VITALII DRUZHININ

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Profile

Script Languages Developer (Bash, Perl, Python). DIfferent projects related to databases, networks, inter-process communication, RESTfull API and data processing. Mostly for Linux environment.
SQL Developer and **Database Administrator** (MS-SQL, MySQL, PostgreSQL). Installation and configuration database servers and data replication. Database design and development.
Linux System and Network Administrator with 15+ years of hands-on experience in design and development of enterprise IT-infrastructure and distributed networks.

Summary of skills

- **System administration** – the expert in installing, supporting, and maintaining servers and other computer systems, responding to service outages. Experienced in fault-tolerant and distributed systems, virtualized environments.
- **Network administration** – experienced in networking protocols, dynamic routing, firewalls, DDoS-protection and mitigation, heterogeneous environment, directory services (LDAP, Active Directory), VPN (OpenVPN), monitoring systems (Zabbix).
- **Database administration** – experienced in installation, configuration and maintenance different SQL servers (MS-SQL, MySQL, PostgreSQL), configuring database replication and backups.
- **Script Development** – proficient in developing various system tools and utilities. Proficient in different scripting languages (Bash/Perl/Python/sed/awk). Possess strong knowledge of scripting and programming, software/project development life cycles (SDLC) for systems-related projects. Skilled at

developing system software (MIME, milter, network sockets) and Web-applications (HTML, CSS, JavaScript, RESTfull, Mojolicious), database software (MySQL, PostgreSQL, SQLite, BerkeleyDB).

- **SQL development** – experienced at developing stored procedures (T-SQL), SSIS packages and SSRS reports (MS-SQL).
- **IT -Infrastructure** – proficient in designing and implementing fault-tolerant IT-infrastructure from scratch through a distributed network and structure (multi-branch).
- **Server migration** – confident in migrating existing servers and services into a virtualized environment using various virtualization platforms (KVM, VMware, VirtualBox, OpenVZ, Hyper-V)
- **Knowledge Bases** – expert in creating and managing knowledge Bases (wiki-based) (Twiki, Fosswiki, Docuwiki, TFS)
- **System Configuration** – proficient in configuring various network services (DNS, DHCP, SMTP, IMAP, Samba, FTP, NFS, LDAP, VPN, iptables). Experienced in creating deployment scripts and in using specialized configuration management tools (Ansible).

Technical skills

OS: Linux (Debian, Ubuntu, CentOS), Windows Server (2003, 2008, 2012)
Network services: DNS Bind/PowerDNS, DHCP ISC, Proxy Squid/3proxy, Web Apache/Nginx, SMTP Postfix/Exim/Qmail/Courier POP3/IMAP Dovecot/Courier/Qmail, Samba, FTP vsftpd/ProFTP, NFS, LDAP/ActiveDirectory, OpenVPN, SSH
Server technologies: Software RAID, Hardware RAID, IPMI, IDRAC, SNMP
Network technologies: PPP, PPTP, PPPoE, L2TP, VLAN, NAT, Link Aggregation, Policy routing, Dynamic routing, Firewall,
Databases: Microsoft SQL Server, MySQL, MariaDB, SQLite, PostgreSQL, BerkeleyDB, Mnesia
Virtualization: Vmware, Proxmox, OpenVZ, VirtualBox, KVM, LXC, OnApp, Hyper-V
Monitoring: Zabbix
Programming languages: Bash, Perl, Python, Erlang, Java, JavaScript, sed, awk, C/C++, x86 assembler
Web programming: HTML, CSS, JSON, JavaScript, RESTfull, Mojolicious
System programming: IPC, network sockets, regular expressions
Database programming: SQL, stored procedures
Development tools: Kate, make, diff, patch, git, GitHub, TFS, VSCode, Visual Studio, Azure Data Studio

PROFESSIONAL EXPERIENCE

SQL Developer at Revera Limited, New Zealand

09/ 2018 – present
Website: https://www.revera.co.nz/

Revera Limited is a New Zealand Cloud Service Provider.

