

Partner Spotlight - NJEdge, Inc.

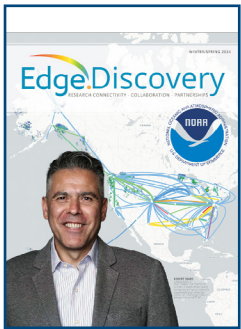


Recently, Robert Sears, N-Wave's Director, was interviewed by NJEdge, Inc. (known as Edge), a new Regional Optical Network (RON) partner to N-Wave, for an in-depth article in their EdgeDiscovery magazine (Winter/Spring 2024 edition). This article covered numerous topics, such as N-Wave's history, the national network infrastructure, building connections across the globe, network and broadband access, along with a look to the future.



The leadership within Edge also gave their thoughts on the new partnership with N-Wave and the many ways they plan discussions around ways to elevate the network experience and expand their reach within the stakeholder community. *"Edge is excited to partner with N-Wave as it expands into the future in supporting the mission of important stakeholders such as NOAA to advance science,"* says **Dr. Forough Ghahramani, Assistant Vice President for Research, Innovation, and Sponsored Programs** for Edge. *"We welcome the N-Wave team to the Edge community. It has been a pleasure to participate in N-Wave convenings and gain access to its collaborative community."* Shares **Samuel Conn, President and Chief Executive Officer**, *"Edge is pleased to partner with NOAA N-Wave to provide complementary services and resources, and ensure necessary access through Edge's robust networking infrastructure, for NOAA and other N-Wave stakeholders in support of network performance enhancements and data transfer needs for research. We are enthusiastic about the possibilities of this strategic partnership."*

As N-Wave prepares for the future, Sears says NOAA and N-Wave are excited to keep moving forward and further expand the reach of their network services and extensive array of partnerships. *"We are busy finishing our strategic planning and looking at the next 10 years. When N-Wave was founded, we had a 10-year IT Investment Authority (ITIA), from 2017 to 2027. We are currently creating a 12-year plan beginning in 2025 that determines the funding and resources needed for N-Wave to continue providing this critical infrastructure at this value to our stakeholders. Our engagement and outreach team will continue to connect with our partners to gather insight and provide opportunities for collaboration. We're also determining where we want to go with technology."*



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About N-Wave

N-Wave delivers stable, secure, high-speed network services to enable the vast missions of its stakeholder community within the federal government. Our national network infrastructure extends across the contiguous U.S., Alaska and Hawaii — reaching remote field sites, major campuses, data centers and supercomputing facilities. Combined with our scalable cloud solutions, robust catalog of enterprise managed services and advanced network operations.

N-Wave supports all stakeholder missions with integrity, transparency and flexibility and employs a unique partnership approach to provide the best customer experience. The N-Wave Program Office operates under the Office of the Chief Information Officer within the National Oceanic and Atmospheric Administration.

N-Wave is NOAA's network service provider and has expanded to serve other federal government agencies.

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What does the next generation backbone look like and what big services do we want to provide? We have such a great team of amazing people, and we continue to be inspired by new customer requests and the opportunity to test and develop new services. We want N-Wave to be more than just a commodity, we want to help change the game for NOAA science and help advance science and discovery across the globe."

To read more from this interview, click on this link for the full article entitled, "[NOAA N-Wave Delivering Superior Networking Services to Advance Science and Discovery.](#)" We encourage you to take a look and learn more about N-Wave's vision for the future and its new partnership with Edge.

