



NANOG[®]

.....
2022

Annual Report

.....
North American
Network Operators'
Group



TABLE OF CONTENTS

- Our Mission + Core Values 7
- People in our community. 8
- Gathering With The North American Networking Community . . . 9
- 2022 Highlight10
- In Memory of Betty Burke 11
- Letter to the NANOG Community13
- 2022 NANOG Meetings, At A Glance. 15
- The NANOG Program Committee 16
- NANOG Sponsorship.18
- Engaged New + Old Audiences. 21
- Blog. 22
- Video 23
- Internet Innovators. 24
- NANOG TV 25
- Social Media 29
- 2022 NANOG Scholarships31
- Financial Highlights 32
- Financial Statement 35
- Staff. 37
- Our Board Of Directors 38
- Thanks!. 39



The future of the Internet is in our hands.

Network engineers, operators, and architects are uniquely poised to address the most pressing challenges the Internet faces today.

Advancing an open, standards-based, secure, and robust Internet has never been more critical. And the Internet technologists of today and tomorrow who can lead that charge have never been more necessary.

Guided by the open exchange of knowledge and expertise, Network Operators' Groups (NOGs) exist to inspire, educate, and empower these technologists.

Community, in its truest sense.

NANOG is, and always has been, dedicated to the dynamic people who make up our community.

OUR MISSION

NANOG is committed to the ongoing advancement of an open, secure, and robust Internet by providing a platform that inspires, educates, and empowers our community to work together in building the Internet of tomorrow.



OUR CORE VALUES

We believe in working together to meet the ever-changing demands of a global network, while upholding our shared values of:

- Community
- Education
- Innovation
- Diversity
- Security

Through meetings, events, scholarships, fellowships, digital spaces, and social networks, we offer multiple ways for our community to:

- Meet and learn from other professionals working or studying in their field.
- Share the latest Internet technologies, and industry best practices.
- Form crucial peering arrangements.
- Discuss technical challenges faced by the industry.
- Have meaningful conversations about what's impacting their daily lives.
- Form strategic business relationships, and friendships with like-minded peers.

Inclusive, adaptable, and full of diversity, the ecosystem we are building together will handle nearly anything. With NOGs now in every major region of the world, NANOG was the first — and is still the largest.



PEOPLE IN OUR COMMUNITY

WORK for ISPs of all sizes, content providers + multi-tenant data centers, hosting + cloud companies.

STUDY at the top engineering + computer science programs in the US.

COMPANIES WITH EMPLOYEES WHO ARE ACTIVE IN OUR COMMUNITY

- Apple
- Amazon
- Cisco
- Comcast
- Facebook
- Google
- Juniper
- Microsoft
- Netflix
- Nokia
- Telstra
- Twitch
- Twitter
- Verizon

GATHERING WITH THE NORTH AMERICAN NETWORKING COMMUNITY

NANOG's tri-annual meetings draw individuals in multiple facets of network engineering, operations, and architecture. They gather with us in major cities across North America to share + learn about the latest Internet technologies and challenges; form peering arrangements; conduct business, and make meaningful connections with like-minded peers.





2022 HIGHLIGHT - REUNITED AND IT FEELS SO GOOD

2022 was a year of hopeful reconstruction post-pandemic. As we began to feel safe, we resumed meetings, and our community felt safe to meet once again and share their joy of interacting face-to-face.

Our attendance steadily increased, and we finished the year with registration rates edging closer to pre-pandemic levels. A benefit of the pandemic was the opportunity to enhance our online tools suite and create our virtual meeting tools.

WE PAID OUR RESPECTS TO OUR FOUNDING EXECUTIVE DIRECTOR

In Memory of Betty Burke

February 6, 1955 - November 7, 2022

With deep sorrow, we announced the passing of Betty Joe Burke, NANOG's founding Executive Director (2011-2018). We mourned the loss of a mother, grandmother, friend, and an invaluable member of our NANOG Community. Betty left an indelible mark on all who knew her.