Environment: Microsoft Server, Ubuntu, SolarWorks
Software: Microsoft SQL Server, SSMS, SSIM, SSRS, MySQL, PostgreSQL, Percona utilites, PowerShell, Bash, SSH, Ansible, Git, TFS
Technologies: SQL, data replication, automated provisioning, configuration management, and application deployment, Wiki

My everyday duty is providing operational, development and integration expertise
of MS-SQL/MySQL/PostgreSQL and related systems for use in Cloud Services platforms supporting the provision of IT and business services to Revera clients that meet agreed service levels. I am involved in

the development of robust, reusable, extensible, and user-friendly systems software to meet business and user requirements, as well as automation and orchestration.

System Support Engineer/ Compliance Officer at Kiwi-Coin Limited, New Zealand

03/ 2016 – 09/ 2018
Website: https://kiwi-coin.com/

Kiwi-Coin Ltd. is a New Zealand Bitcoin Exchange founded by a group of New Zealand bitcoin enthusiasts in 2014.

Environment: Centos, SSH, OpenVPN, Exim/Postfix mail servers, iptables (firewall)
Technologies: VPN, IPMI, software/hardware RAID, SSH-tunneling, packet filtering, policy routing

Projects:
- **Launching the Exchange.** I was a member of the team involved to the launching the Exchange. I developed firewall rules (iptables) and the network topology, run secure tunnels (OpenVPN, SSH-tunnels) and was responsible for network security.
    - The Exchange was launched within two weeks in accordance with plans.
- **Creating AML/CFT risk assessment.** I was one of authors of the Kiwi-Coin Limited's Antimoney laundaring and countering financng of terrorism risk assessment. To create the document I finished two-days courses in Welingtone.
    - The created risk assessment was successfully approved by the Department of Internal Affairs of New Zealand (DIA).
- **Development of deployment scripts.** Created Bash scripts to deploy system components on a clean server to speed up the installation and restore procedures.
    - These scripts allowed to decrease the installation time of the whole system to 30 minutes.

My everyday duties were supporting deployment scripts and provide periodic updates according to new requirements. I helped with periodic adjustments of the operating system, network and VPN connections between servers. Sometimes I helped with the support of customers and process live chats and tickets. All jobs were performing remotely.

Support Engineer/System Engineer at Solar Communications GmbH, Switzerland

03/ 2013 – 09/ 2018
Website: https://solarcom.ch/en/

Solar Communications GmbH. is a hosting company that provides dedicated servers, virtual servers and cloud servers, on-site equipment collocation and DDoS protection. The company offers over 400 dedicated servers and maintains a few hundred virtual servers (VPS) running under VMware vSphere.

Hardware: Supermicro servers (MicroBlade™), ATEN Cat5 KVM switches, RAID adapters: Adaptec/LSI/3ware/Intel, Intel server NICs (1Gb and 10Gb), SAN CoraidEtherDrive and SolidFire
Software: VMware vSphere, OnApp, Xen, CentOS, Debian, PostgreSQL, MySQL, Zabbix, Wanguard, Foswiki, DokuWiki, IPMIview, SMCIPMITool, SSHD, OpenVPN, Samba, named, ntpd, vsftpd, rpc.nfsd, vblade, multipath, iptables, ipset, ip, tcpdump, Telnet, mdadm, iscsiadm, LVM, Perl, Bash, Git.
Technologies: IEEE 802.1q VLAN (Virtual Local Area Network), IEEE 802.1AX LACP (Link Aggregation Control Protocol), iSCSI, AoE (ATA over Ethernet), hardware/software RAID, LVM, RDBMS master/slave replication, IPMI, SNMP, NetFlow, Netfilter, Proxy_arp, IPIP tunnel, VPN

