

# 2022

## ANNUAL REPORT



Internet  
Association  
of Australia

“

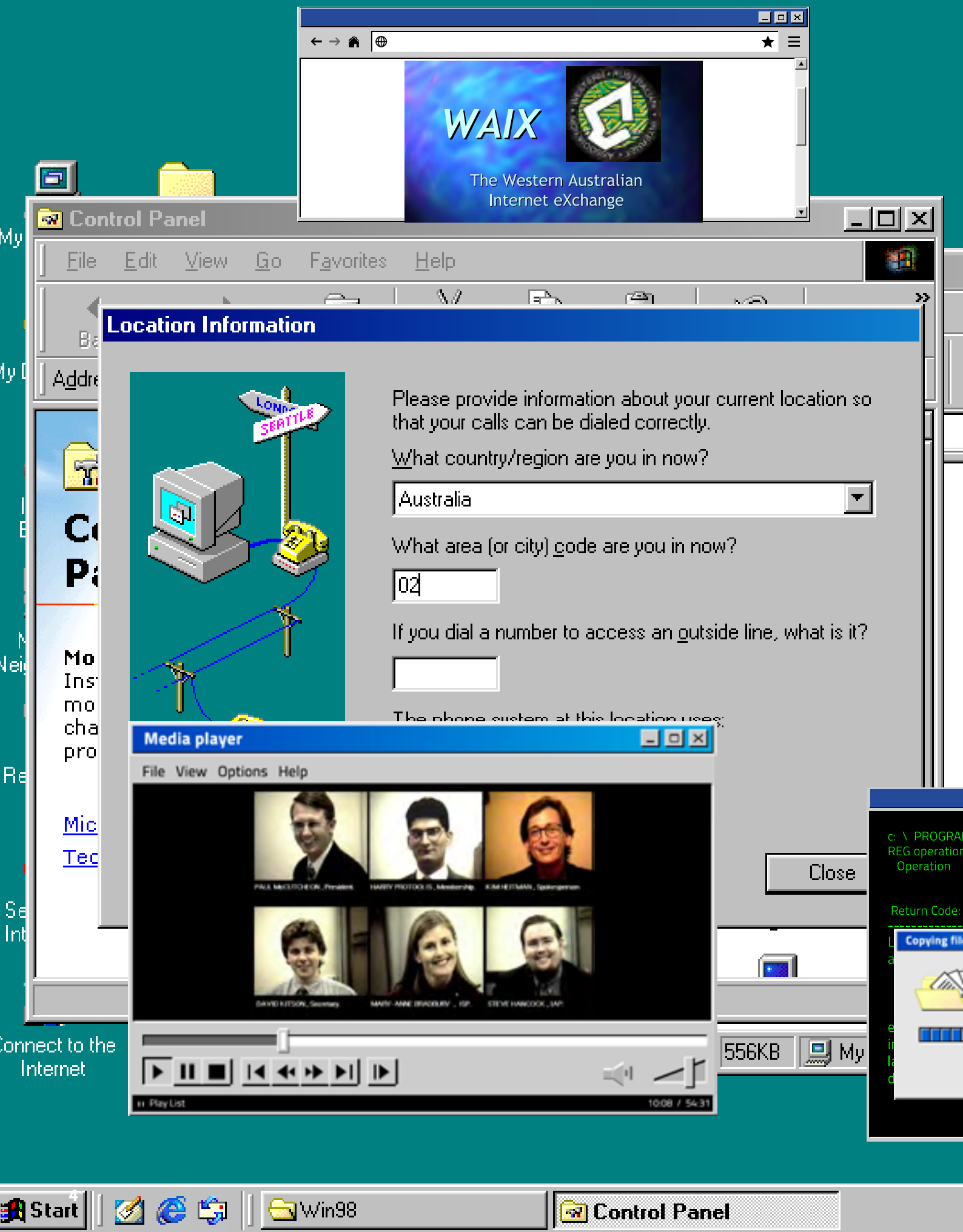
**Supporting the Internet industry for  
a better future.**

**Australia's largest not-for-profit  
Internet Exchange, offering  
carrier-neutral peering points.**



# CONTENTS

WA-IX celebrating 25 years	5
Message from the Chair	7
IAA Board 2021-2022	8
Board table of attendance	9
Strategic plan	10
CEO report	13
Staff photos	14
The year that was	17
The year ahead	17
Technical report	18
Network tube map	20
Founding members	22
Portal overview	24
Financial summary and outlook	25
Mask Mugshots	26
IX statistics over the year	28
Where's my port?!	30
Events	32
IAASystems 2021 & 2022	35
Sponsorship	38
Member product portfolio	41
Digital marketing and communications	43
IAA having impact on public policy	45





# WA-IX

## Celebrating 25 years

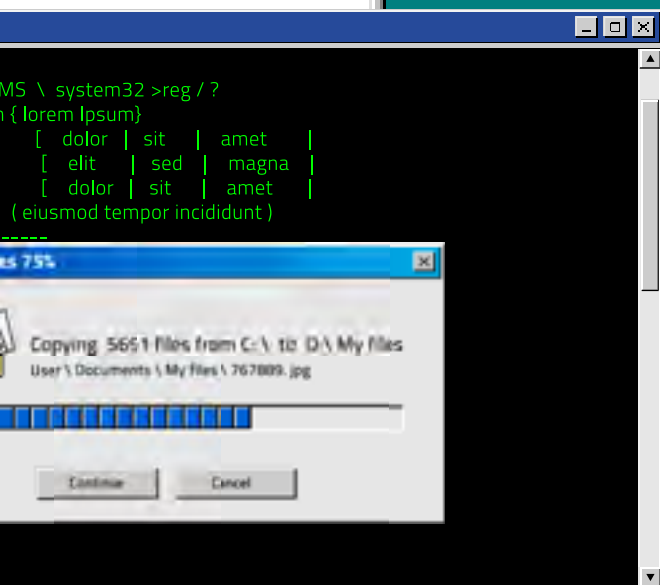
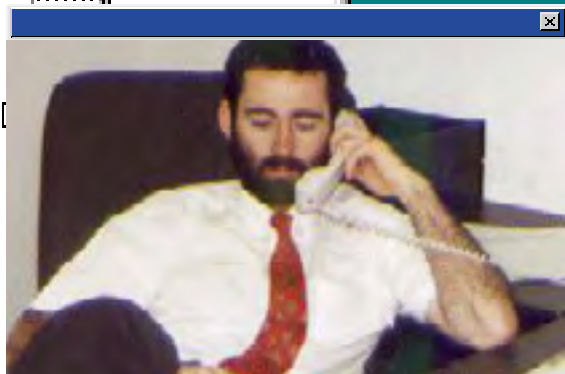
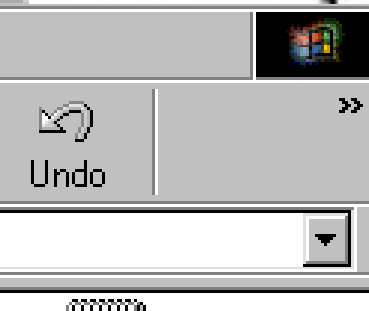


Back in 1995, a group of Internet enthusiasts rallied together to advocate for the interests of the Internet community in Western Australia, forming the Western Australian Internet Association (WAIA). Two years on, they made one of the most unlikely moves for competitors to make and collaborated on a project that would not only help each other's businesses but helped everyone's customers and improve Australia's Internet – they formed the Western Australian Internet Exchange (WA-IX). It was described as a laudable show of cooperation as iiNet, Wantree, and Omen first connected on the exchange: built from donated hardware and put together by the hands of volunteers. At the time, the cost of domestic traffic sent and received was \$1.46 PER MEGABYTE and definitely far too costly to be sustainable for many businesses.

Not only did WA-IX make connectivity more affordable, but it also helped to fund the good works of the Association. WAIA was formed to be a representative voice of the Internet community and was run by volunteers; however, it did incur ongoing operational costs. With the combination of genuine care for the Internet community, users, and its members, WAIA (now known as the Internet Association of Australia or IAA) has continued to grow and provides the longest-running peering network in Australia. Indeed, WAIA was the first association of Internet users in Australia!

Part of the ongoing success of WA-IX can be attributed to the fact that it stood alone and no longer ran on the goodwill of volunteers. As the first employee of WA-IX, Peering Engineer Gavin Tweedie recounted that before he was employed, to get access to the PoP in QV1, you had to rely on your fellow competitor at another company to show up with the key! An exchange was also conducive to competition by lowering operational costs, which kept the cost of connectivity down for end users.

Our Association was built and continues to operate on goodwill as we continue to work for the Internet community and Australia's Internet more broadly. Although peering is not as widely adopted in Australia as it is in other parts of the globe, it is definitely integral to its success. Cheers to 25 years of good connectivity and may there be many more years to come!





“

It is really fascinating to look back over the past 25 years and see how the Internet has changed, how the Association has risen to the challenges, and had a profoundly positive influence over the Internet and how we do things in this country.



# MESSAGE

## from the Chair

Looking back over the past 12 months, it is amazing the number of things that we as an Association have been able to achieve and how much we have grown.

Since David passed the reins of Chair to me, I am pleased to report that the Association has continued to go from strength to strength, which in large part, can be attributed to the legacy of the organisation. It can also be attributed to the enormous amount of work that our CEO, Narelle Clark, along with the team, gets done that has made us become the strong, professional organisation that we are today.

Even with COVID-19 being around, we still managed to kick things up a gear, hitting 900Gbps nationally at peak on our exchanges – hopefully, that 1Tbps is not far off now. Some of this growth is due to our partnerships with content providers that bring content locally to our exchanges and members. Over the past 12 months, we have welcomed FreeBSD and Steam, and it is these relationships that add value to our network, and that really makes IAA the place to be for peering within Australia.

To support this growth, our tech team has been busy working with vendors to test the next generation of hardware and choose the right solution for the Association to move to 400Gbps ports. I am pleased to report they have identified the vendor; we have placed orders and hopefully, global supply chains permitting, we will see the new kit deployed in the next 12-18 months.

