

Oliver Garraux

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Profile

Senior hybrid network and site reliability engineer with extensive experience in building automation tooling, architecting networks, and technical leadership

Work Experience

Yelp: Network Engineering Technical Lead

August 2014 – Current:

Started as Network Engineer for Yelp's production network team, grew to become Technical Lead for combined team responsible for backbone production network (supporting Yelp's website), and corporate network (supporting up to 6,000 employees across 11 offices).

Automation

- ◆ Introduced Juniper automation tooling at Yelp starting in 2015, using **Ansible** plus the **NAPALM** module
- ◆ Beyond basic configuration management, also developed **unit testing** surrounding our templates and variables, to verify input data and template behavior
- ◆ Built automation on top of Ansible tooling – for example, Python scripts that use Ansible to gracefully shift traffic off of a link, add peers at public peering exchanges, and **integrate with AWS API** to add routing for new DirectConnects
- ◆ Developed internal patches for Junos Ansible module to automatically do Junos commit-confirms, to protect us from risk of a bad automated change breaking management access to devices
- ◆ Created pipeline in Yelp's Jenkins environment to run tests and detect configuration drift between Ansible and running configuration
- ◆ Instituted **git** and **code review process** for network changes, aligning network team with the rest of Yelp engineering
- ◆ Deployed network monitoring hosts on AWS EC2 / S3 / Route53 using terraform

Design and Architecture

- ◆ Evolved Yelp's production network from an on-prem datacenter focus, to become a backbone **interconnecting AWS cloud regions** and carrying our corporate network
- ◆ Drove **WAN redesign** for Yelp offices – worked closely with technical sourcing team, outside consultants, and service providers to design, quote, select, order, and deliver new circuits to our offices and datacenters that were faster, simpler, and cheaper than previous VPLS design
- ◆ Made iterative **design improvements** to eliminate single points of failure, in a 24/7 production environment that cannot tolerate downtime
- ◆ Designed, advocated for, and implemented new lightweight network POP in the Westin Building Seattle, to more **closely align Yelp's network with AWS** and provide additional west coast resiliency

- ◆ Built proof of concept for F5 web-based “**ZeroTrust**” remote access proxy, and coached teammate on the production deployment, to ensure knowledge was spread amongst the team
- ◆ Seamlessly migrated complex external WAN and Internet connectivity between cages, to keep the website running as we changed and downsized our colo space
- ◆ Designed and implemented **MPLS core network** for Yelp, to simplify running multiple internal customers over the same core network, while ensuring that traffic is segregated with firewalls
- ◆ Developed **BGP and GRE overlay** solution to migrate anycast-ed services from on-prem datacenters to AWS VPC’s
- ◆ Build proof of concept to add multi-region resiliency to existing DirectConnect design using DirectConnect Gateways

Leadership

- ◆ Responsible for technical network **response to Covid** in Spring 2020. Worked closely with Yelp’s technical sourcing and engineering leadership to obtain short term cost savings – cutting circuit costs by ~\$1m annually, while keeping long term goals on track.
- ◆ Wrote 11 internal **postmortems** for network outages and incidents
- ◆ Initiated a proactive process in our team to identify, plan for, and **remediate major risks** (by discussing “hypothetical future postmortems”)
- ◆ Responsible for technical roadmap for Yelp’s network, and participate in quarterly and yearly planning with other infrastructure leaders
- ◆ Advocated for using **OKR framework** for Neteng team, to help us keep focused on top priorities
- ◆ **Interviewed** 20+ network engineering candidates, and **mentored** new network engineers at Yelp as part of a globally distributed team

Operations

- ◆ Troubleshooting production network performance and connectivity issues, often with Splunk (log collection) and Kentik (**netflow** analytics), across on-prem and cloud environment (AWS EC2 / ELB / VPC’s).
- ◆ Acted as top-level escalation point for internal IT teams for network issues
- ◆ Interfacing with other engineering teams for design discussions, post-mortem reviews, firewall change requests, and new network service deployments
- ◆ Support new office builds and expansions (including travel) and planning, working with stakeholders like internal IT, facilities, systems teams, and service providers
- ◆ Prepared for and responded to DDoS’s - quickly remediated **DDoS** against corporate remote access to keep critical services available for employees working from home during Covid pandemic
- ◆ Support operational changes and review design for multi-site Aruba wifi network

- ◆ Frequent on-call shifts and **incident response**, responsible for everything from core network hardware, to WAN links, VPN appliances, and office wireless access points
- ◆ Wrote runbooks for automation tooling and new platforms, along with design documentation and diagrams

Apparatus (now Virtusa): Technology Specialist

May 2011 – July 2014:

Part of the Data Center Network team at Fortune 500 client in Indianapolis, responsible for datacenter network projects and load balancing.

