

Nick Buraglio

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Experience

Network 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.
- Provide prototyping, support, assessment, and expertise for disruptive technologies.
- Act as security strategist for internal and externally facing services.
- Guide framework and policy on change management process.
- Present to community as subject matter expert on various topics including but not limited to IPv6, SDN/SDX, performance analytics, 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](#)

Principle Network and Security Architect, 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 including flow data, IDS, capacity planning, IPv6 planning and integration.
- Freelance technical writing and speculation / insight on security and networking industry.

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 and architect 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 campuses as well as 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

- 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)

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.

Network Analyst, Country Financial - 2000-2000

- Tested and evaluated new technologies such as intrusion detection systems, content filtering engines, filtering platforms.
- Evaluated, installed, and maintained remote access services including dial-up and VPN.
- Jointly maintained firewall, web caching, and network access control appliances.
- Provided overlay support to UNIX, security, windows, and networking teams.
- 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
- 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](#)
- Primary author at <http://www.forwardingplane.net/>
- IPSpace AG Technical advisory board member
- Frequent contributor, co-host, and subject matter expert for [various networking podcasts](#)
- [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 - As needed
- [NTIA](#) Grant reviewer
- Co-Creator of [modem.show](#) technical podcast
- Co-author of IETF Drafts:

[Reserving Additional IPv6 Address Prefixes for Use in Documentation](#)

[Expanding the IPv6 Lab Use Space](#)

Unintended Operational Issues With ULA

Selectively Applying Host Isolation to Simplify IPv6 First-hop Deployment

- 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 TNC23 Conference](#)
- Consulting Information Technology Architect; Advisory Board Member [Albuquerque Internet Exchange](#) (ABQIX)
- Experienced public speaker and technical presenter.
- Experienced international collaborator
- [Additional Publications](#)