I was really pleased to see that our IAASystems program was an immense success, thanks to the hard work of Kitty and the team. This program was setup to encourage and develop the involvement of women in the industry, and we are seeing an increasing interest in the program from both potential attendees and sponsors. As companies continue to recognise the value of what this program does, their support can help us expand the offering to more participants next year.

This year, we saw the establishment of our Public Policy Advisory Panel, which has been helping to guide the Association when responding to government and industry consultations. The pure volume of responses we have done, some of which we have had to do in record time (as we all know how government likes to “consult” by sending out papers in late December wanting responses in January), but even so, we have been recognised for our contribution

with Narelle being called to represent our members’ interests at various inquiries this past year. It is great to see us standing up for what our members and larger community want and being heard.

The Board has had a busy year with a move to establish committees to focus on specific areas within the organisation. Our Finance Committee has been busy dealing with budgeting and strategic planning to support our upcoming expansion and capacity plans.

Our Regional IX Committee has been established to look at our expansion options and is keenly looking at Tasmania and the Northern Territory. If we can make the numbers stack up and get interest from content providers to partner with us, it will make these exchange points welcome additions to our network.

Covid destroyed any hopes of us having an in-person celebration of 25 years as an Association, so we are making sure to celebrate the 25th birthday of WA-IX this year. It is really fascinating to look back over the past 25 years and see how the Internet has changed, how the Association has risen to the challenges and had a profoundly positive influence on the Internet and how we do things in this country. We are so lucky those founding members had the foresight to do what they did and start something small, which is a cornerstone of the Australian Internet landscape today. 25 years – a massive achievement!

In closing, I wish to thank the Board who have voluntarily helped IAA over the past 12 months. My Deputy Chair, Brett O’Hara, and our other members, David Hooton, Daryl Collins, Matthew Moyle-Croft, Richard Thompson and Nate Garr, the work you do and the level of expertise you bring are enormous and really appreciated.

See you at the WA-IX celebration.

**Matthew Enger**

*IAA Chair*





# IAA BOARD

2021 – 2022

## **Matthew Enger (Chair)**

Appointed to casual vacancy 10 January 2020,  
elected 27 October 2020

Member, Membership Committee

Member, Technical Review Committee

Member, Finance and Audit Committee

Member, MSA/MA Review Committee

Member, Regional IX Committee

NZIX Committee representative

## **Brett O'Hara (Deputy Chair)**

Elected to 11 September 2019,  
re-elected 27 October 2020

Member, Membership Committee

Member, Finance and Audit Committee (Chair)

Member, Regional IX Committee

## **David Hooton**

Elected 6 September 2017, re-elected 4 September  
2019, re-elected 27 October 2020

Member, Membership Committee

Member, Finance and Audit Committee

Member, Regional IX Committee

## **Daryl Collins**

Elected 6 September 2017, re-elected 4 September  
2019, re-elected 17 November 2021

Member, Technical Review Committee

NZIX Committee representative

## **Matthew Moyle-Croft**

Elected 4 September 2019,  
re-elected 27 October 2020

Member, Technical Review Committee

Member, Finance and Audit Committee

Member, MSA/MA Review Committee

Member, Regional IX Committee

## **Richard Thompson**

Elected 27 October 2020,  
re-elected 17 November 2021

Member, Technical Review Committee

Member, MSA/MA Review Committee

## **Nate Garr**

Elected 27 October 2020,  
re-elected 17 November 2021

Member, Technical Review Committee

Member, MSA/MA Review Committee



# BOARD

## Table of attendance

Director	Eligible	Present	Apologies	Absent
Matthew Enger	10	10	0	0
Brett O'Hara	10	10	0	0
David Hooton	10	10	0	0
Daryl Collins	10	10	0	0
Matthew Moyle-Croft	10	10	0	0
Richard Thompson	10	8	2	0
Nate Garr	10	7	3	0

Meetings held between October 2021 – September 2022



# STRATEGIC PLAN

For the benefit of the Internet, and the people who build and operate it.

## Our mission

The mission of Internet Association of Australia is to lead the Internet industry and support members.

## Our objectives

1

**Provide peering exchange infrastructure and services for members**

We will develop a clear architecture evolution plan, develop an automation plan, implement a new portal, plan for new locations through business case assessment, identify new content partners and work to increase content offering and grow and enhance member services.

2

**Advocate on matters of relevance to members and the industry**

We will build alliances with like-minded organisations, to work together to represent the interests of the industry. The Association will contribute to the development of sound industry relevant policies and regulation, and demonstrate thought leadership through various publications.



3

### Facilitate education and informed discussion

We aim to conduct industry events and social functions, sponsor or support relevant industry events and participate in the advisory boards for relevant education programs.



4

### Run the association in the best interests of members

Implement and maintain best practice governance.





“

I'm really proud of the credibility we have with regulators and the broader industry, our advocacy is genuinely heard.

I'm also really proud of our efforts to support diversity within the industry through our ground-breaking IAA Systems program.





# CEO REPORT

## Narelle Clark

As I move into my third year with IAA, I marvel at how bright our future is. With us inching closer and closer to becoming a terabit scale internet exchange network, the announcement of a 400Gbps ethernet switching vendor, and our shiny new portal, things are looking just amazing! At this time also, we look back not only at the last year, but the last 25 (actually 27) years and the view in the rear vision mirror is truly phenomenal. I wonder if those there at the beginning of WAIA knew what they were starting? To think it all started as the first internet industry collaboration, but with a fire and passion that meant we would still be here today: advocating for better industry regulation, promoting greater industry participation, and offering open infrastructure economically and for the public good. From the little WA-IX, built on donated kit and labour, we now have six internet exchange points across the country and operate another three in New Zealand. What better way to celebrate WA-IX's 25th birthday than with a 25-year success story?

My team have been fantastic over the last year – we've gained some new staff members, and had a few become 'alumni' going either to their own business or into government. We welcomed new tech team members Matt and Kyle, Sabrina in events, and Sophia into policy. We settled into our new office at North Sydney, although the ongoing pandemic meant that we spent less time there than planned. At least the quiet helped with productivity!

What productivity we saw, too. An amazing number of submissions on regulatory matters, a new portal, new out-of-band network, countless upgrades and activations, and bucketloads more content! The website we launched at the last AGM is brimming with articles, and our events have all been interesting and well attended. I'm really proud of the credibility we have with regulators and the broader industry, our advocacy is genuinely heard.

I'm also really proud of our efforts to support diversity within the industry through our ground-breaking IAA Systems program. Thanks to the pandemic, a delayed AusNOG 2021, and the assistance of sponsors, we got to run the program twice in one year. It is a unique program in that it brings women to a high profile industry gathering, sets them up for success, helping them see a strong future in the industry, unafraid of the challenges and with some concrete skills to assist.

We've also tested 400Gbps ethernet switching thoroughly, too! We had expected to upgrade using either our existing vendor or another, but the technical realities meant this couldn't happen, so we were resigned to simply adding more 100Gbps links over and over again. Luckily the test plan yielded positive results so orders have been placed for bigger, grunter boxes!

The portal is finally ready for release, and we are looking forward to having a system that allows us to grow functionality rather than struggle over spaghetti code. Nick has been a real marvel coding away with one goal in mind: a portal for us to be proud of! I'm sure everyone will agree it is a true work of elegance and style, with all the basic functions we need on a platform that is extensible and supportable.

On the governance front we also completed our migration to a company limited by guarantee, so now have the sort of structure that better suits our national presence and professional standing. Our board has supported the team brilliantly throughout the year, being a great resource in oversight as well as provide sound strategic advice on growth and technology options.

If our future is half as good as our past, we look forward to it with you, our members and supporters.

**Narelle Clark**

IAA CEO



# STAFF PHOTOS



**Narelle Clark**  
CEO

Although widely known as an Internet enthusiast, she also enjoys a good game of netball and delicious chocolate.



**Nick Pratley**  
Tech Team Lead

In his spare time, Nick indulges his passion for coding and loves anything with blinky lights.



**Fatima Dauda**  
Management Accountant

Fatima enjoys watching Korean dramas on Netflix and eating chocolate when the kids are in bed.



**Jemma Goddard**  
Account Officer

Thanks to study and young kids, it is a rare that Jemma has spare time, but when she does, she loves a good Netflix binge.



**Matthew Kobayashi**  
Peering Engineer

Matthew enjoys going to the movies, indulging in his love for motorcycles – particularly his current ride, a 2020 BMW S 1000 XR – and is a student pilot.



**Sophia Joo**  
Policy Officer

In her spare time, you will most likely find her at the beach enjoying the sun, surf and hot chips.



**Kitty Hibble**

Admin Team Lead | Company Secretary

Kitty enjoys travelling, dabbling in property development and spending time with her young children.



**Tanzia Hewer**

Project Officer

Tanzia enjoys travel, good wine and photography



**Sabrina Chang-Rozario**

Administrative Assistant

In her spare time, Sabrina enjoys Pilates and yoga, dabbling in photography, reading the classics to her children and travelling.



**Kyle Zrinski**

PHP Developer

Kyle enjoys tinkering with hobby electronics and 3D printers, designing projects such as smart plant pots and logic puzzles.



**Aaron Chidiac**

Peering Engineer

Aaron is a self-proclaimed avid gamer, mediator and prefers a traffic engineered approach to the fridge.



**Emily Gallarde**

Digital Marketing and Communications Officer

In her spare time, Emily enjoys hiking, spending time with her family, and is a self-professed lover of all things Harry Potter!





“

We're so proud of the joint efforts of the team to get our redesigned website up and running.

Although the project was completed last year, we continue to update and add new pages, such as the: Careers, Advocacy and Technical Guide pages.

