Distributed Systems · Erlang/OTP · IoT/Telecom · Cloud Infra

Dat Nguyen

Senior Erlang/OTP Engineer · Backend Architecture

Fault-tolerant Erlang/OTP systems for telecom, networking and IoT.

Open to senior and lead remote backend roles

LinkedIn Email

About

I start from OTP supervision and let-it-crash discipline, then instrument services so production stays observable and predictable. I ship pragmatic increments, debug concurrency under load, and share OTP design and BEAM runtime lessons with teammates.

- **10+** Years building Erlang/OTP systems
- **6** Production protocols: SIP · Diameter · Megaco · NETCONF · RESTCONF · TLS
- **4** Domains: telecom · network automation · messaging · IoT
- **1** IEEE ATC 2021 paper

Experience

5GenCare

offset: 4 2023-06 → present

Principal Backend Architect — Erlang/OTP

Hong Kong · Remote `IoT` `remote`

+ Sole full-time Erlang engineer owning the distributed IoT/AIoT backend (Erlang/OTP, Mnesia) for baby-monitor camera products serving ~150,000 users, mostly in the US.
+ Ran distributed Erlang clusters with multiple nodes on AWS for nursery-camera brands (Motorola Nursery, ChillaxCare, Salus), with fault-tolerant services and Prometheus monitoring for telemetry and device management.
+ Managed the product's AWS infrastructure end to end — EC2, S3, SES, SNS, Route 53, CloudWatch, CloudTrail and Grafana — covering compute, storage, email and push notifications, DNS, monitoring and audit logging.
+ Led Docker deployments through GitLab CI for container-based backend releases within an 8-person product team.

`Erlang/OTP, Mnesia, AWS, Grafana, Docker, GitLab CI, PostgreSQL, Prometheus, TLS/OpenSSL`

Precision Development (PxD)

offset: 3 2022-06 → 2023-06

Senior Full-Stack Engineer — Cloud Systems

Newton, Massachusetts · Remote `Telecom` `remote`

+ Built distributed voice and text services with Erlang and FreeSWITCH reaching 100,000–200,000 farmers in low-connectivity regions, mostly over IVR, SMS and WhatsApp.
+ Designed Flask and Cowboy APIs integrating USSD, IVR, SMS, WhatsApp, and Telegram communication flows.
+ Maintained 5–6 production servers across locations, instrumenting time-sensitive communication paths with metrics and tracing to diagnose production faults.
+ Worked in a 7-person team spread across the US, India, Kenya and Vietnam.

`Erlang, Python, Flask, Erlang Cowboy, FreeSWITCH, USSD/IVR/SMS, WhatsApp/Telegram APIs, Docker, AWS, PostgreSQL`

DEK Technologies Vietnam

offset: 2 2020-01 → 2022-06

Erlang Consultant for Cisco NSO (via DEK Technologies)

Ho Chi Minh City, Vietnam `Network automation` `remote`

+ Delivered Cisco NSO network automation services with Erlang, YANG, NETCONF, and RESTCONF in a 6-person Vietnam–Sweden team.
+ Mapped YANG network models into maintainable domain logic using Domain-Driven Design.
+ Resolved concurrency defects in Erlang network automation services, strengthening fault tolerance.

`Erlang, Python, Cisco NSO, YANG, NETCONF, RESTCONF, Jenkins, Emacs Lisp, Bash`

DEK Technologies Sweden

offset: 1 2019-10 → 2019-12

Erlang Consultant for Cisco (via DEK Technologies)

Stockholm, Sweden Network automation onsite

+ Worked onsite in Stockholm with the Swedish side of the 6-person team, integrating Erlang and YANG services with Cisco's architecture team.
+ Led OTP design and BEAM optimization sessions, transferring runtime knowledge to the engineering team.

Erlang, YANG, C++, NETCONF, RESTCONF, Jenkins, Jira

DEK Technologies Vietnam

offset: 0 2016-11 → 2019-10

Erlang Consultant for Ericsson IMS (via DEK Technologies)

Ho Chi Minh City, Vietnam Telecom onsite

+ Developed Ericsson IMS Session Border Gateway (SBG) components for media control and SIP, Diameter, and Megaco protocol handling in an 8-person Vietnam–Sweden team with daily cross-site syncs.
+ Automated Jenkins CI pipelines for Erlang and Python telecom components, making build and test workflows repeatable.
+ Led testing across IMS protocol and media-control paths using Wireshark.

Erlang, Python, IMS, SIP, Diameter, Megaco, Jenkins, Wireshark

Skills

Erlang/OTP core (one_for_one (isolated)): Erlang/OTP, GenServer, Supervision Trees, Fault-tolerant OTP Design, State Machines, Hot Code Upgrade, BEAM VM, Production Debugging

Distributed systems (rest_for_one (downstream)): Distributed Systems, Distributed Erlang, Actor Model, Domain-Driven Design, Cloud-native Microservices, Mission-critical Systems, High Availability, Fault Tolerance

Telecom & networking protocols (one_for_one (isolated)): SIP, Diameter, Megaco, IMS, NETCONF, RESTCONF, YANG, Cisco NSO

Data & storage (one_for_one (isolated)): Mnesia, PostgreSQL, ETS/DETS, SQL, CiscoDB, NoSQL

Cloud, observability & testing (one_for_all (group)): AWS, Docker, Prometheus, Grafana, GitLab CI, Jenkins, Common Test, Dialyzer

Projects

erl-trace **erlang_ts** **dshell**

Publications

2021 International Conference on Advanced Technologies for Communications (ATC) 2021

Integrated Multi-standard system based on LR1110 for geolocation applications

Bui Phung Huu Duc, Dat Tran Nguyen Tien, Phuong Binh Nguyen, Nguyen Minh Thien, Le Huy Trinh, Fabien Ferrero

DOI: 10.1109/ATC52653.2021.9598262

Education

DEGREES

2020-09 → 2022-05

Master of Science in Information Technology

University of Information Technology, Vietnam

- Built a hybrid geolocation gateway using LoRaWAN and Semtech LR1110.
- Co-authored an IEEE ATC 2021 paper on an LR1110-based integrated multi-standard geolocation system.

AWARDS

2017

First Prize — Student Scientific Research Projects · University of Information Technology

2015

Second Prize — Creative Ideas Grant · University of Information Technology

LANGUAGES

Vietnamese Native

English Professional working proficiency

2012-09 → 2016-06

Bachelor of Engineering in Computer Engineering

University of Information Technology, Vietnam

- Completed a final project on solar-powered LoRa sensor systems with predictive logic.
- Completed an internship on resume parsing with C++ and regular expressions.

Contact

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