Scott Crooks

DevOps / Systems Engineer

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Education

- **Humboldt-Institut** — Berlin, Germany
  Intensive German Language Course — *June 2017 to October 2017*

  – Intensive German language course to obtain B1 level of German in order to fulfill the German language requirement for the EU Blue Card. Humboldt-Institut schedules 30 hours per week of instruction in all aspects of German language skills: reading, writing, speaking, and listening.

  National Taiwan University — Taipei, Taiwan
  International Chinese Language Program (ICLP) — *September 2014 to June 2015*

  – Taking a year to study Chinese intensively at the International Chinese Language Program (ICLP) at National Taiwan University (NTU). ICLP requires 20 hours per week of instruction in all aspects of Chinese language skills: reading, writing, speaking, and listening. Students are also required to be able to give presentations in Chinese at the end of the term as part of their final coursework.

  – Taiwan Ministry of Education Huayu Enrichment Scholarship (Full Scholarship, 9 months)

- **Oregon State University** — Corvallis, Oregon, USA
  B.Sc. Chemical Engineering — *September 2004 to June 2009*

  – Graduated Cum Laude with speciality in Material Sciences and Engineering

  – Deans List 9/12 terms

  – Cumulative GPA: 3.57/4.00

Skills

- **Programming Languages:** BASH / Shell, PHP, Python, SQL, Jinja, LaTeX

- **Spoken Languages:** English (native), Mandarin Chinese (HSK 4), German (B1)

- **Technical Software**

  – BI & Monitoring: Check_MK, DataDog, Grafana, Icinga, Looker, Nagios, New Relic, Piwik, TICK Stack

  – Build & CI: AWS CloudFormation, CircleCI, CodeClimate, DeployBot, Docker Swarm, Jenkins

  – Collaboration: Asana, Confluence, JIRA, MatterMost, Slack, Trello

  – Config & Provisioning: Packer, Puppet, SaltStack, Vagrant

  – Databases: MariaDB / MySQL, MongoDB, PostgreSQL

  – Infrastructure: GNU/Linux (all distros), Active Directory, GlusterFS, HAProxy, LDAP, NGINX, OpenVPN, PowerDNS, Unbound & NSD DNS

  – SCM & Repo Management: Docker Registry, Git, Gitlab, PHP Packagist, Sonatype Nexus (Maven), SVN

  – Virtualization & Cloud IaaS: Amazon AWS, Citrix XenServer, OpenStack, VMware ESXi

- **Creative Software:** Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Apple OS X Keynote, Prezi, Tumult Hype 3

Industry Experience

- **Vacasa, LLC**   Portland, Oregon, USA
  DevOps Engineer   *December 2015 to Present*
  Rental property management company providing comprehensive management services for over 5,000 vacation rentals. Member of a DevOps team that used SCRUM and Agile methods for collaboration between team members and developers.

  - Initiated an OpenVPN project for engineering and analytics department. Around 40 members of the company use the VPN solution that is powered by Docker, and conforms to the NSA Commercial National Security Algorithm Suite cryptographic standards. Original implementation is open-sourced on GitHub here: https://github.com/helin24/openvpn-php-access
  - Performed a complete database conversion to UTF8 encoding on the company's primary MariaDB database using Amazon Database Migration Service (DMS). Wrote scripts in PHP to check for data integrity between the Latin1 / UTF8 versions of the data while running the migration.
  - Setup SaltStack as a configuration management tool for Vacasa's non-Docker based infrastructure; solution utilized SaltCloud as a server provisioning method. Contributions were also made to the OpenVPN and PHP SaltStack formulas on Github.
  - Migrated Vacasa's 5 services and all associated servers from EC2 Classic to a VPC-based network with minimal downtime, and with the potential for fallback if the migration proceeded incorrectly.
  - Responsible as the primary maintainer for 5 of Vacasa's Docker-based services: Mattermost, OpenVPN, Sentry, the IP and Network Planning tool, and MONyog. All of the services used Docker Swarm deployments through Jenkins (or Portainer for privileged containers), and CI testing with CircleCI.

- **MCON China Ltd.**   Beijing, China
  Engineering Team Leader // Systems Engineer   *August 2011 to August 2014*
  A German IT consulting and infrastructure company focusing on hosting and infrastructure services for the automotive industry.

  - Provided primary technical and project Linux and server monitoring support for Volkswagen Group Chinas MS/2 Project, which consisted of using more than 150 CDN servers distributed across China for dealerships to be able to stream content locally.
  - Collaborated in the setup, scripting, and documentation of monitoring the core server infrastructure for BMW China's ConnectedDrive within greater China. Project involved a crosswise failover between datacenters with on-the-fly synchronization between the two locations.
  - Engineered a code deployment solution for the BMW ConnectedDrive team in Shanghai to deploy dashboard apps in China for the BMW ConnectedDrive system. Solution included replacing BMW's existing manual Maven build process with a standardized and automated build deployment system using Git revision control, and Jenkins code deployment software.
  - Managed a multi-national team of 5 individuals to perform daily maintenance tasks of infrastructure, support a development team of ~100 individuals for their daily IT needs, and perform consulting duties for automotive customers around Beijing.

- – Led training courses, created screencasts and technical manuals, and provided technical support for our internal server documentation software to our teams in China and Germany.
- – Initiated the process of standardization of naming and partitioning our server and network infrastructure, and documenting those standards once agreed upon by the team and management.
- – Learned our companys infrastructure in Germany, China, India, and South Korea, within the period of 12 months, and was able to handle improvements and maintenance tasks to our Beijing datacenter afterward.

- **ChinaSoft DK / NKE Limited**   Beijing, China
  Project Leader   *February 2011 to August 2011*
  A Danish software company specializing in creating websites using the Drupal content management system.

  - – Managed 4 web development projects during my tenure for 3 different clients in Denmark. The companys industries included newsprint media, healthcare, and a consumer-to-consumer (C2C) intermediary for graphic designers and manufacturers.
  - – Supervised and collaborated with 8 Chinese programmers on the aforementioned projects. Held frequent strategic meetings to ensure that projects were on track.
  - – Performed intensive quality testing on the code and functionality of each programmers work following the completion of a task.
  - – Documented and submitted 7 work flow improvements to the company owner based on my observations of company procedures.
  - – Quickly gained knowledge of the Drupal content management system having only previously worked with Wordpress before. Demonstrated this knowledge by coding modules in my spare time when not attending to project management affairs.
  - – Handled the installation and maintenance of 2 Linux web servers for 2 of the projects I lead; the Linux servers used Red Hat Enterprise Linux and CentOS distributions.

- **AmeriCorps VISTA**   Helena, Montana, USA
  Client Eduation VISTA   *January 2010 to January 2011*
  AmeriCorps is a national service program whose goal is to fight poverty by improving and expanding the capacity of non-profits or local government agencies. As a Client Education VISTA, I served a one year term through the AmeriCorps VISTA program at Montana Legal Services Association (MLSA), a non-profit that provides free legal assistance to low-income individuals.

  - – Designed and rebuilt the organizations website from scratch using the WordPress content management system.
  - – Produced a series of over 50 training video screen casts using Camtasia Studio to instruct the attorneys at MLSA how to make major changes to the organizations new web site after my departure.
  - – Programmed, developed and implemented an online intake system for electronic submission of legal aid applications. To date, over 300 online applications from clients have been submitted and processed.
  - – Served as the technical lead on MLSAs forms project for the Montana Supreme Court. To date, over 20 fillable forms have been created in Acrobat Pro for self-represented litigants.
  - – Co-organized Global Youth Service Day in Helena as part of a nation-wide day of service. The event resulted in the recruitment of over 50 local youth and their families, who in tandem performed over 200 hours of community service at 6 different service sites.

- Formulated a search engine optimization (SEO) strategy for MLSA in tandem with the roll out of the new website. Page views for the new website have increased by 25.1% as a result. Composed a technical white paper on SEO for the MLSA attorneys to follow after my departure.
- Created 4 promotional flyers using Adobe Illustrator and Adobe Photoshop for Martin Luther King, Jr. Day, Global Youth Service Day and MLSAs outreach campaign.
- Taught myself PHP, MySQL and Apache in accordance with the requirements of the new website. Lobbied for and co-coordinated the installation of our self-hosted web server using OpenSUSE.

- **Frito-Lay, Inc.**   Vancouver, Washington, USA

  Project Engineer / Capital Expenditures Intern   *June 2008 to January 2009*

  Frito Lay is owned by PepsiCo, and produces food products. Interned for 6 months at Frito-Lays production facility in Vancouver, WA through the MECOP program at Oregon State University.

