Mikhail Glukhov - Common Lisp Developer

- A software architect with a solid technical background and blockchain experience.
- Experience: 16,5 years
- Male, 38 years, was born 15th of December 1982
- Computer Science Interests: programming language design, compilers, virtual machines and distributed systems.
- Keywords: Common Lisp, Blockchain, Go, Forth, Erlang, C, ++, Tkl/Tk, Assembler x86, Assembler AVR | Nginx, RabbitMQ, PostgreSQL

Blog: http://rigidus.ru
Email: avenger-f@yandex.ru, i.am.rigidus@gmail.com
Github: https://github.com/rigidus

Solution Architect at Insolar [Jan 2020 - Jan 2021]

Enterprise blockchain startup (https://insolar.io). Technology stack: Go + React

Insolar's architecture is complex, I needed to make sure I understood all aspects.

[1] To visualize the algorithm of the Node's work, I wrote a translator from the Go code to the State Diagram for PlantUML. This state machine processed messages from other nodes. I have applied my experience in building compilers.

As a result:

- Some bugs were found,
- The documentation has become easier to keep up to date,
- Accelerated architectural design: it was easier to reflect the changes on the diagram,
- I made sure that I understand architecture correctly.

[2] I have done architectural design for the Observer component. It is a service that collects data from the blockchain network, aggregates it and provides it to web frontends. Frontends show our users transactions, account balances, and contract states.

[3] For a startup, a patent portfolio is important - it affects the price of the possible sale of the company and the receipt of financing. I have patented architecture with a US patent attorney and have filed several patents:

- US 62/966, 610 System and method for managing the execution of domain smart contracts in Distributed Ledger Technology networks
- US 62/901, 388 Multi-purpose node model to provide scalability in the blockchain application network.
- US 62/937, 881 Systems and methods of extensible smart contracts in Distributed Ledger Technology
- US 62/878, 833 System and method of extensible cryptography in a Distributed Ledger
- US 62/924, 245 Systems and methods for achieving consensus in a Decentralized Network
- 040279.00001 Certified Record Book

Independent Research [Apr 2019 - Dec 2019]

Independently designed and implemented my own blockchain system in Forth and Common Lisp aimed at Internet Of Things

Blockchain researcher at Waves [Sep 2018 — Dec 2019]

Waves (https://waves.tech/) is an open blockchain protocol and development toolset for Web 3.0 applications and decentralized solutions.

The company is the largest developer of blockchain solutions in Russia

The blockchain is written in Scala, the frontends are ModX, React, React Native.

Achievements:

- Developed a decompiler for Ride, the smart contract language on the Waves blockchain. It finds compilation patterns from bytecode and restores lost semantic constructs.
- I researched the possibilities of implementing NFT tokens and Curated List Registries on Waves blockchain.
- I wrote a number of tests and documentation, you can see my contribution on the github, because Waves is a completely open source project (in Scala).

System Architect at Enecuum [Mar 2017 - Sep 2018]

A startup in the post-ICO stage (https://enecuum.com/), is developing a blockchain project. Technology stack: Java, C++, Web, Mobile

I was hired for as System Architect, for can implement the Virtual Machine for execution smart contract for decentralized network nodes.

In practice, I had to deal with architecture design, hiring and training team developers, setting and monitoring the execution of tasks and many other things besides working with code - this is, in general, normal for startups.

I divided the efforts of the developers by creating four departments:

- Node developers
- Block explorer developers
- Mobile application developers
- Web developers

Each department had 6-8 people and 2-3 testers, about 40 people in total. I implemented scrum and wrote several utilities (in Emacs-Lisp) that track the progress of tasks and signal when they are behind schedule. For each department, I made a Gantt chart.

As a result, the project was completed on time. We finished three days before the presentation in Hong Kong.

Solution characteristics:

- Scalable system of interacting nodes in a distributed network (about 400 nodes)
- Constant traffic at the level of 500-1000 transactions per day on the test network
- Smart contacts execution system
- Compiler from JS-like language to Forth-like bytecode

- Trained team leaders in each department

By agreement with the CEO and CTO, after the launch of TestNet, I developed the Virtual Machine for executing smart contracts.

Achievements:

- Launched the Test Network
- Developed a virtual machine that executes smart contracts
- Made a compiler from JS-like high-level language into VM-bytecode.

TeamLead at Automaton [Dec 2015 - Mar 2017]

The company is engaged in the development and operation of automated parking lots.

I led a research project to develop a new hardware and software parking system.

Technologies:

- PCB Design - Kikad, Altium Designer
- Programming: C/++, Assembler, Erlang (telephony), PHP/JS: Symfony + React (web interface), EmacsLisp - code generation for "executable specifications" and utilities for collaborative remote work in a team
- Architectural stack - Linux on ARM Cortex A8 and Symphony + React in the control interface.