[www.internet.asn.au](http://www.internet.asn.au)





# THE YEAR

## That was

### ON THE ORGANISATIONAL FRONT

- Registered as a Company Limited by Guarantee 1 October 2021
- Board strategic planning session
- Board Governance training
- Advocacy and member engagement
- New IAA member portal
- Launched the new website
- Staff planning day
- Celebrating 25 years of WA-IX
- IAASystems program 2021 and 2022
- Formed the Public Policy Advisory Panel

### ON THE TECHNOLOGY FRONT

- New out of band network deployed across ALL sites
- Improved security for in house tools using 2-factor authentication
- Re-design of our compute stack and tools by utilising Kubernetes
- Comprehensive 400Gbps interoperability testing completed
- NSW-IX Equinix SY1 network expansion and rack rearrangement
- QLD-IX farewellled PIPE DC2
- Switch bug identified and squashed
- Firmware upgrades completed across the network
- VIC-IX NextDC M1 mass migration from old Extreme BDx8 hardware
- New content caches including Steam and Facebook (FNA)
- Complete redesign of IAA website – internet.asn.au

# THE YEAR

## Ahead

This coming year, we will be focusing on our Professional members, reinvigorating our online and in-person events series and the expansion and removal of obsolete platforms.

### PLANNED

- Enhance new member portal
- Significant expansion of 100Gbps hardware across multiple sites and exchanges
- Introduction of new 400Gbps hardware for NSW-IX
- Route server hardware refresh and redesign
- QLD-IX to farewell Over The Wire (bne4) data centre
- Decommissioning of older PoPs no longer in use by members
- IPerf servers deployed on each IX



# TECHNICAL REPORT

We are currently maintaining 26 active sites for IAA as well as 8 points of presence for the New Zealand Internet Exchange (NZIX). In QLD-IX our older site PIPE DC2 was shut down and another QLD-IX site Over the Wire Datacentre will be closed at the end of 2022, with NextDC's improved facilities too attractive to ignore. We anticipate some further consolidation over the year, where facilities that experience natural attrition rationalised and newer, more popular sites added. Stay tuned for updates throughout the year!

## OUR SYSTEMS ARE MORE SECURE

Two factor authentication implemented on all internal systems. New contemporary out of band management system and VPN implemented.

## OUR NETWORK MANAGEMENT IS STRONGER

We cut our losses with ageing Cisco 2901 + 3G dongles to a new and improved out-of-band network utilizing ZPE NodeGrid hardware that spans all 29 active sites within Australia providing a multipath in band and true out-of-band using multi-carrier 4G LTE paths via 2 internal head-ends (SYD, PER) and 1 tertiary external head-end.

Vastly increasing our communication with sites for nominal operations as well as when things go wrong, we now have full remote access to every box we need via their dedicated network management port and console.

We're continually looking at further improvements and will be expanding its reach with the rollout of the route server refresh and re-design in late-22/early-23.

## OUR CACHE NETWORK IS GROWING

New caches now online served to all members per IX via our AS10084 auxiliary network.

During normal peak traffic our AS10084 network serves combined traffic of over 200Gbps!

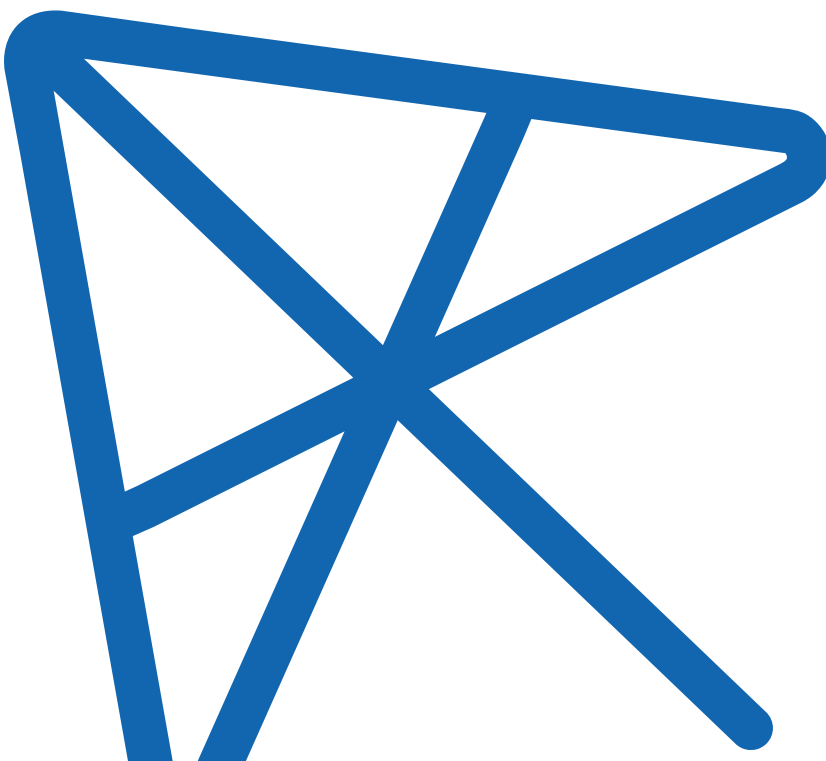
- Steam
  - VIC-IX – 2x100G
  - QLD-IX – 2x100G
  - WA-IX – 1x40G
- FreeBSD Mirror
  - NSW-IX – 1x1G
- Facebook (FNA)
  - QLD-IX – 1x100G
  - VIC-IX – 1x100G
  - WA-IX – 1x100G

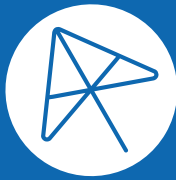
And of course, more content is on the way.

## OUR FUTURE LOOKS BRIGHT AND BUSY

We have a long list of to-do's that won't make this list, but we are excited to achieve them all! Big ticket items are:

- SA-IX Network improvements to keep up with demand
- VIC-IX Ring upgrade to 200Gbps (Pending hardware deliveries aka chipageddon)
- QLD-IX Ring upgrade to 200Gbps redundant (north and south paths between NextDC B1<->B2)
- WA-IX Network clean up and fibre re-design
- Route server refresh, redesign and deployment
- New portal release
  - V1 release: Duplication of existing portal functionality with improved billing automation
  - V2 release (TBA): Flow through automation provisioning (e.g. MAC changes, Automated LoA, Netflow)
- NSW-IX Network upgrade with 400G hardware on the way
- IPerf Servers on each IX for members to verify the IX layer 2 fabric performance

