



Adrian Bishop

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SUMMARY

Software Engineer with nine years of experience building cloud networking systems that connect enterprise environments with distributed infrastructure. Delivers production services in Go, C++, Python, and Java across **TCP/IP**, **BGP**, **network control planes**, **gRPC**, and **Protocol Buffers**. Leads architecture for resilient **backend services**, automated validation, failure testing, observability, and operational tooling supporting high-throughput interconnect workflows. Partners closely with infrastructure, site reliability, security, product, and customer engineering teams across matrixed organizations. Brings practical judgment to customer issues, incident investigations, design reviews, technical documentation, and mentoring. Ready to contribute ownership, curiosity, and steady execution to cloud systems serving AI training and other demanding workloads.

EXPERIENCE

Staff Software Engineer, Cloud Networking

January 2024 - Present

Northstar Edge Networks

Raleigh, NC

Owns cloud interconnect architecture and delivery for Go-based control-plane services spanning 18 regional points of presence. Guides design reviews, production readiness, incident learning, and mentoring while aligning infrastructure, security, site reliability, and customer engineering teams around dependable network services.

- Owns Go control-plane architecture provisioning customer interconnects across 18 regional points of presence, aligning **routing policy**, capacity state, and **lifecycle transitions** with reliable cloud delivery.
- Reworked **gRPC** and Protocol Buffers APIs between orchestration services and device agents, preserving compatibility and creating safer release paths for network features.
- Introduced failure-injection tests for **BGP** session loss, route withdrawal, regional outages, and stale configuration, giving operations repeatable recovery scenarios before rollout.
- Partnered with site reliability, **security**, and customer **engineering** teams to isolate packet loss and asymmetric routing through TCP/IP analysis, telemetry, and targeted packet captures.
- Led automated configuration workflow reviews, making rollback behavior explicit across customer-facing paths and reducing manual change steps for network operations.
- Mentored five engineers on concurrency, testable service design, incident documentation, and operational readiness, improving review quality and launch consistency.

Senior Software Engineer

September 2021 - December 2023

Crescent Harbor Technologies

Durham, NC

Built distributed backend services that translated customer connectivity requests into validated configurations for multi-tenant cloud environments. Coordinated cross-business launches and production diagnosis with platform, networking, security, and technical support groups, connecting engineering decisions with customer outcomes.

- Developed **Go** and **C++** backend services that converted customer connectivity requests into validated multi-tenant network configurations, reducing deployment risk before release.
- Built Protocol Buffers schemas and gRPC interfaces for **route policy**, VLAN allocation, and **interconnect health**, allowing services to evolve without breaking clients.
- Implemented BGP policy checks and TCP/IP reachability diagnostics that exposed invalid prefixes, incompatible settings, and unreachable endpoints before deployment.
- Coordinated a cross-business launch with platform, **networking**, security, and technical support teams, turning operational findings into release gates and customer guides.
- Investigated incidents involving server **operating systems**, hardware interfaces, and routing protocols through logs, metrics, packet traces, and controlled reproductions.
- Expanded parser and reconciliation-worker tests with table-driven cases, simulated device responses, and partial-failure checks, improving resilience before production use.

Software Engineer

May 2019 - August 2021

Piedmont Distributed Systems

Charlotte, NC

Delivered **Python** and Go services for network inventory, topology discovery, and **provisioning** workflows used by infrastructure teams managing enterprise cloud connections. Combined implementation, troubleshooting, documentation, and customer feedback to improve reliability across interconnect operations.

- Delivered Python and Go services for **network inventory**, **topology discovery**, and provisioning workflows, giving infrastructure teams clearer control of enterprise cloud connections.
- Added idempotent reconciliation for route and interface state, preventing repeated deployment requests from creating duplicate configuration changes.
- Created integration tests with virtual routers to evaluate BGP convergence, route filtering, failover behavior, and invalid customer input before release.
- Supported connectivity investigations by correlating application events with **TCP/IP** counters, interface statistics, DNS results, and operating system logs.
- Worked with product managers and network engineers to turn customer escalation patterns into prioritized diagnostics and service reliability improvements.
- Authored runbooks, API examples, and architecture notes that helped engineers support the interconnect platform with less onboarding friction.