During her decades of devotion to NANOG, Betty served as a leader, mentor, and advocate for our Community. Her determination and enthusiasm helped shape NANOG from its inception. She worked tirelessly to help build a thriving community dedicated to "working together to build the Internet of tomorrow."



“As a woman of color in technology, I got tired of being told how to walk, how to talk, how to think, how to act, how to dress. I didn’t just take my gloves off, I tore my sleeves off and dyed my hair purple, and I’m a better performer for it.”

— Hang Black
NANOG 86 WIT Speaker

Embracing the New Normal

As we navigate our way through the complexities of a post-COVID world, we have seen another year pass with continued resilience. On May 11th, 2023, the Centers for Disease Control (CDC) officially announced the end of the federal COVID-19 Public Health Emergency (PHE). We all hoped that once COVID was in our rear view mirror, things would return to the way they were. In many ways, they have and in many ways they have not. Masks are sometimes worn but are no longer mandatory and travel, while pricier, is no longer restricted, but flights are frequently at full capacity. Hotels are back in business, but costs are up considerably. Restaurants are open and accessible, although many of my favorite local spots didn't manage to survive the restrictions brought on by the pandemic.

Speaking of survival, I would like to express sincere gratitude to those that supported NANOG during this challenging time. A special thanks to the NANOG Board of Directors, who had the foresight to save for a "rainy day" and to our current board and staff for their tireless efforts. And lastly, to our incredible Sponsors and Community who continued to support our mission to build the Internet of tomorrow.

Reflecting on the state of affairs post-COVID, it is encouraging to note that we managed to stand on

our own financial footing in the final quarter of 2022, weaning ourselves from the need to dip into reserve funding. Our attendance levels have continued to rise, gradually approaching pre-pandemic numbers. And on a brighter note, the pandemic presented us with a chance to expand our suite of online tools significantly. That trend continues to advance as we provide greater service to our members and community.

If so much is back to "normal," why do things feel so different?

It comes down to the one constant in the universe—change. Change always brings with it challenges and opportunities. For NANOG, the pandemic challenged us to ask, "What is NANOG without our conferences?" Facing that challenge allowed us to grow and adapt to an ever-changing landscape. To pine for how things once were is time wasted. We should ask ourselves instead, how to embrace and leverage change to evolve NANOG into an organization and a community that will outlast us all.

Just as a few individuals had the foresight to save for a rainy day, how can we continue to position NANOG to adapt and thrive in an ever-changing world?

Edward McNair



NANOG Executive Director



“When I left the University, the closest you could get to a computer back then was a keypunch machine. I didn’t see much of a future in that.”

— Ron Grant
*Road Less Traveled Career
Stories*

2022 NANOG MEETINGS, AT A GLANCE

NANOG 84 - Austin, TX - 14-16 February, 2022



NANOG 85 - Montreal, QC - 6-8 June, 2022



NANOG 86 - Hollywood, CA - 17-20 October, 2022





ENHANCED THE NANOG PROGRAM EXPERIENCE + BROUGHT COMMUNITY'S IDEAS TO LIFE

The NANOG Program Committee (PC) worked to improve the overall program for 2022. NANOG became a true hybrid experience — with a full year of programming that could be attended in person or virtually, or a combination of both.

Made up of industry experts who volunteer their time, the NANOG Program Committee (PC) is dedicated to ensuring NANOG's best-in-class content continues to evolve as the industry rapidly changes.

Over the past year, the NANOG PC worked to deliver three successful programs at NANOG 84, 85, 86.

The NANOG PC

- Hosted a Community Meeting at every NANOG conference. This provides all members of our community the chance to share their ideas and concerns.
- Further developed the sub-committee structure to help secure the highest quality speakers + promotion in advance of every conference.
- Improved the on-boarding process for new PC members.

INTRODUCTIONS + SESSION MODERATION IMPROVEMENTS

The NANOG PC

- Continued the formalized speaker introductions to also include the opportunity for speakers to provide personal anecdotes.
- Added moderator roles for the remote questions queue.