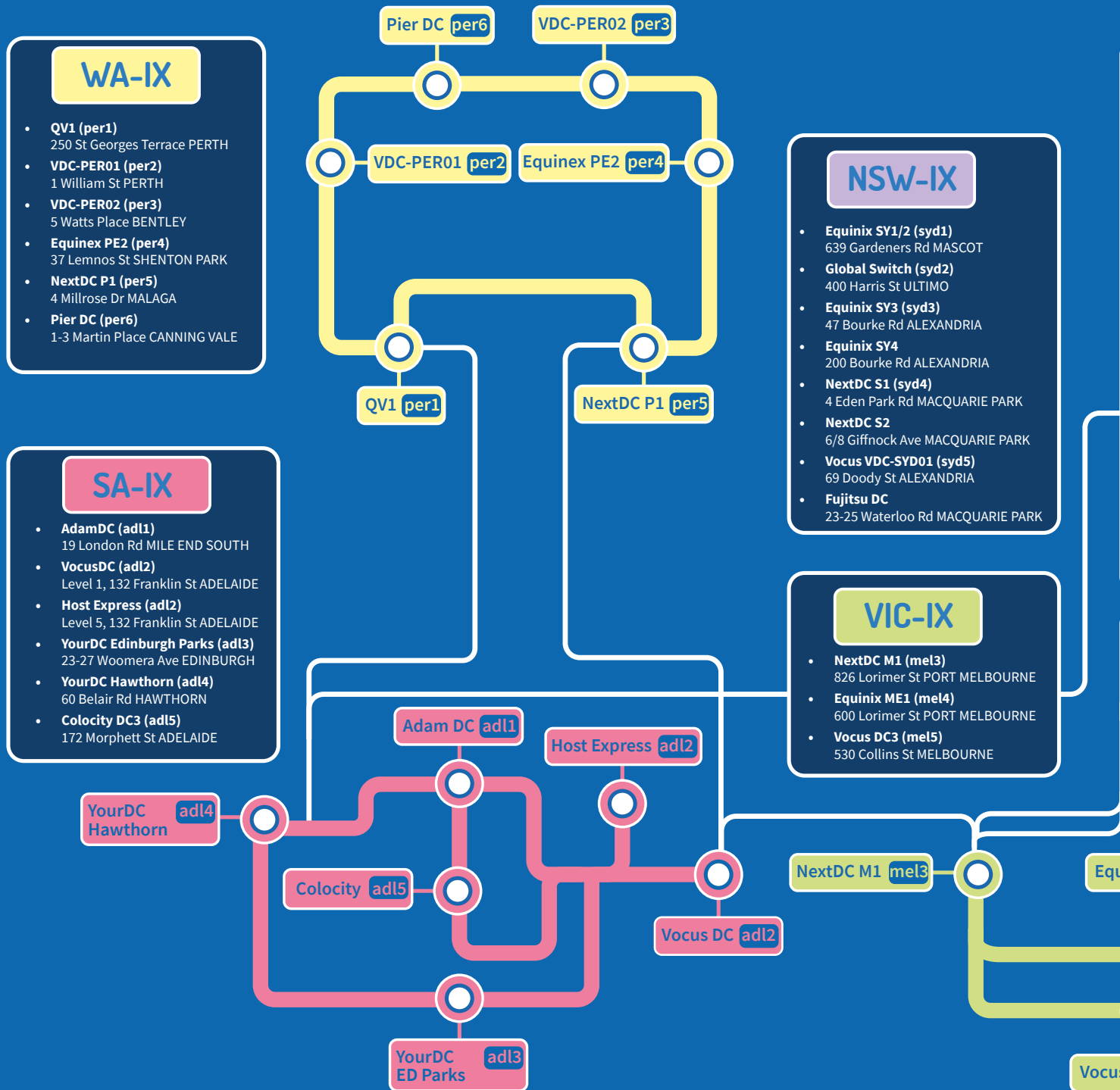




Internet  
Association  
of Australia



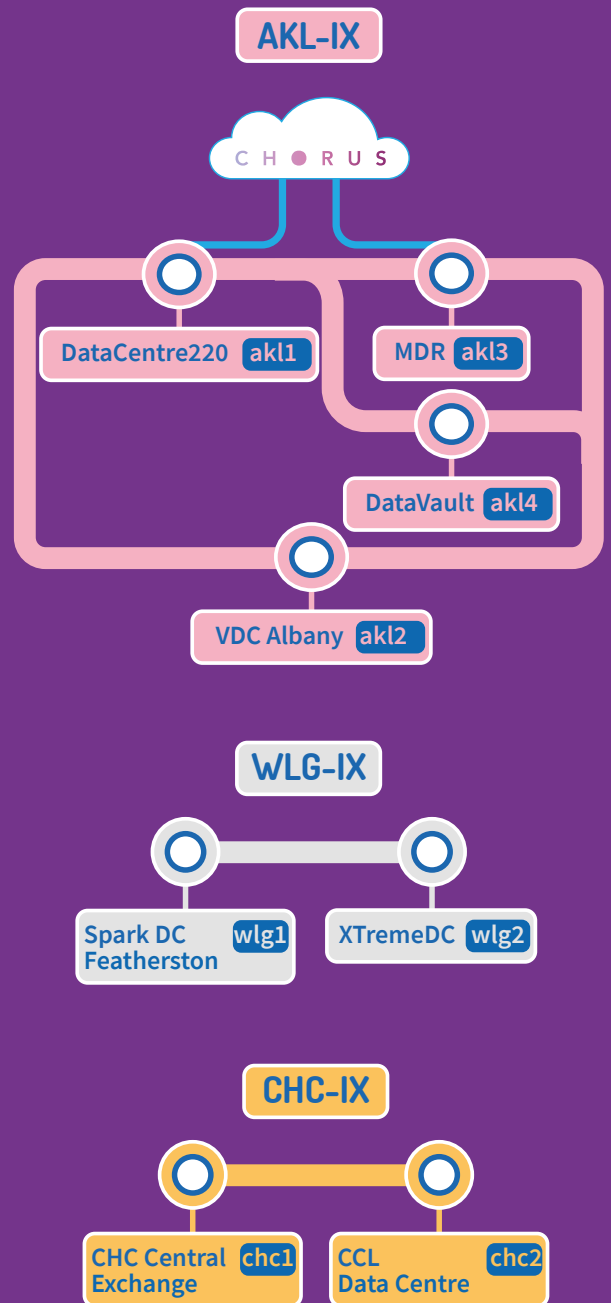
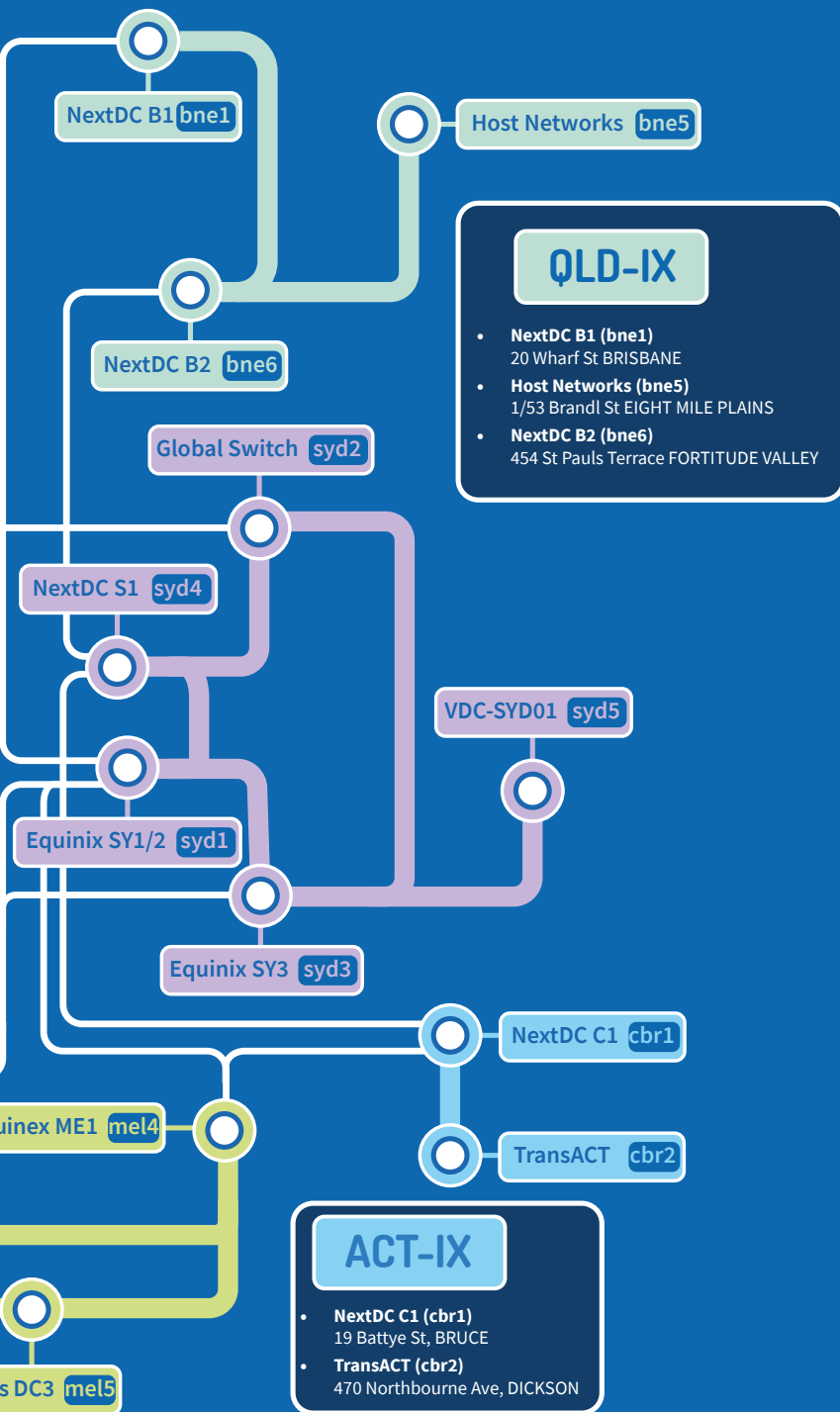
IX | AUSTRALIA  
INTERNET PEERING FOR AUSTRALIA



# NETWORK

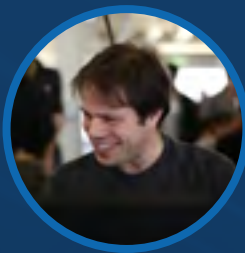
Tube map







## Adrian Chadd



I'm glad that peering in Australia is still a thing. That people in Australia take it seriously, and it has moved from commercial transit interest. It sort of seems like there is this side to peering that is fundamentally Australian 'of getting shit done'. It all started in a cheap closet that turned into an Internet hub. Everyone connected, however, they could, some by fibre, some by ethernet [copper] or whatever they had on hand. It really all started with people getting connected any way they could to get shit done.



## James Bromberger



With the expansion to multiple peering fabrics across Australia, we saw the fundamental economics of the digital online ecosystem become more commodity, accessible, and thus spurring the digital skills; most people now have email, browse websites, do online banking, and order groceries. If the adoption of online services had continued to be throttled by a single organisation, then society would still be using fax machines, and the ability to comfortably isolate during the pandemic would have been much harder.



## Kim Heitman



The role of the IAA in providing infrastructure for those competing with the world leaders and national companies will continue to be relevant, and other sectors (such as higher education or research collaborators) may find the not-for-profit providers such as the IAA as a boon to their missions. The support of the Association for its members and customers is a bright spark in an otherwise cut-throat industry.



## FOUNDING MEMBERS

Words from a few of the founding members



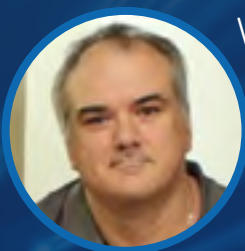
## Michael Malone



Michael hopes to see the Association properly funded and continues to bring the Internet engineering community together – to make decisions based on what's good for the connected community. He would also like to see a place of learning where members can get together and exchange war stories in a fun and casual setting.



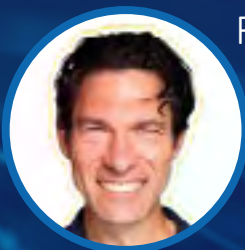
## Diego Campagna



When talking about WA-IX and its contribution to Australia's Internet, Diego spoke about how the Internet industry has become a lot harder to survive in due to more prominent players and how having an established IXP like WA-IX would have made a difference to his business.



## Rod Bland



Rod recalled conversations with numerous individuals, including Mark Hickey and Adrian Chadd, a young, highly intelligent young man who, at the age of 15, helped set up the BGP routing protocols on the IX. According to Rod, you could count the number of ISPs in Perth on one hand at that time, and they were being charged the earth for their previous services!



## Harry Protoolis



Gone, but not forgotten.

1965 - 2003

"A large man with a large heart, a man larger than life."

**Other founding members:** Roger Yerramsetti, Mark Dignam, Trevor Kenney, Tim Downing, Rob Clark, Ramesh Anbanantham, Peter Horth, Paul McCutcheon, Neville Earnshaw, Nathan Cochrane, Matt Linden, Mary-Anne Bradbury, Mark Hickey, Kevin Baum, Nick Bannon, Jan Langley, Darren Longbottom, Benjamin Wilson and Andrew Howell.





# PORTAL

## Overview

We all let out a sigh of relief when the cutover to the new portal was complete. It was one of the biggest projects the Association has undertaken, and a heck of a lot of work went into this one! We'd like to take the opportunity to thank our incredible staff who, at some point or other, all mucked in whether it was planning, coding, writing emails and copy or completing test scripts every Thursday; your efforts have helped this project to get to where it is, and you should all be so proud.

There also needs to be a few special mentions as there were some key people who pioneered, coordinated and coded on this project.

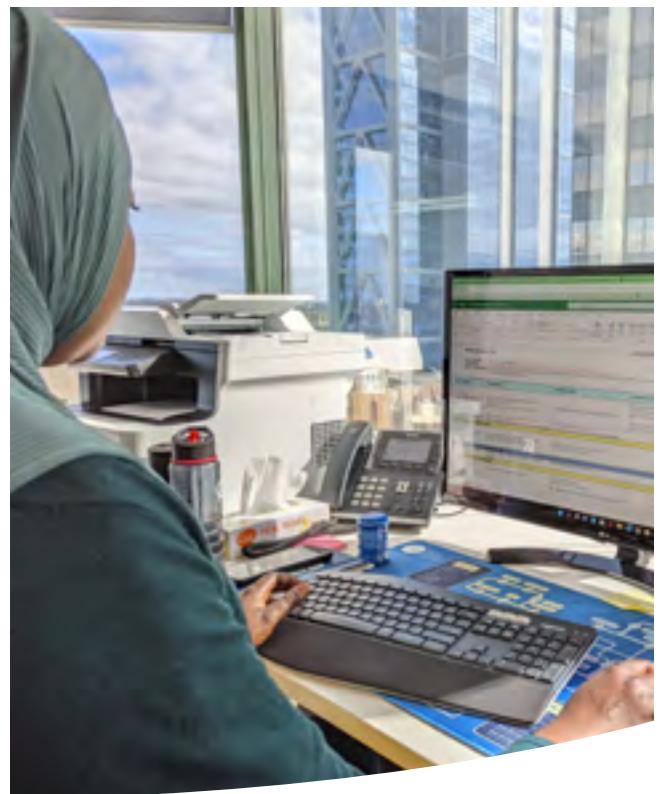
Nick Pratley – without Nick, the project would not have happened – it's that simple. While continuing to lead the Tech team and completing the usual BAU tasks, Nick worked with our software engineers (past and present), cutting huge amounts of code to build the portal. Thank you, Nick, for all your incredible work; again, the portal would not have happened without your vision, persistence and expertise.

Marcus Knight – although Marcus is no longer part of our team as he is now running his own business, he deserves a special mention. He worked on this

project with Nick, cutting code until the end of March this year and every week during the team meeting, his to-do list was always the same - "portal work", as he would call it. Thank you, Marcus, for all your work; your contribution to the portal build is much appreciated.

Tanzia Hower – without Tanzia's planning, organising and coordinating, this project would not have been as well orchestrated. Joining the project at a later stage, she took to her role as the Project Officer incredibly well. Joining a project that is already reaching a mature stage and trying to understand what's happening, learning to use new programs and taking all the bits and pieces and putting them together was no easy feat, and she did an excellent job. Not to mention the amount of work that went into every round of testing. Thank you, Tanzia, for all your work on this project.

Kyle Zrinski – joining us in June, Kyle hit the ground running working on the project, cutting code, helping with testing and fixing pesky bugs! Although he joined us late, coming into the project at the final stages was not easy, and he has done incredibly well to have picked it up so quickly and run with it! Thank you, Kyle, for all your work on our new portal.





# FINANCIAL SUMMARY

## And outlook

This year some overdue expenditure (NSW-IX 400G Arista Upgrades) with new switching and compute capacity and maintenance was made, having been deferred from previous years. We have now entered a third year of a formal, Board approved full year budget, and continued with the implementation of the investment strategy. Staffing increased from 9.1 FTE to 10.6 FTE.

The auditor is now in his second year auditing the Association accounts and have given us and excellent, unqualified rating for FY22. The growth rate of the investment return has slowed down for this FY due to post pandemic market conditions. However, we still are in a strong financial position with appropriate cash reserves, and capacity for longer term upgrade planning and network evolution.

The Board also approved an architecture evolution plan, which we are in the process of implementing, supply chain delays permitting. Some delays in planned work are expected.



### Financial Summary

	FY21-22	FY20-21
<b>Total Income from member services, grants and other</b>	\$4,075,064	\$3,656,357
<b>Surplus (deficit) after expenses</b>	\$476,693	\$971,057

### Financial Position

	FY21-22	FY20-21
<b>Assets</b>	\$5,239,866	\$4,317,809
<b>Liabilities</b>	\$1,415,531	\$679,627
<b>Net Assets</b>	\$3,824,335	\$3,638,182

	FY21-22	FY20-21
<b>Reserves</b>	\$(22,398)	\$208,829
<b>Retained Surplus</b>	\$3,846,733	\$3,429,353
<b>TOTAL EQUITY</b>	\$3,824,335	\$3,638,182

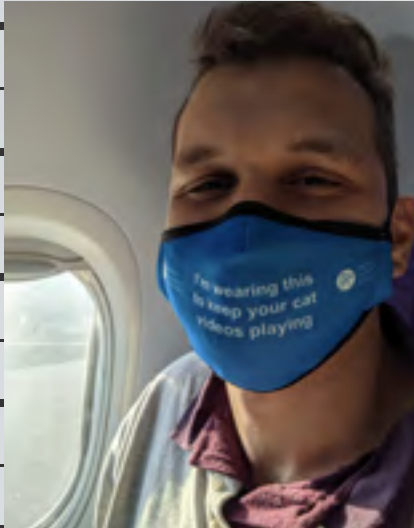
**Note:** these numbers should be read in conjunction with the annual financial report as some variations to accounting treatment have been seen between financial years.



# MASK

## Mugshots

200  
190  
180  
170  
160  
150  
140  
130  
120  
110  
100  
90  
80  
70



NAME: **AARON CHIDIAC**

DATE: 28/04/2021

ESCAPING TO BRISBANE



NAME: **KYLE ZRINSKI**

DATE: 14/09/2022

JUST CHILLING



NAME: **SABRINA CHANG-ROZARIO**

DATE: 05/04/2022

HEADED TO SYDNEY



NAME: **EMILY GALLARDE**

DATE: 14/09/2022

GETTING SOME SUN



NAME: **MATTHEW KOBAYASHI**

DATE: 07/09/2022

WORKING HARD



NAME: **FATIMA DAUDA**

DATE: 25/08/2022

PLANNING MISCHIEF

200

190

180

170

160

150

140

130

120

110

100

90

80

70



NAME: **NARELLE CLARK**

DATE: 29/08/2022

ESCAPING TO MELBOURNE



NAME: **NICK PRATLEY**

DATE: 18/02/2021

WAITING FOR THE GETAWAY JET



NAME: **KITTY HIBBLE**

DATE: 05/04/2022

ESCAPING TO SYDNEY



NAME: **SOPHIA JOO**

DATE: 29/08/2022

FEELING TOO HAPPY



NAME: **TANZIA HEWER**

DATE: 30/08/2022

HEADED TO MELBOURNE



NAME: **JEMMA GODDARD**

DATE: 25/08/2022

ENJOYING THE WARMTH



## IX STATISTICS

Over the year



443

VALID MEMBERS

129

+

596

TOTAL MEMBER ASNs



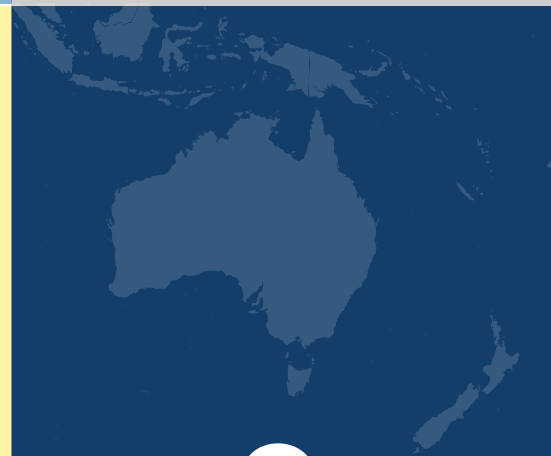
706

TOTAL PORTS  
LAST 695



937.3 Gbps

COMBINED  
TRAFFIC PEAK



2

COUNTRIES



8+26

PoPs MANAGED  
or 29 if counting multiple racks per site  
e.g. content + peering rack