The development was carried out from scratch, in stages:

- Hiring employees
- Selection of electronic components,
- Creation of printed circuit boards,
- Writing low-level code that controls barriers and polls sensors
- Writing business logic and web interfaces through which parking can be controlled remotely,
- Internet telephony connection to communicate with the parking client

In total, 50-60 people worked on the project (excluding the commercial department, which found clients and concluded contracts):

The first implementation took place six months after the start of development, the development fully paid off in a year. The developed solution is ahead of the competitors.

- 2 design engineers (topologists) for the design of printed circuit boards
- 1 Linux kernel driver developer
- 3 full stack web developers (PHP Symphony React)
- 2 android developers
- 1 ios developer
- 4 QA specialists
- 10-20 implementation engineers, installers, electricians (at the implementation stage)

- 1 3D modeler
- 1 Erlang developer (telephony)
- 10-15 pickers-pickers of the parent company (they assembled according to design documentation)
- 1 TeamLead, he is also the technical project manager (it was me)

My achievements:

- Designed the hardware and software architecture of the paid parking automation system.
- Planned and organized software and hardware development work, including selection of electronic components and circuit design.
- Implemented business logic and presentation layer (Operator Workplace) on Symfony and React
- Supervised the implementation of the transport layer and the hardware abstraction layer (C/C++, kernel modules, device drivers)
- Organized parallel development on a modular basis to speed up product creation and kanban methodology
- Implemented Continuous Integration and Lifecycle Management Process (Releases, Bug Fixes, Feature Additions, Technical Quality Control, Automated Testing)
- Implemented secure (digital signature) and fail-safe (rollback to the previous version if tests fail) firmware update via the Internet.
- Automated documentation generation and storage using GIT based versioning and "executable specifications".

TeamLead at BKN [Apr 2015 - Dec 2015]

The company is the second local real estate website after the Real Estate Bulletin (https://bn.ru). Receives income from advertising on the site and ads from the sale of real estate.

Supervised the development and promotion of information technology for real estate agencies (b2b and b2c).

Technology stack: C # and ASP.NET, ExtJs, 3 people were involved in development.

The site showed a decline in ad revenue for the six months before I joined the company. It was necessary to increase the resource in the subject and interest advertisers.

Achievements:

- Using the data of real estate agencies, I created a section on residential complexes and new buildings, which soon reached 60% of the site in volume, which allows you to dramatically increase advertising revenues on.
- Implemented on the site a section for the search and selection of apartments, rooms and residential buildings of the primary and secondary market, integrated it with the inter-agency database of real estate objects.
- Formed an SEO strategy for website development.

After the completion of the work, advertising revenue and traffic began to show steady growth.

TeamLead at Trend [Feb 2014 - Mar 2015]

The company (https://trendrealty.ru) is a young fast-growing real estate agency specializing in the primary market (new buildings). Technology stack: Php, Nginx, Mysql, PostgreSql

Prior to my arrival, real estate agents used skype and google docs to synchronize information with each other and receive data from developers. Given the rapid growth, this was becoming a bottleneck.

Achievements:

Automated the business process of a real estate sales agency (new buildings):

- Made an internal portal with a personal account of a realtor and the functionality of booking apartments
- Implemented automated setting of recommended prices and automatic selection of an object according to the criteria entered by the realtor

Lisp|Erlang Developer at Algorithmic Trading Company [Apr 2012 - Feb 2014]

I have developed solutions in the field of electronic currencies based on BlockChain technology. (https://aintsys.com)

Technology stack: Erlang, Common Lisp, C ++

Unfortunately, under the terms of the NDA, I have no right to disseminate information about the activities of the company and my developments on the network :(

Senior Developer at WizardSoft [May 2011 - Apr 2012]

The company (https://wizardsoft.ru) is engaged in the automation of cost management in construction.

Achievements:

Developed a high-load portal for construction tenders. The prototype was implemented in Common Lisp, Postmodern and PostgreSQL. After acceptance, the prototype was significantly extended and rewritten in PHP

Middle developer at TsiFri [Sep 2009 - Apr 2011]

The company (http://320-8080.ru) is an online store of digital technology.

Technology stack: PHP, MySql, Jquery, Common Lisp, Memcached

Achievements:

- At the first stage, in the shortest possible time, I prepared the legacy code for the New Year loads by introducing caching.
- Then I completely redesigned and implemented it for a high-load online store.

Junior Web Developer at Webdom [Jan 2007 - Sep 2009]

Web Studio (https://webdom.net)

Technology stack: Php, Nginx, MySql

Achievements:

- Developed the framework on which the company now operates. CMS based on it are delivered to clients.

Freelance programmer at Pochin [Sep 2005 - Jan 2007]

The company (http://pochin.ru) is an online store of car covers, auto parts and auto tools.

Technology stack: Linux, Apache, MySQL, PHP

Initially started as a freelance programmer, but soon the collaboration became permanent.

Achievements:

- Designed and developed an online store (three versions in a year and a half)