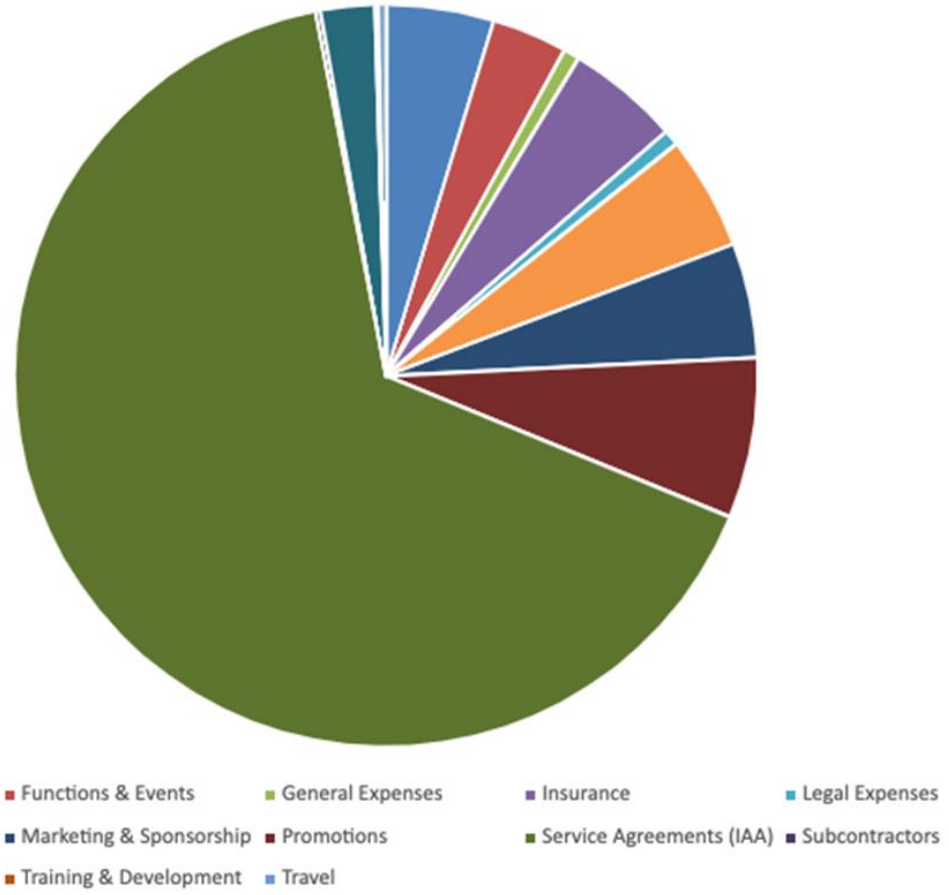
Day to day operations

IAA Services Agreement

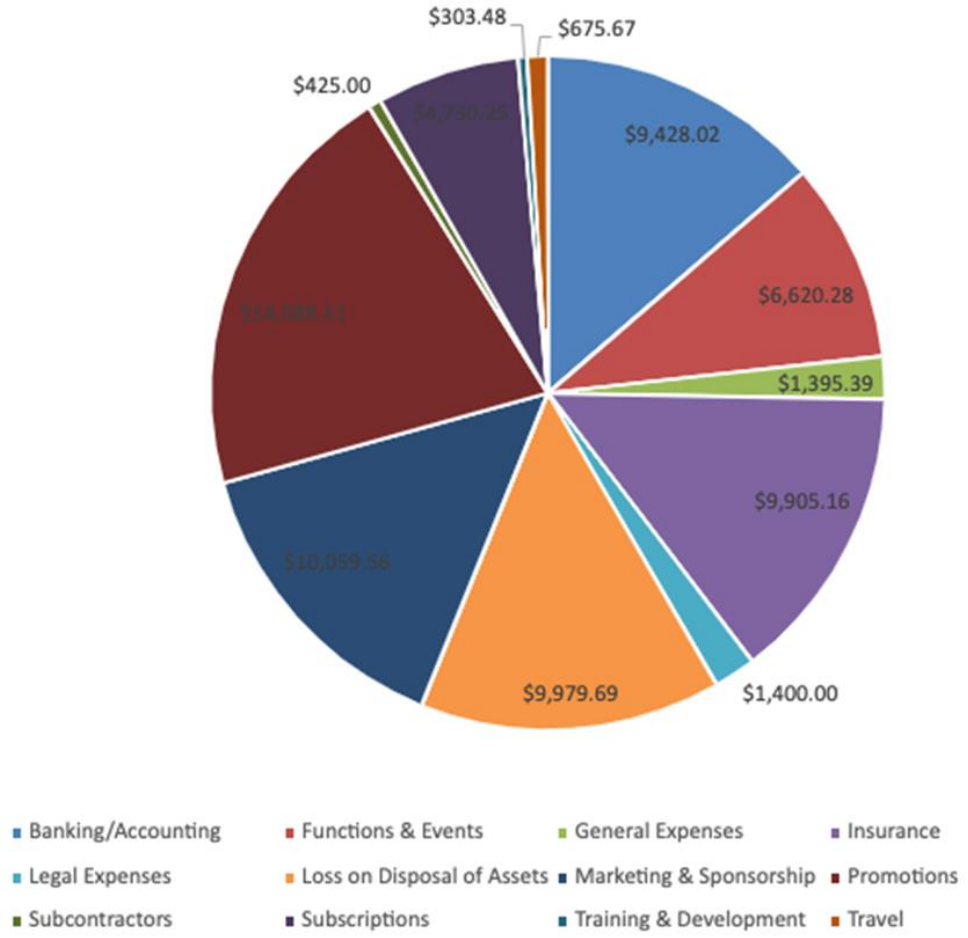
- All day to day operations
  - Leave the governance to the volunteers
  - The doing to paid staff
  - Australia based staff
  - Local NZ resources as required