Alaska Peering Exchange

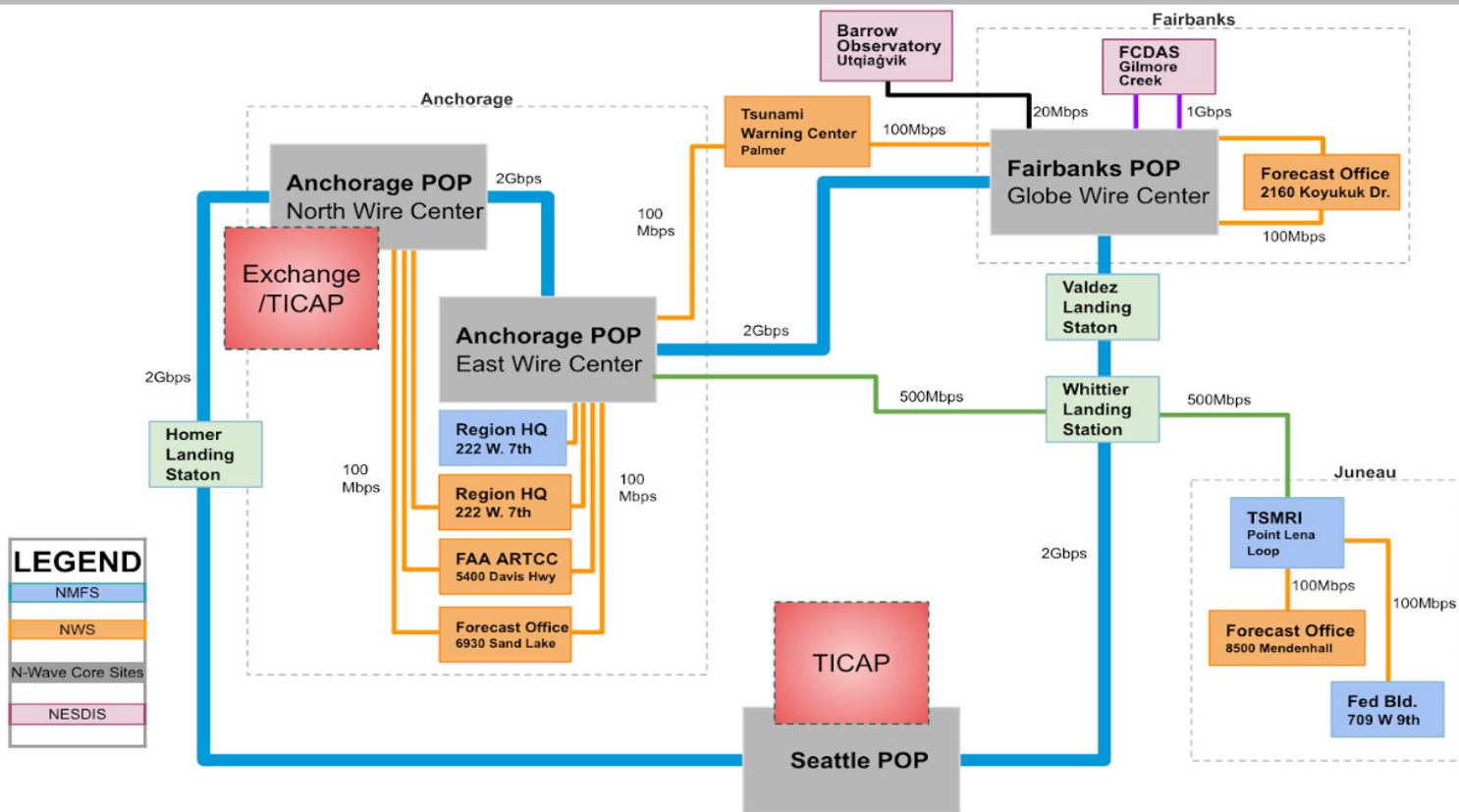


Diagram: Initial Alaska Peering Exchange - Trusted Internet Connection Access Point (TICAP)

The NOAA N-Wave program is undertaking efforts to design, deploy and operate an Alaska Peering Exchange (AIX) as a voluntary participation local Exchange Point, situated initially in Anchorage, AK. The AIX will enable direct interconnections between various government, research, and education networks, including Internet service providers (ISPs) and private enterprise networks.

This direct link, referred to as peering, allows for the efficient exchange of data traffic among these networks. When combined with the TICAP, it will keep data traffic destined for the state of Alaska within the state. The operational availability for the AIX is slated for September 2024.

For more information, visit the [N-Wave Alaska Peering Exchange webpage](#).

N-Wave's Involvement at SC23

The International Conference for High Performance Computing, Networking, Storage, and Analysis, also known as SC23, was held in Denver, Colorado, from November 12-17. Known for bringing together thousands of scientists, engineers, educators, developers and researchers from across the globe, SC23 is a conference focused on sharing the best practices in all areas of high performance computing. A variety of N-Wave team members experienced SC23 in different ways, including attending conference training workshops, panels, or sessions; participating on one of the 14 teams building SCinet (the world's largest temporary network for a week) or assisting with the N-Wave Birds of a Feather (BoF) session about Internet Protocol version 6 (IPv6).



