Product Engineer

(Role Rotation: Maker, Breaker & Fixer)

What would I be doing at Xaptum?

- Work with core team of PhDs and industry experts to design and build a high-availability, fault-tolerant, mission-critical software-defined network for Industrial Internet of Things communication and security.
- Take initiative developing architectural plans for new product features.
- Implement and test software primarily in C++ or Erlang. Some work in Javascript, Go, Python, or Ruby.
- Ensure consistent use of software engineering best practices - automated testing, continuous integration, infrastructure-as-code, etc.
- Improve reliability of production systems and reduce MTTR (mean time to repair) of faults.

The followings areas of focus illustrate the kind of work happening at Xaptum. Of course, as a startup, most engineers work to some degree on several parts of the product.

Scalable Flat Routing Design

- Design next generation routing protocols enabling flat address spaces for billions of mobile endpoints.
- Analyze performance and scalability through simulation and measurement.
- Implement in C++ and Erlang.
- Familiarity with or ability to learn some of the following is ideal: IP routing and BGP, Peer to Peer (P2P) architectures, Distributed Hash Tables (DHT), distributed consensus algorithms, network and multicore programming, databases (SQL and noSQL).

IoT Security Protocol Design

- Design zero-touch identity provisioning and authentication mechanisms that will scale to billions of IoT devices.
- Design secure transport protocols designed for low-power, mobile, bursty IoT workloads.
- Implement in C, C++ and Erlang.
- Familiarity with or ability to learn some of the following: cryptographic principles and protocols, distributed consensus algorithms, network programming, databases (SQL and noSQL).

Network Operations and Automation

- Automate the operation and monitoring of a production network rooted in the world's largest data center.
- Manage and design tooling to automate network configuration management.
- Deploy network monitoring tools to quickly summarize network health and proactively identify potential problems.
- Establish peering relationships with other ISPs.
- Familiarity with or ability to learn some of the following: IP routing, BGP configuration, Cisco IOS, datacenter network wiring, DCIM and IPAM tools (e.g. NetBox), configuration management (e.g., Oxidized), monitoring tools (e.g., Nagios, Cacti), time-series databases, visualization tools (e.g., Kibana), Azure, AWS.

Developer Operations and Automation

- Design and manage the "DevOps" infrastructure for continuous testing and continuous integration, etc.
- Encourage and educate other engineers to incorporate good development best practices.
- Assist other engineers in designing test and validation infrastructure for their products.
- Familiarity with or ability to learn some of the following: AWS, Azure, Ansible, Terraform, GitLab Runner, Docker, Kubernetes, Travis CI, unit testing, integration testing

Hardware and Firmware Design

- Design hardware and associated firmware for network interface cards and routers.
- Familiarity with or ability to learn some of the following: schematic capture, PCB layout, Linux kernel development, OpenWRT.

Web Development

- Develop customer-facing web app for configuring and monitoring devices on the Xaptum network.
- Familiarity with or ability to learn some of the following: Javascript, CSS, Angular, React, REST.