- NZ$8000 + 10% of income per month
  - Roughly NZ$14,000 p/m

Spending - IAA



Spending – IAA removed



Neutrality

- Key to getting many networks on IXs which is key to success
- Neutrality :
  - Open access, access to all
  - Telco, Service Provider, Government, Enterprise, Internationals
- Data Centres
  - Multiple fibre providers; anyone can buy them
  - Open colocation
- Communications services
  - Anyone can buy
  - Anyone can connect

Content

- Amazon (AS16509)
- Akamai (AS20940)
- Netflix (AS2906)
- Facebook/Meta (AS32934)
- Cloudflare (AS13335)
- Microsoft (AS8075)
- Fastly (AS54113)
- Various .nz DNS infrastructure and roots (E, F, J) (AS42)

Eyeballs

- Vodafone NZ / OneNZ
- Vocus NZ / 2 Degrees
- All competitive New Zealand ISPs
- Starlink (AS14593)

Peering vs Transit

- If peering/interconnecting NZ only:
  - 60-80% peering traffic (IX's, Caches, PNI/Private Network Interconnect)
  - Remaining transit
- If peering/interconnecting NZ & AU:
  - 80-90% peering traffic (IX's, Caches, PNI/Private Network Interconnect)
  - Remaining transit

Technical Detail

NZIX Exchange Overview:

- **Core Network:** OSPF, MPLS + VPLS with RSVP-TE + LDP Fallback
- **Hardware:** Extreme Networks – X870 for 100G PEs; X690 & X670 for 10G PEs
- **Optical/Cabling:** Single mode, Dark fibre everywhere – never use lit services
- **Fibre Carriers:** Vector, Vodafone, Chorus – use many if possible
- **Route Servers:** Dell R640s running Bird (**RPKI** Compliant, dropping invalids).
- **Out of Band:** OpenGears

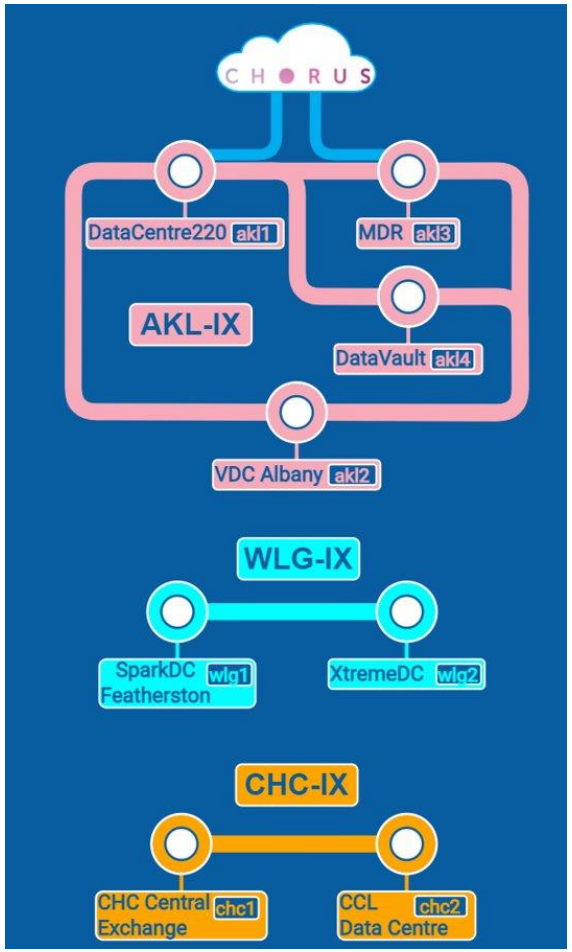
Technical Detail

AKL-IX:

4 Physical Data Centres:

- Data Centre 220
- Spark Mayoral Drive
- Vocus Albany
- Datavault Grafton

- 3 DC ring 2x100G carrier diverse circuits
- 1 DC has 2x100G physically diverse circuits



Technical Detail

AKL-IX - Trends

AKL-IX	2018	2019	2020	2021	2022
Peers	70	77	90	94*	96
Traffic Peak	60Gbit/s	98Gbit/s	178Gbit/s	278Gbit/s	**525Gbit/s** (18/09)
IPv4 Routes	10,000	51,000	67,000	105,000	118,000
IPv6 Routes	1,800	24,000	35,000	45,000	51,000
1G Ports	15	10	8	6	3
10G Ports	60	75	91	83	85
40G Ports	0	0	1	3	3
100G Ports	0	1	8	15	24
Total Ports	75	86	108	107	115

How can we help?

- Relationships with content providers and ISPs
- We know and operate in the Internet Ecosystem
- Experience in running a successful organisation and IXPs
- VLLs or Pseudowires across our existing AKL-IX?
- Other technical solutions for linking content on NZIX with the Islands?

Thanks for listening!



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