198.7 Gbps

COMBINED CONTENT  
TRAFFIC PEAK

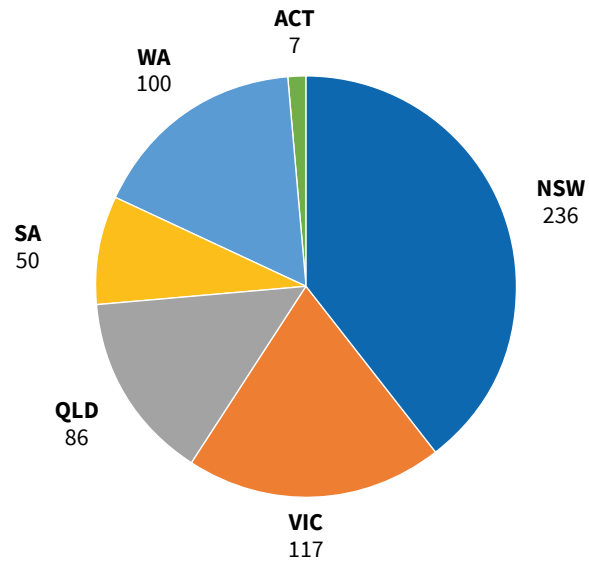


9

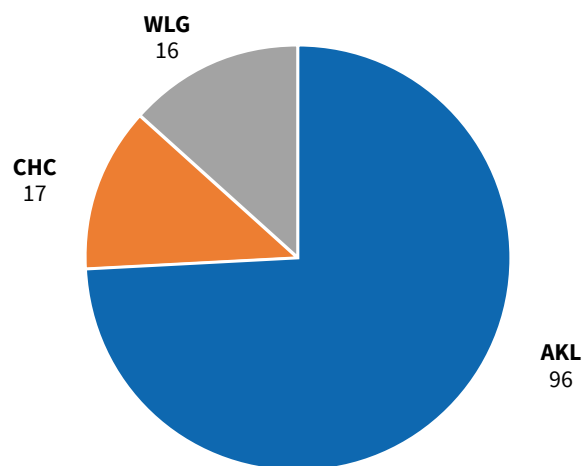
TOTAL IXes



## Unique Peers (IXAU)



## Unique Peers (NZIX)



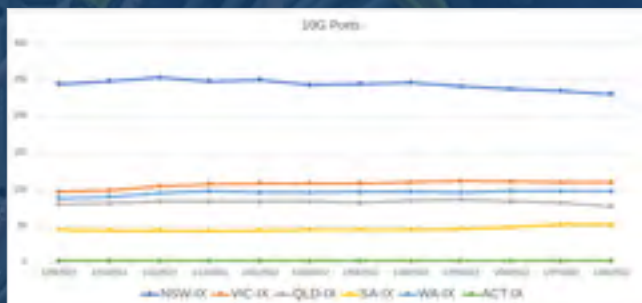


## Ports on the network

### 1G PORTS



### 10G PORTS



### 40G PORTS



### 100G PORTS



## IX traffic

### NSW



### QLD



### VIC



### SA

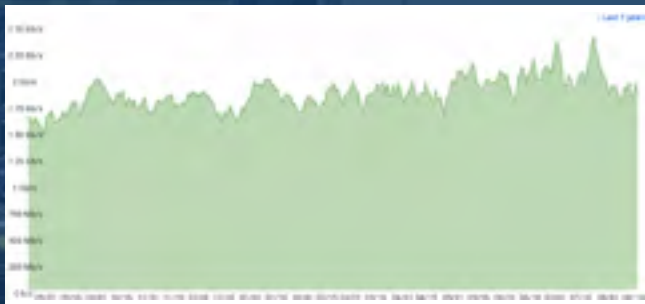


# WHERE'S MY PORT?!

WA



ACT



If the pandemic hasn't been enough of a headache, the knock on effects continue to be felt! With over a third of all businesses in Australia experiencing supply chain disruptions in February 2022, and 88% reporting increased time to receive products from suppliers, and a further 80% reporting their existing suppliers were unable to provide products; all industries are feeling the pinch! It's been said that this could continue for another 18 months, and can be attributed to the sheer volume of products and supplies within the global supply chain, shortage of freight space on ships, limited flights, numerous lockdowns – the list goes on and on. It's no wonder that our new 400Gbps switches won't be turning up anytime soon!

The need for an upgrade to a 400Gbps core on NSW-IX can be attributed to the doubling of traffic on the IX over the last two years, with more people working from home and things moving online more generally! After rigorous testing, we decided that the Arista series platform was the right switching equipment for the network. Unfortunately, the shiny new hardware won't be here until next year, and we look forward to receiving it.

In our industry, some of the characteristics of the supply chain potentially put us at greater risk of shortages. Things such as a lack of flexibility due to the limited number of suppliers and geographic clustering of those suppliers. We are also susceptible to market-level risks such as in Dell's supply chain, despite it having over 7000 commercial suppliers in 2019. Even when the rarer, highly complex chips required for high speed switching are available, shortages also arise in cheap, commodity parts, that then slow the whole chain down.

Is there a way to mitigate this? There was talk about investing in local manufacturing facilities as a temporary solution for ongoing supply chain challenges, with Andrew Liveris, the then special adviser to the National Covid-19 Commission, saying that the era of off-shoring is gone and that we've got to examine onshoring key capabilities. While this may be a potential solution to alleviate some aspects of supply, it will probably still be years away. We could try stockpiling, but we all know from the toilet paper saga we faced, that's probably not the best solution! In our case, we have accepted the residual risk and will patiently wait for our hardware to turn up next year. Fingers crossed, it's sooner rather than later.



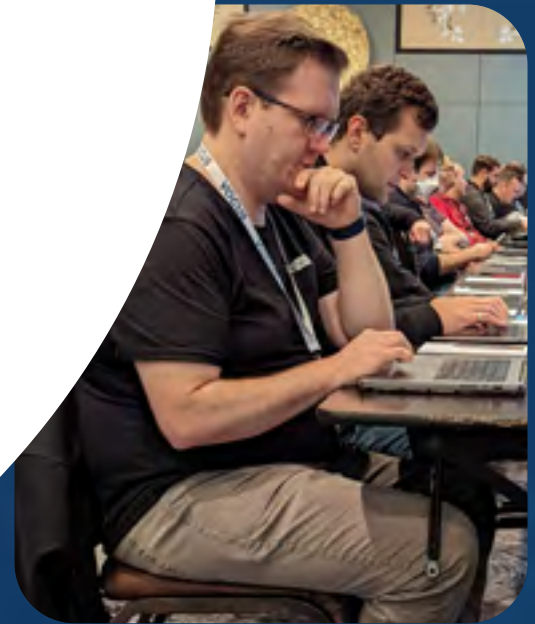


# EVENTS

Over the past year, our CEO and Events team have worked hard putting together all the events that have taken place. Narelle was certainly busy presenting and moderating at not only our events, but numerous external events, too.

Events make up an important part of our Association, as they allow us to provide information, education and support regarding issues that are of relevance and importance to our members.

Enjoy some of the highlights from our past events. All our events can be seen on our website.



## THE INTERNET 2021 AND BEYOND – August 2021

In this joint event with the ACS Narelle Clark took us through her reflections on the Internet's technical and regulatory history and its future directions. Attendees sent numerous messages of thanks for the event.



## INTERNET AS AN ESSENTIAL SERVICE - November 2021

As part of NetThing, the annual Internet governance forum, we hosted a round table where we, alongside representatives from across the Internet industry, civil society and government, discussed the nature and implications of the Internet as an essential service.

## PARLIAMENTARY JOINT COMMITTEE ON INTELLIGENCE AND SECURITY HEARING – March 2022

Narelle and Sophia represented our Association at the Hearing to represent our industry's perspective, provide feedback and raise concerns about the proposed federal government's critical infrastructure cybersecurity obligations.

## REGULATION, SCHMEGULATION – April 2022

Narelle gave a passionate update on regulation at AusNOG in April 2022. She talked about the changing digital landscape and focused on four regulatory themes: security, privacy and data rights, NBN and online safety. She covered the concerns of disproportionate obligations and costs for industry, lack of oversight over government powers, clarity and guidance and more, finishing with our election wish list.

## END OF YEAR MEMBER EVENTS – December 2021

To celebrate another great year with members, we held member events in Perth, Sydney, Melbourne and Adelaide. As traditionally done – Covid permitting – the Perth and Sydney members enjoyed a boat cruise while the members in Melbourne and Adelaide enjoyed good food and beverages at two lovely rooftop restaurants.

## COMMSDAY SUMMIT 2022 – May 2022

Narelle gave a fantastic update at the CommsDay Summit discussing the current policy context here in Australia.





### UNSW GRADUATION ADDRESS – May 2022

Narelle gave a rousing motivational address to UNSW's new Engineering graduates.

### CYBER SECURITY FOR GOVERNMENT – July 2022

This summit offered an in-depth look at how national and international organisations are building their cyber-defences in an increasingly vulnerable environment. Narelle delivered the opening remarks and gave her presentation *How internet platforms have evolved to tackle cyber-threats*.



### Lawful Intercept on the Cheap – August 2022

Our panel of experts explored the requirements of lawful intercept within the Australian context and gave a demonstration on an open source approach that is currently used in New Zealand as an approach to meeting your obligations in accordance with new regulation. The session ended with an insightful Q&A session, and received excellent feedback from attendees.



### IAASISTERS – April 2022 & August 2022

To support women in the Internet industry, we ran the IAASystems program 2021 in April this year and the IAASystems program 2022 in August/September. The program is designed to help women enhance their careers within our industry by running a workshop that focuses on key areas that underpin career success in addition to providing them with important technical training and networking opportunities that come from the AusNOG Conference. Of course, this program wouldn't have been possible without the support of other key industry players, and we would like to acknowledge and thank Amazon Web Services, APNIC, Aussie Broadband, AusNOG and Vocus for their sponsorship.



### WA-IX's 25th Birthday – October 2022

This year, WA-IX turned 25, and we needed to celebrate! Unfortunately, due to Covid, we were unable to celebrate 25 years of the Association, so we made sure the celebration this year was a big one. Starting with the AGM, the event progressed into an evening of speeches, good food and drinks. We hope to see WA-IX continue for at least another 25 years, helping to make Australia's Internet better.





“

Everyone's been full of energy and excitement - personal motivation boost - amazing learning experience - meeting like-minded women in the industry - the best swags!!”



“



It had great content; I enjoyed all the sessions. But I do have a favourite, the career planning workshop. It helped me see clearly what my next step is professionally. Also, the opportunity to really connect with other women in the industry and share experiences, it was an invaluable experience





# IAASystems

## 2021 and 2022

We were lucky enough to have two IAASystems programs this year after last year's was postponed in line with AusNOG. The 2021 workshop was a full day of career planning, presentation and technical skills training delivered by prominent industry professionals. The 2022 workshop ran slightly different to the previous, with this year's career planning session and presentation skills training sessions being extended and the addition of a safety in the industry session. It was great to see all the participants actively engaging in all sessions, making new connections, learning and developing new skills.

The feedback from attendees has been excellent, with one participant reporting they took what they learned in the workshop and used that knowledge when networking opportunities came up at AusNOG, they made new contacts and practised pitching themselves to strangers!

We would like to take this opportunity to thank our sponsors once again. Thank you, to our 2021 sponsors: Vocus, Amazon Web Services and AusNOG, and our 2022 sponsors: APNIC, Aussie Broadband, Amazon Web Services and AusNOG, for your contributions to this fantastic program and supporting our efforts to support women in the Internet industry.

The program was well-organized and well-executed. Really enjoyed all the sessions. It was a perfect place to network with other women in technology. I am proud to be selected as a sponsored attendee. Thank you for giving me this opportunity.





“

I love how the workshop planted a seed in my mind that I deserve this role/career. I am awesome. This really help me push through and say I can do this. I can continue to be an awesome network engineer! Really appreciate the support I felt and saw. Thank you so much!



”

Thank you guys, and well done;you don't realise how well this was organised. Made my year 100000000000X better, and it was exactly what I needed in my life.





“

This workshop was something I didn't realise I needed, but coming out of it, I can confidently say that I definitely needed it. Extremely educational, motivational, and supportive. I'm grateful to have been sponsored to attend, and I hope I can attend again in future.





