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SPECIALIZED ENGINEERING: OBSERVABILITY & BLOCKCHAIN SYSTEMS

Implementation of observability is rarely "plug and play." I specialize in the "hard parts" of the OTel ecosystem—customizing the OpenTelemetry Collector, writing custom exporters, and deeply instrumenting complex Go services without sacrificing performance.

My approach focuses on three pillars:

- **Precision Instrumentation:** Moving past auto-instrumentation to capture the domain-specific metadata that actually solves production outages.
- **OSS Extension:** Modifying and maintaining forks of upstream projects (CNCF, OTel, etc.) to bridge the gap between community tools and enterprise requirements.
- **Performance-First Go:** Leveraging Go's concurrency model and profiling tools (pprof) to ensure that your observability layer doesn't become a bottleneck.

I help engineering teams by implementing robust OpenTelemetry architectures and high-performance Go backend systems. Whether you are struggling with high-cardinality data, siloed traces, or need to extend Open Source tools to fit your specific infrastructure, I provide the expertise required to make your systems transparent. I don't just add logs; I build the pipelines that turn distributed tracing into your team's greatest debugging asset. I help you transition from "we have metrics" to "we have answers."

Projects

- **File Archival Tool**, Observability, Cloud Native, Golang 2024 – 2025
 - Engineered a custom distribution of *AzCopy* by embedding OpenTelemetry (*OTel*) instrumentation; enabled fine-grained, high-cardinality telemetry to provide real-time visualization of data egress and throughput performance.
- **High Throughput File Monitor**, Observability Tooling, Golang 2024
 - Architected a specialized Go-based *OTel* receiver to eliminate visibility gaps in file-based data streams; successfully transformed unstructured local file-system events into actionable, high-cardinality telemetry for centralized monitoring.
- **Custom Keystore Management**, Security Infrastructure, Golang 2023 – 2024
 - Developed a custom *PKCS12* keystore management utility in Go, extending standard cryptographic formats with an integrated metadata layer for automated certificate provenance and asset versioning.
- **Kafka Telemetry**, Observability, Kafka, Spring Boot, Java 2022 – 2023
 - Architected a standalone Spring Boot observability bridge to instrument Java-based infrastructure; leveraged Micrometer to synthesize high-fidelity metrics from *Kafka* clusters, standardizing data ingestion into centralized OpenTelemetry pipelines.
- **Image Migration Tool**, Cloud Native, Spring Batch, Java 2020
 - Re-engineered a high-capacity **Spring Batch** tool to orchestrate the migration of large-scale image repositories to the cloud; implemented custom readers and writers to ensure transac-



tional integrity and optimized ingestion throughput.

- **Blockchain Anchoring**, Blockchain Research, Blockchain POC 2019 – Present
 - Architected and deployed decentralized prototypes on *MicroK8s* to evaluate Blockchain Anchoring strategies; successfully demonstrated the feasibility of utilizing distributed ledgers for high-frequency data validation.

- **Blockchain Adaption Study**, Blockchain Research 2019
 - Researched and evaluated usecases for adaption of Blockchain in energy distribution.

- **Ad hoc Tools**, Platform Modernization, Python, Golang, Linux * – 2026
 - Developed tools for Infrastructure engineering and automation tasks using suitable languages including *Go*, *Python*, *Java*, *C*, and *Linux* based scripting.

- **Volumetric Analysis Tool**, Geospatial Modeling, GKS, C Earlier project
 - Led the development of a GKS-based *Geospatial Modeling* application; implemented *Delaunay Triangulation* algorithms to perform high-precision volumetric analysis of underwater silt deposits by translating raw *bathymetric data* into precise under water silt-volume computations, and providing the technical foundation for contract billing and dredging logistics.