  - Managed a $100,000 budget on a project to upgrade facility lighting from metal halide to fluorescent lamp fixtures. As a result of the project, Frito-Lay Vancouver saves $20,000 annually in energy costs.
  - Supervised a crew of 5 electricians on the facility lighting project. Collaborated with Grainger Supply for the equipment needed, as well as Energy Industries for the labor and initial lighting evaluation.
  - Prepared 2 capital appropriation requests for submittal to Frito-Lay corporate for funding on 2 different projects: a waste heat recovery system for exhaust steam, and intake air redirection on 8 regenerative blowers in the production area.
  - Completed an entire Sarbanes - Oxley financial audit of the Vancouver facility for the Financial Manager. The audit cleared up discrepancies in the accounting department in regards to job duties.
  - Composed mechanical and electrical scopes of work for a regenerative blower project and administered bid walks for 3 different contracting companies.

- **ATI Wah Chang**   Albany, Oregon, USA

  Student Engineer   *April 2007 to September 2007*

  Wah Chang is a company owned by Allegheny Technologies to produce zirconium, hafnium, and other metals primarily used in the nuclear industry. I interned for 6 months at ATI Wah Changs metal refining facility in Albany, OR through the MECOP program at Oregon State University.

  - Planned and executed an experiment to identify damaged furnaces in the zirconium reduction area using a thermocouple assembly. A total of around 20 furnaces were tested. The experiment uncovered around 6 faulty furnaces, which were then reported to maintenance for repairs or replacement.
  - Documented and drew 2 complete process and instrumentation diagrams (P&IDs) for 2 core processes using AutoCAD. The diagrams were subsequently reviewed by drafters, and put into the AutoEDMS electronic drawing archive.
  - Oversaw a $20,000 project to install a safety shut-off valve system for usage in the chlorine retrieval area. Wrote operating instructions for the shut-off valves, and saw the system put in place as standard procedure.

Projects

Vacasa, LLC

- **DataDog Integration Project**   Portland, Oregon, USA
  DevOps Engineer   December 2016 to June 2017

  Scope

  Integrated DataDog monitoring into Vacasa's existing plain EC2 and Docker Swarm servers.

  Responsibilities

    – Setup monitoring checks in DataDog to monitor our MySQL RDS servers with the following
      metrics: queries per second, replica lag, cached query utilization, CPU and RAM utilization,
      and number of slow queries per hour.
    – For our Docker-based OpenVPN containers, set up checks for number of connected clients, as
      well as amount of available entropy for the host server (important for random-number
      generation needed for cryptography.
    – Deployed Datadog agent to all servers using SaltStack, and contributed to the official
      SaltStack formula for the deployment of the DataDog agent onto Debian/Redhat-based
      servers: https://github.com/DataDog/datadog-formula/pull/15

  Technology Utilized

    – DataDog Linux Agent, SaltStack

- **OpenVPN Research & Deployment**   Portland, Oregon, USA
  DevOps Engineer   April 2016 to June 2017

  Scope

  Researched, setup, and implemented two iterations of a Docker-based VPN service using OpenVPN
  NL and later OpenVPN 2.4.0+. Initial solution utilized OpenVPN NL, which is a fork of
  OpenVPN used by the Dutch government, as well as the Authy two-factor authentication service.
  The second version contained complete integration with OneLogin, which Vacasa was using as a
  single sign-on (SSO) provider, as well as load balancing, and health checks using AWS Route 53.

  Responsibilities

    – Worked with another developer in the company to create our own authentication and connect
      script in PHP to access our LDAP backend. Original implementation is open-sourced on
      GitHub here: https://github.com/helin24/openvpn-php-access. I was primarily responsible for
      designing how the script should work, integrating it with OpenVPN, and writing the
      documentation on GitHub.
    – Researched and implemented how to perform split-routing and per-user access rules in order to
      have different levels of access based on job roles. IPTables was used to implement firewall rules
      on the server side, while the PHP connect script sent appropriate routes to each client based
      on their level of access.
    – Researched and implemented the necessary requirements about how to conform with the NSA
      Commercial National Security Algorithm Suite for the second version of the VPN.
    – Set up AWS Route 53 health checks to monitor the health of active VPN servers, whereby
      Route 53 would remove available servers if they were deemed as being unhealthy.

  Technology Utilized

    – AWS Route53 DNS Health Monitoring, Docker, Haveged, IPTables, OpenVPN 2.4.0+,
      OpenVPN NL

MCON China Ltd.

- **BMW China - OCR Reverse Proxy Server**   Beijing, China
  System Architecture Consultant   *June 2014*

  Scope

  Installing and configuring a reverse proxy in BMW China's transport network for OCR requests. BMW China had specific network and firewall requirements for their OCR software communication between China and Germany; MCON provided a solution based on their strict network and security requirements.

  Responsibilities

  – Performed installation of Apache reverse proxy and SSL configuration, as well as coordinated with BMW China internal IT for firewalling between servers.