THE NANOG PROGRAM IN 2022

- 25 PC Members
- 4 Keynote Speakers
- 183 Presentation Submissions
- 71 Accepted Talks



NANOG SPONSORSHIP IN 2022

2022 Sponsor Revenue

NANOG 84	\$326,334	28 Sponsors
NANOG 85	\$476,501	29 Sponsors
NANOG 86	\$745,668	30 Sponsors
Total:	\$1,548,503	+ \$940,170

New Sponsors: 21

A&I Solutions, Astound Business Solutions, Beanfield Metro Connect, Bell Canada, Canopus Networks, EdgeUno, Element Critical, F5, Flexoptic, Fonex, Fortinet, Intel, Inter.link, Internet Tool & Die Company, ISC, Network to Code, OSI Global, ProLabs, Quantum Loophole, Selector AI, Stream Data Centers

Meeting Hosts: 3

Quantum Loophole, Netflix, Team Cymru

Diamond Sponsors: 1

Internet Tool & Die Company

Platinum Sponsors: 4

AWS, ARIN, Ciena, Equinix

Gold Sponsors: 5

F5, Imperva, QTS, Telstra, Verisign



NANOG SPONSORSHIP IN 2022

Beer 'n Gear Sponsors: 40

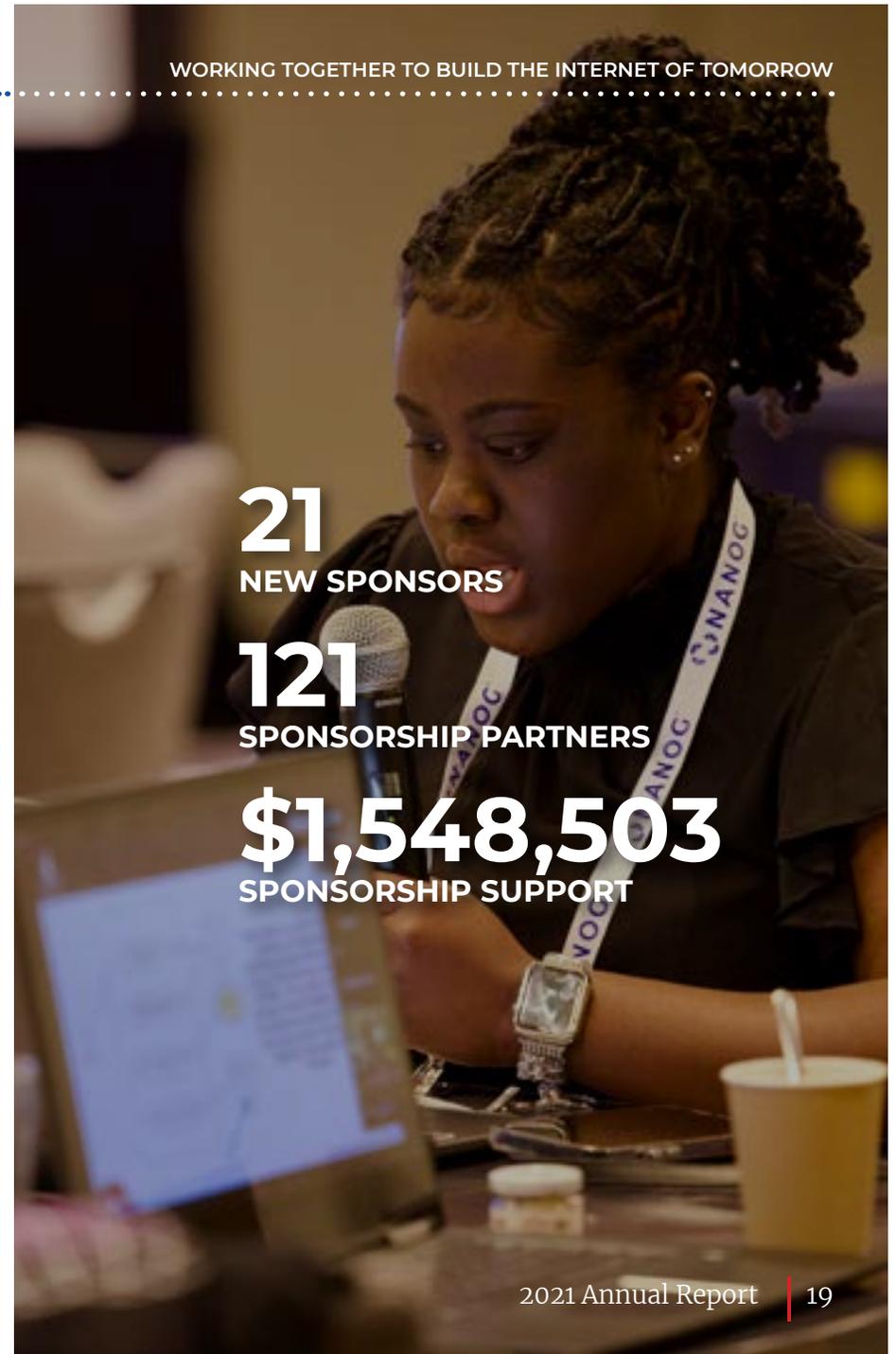
Adtran, Arelion, Canopus Networks, Catchpoint, Ciena, Cisco, Cloudflare, Corero, DE-CIX, Element Critical, Evocative, Fonex, Fortinet, Infinera (85,86), IPv4.Global (85,86), Juniper Networks (85,86), Kentik (85,86), NetScout (84,85), Network to Code (84,86), Nokia (84,85,86), NYIX, Opendgear, Precision Optical (84,85,86), ProLabs, Selector AI (85,86), Uniti (84,85), XKL