Projects:
- **Extending OnApp cluster.** Solar Communications used the OnApp Cloud management platform (https://onapp.com/) with Xen-hypervisors to provide a virtual servers service. The project scope was to extend the existing hypervisors pool by new nodes, to perform installation and configuration of the OnApp software.
    - o Extended the existing cluster by new nodes (from 5 to 10)
    - o Prepared a training manual with detailed steps on how to install and configure new customised hypervisors.
- **Installing Zabbix monitoring system.** Suggested the company to centralise monitoring software and to choose Zabbix as the main monitoring system. Zabbix was designed to monitor and track the status of various network services, servers and another network hardware. Zabbix uses MySQL, PostgreSQL, SQLite, Oracle or IBM DB2 to store data.
    - o Installed, configured and customised Zabbix to obtain values from network equipment and servers. Currently, the system serves about 900 hosts and polls about 35.000 items.
    - o Developed extensions (Perl) to obtain values from specific hardware (Coraid devices) and services (ntpd, Xen).
    - o Cooperated with software developers to integrate a specific control panel that provided information about critical events to the support team (cURL, JSON).
- **Creating IPMI Gateway.** Due to multiple vulnerabilities in the IPMI protocol the company had issues with availability of IPMI devices. To avoid hangs a decision was made to restrict access to company's IPMI devices by a list of customer's IP addresses, a special gateway was created and managed from the customer's Web-panel to filter traffic towards IPMI devices.
    - o Installed the Linux-based IPMI Gateway and successfully configured it. Used the iptables+ipset facilities to perform a quick filtering of IP addresses.
    - o Integrated the IPMI Gateway with customer's Web-panel. Cooperated closely with software developers to implement it.
- **Migrating PostgreSQL instance to a cluster.** RDBMS PostgreSQL was used as a backend for Zabbix monitoring system. Successfully migrated the working PostgreSQL instance to a cluster with two nodes joined by replication.
    - o Installed and configured the PostgreSQL cluster, migrated data. Started the master/slave replication.
- **Installing WANGUARD DDoS detection system.** The system WANGUARD by Andrisoft provided full network traffic visibility.
    - o Installed and configured WANGUARD successfully.
- **Creating Anti-Spoof system.** During installation of a new virtualisation platform (VMware vSphere) the company faced low performance of the native anti-spoof system SpoofGuard. The leadership team decided to stop using SpoofGuard and to develop company's own "home grown" solution.
    - o Developed company's internal system to trace changes of IP-addresses. (originally based on arpwatch and later migrated to arpalert)
    - o Integrated the anti-spoof system to a Web-panel and to the existing VMware vSphere infrastructure. Cooperated closely with software developers during the implementation phase.

My everyday duties were:
- Processing customer tickets and live chats, managing new orders for dedicated servers (operating system installation, network configuration), performing primary troubleshooting of hardware or network issues, escalating issues (if required) to another support levels (network team, security team, billing team).
- Maintaining 15+ servers that support internal services – file server, wiki, database cluster (PostgreSQL), monitoring systems (Zabbix, ArpSpoof), DNS and NTP servers. Installation and configuration various software, developing different add-ons, installing security and software updates.
- Updating the system OnApp Cloud Management Platform, managing Xen hypervisors, setup new hypervisors and maintaining the system on a regular basis.

- Performing work remotely using IPMI/SSH/RDP and Web interfaces.

Lead ICT Engineer at City Council, Russia

01/ 2011 – 09/ 2017
Website: https://www.kmscity.ru/

The City Council as a main body of the local government.

Software: VMware vSphere, CentOS, Debian, PostgreSQL, MySQL, Zabbix, SSHD, Nginx, Apache, Jboss Application Server, Apache Tomcat, Java, Perl, Bash, Git, OpenVPN.
Technologies: IEEE 802.1q VLAN (Virtual Local Area Network), RDBMS master/slave replication, VPN

Projects:
- **Development of Electronic government system.** As a stakeholder representative I partook in developing of initial requirements, managing the test phase and taking up the result. The system was implemented successfully and it was integrated with other local and government information systems like government websites, the city website, the government authorization and authentication system (RealMe analog), the government interagency exchange system.
- **Migrating PostgreSQL instance to a cluster.** RDBMS PostgreSQL was used as a backend for Zabbix monitoring system and different proprietary software. Successfully migrated the working PostgreSQL instance to a cluster with two nodes joined by replication.

Acted as a technical consultant, responsible for selection of software and hardware components for building a distributed Data centre. Provided insights on various ICT related matters, including software development, network management, and creation of information infrastructure.

Linux System Engineer/Software Developer (Freelancer)

10/ 2009 – 12/ 2012

Consultant assignments
Clients
- Amur State University of Humanities and Pedagogy (http://www.amgpgu.ru/en/, Education)
- Flagman, OOO (net of petrol stations)
- Teon PVP Game Portal (http://teon-pvp.com/)
- Piter-T (http://pitert.ru/, email processing)
- Digital Network (http://di-net.ru/, hosting provider)
- CryptoVPN (https://cryptovpn.com/en, VPN provider)
- Various clients from the FL.ru labor exchange (https://www.fl.ru/)

Hardware: Hewlett-Packard Proliant Servers, Intel Modular Server MFSYS25, RAID adapters: Adaptec/MegaRAID/LSI/3ware/Intel
Software: Proxmox, KVM, OpenVZ, VirtualBox, Amazone Web Services (EC2, S3), RightScale Cloud Management Platform, CentOS, Debian, Ubuntu, FreeBSD, MySQL, PostgreSQL, Apache, Nginx, Postfix, Exim, Zabbix, Twiki, Foswiki, OpenLDAP, FreeRadius, SSHD, OpenVPN, PeerVPN, Samba, Bind, PowerDNS, ntpd, vsftpd, iptables, ipset, ip, tcpdump, Telnet, mdadm, LVM, Perl, Bash, Git.
Technologies: IEEE 802.1q VLAN (Virtual Local Area Network), IEEE 802.1AX LACP (Link Aggregation Control Protocol), hardware/software RAID, LVM, RDBMS, IPMI, DRAC, SNMP, NetFlow, Netfilter, Proxy_arp, IPIP tunnel, VPN, AWS EC2, LDAP, Radius.

Projects:

- **Agency [Piter-T](#)** - **Development of Smart Mail List System – Team Lead.** Led a team and oversaw development of the dedicated software for automating of the email processing, classification, and dispatching. Responsible for the system requirements gathering, design of the system architecture and the database structure, integration with the mail software (Milter filters, Postfix), development of the message processing software (optimization, fixing commonly encountered errors, misprints, and formatting problems, classification).
- Conducted design of the new web-panel (Perl, Mojolicious) for the customer email list management that allowed using dynamic mail lists according to categories.
- **VPN access service provider** - **Development of management software for a distributed cluster (OpenVPN servers) – System Architect/Developer.** Designed the system architecture, network topology, and software to adjust traffic routing in a distributed environment (Perl, Radius, network sockets). Developed
  - o a separate application to monitor and manage active VPN sessions (Perl, IPC);
  - o a special fork of the OpenVPN AUTH project (https://github.com/bfg/openvpn_auth) with some extra functionality;
  - o a generator of configuration files for various network services (Nginx, Bind, PowerDNS) according to info retrieved from a remote service in JSON format. That generator was used as a part of some Web DDoS Shelter System (WDSS);
- **Development a Web Hosting billing module.** The "Digital Network" company (http://di-net.ru/) was developing a new billing system and they were needed modules to update various network services configuration files (Bind, Apache, FastCGI, PHP) according to events incoming from the billing system. I developed a modular application (Perl) to process billing data (retrieved from a MySQL database) and to create configuration files and reload network services without downtime.
- **Development deployment scripts for Cloud servers.** An anonymous client had many servers in Amazon Web Service Cloud (https://aws.amazon.com/) and managed them using Rightscale Cloud Managment software (https://www.rightscale.com/). I developed various scripts for automatized deployment client's applications (Apache, Nginx, HAProxy, PHP, Wowza Media Server) to new servers instances. Servers were working in zone uqast.com, possible they belonged to uQast Company (https://www.linkedin.com/company/uqast/).

At that period I completed a lot of tasks regarding Linux system and network administration. I played different roles with different projects. I was acted as a team leader, system architect, DBA, system engineer or software developer. Often I played two or more roles at the same time. A little part of my projects are listed on the personal website http://vital.sh/.

Network Administrator at Solnce, Russia

12/ 2009 – 01/ 2016
URL: https://hh.ru/employer/593841

Solnce is a trading company specialized in construction materials and renovation stuff.

Software: Proxmox, KVM, OpenVZ, Microsoft Hyper-V, Microsoft Windows 2003 Server, Microsoft Active Directory, Debian, MySQL, PostgreSQL, Zabbix, SSHD, Apache, Exim, Foswiki, Samba, OpenLDAP, Bird, Bind, dhcpd, OpenVPN, PeerVPN, iproute, iptables, tc.
Technologies: VPN, Virtualization, SAN, IPMI, Wiki, policy routing, traffic prioritezation, BGP, LDAP

Projects:
- **Infrastructure reorganization.** The "Solnce" company was a swiftly-growing company, but its information infrastructure was developed spontaneously and chaotically. The new IT director decided to change such state of affairs, to inspect the current infrastructure, to make a report about issues and to create a plan to fix them. At the end of 2009, I had a practical experience with information audit and

the company offered me to make an audit of the current information infrastructure, to prepare a report and to make suggestions regarding the reorganization.

I started with the creation of a knowledge base and preparation of a report about issues. The report became a base for the creation of the development plan. The main aims were:
- o update existing software
- o provide an ability to update software on a regular basis
- o create a protected, reliable and fault-tolerant virtual private network (VPN) between branches
- o provide reliable and fault-tolerant network services
- o create a centralized authentication system for all branches
- o use Open Source software to minimize total cost ownership

As a result, I led development of a heterogeneous infrastructure that was running over the distributed protected network with domain system.

The infrastructure was created by 3 engineers within 2 years. In that project, I was acted as a System Architect, System Engineer, and Network Administrator. After complete the reorganization, I continued to maintain the infrastructure as a System and Network Administrator for a few years.

The infrastructure was based on:
- o Samba PDC+BDC (authentication)
- o OpenLDAP (distributed directory service)
- o Bind (distributed domain names system)
- o Bird (dynamic routing, BGP)
- o OpenVPN, PeerVPN (securing, fault-tolerant)
- o KVM, Hyper-V (virtualization)
- o OpenVZ (lightweight containers)
- o Zabbix (monitoring system)
- o Microsoft Windows Terminal Service (remote access)
- o MySQL, Microsoft SQL Server (databases)
- o Bacula (backups)
- o ejabberd (instant messages)
- o Exim + Dovecot (mail service)
- o IP PBX Asterisk (phone calls)
- o Squid Proxy (internet access)
- o Foswiki (knowledge base)
- o OTRS (tickets system)

Most of the network services were migrated to virtual machines (Amazon Cloud servers).
The number of incidents related to network service availability decreased in 10xtimes.
The total cost ownership decreased by 15% with increasing the number of servers in 5 times,
the number of branches from 7 to 20, the number of workstations from 75 to 200.

Head of Networking Technologies Bureau at Amurmetall, Russia

10/ 2008 – 09/ 2009
Website: http://amurmetal.ru/

Amurmetall is the biggest metallurgical works in the Far East of Russia.

Hardware: SUN Blade Modular Servers, SUN Fire V20/V40/X4200 Servers, Hitachi SAN, RAID adapters: Adaptec/MegaRAID/LSI
Software: VMware ESXi, Microsoft Windows 2003 Server, Microsoft Windows SQL Server, Microsoft Active Directory, CentOS, Debian, MySQL, Zabbix, SSHD, Apache, Postfix, Exim, Twiki.
Technologies: IEEE 802.1q VLAN (Virtual Local Area Network), VPN, Virtualization, Fiber Channel, SAN, IPMI, Wiki
Projects:
- **Inspection of the existing information infrastructure, creating a knowledge base.** After assuming

office I found that the bureau staff has huge gaps in knowledge about the current information infrastructure. They had about 20 dedicated servers for the different purpose with a mess of services, dependences, outdated software and security issues. Sometimes nobody could answer me to a question "what is it and what does it do exactly" about a server, a service, a database, a network switch or something else like that. It was the main reason to start a total inspection of the existing infrastructure.

As a result, under my leadership, and with my direct participation there were created a huge knowledge base with detailed descriptions about each server, service, database, switch, router, equipment and e.t.c. The inspection took about 3 months.

- **Migration of the existing infrastructure to a virtualized environment.** During the inspection there were found both unused hardware and not optimal usage of used hardware. Moreover, some loosely coupled services were connected with each other by common hardware or software components. We got a situation when you can't stop some service to upgrade because of that leads to an unexpected stop of another service. In its turn, it can lead to stopping something else. It was like a snowball of troubles and unresolved dependencies. In that case, I made a decision to implement a virtualization platform based on VMware ESXi hypervisors and migrate most of existing services from physical servers to virtual machines. In parallel, we have updated software components, avoided excess dependencies and updated the knowledge base.

