

Embedded Software Engineer

Location: Ellicott City, Maryland (Hybrid)

Department: Engineering / Networking & Embedded Systems

Employment Type: Full-Time

About Tolero Networks

Tolero Networks enables secure, resilient communications from the most remote locations on Earth to the far reaches of the solar system. We build technologies that facilitate cooperative resource sharing across terrestrial and extraterrestrial networks.

We are seeking an **Embedded Software Engineer** to help us construct the Tolero Overlay Networking Router. In this role, you will implement software for our routing kernel, design and develop protocol adapters, and implement system abstractions that power our router on embedded hardware and spaceflight computing platforms. Working closely with our systems, firmware, and protocol specialists, you will turn high-level networking specifications and Interface Control Documents (ICDs) into reliable, deterministic, and flight-ready software.

Key Responsibilities

- **Router Software Implementation:** Design, code, and maintain software written in C/C++/Rust software for the Tolero Overlay Networking Router.
- **Protocol Integrations:** Implement and optimize low-level network protocol stacks and for store-and-forward architectures across lossy and high-latency links.
- **Hardware Abstraction & OS Integration:** Develop software components interfacing with underlying hardware targets and Real-Time Operating Systems.
- **Resource & Performance Tuning:** Optimize execution, memory allocation, and CPU utilization for applicable hardware resource budgets.
- **Cross-Functional Collaboration:** Partner with systems engineers, firmware teams, and protocol designers to translate system requirements and Interface Control Documents (ICDs) into scalable software implementations.
- **Verification & Testing:** Build unit tests, integration test suites, and Hardware-In-The-Loop (HIL) simulation tools to validate router performance, fault tolerance, and memory safety under worst-case operating conditions.

- **Culture & Ownership:** Cultivate a technical environment that encourages creative problem-solving, high-quality standards, collaboration, and team ownership of complex engineering products.

Required Qualifications

- **Education:** Bachelor's degree in Computer Science, Computer Engineering, Software Engineering, Electrical Engineering, or equivalent practical experience.
- **Embedded Development:** 3+ years of professional experience developing embedded software in **C**, **C++**, and/or **RUST**.
- **Systems Programming:** Strong proficiency with POSIX networking, socket programming, concurrency (multi-threading/IPC), and memory management in resource-constrained environments.
- **Debugging & Tooling:** Hands-on debugging experience using tools such as gdb, valgrind, strace, logic analyzers, or JTAG debuggers.
- **Collaboration & Communication:** Excellent teamwork and communication skills with a track record of implementing software based on technical specifications.

Preferred Qualifications

- Experience implementing network protocols—specifically Delay/Disruption-Tolerant Networking (DTN) standards such as the **Bundle Protocol (RFC 9171)**, BPSec (RFC9172), or TCPCL (RFC9174).
- Familiarity with embedded Linux build systems (Yocto, Buildroot) and flight software frameworks.
- Experience implementing cryptographic software or secure key handling mechanisms.
- Knowledge of satellite communications hardware, software-defined radios (SDRs), or onboard data handling systems.
- Experience with automated testing pipelines, continuous integration (CI/CD), and HITL/SIL test environment development.
- Ability and willingness to obtain a Top-Secret level security clearance. This includes being subject to a government security clearance investigation and meeting the requirements for access to classified information. Eligibility requirements include U.S. citizenship.

Why Build the Future with Tolero?

At Tolero Networks, solving the toughest communications challenges—from remote terrestrial environments to interplanetary space—requires brilliant minds working seamlessly together. We cultivate an open, purposeful environment where curiosity is celebrated, ego is left at the door, and cross-disciplinary collaboration fuels our most complex achievements.

If you are a smart, proactive problem solver who thrives in a supportive team culture and gets energized by the idea of building the networking infrastructure that connects our world to the solar system, Tolero is where you belong. Join us, and help pioneer the future of resilient, solar-system-wide communications.

Benefits

Tolero offers a generous, comprehensive benefits package designed to support our team members and their families:

- **Compensation & Equity:** Competitive base salary, performance bonuses, and company equity opportunities.
- **Health & Wellness:** Comprehensive medical, dental, and vision plans, plus Flexible Spending Accounts (FSAs).
- **Financial Security:** Retirement plans with Tolero contributions, life insurance, and short- and long-term disability coverage.
- **Work-Life Balance:** Generous paid time off (PTO) to ensure rest and recharge.

Equal Opportunity Employer Statement

Tolero is an Equal Opportunity Employer. We celebrate diversity and are committed to creating an inclusive environment for all employees. We do not discriminate based on race, color, religion, sex (including pregnancy, gender identity, and sexual orientation), national origin, age, disability status, genetic information, protected veteran status, or any other characteristic protected by law. Qualified applicants from all backgrounds are encouraged to apply.