

Novgorodov Igor

Zurich, Switzerland
Married, 2 kids

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Skills

I'm an experienced software and systems engineer, ~20 years in different areas of IT.

I have designed and developed a vast number of different software products, mainly backend- and system-oriented, but also a bit of frontend. My passion is building systems optimized for high throughput and low latency operation.

I like to contribute to the open-source community and trying to commit my changes back to the products that I use. I also maintain some software on my [GitHub](#) repos.

Some of my technical publications (Russian): [Habrahabr](#)

Development tools

- Mainly Golang, Rust and Python, also C, Perl, PHP, Lua, Java and others
 - Experience in developing highly loaded systems
 - Experience in low-level network programming (DHCP, RADIUS, SMPP, SNMP and others)
 - Profiling and optimizing software for best performance
- Expertise in developing projects using DBMS and message brokers like:
 - PostgreSQL, MySQL
 - Aerospike, Cassandra, Redis, Couchbase
 - Clickhouse, InfluxDB
 - RabbitMQ, Kafka
- SQL: Database architecture
- Frontend: Bootstrap, Vue.js

OS:

- Linux (RHEL/CentOS, Debian/Ubuntu), FreeBSD
- Windows Server

Networking:

- TCP/IP stack, dynamic routing
- Designing fault-tolerant SAN storages based on Linux (FC, iSCSI)
- Architected a number of WAN-connected networks (IPSEC/DMVPN/OSPF/EIGRP)
- Routers, switches, wireless controllers' configuration (mainly Cisco)

Employment history

Senior Software Engineer

Zurich, Switzerland

DFINITY Foundation <https://dfinity.org/>

April 2023 - now

We're working on implementing a decentralized computing network - internetcomputer.org

Stack: Rust, C, Clickhouse and lots more

Devops Engineer

Zurich, Switzerland

Swisscom www.swisscom.ch

December 2018 - now

I'm working in a team which maintains Swisscom TV – one of the largest IPTV installations in Switzerland. Mostly I'm doing development in Go/Python and some system engineering in Linux with Ansible.

Senior software engineer

Zurich, Switzerland

Tamedia Space AG www.tutti.ch

November 2017 – December 2018

I was a member of a team that developed a backend for a major Swiss online marketplace. Main goals were to develop new service stack in Golang and migrate already-developed functionality from old backend written in C.

Software stack: Golang, C, PostgreSQL, Redis

Head of development team, Systems architect

Moscow, Russia

CJSC "MaximaTelecom" www.maximatelecom.ru

December 2016 – November 2017

Me and my team has developed from the ground up and was supporting the following projects:

- RADIUS server: sophisticated request logic; highly performant; multi-level request caches; session storage in Aerospike DB; online configuration reload and many other features
- DHCP server: dynamic subnet definition generation based on templates in real time; pool loading from DB and/or TOML; persisting leases in Aerospike DB for hot restarts
- Communication Service (SMPP, Instant Messaging): Highly performant modular messaging system that handles sending/receiving messages through various protocols (SMPP, E-Mail, IM) and performs bulk message sending (millions of messages per single bulk). One of its main goals is to power Moscow subway emergency messaging broadcast. Storage - Aerospike and Cassandra.
- Network Monitoring System: client-server software to monitor continuously the wireless/wired link between vehicles (subway trams) and datacenter
- A lot of other microservices and modules

We used the modern software stack: Golang, Aerospike, Cassandra, RabbitMQ, InfluxDB, Grafana, MySQL and others.

Senior system engineer

Moscow, Russia

CJSC "MaximaTelecom" www.maximatelecom.ru

December 2015 – November 2016

The main goal of our team was to keep the IT infrastructure supporting huge Wi-Fi network in Moscow subway up and running. As a side project I've developed a scalable RADIUS and DHCP servers with very specific requirements for our network to which we migrated from FreeRADIUS and decentralized DHCP - see next job position.

Some numbers:

- 800 trains (4500 train cars), 6500 buses
- 8 mil. unique clients per day, up to 500k wireless users simultaneously, 20+ Gbit/s of traffic
- RADIUS: 1k+ rps, DHCP: 4k+ rps

Our team was responsible for the following IT infrastructure:

- VMWare vSphere clusters (50+ hosts), Linux/FreeBSD/Windows servers (500+ mostly virtual)
- Highly loaded services including:
 - RADIUS, DHCP, DNS (Unbound, 20k+ reqs/sec)
 - HTTP servers (nginx) serving up to 10Gbit with TLS
 - Databases (MySQL/MariaDB, Cassandra, Aerospike)
 - SAN infrastructure (iSCSI, FC on HP MSA)
 - Hadoop cluster (10 hosts, HDFS, Spark, Hbase, Flume etc)
- A lot of other minor systems that supported our infrastructure

Senior system engineer

Moscow, Russia

CJSC "KR Properties" www.kr-pro.ru

November 2008 – November 2015

I was responsible for the health and development of the company's IT infrastructure:

- OS: Linux, Windows Server 2003-2008R2, VMWare vSphere
- Network devices: Cisco (ASA firewalls, ISR routers, Catalyst switches, MDS FC switches)
- VoIP: Asterisk, Avaya
- VPN network based on DMVPN, OpenVPN, IPSEC, OSPF/EIGRP
- Migrated from physical servers to vSphere
- Implementation of VDI infrastructure (Horizon View, NVidia GRID)
- Built HA SAN storages (Linux, DRBD/LSI Syncro, SCST, Pacemaker, iSCSI/FC)
- Migration of VoIP from Avaya to Asterisk

- Software development
 - Intranet helpdesk system (PHP/Perl/MySQL/LDAP)
 - User lifecycle management (PHP/Perl/MySQL/Powershell)

Education

2001-2004 National Research Nuclear University 'MEPhI', Moscow (Incomplete)

1996-2001 Mathematical Lyceum