Virtual Sponsors: 4

Comcast, ISOC, Juniper Networks, Microsoft

NANOG U Educational Partners: 4

AWS, Netflix, QTS, Telstra



21
NEW SPONSORS

121
SPONSORSHIP PARTNERS

\$1,548,503
SPONSORSHIP SUPPORT

“There’s a lot more value in going in and being honest and looking to network and learn. Employers will see that value, and a job will come your way.”

— Jacob Smith
Hired: A NANOG Success Story

ENGAGED NEW + OLD AUDIENCES, ESTABLISHED BRAND STORY VIA MULTIMEDIA CONTENT

Our content marketing strategy goals continued to connect different age groups throughout our community via narrative storytelling. We focused on content that built brand awareness and illustrated our organization's core values. We gave a closer look at the people behind the technology.

Storytelling is an integral part of our mission as it is where we can humanize our brand and show the heart of our mission. Our content marketing campaigns included creating strategic + diverse community-oriented blog content, production of an educational video series with legendary Internet pioneers + impactful social video content.

The additional continued focus was to promote in-person + virtual events, inform the community about outreach + education opportunities, and drive continued engagement on the NANOG website, Youtube + social media channels.



WORKING TOGETHER TO BUILD THE INTERNET OF TOMORROW

Our Reach

13,000+
INDUSTRY PROFESSIONALS
AND STUDENTS

10,188+
LINKEDIN COMMUNITY
GROUP FOLLOWERS

21.1K+
YOUTUBE SUBSCRIBERS

7,024
TWITTER FOLLOWERS

761
INSTAGRAM FOLLOWERS

BLOG

- Introduced New Blog Series - The Road Less Traveled: Community Career Stories
- This series allowed members of our community that have untraditional tech career stories to share their backgrounds to inspire others.
- It also provided an opportunity for mentorship and encouraged our community to get involved with our mentorship program.
- 24 new features since Jan 2022
- New content 2-3 times per month
- Ongoing updates to NANOG news feed
- Press release creation and dissemination





VIDEO

Staff produced 9 Brand Videos

- Internet Innovators - Leonard Kleinrock
- NANOG 84 Hackathon Recap
- Internet Innovators - Radia Perlman
- Internet Innovators - Nii Quaynor
- NANOG 85 Hackathon Recap
- NANOG 85 NCI Experience
- NANOG U - Fall 2022 Tour Montgomery
- NANOG 86 Hackathon Recap
- NANOG Community Tributes for Betty Burke



CONTINUED PRODUCTION OF INTERVIEW-STYLE TV SHOW WITH HISTORIC INTERNET PIONEERS — INTERNET INNOVATORS

We launched Season 2 of Internet Innovators.

NANOG interviews the boldest and brightest tech legends of our time to provide a platform to tell their story and our Internet history. The series looks at the past, present, and future of the Internet and talks to the innovators who were actually there. See the trailer [here](#).

Video Social Media Content: Each episode included an estimated 1 min. soundbite to tease the full episode that played across Twitter, LinkedIn, Instagram + Facebook.

Format/Medium 2022: This season was recorded via zoom and then later produced into hour-long episodes.

2022 Guest List: The incredible industry guest list of legendary Internet Pioneers included Radia Perlman, Steve Crocker, and Nii Quaynor.

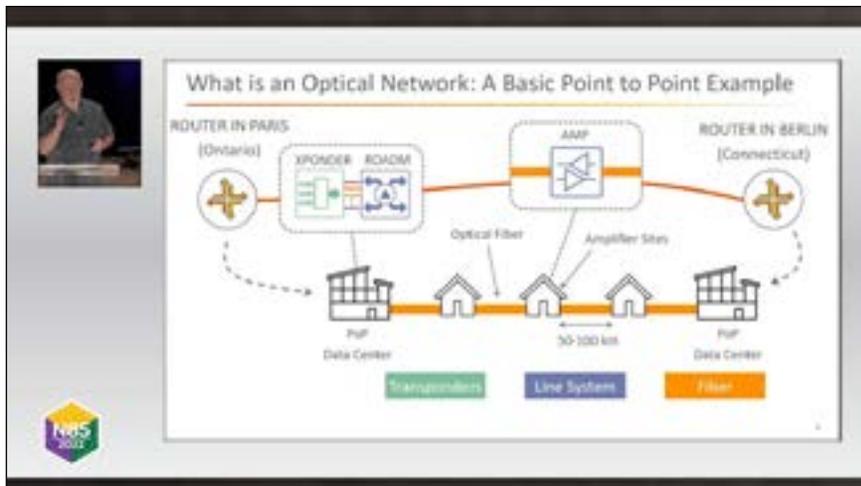


NANOG TV - Most Viewed Talks of 2022

YouTube Stats

Top Videos for 2022

- Tutorial: Everything you always wanted to know about optical
Richard Steenbergen
- 8,667 views in 2022
- Optical Fiber Capacity Limits - Where Do We Go Next?
Geoff Bennett
- 5,987 views in 2022
- The Anatomy of the Most Challenging Network Engineering Interview Question
Kam Agahian
- 2,478 views in 2022
- Keynote: Do the Wrong Thing!
Radia Perlman
- 1,451 views in 2022
- Internet Innovators - Leonard Kleinrock
1,284 views in 2022





Top Countries

- United States - 104,802 (32.1%)
- India - 40,198 (12.3%)
- United Kingdom - 13,062 (4.0%)
- Canada - 11,761 (3.6%)
- Germany - 9,926 (3.0%)
- Australia - 6,201 (1.9%)
- France - 4,531 (1.4%)
- Netherlands - 2,999 (0.9%)
- Brazil - 2,317 (0.7%)
- Russia - 2,125 (0.7%)

Age

- 18–24 years - 11.1%
- 25–34 years - 33.3%
- 35–44 years - 35.2%
- 45–54 years - 16.8%
- 55–64 years - 3.2%
- 65+ years - 0.3%
- Gender
- Female - 10.4%
- Male - 89.7%



SIGNIFICANTLY IMPROVED ENGAGEMENT ACROSS ALL COMMUNICATION PLATFORMS

Newsletter Highlights:

- 40 Newsletters Since Jan 2022
- Total Contacts: 1,568
- Total Subscribed: 1,516
- Net subscriber Growth: 819
- Avg. Net Subscriber Daily Growth: 2.2
- 43,667 Total Emails Sent
- 38% Open Rate
- 0.07% Unsubscribe Rate
- About 6.5% average Click Rate



“I would like more people to realize that if you are different in some way, you have some sort of skill that other people don’t; you can probably figure out a way to make that useful.”

— Radia Perlman
*NANOG TV:
Internet Innovators*

IMPLEMENTED A MORE TARGETED SOCIAL MEDIA STRATEGY - SIGNIFICANTLY INCREASED FOLLOWING AND OVERALL ENGAGEMENT

Monumentally increased following and overall engagement across all social media channels.



TikTok Stats (limited experiment)

- Following: 90
- Followers: 47 Likes: 20



Instagram

- Posts: 147 - Up 94%
- Likes: 873 - Up 47%
- Impressions: 34,229 - Up 1,479%
- Comments: 127 - Up 61%
- Reach: 21,198 - Up 1,409%
- New Followers: 77 - Up 7,700%



Facebook

- Engaged Users: 2,485 - Up 35%
- Page & Post Engagements: 3,994 - Up 43%
- Post Impressions: 70,442 - Up 129%
- Link Clicks: 526 - Up 33%
- Reactions: 1,258 - Up 36%
- New Fans: 87 - Up 223%
- Post Reach: 41,602 - Up 97%
- Posts: 196 - Up 118%



Twitter:

- Tweets: 280 - Up 583%
- Replies: 23 - Up 2,300%
- Retweets: 103 - Up 10,300%
- Clicks: 467 - Up 46,700%
- Impressions: 90,983 - Up 9.1m%
- Likes: 591 - Up 59,100%
- Engagements: 1,462 - Up 146k%
- New Followers: 186 - Up 18,600%



LinkedIn

- Followers: 5,055 - Up 29%
- Impressions: 256,869 - Up 110%
- New Followers: 1,113 - Up 221%
- Clicks: 18,996 - Up 51%
- Posts: 228 - Up 169%
- Engagement Rate: 5.95% - Down 1%

LinkedIn Community Group

- Total Members: 9,826 - Up 4.5%
- New Members: 433
- Average User Request per Day: 1.18
- Posts: 253
- Post Views: 130,077

**“Is there anything more important to our future than kids
and students?”**

— David Huberman
*ICANN at NANOG U
Montgomery Tour*

WORKING TOGETHER TO BUILD THE INTERNET OF TOMORROW

INSPIRED AND EDUCATED THE NEXT GENERATION OF NETWORKING PROFESSIONALS

By providing a platform that engages more students, women, and people of color in our scholarships and educational programs.

2022 NANOG Scholarships

Scholarships were awarded to two exceptional undergraduate and graduate students from North America, who are all eager to play a critical role in shaping our rapidly changing Internet ecosystem.

2 Scholarship Recipients received \$10,000 each, granted in honor of Jon Postel and Abha Ahuja.

Katherine Coward at Widener University, majoring in Computer Engineering

Angelina Xu at Massachusetts Institute of Technology, majoring in Computer Science.



FINANCIAL HIGHLIGHTS

NANOG was able to hold three in-person meetings in 2022 for the first time since 2019. There was an increase in attendance, sponsorship, and net income with each meeting, but not reaching the pre-pandemic levels. This required an additional liquidation of a portion of the investment reserves.