  Technology Utilized

  – Apache2 for reverse proxy.

- **Volkswagen Group China - NADIN Migration**   Beijing, China
  Project Manager   *April 2014 to August 2014*

  Scope

  Migration of one of Volkswagen Group China's core servers used for the ordering of new cars to dealerships. VGC requested project assistance to migrate a physical server hosting their NADIN software, a core component of their business, used by all dealerships in China for the ordering of new cars. During this project I was a Project Manager assisting the IT department with the day-to-day management of this project.

  Responsibilities

  – Worked with VGC's network engineering team to integrate the replacement virtual machine into their new network security zoning policy.
  – Collaborated with Volkswagen Global (VWG) NADIN support team to ensure that the NADIN upgrade and rollout of the new NADIN server would be performed with minimal downtime, minimal risk, as well as ensured a rollback solution would be in place in case the upgrade failed.

  Technology Utilized

  – Oracle Database 9i for storage of dealership car ordering information through NADIN.
  – NADIN 3.6 for ordering cars for Volkswagen dealerships in China.

- **BMW China - ConnectedDrive App Deployment**   Shanghai, China
  System Architecture Consultant   *April 2014 to August 2014*

  Scope

  BMW ConnectiveDrive in Shanghai quickly needed server hosting and a deployment solution for their ConnectedDrive dashboard application APIs. I made a business trip to Shanghai to work with

their senior deployment engineer in order to figure out a deployment solution. Afterward, we continue to support BMW for new rollouts as well as technical issues.

Responsibilities

- Created the statement of work (SOW) between BMW China and MCON China since the project's first phase was completed very quickly and had not yet been defined.
- Collected and analyzed the business and technical requirements from BMW's side, and developed a solution that fit BMW's needs as well as fit MCON's standards for code deployments in a 3-day work window.
- Provided support for new deployments as well as technical issues that would arise during development.

Technology Utilized

- Git version control system hosted on our servers for revisioning of code.
- Jenkins CI server for deployment of BMW ConnectedDrive Dashboard App APIs for usage in Mainland China.
- Tomcat as a servlet container for their APIs.

- **Volkswagen Group China - DMS Monitoring Project**   Beijing, China
  Monitoring Consultant   *June 2013 to August 2014*

  Scope

  Setting up an infrastructure monitoring solution using open-source software. VGC needed to monitor important metrics in regards to their DMS system, as well as be alerted via e-mail/SMS when infrastructure went down.

  Responsibilities

  - Setup a new monitoring solution using Centreon / Nagios monitoring tools to keep track of the health of their CDN servers.
  - Wrote monitoring plugins in BASH and Python to tailor to VGC's specific monitoring needs. Used Selenium IDE automation tool in combination with BASH script to automate the insertion of data into their monitoring database.
  - Previously had a strong interest and desire to learn the DMS infrastructure and processes from the MS/2 Project. From this project gained a very clear understanding about Volkswagen's dealer DMS infrastructure, IT business processes, and IT project management methology.

  Technology Utilized

  - Centreon and Nagios for core monitoring function.
  - Selenium IDE and AWK for automation of data-entry.
  - BASH and Python programming languages for writing custom scripts in the Nagios plugin framework.

- **Volkswagen Group China - MS/2 Project**   Beijing, China
  System Architecture Consultant   *October 2012 to August 2014*

  Scope

  Deploying CDN servers to all of China's Volkswagen brand dealerships. Dealers would receive

content pushed to their dealership's CDN server in order to locally stream training videos and other content.

Responsibilities

- Provided primary technical and project Linux and server monitoring support for project, which consisted of using more than 150 CDN servers distributed across China for dealerships to be able to stream content locally.
- Oversaw and managed the vendors involved in the project to ensure that they delivered the proper goods and services: ATOS for preparation and delivery of the MS/2 servers, and Incadea for the 1st Level Support.
- Aided VGC in rolling out their servers by providing Linux troubleshooting and support for ATOS, specfically for the CloneZilla disk cloning solution that we developed.

Technology Utilized

- CloneZilla disk cloning software with DRBL used for bulk cloning of MS/2 machines.
- Citrix XenServer used for deploying virtual machines within the physical machines.

Awards, Honors & Certifications

ICLP Chinese Progress Award: 2nd Most Progressed Student out of ~150 2015
Test of Chinese as a Foreign Language (TOCFL) Level 3 2015
Taiwan Ministry of Education Huayu Enrichment Scholarship 2014-2015
Montana Board of Professional Engineers: Engineering in Training Certification 2010