

# (Joshua) E.J. Sahala

📍 SF Bay Area, or Remote  
📞 +1.408.218.2006  
📧 cv@saha.la

🏠 <https://ejs.sh>   **in** <https://www.linkedin.com/in/ejsdotsh>   **🔗** <https://github.com/ejsdotsh>

I am a principal network architect and reliability engineer with 24 years of experience specializing in architecture, design, implementation, and operation of large-scale, performant, and secure backbone, cloud, data center, and enterprise networks, and developing effective, empathetic, inclusive, and sustainable engineering teams and cultures.

I have a passion for solving infrastructure challenges programmatically through software and want to use human-first design principles to guide the research, development, and innovative application of technology to create collaborative solutions to network performance, reliability, and scaling problems.

## PROFESSIONAL EXPERIENCE

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### Senior Cloud Network Reliability Engineer

**Adobe** - 9/2021-12/2022

Technical lead for the global corporate network team to engineer automation solutions for wired and wireless enterprise, data center, and WAN (AS1313) implementation, security, reliability, and operation.

- Created containerized tools using Ansible, Nornir, Jinja, FastAPI, and Python to integrate with/update existing applications, automate upgrade and deployment processes, and standardize configurations
- Championed initiatives to add rigor to network engineering practices including design and operations reviews, blameless post-mortems, sustainable on-call, and automating configuration and operation

### Senior Network Engineer

**Box** - 11/2019-8/2021

Improved the performance, capacity, and reliability of Box's WAN, data centers, peering (AS33011), and multi-cloud infrastructure, leading cross-team initiatives to increase operational efficiency and velocity.

- Updated/maintained automation with Ansible, Python, Jinja, and Docker for configuration management, code upgrades, ZTP, implementation, and daily operations
- Enabled executive visibility of cross-team projects and network status by creating and maintaining dashboards and documentation in Confluence, Jira, and Splunk
- Partnered with NRE and SRE to overhaul monitoring and observability with Sensu, PagerDuty, LibreNMS, Splunk, simplifying alert configuration and significantly improving alert utility/signal-to-noise ratio

### Principal Network Engineer

**HERE Technologies** - 8/2018-10/2019

Design, automation, reliability, performance, and scaling of HERE's global on-premise (AS1248) and cloud network infrastructure enabling specialized mapping technologies, location data, and automotive navigation services.

- Introduced Ansible to enforce compliance, improve standardization, and reduce deployment times
- Identified software bugs and rewrote QoS policies to resolve multiple long-standing trouble tickets, reduced packet loss and improved throughput 5-10x globally
- Edge network redesign; hybrid multi-cloud interconnection and inter-VPC/VPN routing, virtualized edge compute/network services (FW, LB, DNS, HTTP/HTTPS, VPN), 100G migration roadmap

### Senior Network Engineer

**Gaikai/Sony** - 1/2017-5/2018

Network planning, design, implementation, and operation of WAN, edge peering (AS33353), and data centers for PlayStation Now's game streaming services.

- Designed and implemented routing and load-balancing changes reducing intra-regional latency 2-4ms
- Led new technology evaluation and testing; RDMA/RoCE, commodity hardware, IPv6
- Developed and implemented documentation, process, and training improvements which increased operational efficiency and reduced deployment times by 10%

**Senior Engineer - Network Strategy & Planning****Microsoft** - 3/2014-1/2017

Led company-wide initiatives to enhance customer experience, improve network performance and reliability, and optimize the existing peering (AS8075), CDN, and backbone infrastructure.

- Collaborated with O365 and Field Services to increase customer retention and satisfaction; created and presented training and documentation, streamlined service activation and escalation processes
- Education, outreach, and strategic partnership building at events and conferences (NANOG, RIPE, PTC, GPF); elected to DE-CIX Customer Advisory Board
- Created reports and tooling with PowerBI, Python, Excel to unblock 60+ site builds and save \$15 million

**Systems (Sales) Engineer****Juniper Networks** - 5/2012-8/2013

Involved with all aspects of pre-/post-sales to a global service provider; developed consultative relationships with technical and executive decision makers, led architecture and design reviews.

- Key team contributor in transforming resistance into success to exceed quota, and deliver over \$40 million in sales revenue

**Network Architect/Staff Engineer****Infocrossing/Wipro** - 7/2010-5/2012

Definition, development, and implementation of backbone (AS19229), cloud, and data center networks and solution designs for a managed services provider (MSP).

- IP Manager, developed training and implemented process, procured v4 & v6 addresses from RIRs

**Principal IP Engineer****Intelepeer** - 3/2009-6/2010

Hired to stabilize, redesign, and rebuild the network of a wholesale VoIP carrier (AS32385).

- Led equipment installs, site builds, and successfully completed migrations; reduced OPEX by 30%, improved network availability from <95% to 99.99%, and increased capacity 2000%

**Tech Lead - Senior Network Engineer****Yahoo!** - 5/2007-2/2009

Co-led the global teams responsible for Yahoo's edge (AS10310), backbone, and data center networks. Worked with peers and providers to implement and troubleshoot connectivity worldwide.

- Converted backbone IGP from OSPF to IS-IS without service interruption
- Assisted in the unification of disparate worldwide ASNs into one single global network, stretching from Singapore to Switzerland, while in service, with no downtime

**Principal Engineer****Alcatel-Lucent NZ** - 8/2006-5/2007

Lead Architect on complex solution design projects for Telecom New Zealand.

- Created and tested L3VPN-based products; contributed to ongoing metro and backbone redesigns

**Lead IP Network Engineer****tw telecom** - 6/2005-7/2006

Team lead responsible for lifecycle and vendor management, network implementation and operation (AS4323), and was final escalation for all IP/MPLS/telephony-related products and services.

- Installed and configured stopgap monitoring tools (Nagios, Munin, Syslog-NG); lowered MTTR and beat the commercial solution by two-years; implemented Cfengine to automate Debian, RHEL, and Solaris

**Lead Network Engineer****Terremark** - 1/2004-1/2005

Responsible for performance, design, implementation, and configuration of a carrier neutral IXP and data center provider; performed traffic/flow analysis in support of peering (AS23148) activities.

- Designed and implemented BGP confederations across three continents, converted from OSPF to IS-IS

**Senior IP Engineer****Fusintel** - 9/2002-1/2004

Sole network engineer; responsible for design, documentation, and 24/7 operation, configured ACLs, BGP (AS16525) and SIP/H.323 gateways; managed IP addressing, administered Solaris, Debian, NTP, Apache HTTP, Bind DNS, syslog, Cricket.

- Authored and presented comprehensive company-wide training on TCP/IP, VoIP, networking, security, troubleshooting; reduced escalations, lowered MTTR, and increased sales closure rate
- Designed and implemented L2VPN with AToM

## Network Engineer

**USA.net** - 3/2001-5/2002

Cabled, installed, configured, and maintained LAN, WAN, and data center routers (AS14454), switches, access-lists, firewalls, load balancers, and VPN concentrators; managed IP addressing, NTP, and DNS.

## NOC Technician

**Various** - 9/1999-1/2001

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## Lance Corporal

**U.S. Marine Corps Reserve** - 1998-2002

Field Radio Operator: responsible for set up, maintenance, and operation of communications equipment in the field to establish and maintain secure communication with other units. Secret security clearance.

- Squad leader; meritorious promotions and commendations

## CORE SKILLS

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- IP network architecture, design, security, and operation, IP address planning and management
- Learning and teaching; able to quickly ramp up in new subject areas and then teach others
- Writing for technical and non-technical audiences; design documents, training, blogs, wikis, how-to's
- Cross-functional consensus building and collaborative problem solving
- Interviewing, coaching, mentoring, and growing distributed engineering organizations
- Standards development, architecture reviews, system design, and code reviews
- Technology evaluation and vendor management
- Internet peering and interconnection

## TECHNICAL EXPERIENCE

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- Hardware and software including Juniper, Cisco, Arista, Dell, Cumulus, Quanta, PaloAlto, A10, F5, RaspberryPi
- OSPF, IS-IS, BGP/MP-BGP, Anycast, MPLS VPNs, RSVP-TE, VxLAN, IP-PIM
- Public, private, and hybrid cloud infrastructure and connectivity; AWS, GCP, Azure, Linode
- Development using Go, Python, Bash, Git, Make, Docker, SQL, HTML, CSS, YAML, JSON, Github Actions
- Installation and operation of Debian/Ubuntu, RHEL/CentOS, Fedora, FreeBSD, and VMWare ESXi servers
- Provisioning and configuration with Terraform, Ansible, Puppet, Packer, Nornir, RANCID, Jinja, NETCONF
- DNS/DDI/DCIM with Bind, Infoblox, Device42, BBNA, Netbox; HTTP/S with Apache, Nginx, Traefik, HAProxy
- Monitoring and observability with syslog, SNMP, netflow/sflow, LibreNMS, Sensu, Zabbix, Nagios, PagerDuty

## CERTIFICATIONS & AFFILIATIONS

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Member, NANOG	2012-Present
Board Member, Customer Advisory Board, DE-CIX	2014-2016
Vice President, Colorado Chapter of the Internet Society (COISOC)	2011-2016
Steering Committee Member, Rocky Mountain IPv6 Task Force (RMv6TF)	2011-2016
Juniper Networks Certified Internet Specialist (JNCIS-ENT)	2012-2015
Juniper Networks Certified Internet Specialist (JNCIS-M)	2006-2009
Cisco Certified Network Professional (CCNP)	2002-2008

## EDUCATION

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### Associate of Arts, Physics

Miami-Dade College