2022+2021 Comparative Highlights:

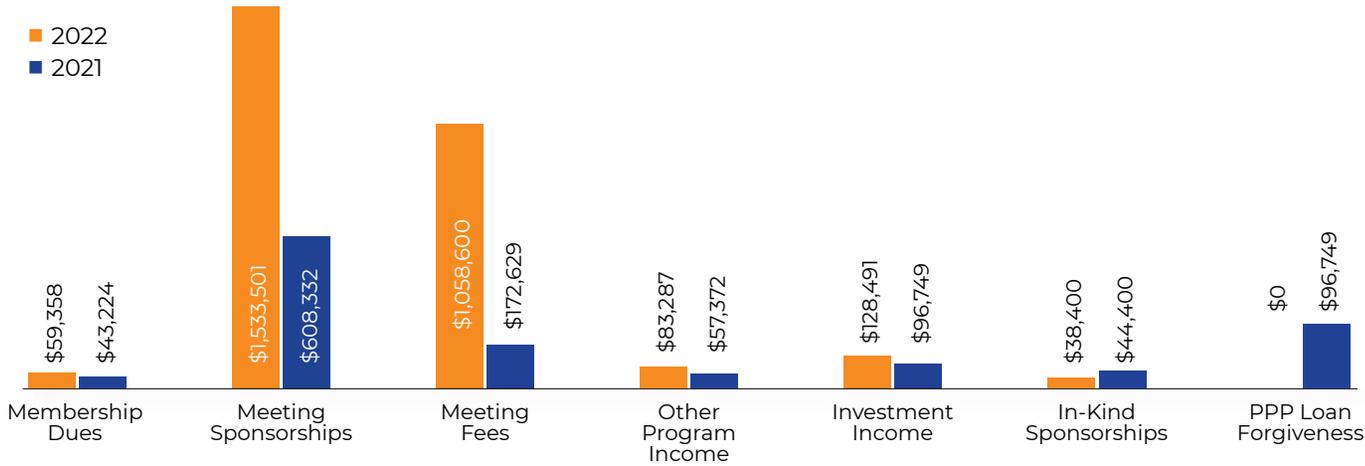
- The 2022 total revenues more than doubled those of 2021 as did the expenses, resulting in a lower net operating loss of \$66,891 in 2022 than 2021
- The volatile market in 2022 resulted in a loss on investments of \$508,072 compared to a gain of \$189,764 in 2021. This swing in investment activity had a major impact on the overall loss in net assets of \$907,216 in 2022 compared to a loss of \$276,271 in 2021
- Cash available at year end was \$557,067, which was \$172,332 less than 2021 year end
- Investments: \$2,916,645 decreased by \$646,250



“Don’t charge based on what you think you’re worth; charge based on the value of the solution you’re providing to the company.”

— Matt Petach
*Q + A on How Mentorship
Changed His Career*

2022 Revenue vs. 2021 Revenue

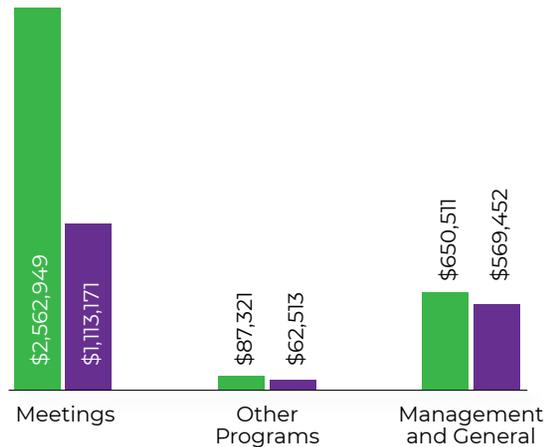


Total Revenues 2022: \$2,901,637

Total Revenues 2021: \$1,279,101

**Change in Total Revenues:
+ \$1,622,536**

2022 Expenses vs. 2021 Expenses



Total Expenses 2022: \$ 3,300,781

Total Expenses 2021: \$1,745,136

**Change in Net Assets 2022:
- \$399,144**

**Change in Net Assets 2021:
- \$466,035**

NANOg, Inc.