Data Center Networking

- ◆ Consult with client on **data center network design**. Plan and coordinate network projects (deployments, migrations, upgrades, etc.) with internal customers and service provider responsible for network operations.
- ◆ Orchestrated testing of new stretched L2 (OTV) data center network.
- ◆ Customer had Cisco Nexus 7000 / 5000 and Catalyst 6500 based data center network across five enterprise data centers globally
- ◆ Deployed and managed Nexus 3000 / 5000 **network for HPC cluster** including 40GbE. Wrote internal quality documentation for Cisco NX-OS devices prior to deployment
- ◆ Wrote custom Perl / SNMP based switchport mapping and inventory script.

Load Balancing

- ◆ Managed 40+ F5 BIG-IP devices globally (LTM / GTM / APM).
- ◆ Analyzed load balancing needs for new applications and worked with customers to troubleshoot application availability and performance
- ◆ Designed custom iRules to meet customer application needs. Deployed and integrated load balancers in new environments
- ◆ Investigated automation and management solutions including F5 Enterprise Manager and custom Python based scripts that interact with F5 iControl API
- ◆ Migrated over 1000 applications from Cisco CSM / GSS to F5 LTM / GTM.

January 2011 – May 2011: Apparatus Internal Infrastructure

- ◆ Worked on internal projects to support move to a new office building: network cabling / device configuration, print server setup, and VPN server configuration.

Indiana Clinic / Clarian Health Partners: Desktop Support Intern

June 2008 – January 2011

- ◆ Supported Indiana Clinic desktop systems and users, deployed new desktops
- ◆ Track incidents and change requests
- ◆ Migrated internal customers to Clarian systems as part of Indiana Clinic transition

Skills**Automation and Cloud**

- ◆ Extensive experience building **network automation** tooling with Ansible and Python
- ◆ Managing **Amazon AWS** networking – including DirectConnects, IPSec, and routing, using terraform for managing resources
- ◆ Deploying services on Ubuntu Linux – Observium in docker, ExaBGP, bird, Sensu based network monitoring, oxidized configuration backups, and contributing to large internal unit-tested puppet codebase

Network Platforms

- ◆ Juniper routing (MX), switching (EX/QFX), firewalls (SRX)
- ◆ Cisco NX-OS, IOS, CSM. Nexus 7000 / 5000 / 3000 platforms. Catalyst 6500
- ◆ F5 BIG-IP Local Traffic Manager, Global Traffic Manager, Access Policy Manager
- ◆ Palo Alto Next Generation firewalls
- ◆ Pulse Secure remote access VPN
- ◆ Aruba campus wifi networks using Clearpass RADIUS
- ◆ OpenGear out of band management

Technologies

- ◆ Building MPLS L3VPN / L2VPN based WAN with LDP/RSVP/MP-BGP
- ◆ Utilize knowledge of OSPF, HTTP, DNS, TCP/IP, Ethernet, and STP in complex, globally distributed enterprise data center networks
- ◆ Manage Internet-facing BGP policies across multiple providers, POP's, and peering exchanges
- ◆ Datacenter and colo operations, working with remote smart-hands. Circuit ordering, provisioning, and provider relationships. Responsible for 50+ circuits in dynamic environment.

Personal Projects

- ◆ Wrote personal web applications with Python / Django, and experimented with AWS Lambda using Python and Chalice framework
- ◆ Wrote Javascript based tool to visualize MTU overhead (www.mtumath.com)
- ◆ Deployed personal services using CloudFlare CDN and Netlify
- ◆ Developed Python based tool to perform network tests, send reports via Amazon SQS and Lambda, store in InfluxDB, and visualize with Grafana. Deploy client via docker, and server with Bitbucket Pipelines
- ◆ Run small Kubernetes environment with k3s
- ◆ Juniper ScreenOS. VyOS. Ubiquiti Unifi, EdgeMax, AirMax. Cisco ASA. IPv6 on Cisco, Juniper
- ◆ Red Hat with Apache, nginx, Postfix, MySQL, OpenVPN, and Nagios based SNMP monitoring. PowerDNS, bind, squid, gdnssd. Centralized control of 20+ Linux hosts on home network with puppet. LetsEncrypt and OpenSSL based certificate management.
- ◆ Windows Server 2003 – 2019 with Active Directory, Exchange 2010 – 2013

Education**IUPUI – Major in Computer Information Technology, Minor in Business**

- ◆ Graduated May 2011. 3.97 Cumulative GPA.
- ◆ Dean's List – Fall 2007, Spring/Fall 2008, Spring/Fall 2009, Spring 2010
- ◆ 2009 Outstanding Upperclassman Award in CIT, 2008 Outstanding Underclassman Award in CIT, 2008 Outstanding Underclass Student in Technical Communications

Maize High School – Maize, KS

- ◆ Graduated May 2007. 4.0 Cumulative GPA, Valedictorian
- ◆ Won 1st place at national network design project competition for Business Professionals of America in 2007, wrote 80 page network project proposal

Certifications

These have subsequently expired

- ◆ Cisco CCNP (Sept 2013), CCDP (May 2014)
- ◆ Juniper JNCIA (Dec 2013)
- ◆ F5 Certified Product Consultant (Dec 2011)