# Nick Buraglio

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## Experience

**Co-Chair IETF IPv6 Operations working group - 2023 - Present**

- Co-chair the operational IPv6 working group (v6ops) for the Internet Engineering Task Force (IETF). Solicit input from network operators and users to identify operational issues with IPv6 networks, and determine solutions or workarounds to those issues. Solicit discussion and documentation of the issues and opportunities in IPv6-only operation, and of the resulting innovations. Full Charter can be found here

**Architecture Engineer, Planning and Architecture Group, Energy Sciences Network (ESnet) - 2013 - Present**

- Member of a distributed team responsible for all aspects of an international high performance network connecting all US Department of Energy sites and other research and education networks
- Member of the planning and architecture team responsible for strategy and architecture for an international high performance network
- Provide prototyping, support, assessment, and expertise for new and disruptive technologies
- Act as security strategist for internal and externally facing services
- Guide framework and policy on change management process
- Present to community as a subject-matter expert on various topics including but not limited to IPv6, performance analytics, Segment Routing, and open perimeter security architectures
- Manage vendor relationships
- Mentor students and junior engineers
- Lead teams of engineers with diverse disciplines in order to accomplish large, high visibility projects
- Department of Energy agency level IPv6-only IPT Implementation team lead for OMB M-21-07

**Network and Security Architect, CTO, ForwardingPlane, LLC - 1998 - Present**

- Provide consultation, design, and strategic input for data center and service provider networks
- Specialties include FTTx, Metro networks, community fiber projects, BGP, DNS, security, network analytics, backbone and security architecture, capacity planning, performance tuning and optimization, IPv6 planning and integration
- Freelance technical writing

**Lead Network Engineer, University of Illinois, ICCN, UC2B, PeoriaNEXT - 2008 - 2013**

- Team lead and architect for regional optical network connecting all University of Illinois campuses, NCSA, and administrative networks to each other and external resources
- Backup optical engineer for the InterCampus Communication Network (ICCN)
- Team lead, create strategies and architectures for campus research networking initiatives including Science DMZ architecture and deployment
- Primary engineer, architect, and representative for PeoriaNEXT, a layer2/3 internet exchange for Peoria, IL region including campuses, multiple medical facilities, and private industry
- Team lead and primary network architect for UC2B, a BTOP funded fiber to the premises ISP and NATOA broadband project of the year awardee
- Provide direction, technical expertise and mentorship to junior network engineers
- Guest lecturer for CS security and IT networking and security courses

**SCinet - 2003, 2005-2006, 2009, 2011-2012, 2014-2016, 2018-2019, 2023**

- Participation in SCinet working group in various roles including wireless, routing, network security, SDN, and UNIX services
- Team lead for SC15 SDN team
- Develop, help deploy and maintain OpenFlow based, production SDN architecture for SC15 network
- Develop and coordinate 100G SDN QoS scheduling production testbed for SC16 network
- Team Lead for production heterogenous SDN network (2018)
- Group Lead for Experimental Networks Group - XNet (2019)
- Subject-matter expert for IPv6-mostly initiative (2023)

**Network Engineer, National Center for Supercomputing Applications - 2002 - 2008, 2012 - 2013**

- Member of a small team responsible for all Layer1 -- Layer3 services
- Worked as network engineering liaison and advisor to incident responders and network security team, including management of high capacity Bro IDS systems
- Collaborated with FBI on NCDIR project to assist and train field agents in network security and black hat techniques
- Managed network based UNIX services including DNS, DHCP, RADIUS and NetFlow collectors
- Design and maintain network monitoring infrastructure

**Senior Network Engineer, IT Architect, Sol Tec Internet services - 2000 - 2002**

- Managed all technical teams consisting of full and part time employees including system engineers, network engineers, and help desk professionals
- Provided technical leadership and strategy to fast growing regional internet service and early broadband provider
- Authored and executed a detailed architecture expansion plan that included tripling capacity and relocation of all transit, infrastructure, UNIX, and colocation services
- Designed, deployed, and supported extensive broadband services throughout greater central Illinois and southern Chicago areas
- Managed all vendor relationships
- Additional work history available upon request

## Education, Certifications, Awards, Contributions

- Illinois State University 1999 B.S. fine arts in technology, photography sequence. Minor in film studies
- Co-Author of RFC 9637
- CCNA, CCDA (2000), BCNE (2010), JNCIA (2011), ITILv3 Foundation, HE IPv6 Sage Level
- Recipient of Letter of Commendation from U.S. Department of Energy Office of Science
- Department of Justice top secret clearance (2008)
- Co-Principal Investigator for NSF CC-NIE grant award #1341025
- Co-author, collaborator and sub-awardee for NSF CICI award 1642142
- Principal Investigator (PI) for ESnet / Berkeley Lab collaboration with Office of Veterans Affairs project MVP Champion Project
- IPSpace AG Technical advisory board member, webinar host
- RouteViews Project, Member of the Board of Advisors
- Member of the technical advisory board for the CAIDA Global Measurement Infrastructure to Improve Internet Security project
- NSF Panel Reviewer 2013
- NTIA Grant reviewer
- Co-author of IETF Drafts on subjects ranging from IPv6 to Segment Routing. Full list.
- Co-Authored publication CoreFlow: Enriching Bro security events using network traffic monitoring data
- Co-Authored ACM Publication Machine learning-based analysis of COVID-19 pandemic impact on US research networks

- Co-Authored publication Toward live inter-domain network services on the ExoGENI testbed
- Received Provisional Patent Application 63/276,148 for "Data driven, machine learning augmented dynamic path optimization" (2021)
- Filed U.S. patent application serial no. 18/052,614 TITLE: AUTONOMOUS TRAFFIC (SELF-DRIVING) NETWORK WITH TRAFFIC CLASSES AND PASSIVE/ACTIVE LEARNING (Nov-2022)
- Founder, CTO of ZTVI.org, a 100% overlay international backbone for IPv6 experimentation and education
- Member of the program committee for the TNC Conference Series for 2023-2024
- Consulting Information Technology Architect; Advisory Board Member Albuquerque Internet Exchange (ABQIX)
- Experienced public speaker, technical instructor, and international collaborator
- Additional Publications