Statement of Financial Position

December 31	2022	2021
Assets		
Current Assets:		
Cash and Cash Equivalents	557,067	729,399
Investments	2,916,645	3,562,895
Accounts Receivable	168,500	92,000
Prepaid Expenses	157,985	172,265
Total Current Assets	3,800,197	4,556,559
Equipment and Technology, net	369,111	355,472
Total Assets	\$ 4,169,308	\$ 4,912,031
Liabilities and Net Assets		
Current Liabilities		
Accounts Payable	0	61,401
Deferred Revenue	978,527	752,633
Total Liabilities	\$ 978,527	\$ 814,034
Net Assets		
With Donor Restrictions	30,000	30,000
Without Donor Restrictions		
Undesignated	2,123,778	2,551,799
Designated for Future Meeting Commitments	1,037,003	1,516,198
Total Net Assets	3,190,781	4,097,997
Total Liabilities and Net Assets	\$ 4,169,308	\$ 4,912,031

Statement of Activities

December 31	2022	2021
Operating Revenues:		
Membership Dues	59,358	43,224
Meeting Sponsorships	1,533,501	608,332
Meeting Fees	1,058,600	172,629
Other Programs Income	83,287	57,372
Paycheck Protection Program loan forgiveness	-0	256,395
Interest and Dividend Income	128,491	96,749
Contributed non-financial assets + services	38,400	44,400
Total Operating Revenues	\$ 2,901,637	\$ 1,279,101
Operating Expenses		
Program Services:		
Meetings	2,562,949	1,113,171
Other Programs	87,321	62,513
Total Program Expense	\$ 2,650,270	\$ 1,175,684
Supporting Services		
Management and General	650,511	569,452
Total Operating Expenses	\$ 3,300,781	\$ 2,219,491
Change in Net Assets from Operating Activities	(399,144)	(466,035)
Non-operating Activities		
Net Investment Return	(508,072)	189,764
Change in Net Assets	(907,216)	(276,271)
Net Assets, Beginning	4,097,997	4,374,268
Net Assets, Ending	\$ 3,190,781	\$ 4,097,997

“I also believe very strongly that knowledge is not retained in books or the Internet because when there it is generally frozen, but when it’s in people, it grows and each time you interact with somebody, it’s not what the person says, but it’s what it triggers in your mind.”

— Nii Quaynor
*NANOG TV:
Internet Innovators*

WORKING TOGETHER, IN SERVICE OF OUR COMMUNITY

NANOG's leadership team has extensive nonprofit and tech-sector experience, plus broad expertise in each of their respective disciplines: executive leadership, programming, event planning, design, marketing, content strategy, and business development.



**Edward
McNair**
Board Member
Executive Director



**Darrioux
Harvey**
Meeting + Events
Director



**Valerie
Wittkop**
Program Director



Claudia Bristol
Controller + HR



Leigh Brooks
Senior Designer



**Elizabeth
Drolet**
Multimedia Story
Producer



**Greg
Newman**
Senior Development
Specialist



**Shawn
Winstead**
Business
Development
Specialist

OUR BOARD OF DIRECTORS

NANOG's property, affairs, and business are managed and controlled by members who make up our BoD, which facilitates communications between the NANOG community and other like-minded organizations. Elected members of the BoD are also responsible for appointing all members of NANOG's committees, and the Executive Director.



Leslie Daigle
Board Chair



Vincent Celindro
Vice Chair



David Siegel
Treasurer



Michael Costello
Board Member



Steve Feldman
Board Member



Tina Morris
Board Member



Cat Gurinsky
Program Committee
Chair/Secretary



Edward McNair
Board Member
Executive Director

WE COULDN'T HAVE DONE IT WITHOUT YOU

Our success depends in large part on the support of individuals and organizations who believe in our mission-critical programs and initiatives.

Your support in 2022 helped us continue our work in the service of advancing an open, secure, and robust Internet, by educating, empowering, and inspiring our community to meet the ever-changing demands of a global network.

