Aleksandr Bezobchuk

Staff Software Engineer

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Summary

Senior / Staff Software Engineer with 12+ years of experience designing, building, and leading large-scale distributed systems, blockchain protocols, and production backend infrastructure. Deep expertise in P2P networking, BFT consensus, data replication, and protocol architecture. Proven track record leading core protocol development across web3 ecosystems and delivering high-performance, globally distributed systems in production.

Work Experience

Optimum — Staff Software Engineer — 10/2024 - Present

- Led architecture and implementation of the Flexnode product, a globally distributed read/write network achieving sub-500ms p95 latency across regions using atomic replication via ABD, RLNC-based network coding, ZeroMQ networking, and multiple storage backends including RocksDB.
- Architected and provided technical leadership for OptimumP2P, a high-performance gossip protocol leveraging RLNC-based network coding and GossipSub-style communication, significantly reducing bandwidth usage and end-to-end propagation latency versus existing gossip solutions.
- Designed and implemented the initial Optimum Protocol blockchain, responsible for maintaining a global decentralized registry of Flexnode operators.

Interchain Labs — Lead Software Engineer — 04/2020 - 09/2024

- Led an engineering team of 4 to redesign the state management layer in the Cosmos SDK by separating state commitment, via Merkle Trees, and state storage, using RocksDB and LevelDB, to achieve a modular and extensible storage system which significantly reduced node sync and block commitment times in addition to making it economically feasible to run full nodes.
- Drove the core architectural refactor of the Tendermint BFT P2P gossip layer, improving modularity and bandwidth efficiency for large validator sets, reducing p95 latency by 500ms.
- Designed and led the implementation of a priority-based transaction mempool in Tendermint, enabling application-controlled transaction ordering and optimized gossip behavior.
- Led core design and implementation of the ABCI 2.0 integration into the Cosmos SDK, giving applications direct control over consensus phases including app-side mempools and block construction.
- Led the architecture and design of the Protocol-Owned-Builder (POB) product, enabling decentralized, protocol-driven block construction, MEV mitigation, and application-controlled blockspace markets.

Coinbase | Senior Software Engineer (contract) | 03/2021 - 07/2021

- Contributed to Proof-of-Stake focused web3 infrastructure supporting multiple blockchains by allowing modular heterogeneous client deployments.
- Designed and implemented workflows for blockchain node provisioning, deployment, monitoring, and alerting, including a modular system supporting diverse chain configurations at scale utilizing k8s and custom declarative templating.

HashiCorp | Senior Software Engineer (contract) | 05/2020 - 01/2021

- Improved performance and fault tolerance of Vault, HashiCorp's secure secrets management system, strengthening reliability and resilience of production deployments.
- Contributed to the design and implementation of cloud-native Vault, specifically to the identity-based security layer to automatically authenticate and authorize access to secrets and other sensitive data.

Tendermint | Senior Software Engineer | 06/2018 - 04/2020

- Led architecture, design, and development of Ethermint, a modular Ethereum implementation built atop Tendermint BFT, fully compatible with Ethereum RPC interfaces and tooling.
- Managed and mentored a team of 5 engineers responsible for core Cosmos SDK development, overseeing architectural review and agile delivery.
- Contributed extensively to the core Cosmos SDK framework, enabling developers to build customizable, application-specific blockchains (state machines) on Tendermint's BFT consensus engine.
- Acted as a lead technical representative for the Cosmos OSS community, supporting developers and guiding protocol adoption through extensive technical documentation and open source tooling.

Axoni | Senior Software Engineer | 03/2017 - 06/2018

- Designed and implemented cloud automation for private blockchain infrastructure using k8s, Ansible, Prometheus, Grafana, and Go.
- Led core protocol design for a permissioned blockchain consensus engine using modular, pluggable pipelines based on Raft in Go.
- Improved blockchain throughput and scalability by ~6x through parallelized chain state processing and optimized message handling.

Homer | Senior Software Engineer | 08/2016 - 03/2017

- Led design and implementation of a merchant & delivery system consolidating various food ordering platforms into a single turn-key operational system using k8s and GCP.
- Built and integrated service-oriented APIs in Go and Ruby, interfacing with major delivery platforms including Grubhub, Seamless, and DoorDash.

Jibe | Software Engineer | 11/2013 - 06/2016

- Architected and developed distributed, multi-tenant ETL pipelines on AWS using S3, SQS, RDS, and workflow orchestration for a broad range of ATS systems.
- Designed and managed RESTful microservices for ATS authentication, messaging, and integration using Node.js, RabbitMQ, MySQL, and Redis.

Technical Skills

Languages: Go, Rust, Python
Distributed Systems: BFT consensus, Raft, P2P & gossip protocols, data replication, finite state machines
Databases & Storage: RocksDB, LevelDB, PostgreSQL, Redis
Messaging & Networking: ZeroMQ, RabbitMQ, LibP2P
Infrastructure & Observability: Kubernetes, Docker, Prometheus, Grafana, AWS, GCP

Education

University of Maryland | B.S. in Computer Science | Aug 2009 - Dec 2013

- Undergraduate Coursework: Network Security, Android Application Development, Algorithms Design & Analysis, Discrete Mathematics, Data Structures, Software Engineering Principles, Bioinformatic Algorithms, Artificial Intelligence, and Computer Systems