If you can see her, you can be her! A mission-driven, not-for-profit Association providing a framework for women in technology. IAA is a sponsor of WiTWA as it provides representation and support to women in the technology industry, an imperative and welcome contribution.



NetThing, Australia's Internet Governance Forum, is an annual two-day event that brings together a diverse multidisciplinary community to discuss issues pertaining to the Internet and Internet governance in Australia.



# PeeringDB

A public website best known for being the go-to site for interconnection data, IAA is proud to sponsor PeeringDB. It provides a free, user-maintained database, designed to facilitate the exchange of information about peering networks. Users can see networks that are peering, the locations where they are peering, and help you assess your interconnection possibilities.





The Australian Network Operators Group is a community of network operators that conducts an annual two-day event providing quality content and a face-to-face networking opportunity for Australian network operators. IAA sponsors the annual AusNOG event as it is unique in bringing the Australian networking community together. This event has continued to grow in popularity as the programme offers technical and operational information delivered by high quality national and international speakers.

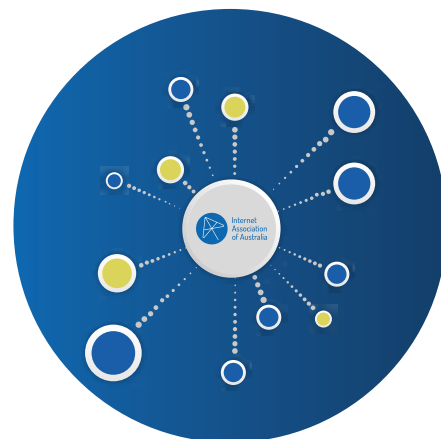


The Asia Pacific Regional Internet Conference on Operational Technologies is a key annual forum held across nine days consisting of seminars, workshops, tutorials, and other forums. All events during the conference are intended to provide Internet builders in the region with an opportunity to learn from their peers and leaders in the Internet community around the world. IAA sponsors APRICOT because it is an excellent source of regional intelligence and expertise, growing the talent across the Asia Pacific region. Members of the Internet community have the opportunity to build new connections, engage with like-minded individuals, and learn about new developments in the industry.

## SPONSORSHIP

2021 and 2022

Every year, we proudly support a number of different events, programs, and organisations. From the AusNOG conference to PeeringDB, we continue to invest in initiatives that add value to the internet community.



## Peering Services

IAA operates Australia's largest not-for-profit, carrier-neutral peering exchange – IX Australia. When you choose to peer on our network, you are joining a community of other like-minded businesses who want to be part of a more equitable interconnection.

### WHAT IS PEERING?

Peering is all about making connections and improving throughput without paying a third party! It is a process by which Internet networks physically connect at Internet Exchange Points (IXPs), to mutually exchange traffic.

Peering offers many benefits including latency reduction, backhaul optimisation, and improved efficiency with the added benefit of lowering your connectivity costs.

Designed to flatten the hierarchy of Internet connectivity, peering makes for a more open and equitable Internet.

### OUR NETWORK

The Internet Exchanges IAA operates are available in more than 30 data centres nationally, with IXPs located in Adelaide, Brisbane, Canberra, Melbourne, Perth, and Sydney.

We co-locate our equipment in data centres to offer port speeds of 10Gbps, 40Gbps, and 100Gbps as onramps to our network.



# MEMBER PRODUCT PORTFOLIO

## Network products



### Virtual Leased Line (VLL)

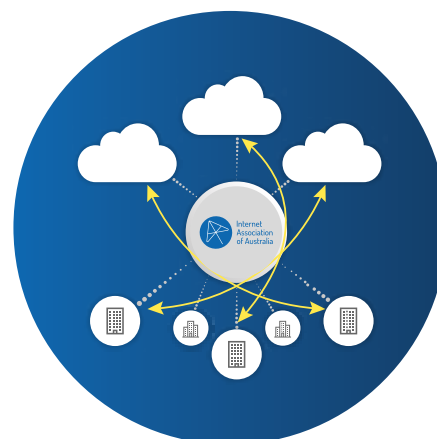
As a peer on our network, you have the option of establishing a dedicated high-speed, point-to-point connection across our national network with other peers, and we call it Virtual Leased Line (VLL).

This service enables you to connect to other members, content providers, or simply have your peering ports connected directly across our network infrastructure.

#### HOW DOES A VIRTUAL LEASED LINE WORK?

VLL provides the means to communicate privately using a scalable and high-speed data network between other IX peers over a single physical provisioned Ethernet Interface of 10Gbps or higher.

When you connect with a 10Gbps connection, 5Gbps is reserved for your peering traffic allowing you to build five free scalable point-to-point networks in a single state, capped at half of your port speed. Using our iVLL service, you can establish point-to-point connections across Australia, leveraging our national backbone network.



### Cloud Connect

Add to your connectivity options by accessing your preferred Cloud provider using your existing IX Australia port. Cloud Connectivity uses advanced MPLS technology to offer you a dedicated link to connect to your cloud provider via a trusted organisation.

This service also provides the flexibility to scale your network speeds depending on your business needs at a higher speed and a stable latency across the country.

Cloud Connectivity has the potential to be a cost-effective solution that allows users to focus on their core business rather than being impeded by costly information technology constraints.

#### HOW DOES CLOUD CONNECTIVITY WORK?

Cloud computing is a dense cluster of computers working together and sharing resources despite appearing to be one computing resource.

It works in an on-demand style delivering the different types of resources you need. Resources include: compute, databases, and storage; giving users access to a plethora of IT solutions to better suit your business needs.

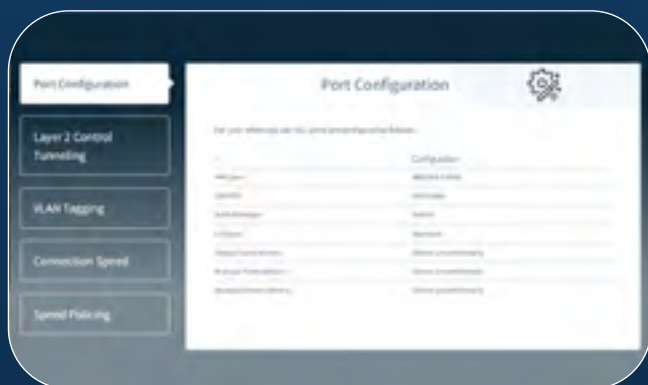
#### SERVICE DETAILS

This service is available at speeds starting from 50Mbps with additional speed options ranging from 100Mbps to 500Mbps in 100Mbps increments on a month-to-month basis.

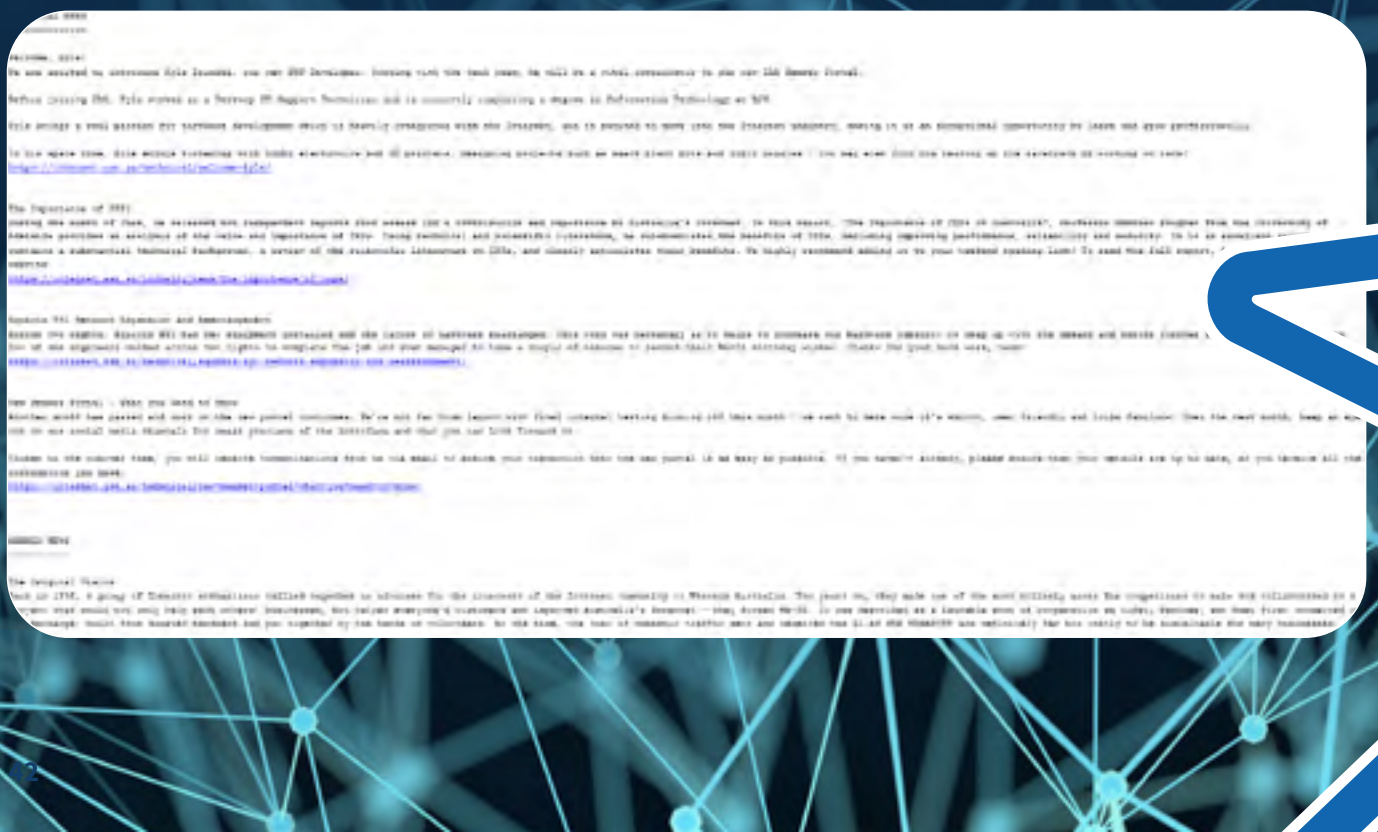
To access this service, members must have an active IX Australia peering port of 10Gbps or higher.



## UPDATED WEBSITE



## 90's THEMED NEWSLETTER



# DIGITAL MARKETING

## And communications

### WHAT WE'VE DONE:

- Released our very first promotional video
- Started releasing whitepapers to support members
- Launched our new Professional Member Welcome Pack

### WHAT'S NEXT?

- Relaunching the Unplugged networking series
- Launch a new online event series
- Posting regular technical blogs

## New website

The new website was launched last year in November and we're so proud of the joint efforts of the team to get it up and running. As members may recall, we embarked on the journey to create the website in early 2021 as we needed a single, cohesive site for members and non-members to connect with us.

Although the project was completed last year, we continue to update and add new pages, such as the: [Careers](#), [Advocacy](#) and [Technical Guide](#) pages.

## Reimagining the newsletter

Earlier this year, our newsletter was redesigned. From a brand new layout to colourful images to the addition of new segments, we wanted to give readers interesting content that was nice to look at, too – except when we decided to do the 90's version in celebration of WA-IX's 25<sup>th</sup> birthday.

## Reaching out to founding members

As WA-IX turned 25, we thought we would contact as many founding members as possible. We were fortunate enough to get in contact with five in addition to the members that have continued to stay connected. All articles from our catch ups were part of the newsletter throughout the year, and we hope you all enjoyed reading them.







“

We can say that we have made a genuine impact, with the policy team being invited to give evidence to the Parliamentary Joint Committee on Intelligence and Security, as well as participate in other stakeholder forums hosted by government or regulatory bodies.





# IAA HAVING IMPACT ON PUBLIC POLICY

Advocacy continues to be at the heart of IAA's work, and we are proudly committed to representing the interests of our members, as well as the public good of the Internet in the continuously changing policy context. In 2021-22, we continued to expand our public policy work by:

- Responding to an increased number of Internet industry consultations to advocate for practical and effective regulation
- Establishing the IAA Public Policy Advisory Panel to better inform our advocacy work
- Creating educational guides to assist members with new regulation and legislation
- Maintaining relationships and open communication with government departments, regulators and Statutory Infrastructure Providers to better represent our members

---

## SUBMISSIONS

The number of submissions we made has greatly increased, and we can say that we have had a genuine impact, with the policy team being invited to give evidence to the Parliamentary Joint Committee on Intelligence and Security, as well as participate in numerous other regulatory forums. We increased our efforts to consult with members to better inform our submissions.

Narelle also provided regulatory updates at two industry conferences (AusNOG 2021 and CommsDay Summit 2022).

Below are just some of the key areas that IAA responded to.

## NEW OBLIGATIONS FOR CRITICAL INFRASTRUCTURE

With the current geopolitical context, cyber security has been a great focus for Parliament, and a number of legislative instruments related to the critical infrastructure regime came into place, introducing new obligations for carriers and carriage service providers.

IAA has been actively involved in the consultation process surrounding these new instruments, responding to each piece of legislation as it went through Parliament. In our responses, we have consistently called for greater clarity and more meaningful engagement with industry to ensure that new obligations would be practical and effective.

This is still an area of work in progress, with some of the obligations only coming into effect later this year, or subject to legislative instruments not yet in force. We will continue our involvement in this space.

## NBN CO SPECIAL ACCESS UNDERTAKING

Following our participation in the stakeholder roundtable in 2020-21, we have continued to work with NBN Co, ACCC and other industry stakeholders to represent the perspective of our RSP members. After consultation with our members, we argued that the recent change in government presented an opportunity to reassess NBN Co's reason for existence and consider the proposed SAU variation in this light. We emphasised the purpose of NBN Co to provide high quality, reliable and accessible NBN, rather than its seeming focus of not only recovering costs but going beyond this in a quest for revenue.

Thankfully, the proposed SAU has now been withdrawn. With NBN Co now working on a revised version, IAA will continue to argue for more rational costs and efficient operation of NBN Co. We live in hope!

## ELECTRONIC SURVEILLANCE FRAMEWORK

This year, the Department of Home Affairs commenced a review of the Electronic Surveillance Framework. As well as submitting our own response to the Discussion Paper, IAA led the creation of a joint letter with other industry and civil society organisations, expressing our concerns on the issues and principles raised in the review.

In both our individual and the joint letter submissions, we focused on the potential impact of the proposals which could impose heavy burdens on our members, as well as advocating from a broader public interest perspective about the dangers of a 'surveillance state' that the proposed expansion of powers could create.



## PUBLIC POLICY ADVISORY PANEL MEMBERS



Pablo Hinojosa



Naomi Wolfe



Andrew Yager



Eric Erickson



Holly Raiche

## PUBLIC POLICY ADVISORY PANEL

The growth in volume and quality of our advocacy work is in part, thanks to our new Public Policy Advisory Panel. Since its establishment in March 2022, the Panel has been of immense assistance for the policy team, providing a wealth of knowledge and experience on a range of issues. With the Panel members made up of IAA members, their input through quarterly meetings and frequent online chatter has meant IAA has had direct access to the perspectives of members, thereby influencing our work and priorities.

Areas where the Panel has been particularly helpful include in the revision of our new Public Policy Principles which serve to guide the policy team in all their advocacy work, our 2022 Federal Election Wishlist, and our submissions to the Telecommunications Industry Ombudsman Independent Review and NBN Co Proposed SAU Variation.

We thank the time and efforts of the Public Policy Advisory Panel for all their work since the Panel's establishment, and we sincerely look forward to continuing working with them in the future.

## PUBLICATIONS

The policy team have been working to increase engagement with members in respect of IAA's advocacy work. Releasing more publications that are of practical use and assistance has been one of the ways we have tried to achieve this.

## EDUCATIONAL MATERIAL

As such, one of our initiatives has thus been producing more educational and awareness building material. This has taken the form of articles and blogs which members may have read through the monthly IAA newsletter, but also the regulatory guides the policy team have created to explain new obligations.

The whitepaper guides are intended to serve as accessible and helpful material for members to be able to easily understand their obligation requirements under new rules. We are excited to continue producing these materials and hope members are finding these useful.

## 2022 FEDERAL ELECTION

With the Federal Election held in May 2022, we published our 2022 IAA Election Wish List, outlining the policies we would like to see adopted by the political parties. We also released our 2022 Election – Policy Assessment evaluating the policy platform of the major political parties in comparison to our Election Wish List.

## MEETINGS WITH DEPARTMENTS, REGULATORS AND MORE

Throughout the year the policy team have met with representatives from the Department of Communications, ACMA, ACCC, auDA, Home Affairs, NBN Co, the TIO, the Minister and Minister's advisers. These meetings were constructive and allowed the team to canvas the priorities of the various bodies, as well as give the team a chance to explain the purpose of the Association, advise on Internet architecture and the thoughts and feedback received from members in relation to the work of each body. We also meet with the regulatory staff of member organisations whenever possible.

## PLANS FOR FUTURE

We look forward to continuing to advocate on behalf of members and the general good of the Internet amidst the ever-evolving policy context. Our hopes for the year ahead include expanding our network to foster improved engagement with government, regulators and other stakeholders, organising member-events based on pertinent policy changes, and increasing the volume of material published for members.

## SUBMISSIONS MADE

- Proposed NBN Co Special Access Undertaking Variation | ACCC
- Proposed Fees for Service 2022-23 | ACMA
- National Data Security Action Plan Discussion Paper | Department of Home Affairs
- TPG-Telstra Merger Application | ACCC
- TIO Independent Review 2022 | Telecommunications Industry Ombudsman
- Statutory Review of the Consumer Data Right | Department of Treasury
- Industry Guidance on the Carrier Separation Rules | ACCC
- Digital Platform Services Inquiry – September 2022 Report Discussion Paper | ACCC
- Consumer Data Right Rules and Standards Design Paper for Telecommunications Sector | Department of Treasury
- Security Information Obligations for Carriers and Eligible Carriage Service Providers | Department of Infrastructure, Transport, Regional Development and Communications
- C661: 2022 Reducing Scam Calls and Scam SMS Industry Code | Communications Alliance
- Review of the Security Legislation Amendment (Critical Infrastructure Protection) Bill 2022 | Parliamentary Joint Committee on Intelligence and Security
- Reform of Electronic Surveillance Framework Discussion Paper | Department of Home Affairs
- Exposure Draft Security Legislation Amendment (Critical Infrastructure Protection) Bill 2022 | Department of Home Affairs
- Draft Security of Critical Infrastructure (Application) Rules | Department of Home Affairs
- Telecommunications Service Provider (Customer Identity Authentication) Determination 2022 | ACMA
- 2022 Broadband Speed Claims Guidance Consultation | ACCC
- Privacy Act Review Discussion Paper | Attorney General Office
- SBAS Access Determination Inquiry Submission | ACCC
- CDR Telecommunications Draft Designation Instrument | ACMA
- Customer Identity Verification Determination | ACMA
- NBN SIO Record Keeping Rules | ACCC
- Basic Online Safety Expectations (BOSE) | Department of Communications
- Draft Guidance of Systemic Issues and Non-Financial Compensations | Telecommunications Industry Ombudsman
- Telstra Migration Plan | ACCC
- Regional Telecommunications Review Submission | Regional Telecommunications Independent Review Committee

## WORKING GROUPS

- NBN Co SAU Industry Working Group
- Model Defamation Provisions Industry Roundtable





## CONTACT US

### **Internet Association of Australia Ltd**

PO Box 8700  
Perth BC, WA 6849  
AUSTRALIA

### **General Enquiries**

Local Callers: 1300 653 132  
Overseas Callers: +61 8 9200 6141  
Email: [info@internet.asn.au](mailto:info@internet.asn.au)  
Email: [peering@internet.asn.au](mailto:peering@internet.asn.au)

ABN: 71 817 988 968  
ACN: 168 405 098

**[www.internet.asn.au](http://www.internet.asn.au)**