Hans Addleman, SCinet Chair, discusses the usage of IPv6 at SC23

With one year to design, one month to build, one week to operate and one day to tear down, SCinet required 206 volunteers working collaboratively to successfully complete. Securing the 6.71 terabits per second (Tbps) network was essential, as it is an attractive target for malicious actors who aim to disrupt conference activities, obtain sensitive/proprietary information about new technologies being revealed, tested, or demonstrated at the conference, or leveraging the conference network for other attacks. N-Wave's security team participated in the setup, operation and maintenance of the security stack which consisted of hundreds of thousands of dollars worth of industry leading hardware and software. Perhaps the most important duty of the security team was "threat hunting" during the conference - actively monitoring and responding to security events on the network reported by the various tools and dashboards, and taking action to block adversaries deemed as malicious. In addition, N-Wave Services engineer, Tran Nguyen, participated and played a significant role in various areas of the SCinet Wide Area Network (WAN) transport team, contributing to the delivery of 6.71Tbps of WAN service to the Colorado Convention Center through 16 - 400 Gbps connections.



N-Wave's Eric Estes presents at the BoF Session

On Tuesday, November 14, N-Wave co-hosted a BoF session entitled *"Less Worrying, More Learning, More Sharing - Ways to Embrace IPv6"* with more than four dozen in-person participants and others watching virtually to leverage opportunities for sharing their experiences, lessons learned and challenges in migrating to IPv6-enabled networks. The session was led by Robert Sears (N-Wave), CAPT Joseph Baczkowski (N-Wave) and Ron Bewtra (Hewlett-Packard Enterprise (HPE)), who introduced and inspired robust interaction from the audience. Speakers included Hans Addleman and Kate Robinson (SCinet Chair/Technical Chair) and Eric Estes (N-Wave), who shared their knowledge and experiences with IPv6.

N-Wave New Staff

Tsong-An Sia joined the N-Wave Services team as a network engineer in December 2023. Prior to this position, Tsong-An held multiple senior network engineering roles at major service providers. With over a decade of valuable experience, he has implemented technology operations, innovation, complex infrastructures, consumer and business solutions in wireless, optical transport, and routing/switching, as well as spearheaded digital transformation in large-scale and mission-critical networks. Tsong-An earned a Master's degree in Telecommunications with a concentration in Wireless from the University of Colorado at Boulder. He has a strong passion for wireless technology, and is also a licensed HAM radio operator (call sign: KD0VRY). His contributions to the field of wireless communication include publications such as "Detecting and Locating Cell Phone Signals from Avalanche Victims Using Unmanned Aerial Vehicles (UAV)" by the Institute of Electrical and Electronics Engineers (IEEE).



Tsong-An Sia

N-Wave In the Networking Community

A Hawaiian Quadfrecta

In January, four network-related meetings occurred close to each other in Hawaii - the first two were in Honolulu and the last two were on Kauai: Trans-Pacific Research and Education Network (TPRE) - organized by the University of Hawaii; Pacific Telecommunications Council (PTC); Alaska Telecom Association (ATA); and, the Hawaiian Intranet Consortium (HIC) - organized by the Department of Defense's (DoD) Defense Research and Engineering Network (DREN), which supports a number of sites in the Islands.

N-Wave staff presented at TPRE, ATA and the HIC. While varying slightly, all included some form of NOAA/N-Wave 101, a description of N-Wave's presence and anticipated growth in the Pacific Islands with a similar outline for Alaska. Each then concluded with a description of the challenges in Alaska and plans to place a Trusted Internet Connection Access Point (TICAP) in Anchorage with an adjacent open exchange point. The combination of the TICAP and exchange point will greatly facilitate keeping traffic that's local to Alaska within the state; thereby, reducing latency and minimizing traffic transiting the expensive, nearly 3,000 mile, round trip between Anchorage and Seattle. These meetings provided opportunities for in-depth discussions with current and potential partners in both the Pacific Islands and Alaska.

Other N-Wave Engagements

N-Wave staff kept busy over the last several months with presentations to numerous agencies and organizations, including the Department of Commerce's Office of Chief Information Officer, The Quilt, Alaska Federal Executives Association (AFEA), Networking and Information Technology Research & Development (NITRD), American Council for Technology - Industry Advisory Council (ACT-IAC), Southwest Higher Education Knowledge and Technology Exchange (SHEKATE), Pacific Northwest Gigapop, IPv6 Federal Task Force and the DoD-NOAA cooperative project called Committee for Operational Processing Centers (COP-C). Topic highlights for these meetings included an overview of N-Wave's program, services and current projects.



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Visit the following webpages for more information about N-Wave:

- NOAA N-Wave Program
nwave.noaa.gov
- NOAA Office of the Chief Information Officer
noaa.gov/information-technology

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