Under my leadership, the bureau staff made a huge job to systematize, optimize and increase reliability for the whole infrastructure. I took an active part in that process as a system engineer, DBA, and network engineer. As a head of the bureau I had up to 7 person in my subordination.

Head of Automation Department at Technodesign, Russia

10/ 2000 – 09/ 2008
Website: http://www.technodesign.ru/

Technodesign is an expert IT provider with a wide range of IT solutions for business needs.

Hardware: Intel servers, Supermicro servers, L2/L3 switches, analog and digital PBX LG/Panasonic (up to 1000 extensions), media convertors
Software: Microsoft Windows NT/2000/2003 Server, Microsoft Active Directory, Microsoft SQL Server 7/2000/2005, Slackware, Debian, MySQL, Zabbix, SSHD, Apache, Courier, Qmail, Samba, Quagga, Bind, OpenVPN, iproute, iptables.
Technologies: IEEE 802.1q VLAN (Virtual Local Area Network), VPN, policy routing, traffic prioritezation, OSPF, G.703, G.704, V.35, RS-232, DSL

Projects:
- **Design and building a city network.** Before 2000 the main business for Technodesign company was selling computers. Later the company began to develop the designing and building of networks, system integration and selling network, server and phone equipment. I started at this company as a system and network administrator, and later at different time worked as a software developer, sales manager, system architect and the head of automation department. I was the main architect of the new project – a city network. It was a fiber network between a few nodes, each node acted as a router for a switched customers networks behind it. Due to strong limitations for network capacity and Internet bandwidth the city network had an ability to control the exchange speed and Internet traffic consumption for each client. The company director was not sure about financial effectivity the project and didn't want to invest too much money. Due to low budget, we couldn't afford smart network switches like Cisco, but we had no limits to use computers and small SOHO network switches. So, the first version of the city network was built using Level 2 network switches and Linux-based PC-routers. We provided both as the Internet connections and communications lines between customers.

For the short time period the city network became very popular and later it became a separate Internet provider TD-net (https://td-net.ru/). I was the main architect and maintainer of this network for the first couple of years.

- **Own billing system developing.** As the TD-net was growing, the company needed a billing system. The director decided to hire a team of developers to create an own system and offered me to monitor and manage this team. So I became a head of a new department and the department had its first project already. The billing system was written with Perl as a primary programming language and MySQL as a database. The system allowed to authorize users, process statistics, form invoices. Most of the actions could be performed automatically.

In that project, I acted as a team leader, as a project manager, as a developer, and as a system administrator. The billing system worked about 5 years and handled a few hundreds of customers.

I had been started at the company as a system and network administrator, and later at different times worked as a software developer, sales manager, system architect and the head of the automation department. As the head of the department, I had up to 10 people in my subordination.

Note: The information about employment history and professional experience before 2000 is available upon request.

Education

Diploma Level 7 in Software Development, Edenz College, New Zealand

09/ 2017 – 06/ 2018
Website: http://www.edenz.ac.nz/

Key subjects:
- Desktop Application Development
- Mobile Application Development
- Cloud and Web Application Development
- Application Development Project

Capstone project: Scalable, distributed and fault-tolerant platform to run Web-applications (Programming language: Erlang. Database: Mnesia)

Diploma in Programming Engineering, Computer and Automated Systems Software, Komsomolsk-on-Amur, State Technical University, Russia

1989 – 1995
Website: https://knastu.ru/

Key subjects:
- Program design and programming languages
- Computer data structure and organisation
- Computer architecture
- Numeric methods
- System software
- Application of optimization methods in research
- Databases, knowledge bases and Expert systems
- CAD software
- Industrial enginering, planning and business management

- Computer network and distributed systems

Personal projects

AnonDNS

Website: http://anondns.net
AnonDNS is a public anonymous dynamic DNS server that allows registering a dynamic DNS name in zone anondns.net for free.

flex-fw

Website: http://flex-fw.net
flex-fw is a small and fast console frontend to iptables - tool for configuring Linux kernel firewall - with a syntax similar to pf, ipf or ipfw from BSD systems.