Associate Software Engineer

Bluewater Infrastructure Labs

June 2017 - April 2019

Greensboro, NC

Built C++ and Python utilities for network configuration validation, routing data analysis, service health, and controlled defect reproduction. Supported senior engineers through code reviews, lab testing, deployment documentation, and practical troubleshooting for cloud connectivity programs.

- Built C++ and **Python** utilities that validated network device configurations, checked interface dependencies, and prepared deployment reports for cloud connectivity work.
- Implemented routing and inventory parsers with clear validation errors, helping engineers identify malformed prefixes and incomplete device records sooner.
- Developed a service-health dashboard combining TCP reachability checks, BGP session state, and host telemetry for lab and preproduction environments.
- Participated in design and code reviews focused on modularity, testability, error handling, and maintainable documentation for networking tools.
- Reproduced customer connectivity defects in a controlled lab with virtual machines, packet captures, and representative routing policies before verified findings reached senior engineers.
- Documented deployment procedures and troubleshooting decision trees, bringing greater consistency to **network implementation** and operational support.

PROJECTS

- AI Training Interconnect Simulator 📅 2025
- Built a lab simulator for cloud paths supporting AI model training traffic. Used Go, gRPC, Protocol Buffers, virtual routers, BGP policies, and failure scenarios to test route convergence and customer recovery decisions.
- Global Network Control Plane 📅 2023
- Created a distributed service prototype for regional network control. It connected customer intent with validated routing state, telemetry, rollback actions, and clear documentation, turning a difficult systems problem into a practical learning exercise.

LEADERSHIP & AWARDS

- Engineering Excellence Award, Northstar Edge Networks, 2025
- Technical Impact Recognition, Crescent Harbor Technologies, 2022
- Dean's List, North Carolina State University, 2016
- Network Architecture Review Mentor, Northstar Edge Networks, January 2024 - Present

EDUCATION

Bachelor's Degree in Computer Engineering

North Carolina State University GPA: 3.7

2017

Raleigh, NC

Coursework: Distributed systems, computer networks, operating systems, software engineering, embedded systems

CERTIFICATIONS

- Google Professional Cloud Network Engineer 📅 2024
- Cisco Certified Network Associate (CCNA) 📅 2020

TECHNICAL SKILLS

- **Programming Languages:** Go, C++, Python, Java
- **Network Protocols:** TCP/IP, BGP, DNS

- **Service Interfaces:** gRPC, Protocol Buffers, API design
- **Distributed Systems:** Backend services, reconciliation, concurrency
- **Cloud Networking:** Customer interconnects, network control planes, cloud infrastructure
- **Network Engineering:** Network architecture, network design, routing policy
- **Testing Methods:** Integration testing, failure injection, table-driven testing
- **Troubleshooting Tools:** Packet captures, packet analysis, controlled reproduction
- **Operating Systems:** Linux, server operating systems, host telemetry
- **Operations Practices:** Observability, incident response, service runbooks
- **Configuration Systems:** Configuration management, device agents, lifecycle state
- **Network Hardware:** Network devices, server hardware, interface diagnostics

SKILLS

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|----------|--------------------|------------------------|-----------------------------|
| • Go | • TCP/IP | • Distributed systems | • Interconnect provisioning |
| • C++ | • BGP | • Backend services | • Routing policy |
| • Python | • gRPC | • Network architecture | • Configuration management |
| • Java | • Protocol Buffers | • Network design | |

PROFESSIONAL AFFILIATIONS

- Cloud Infrastructure Technical Speaker Series, Piedmont Distributed Systems, 2020 - 2021
- Network Architecture Review Mentor, Northstar Edge Networks, 2024 - Present

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST