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Objective: a backend software engineer position; tech lead

EXPERIENCE

Verily Life Sciences 2022 July - 2023 August

Role: Tech Lead

Onduo is Verily's chronic disease management offering. I was responsible for working out how to break Onduo's monolithic backend into microservices and moving the entire stack off of Google internal infrastructure.

PayPal 2021 July - 2022 July

Role: Principal Engineer

Led API Unification. PayPal is a 20-year old company, with many acquisitions and distinct brands. I was responsible for charting the course for how to evolve the distinct APIs into One API, articulating the work streams needed for unification.

Google Dec 2010 - July 2021

Waymo

Role: Staff Software Engineer, since Mar 2020

Waymo ML Platform team provides a framework for Waymo ML practitioners to train/eval models. This is my attempt of pivoting from system engineering to AI engineer - I contributed to identifying model eval bugs in TensorFlow's Keras lib, TFMA lib; then added the TracIn technique into Waymo's ML framework.

Cloud AI

Role: Tech Lead Manager, since Nov 2018

Led a team of 14 engineers to deliver Speech-to-Text and Text-to-Speech technology to enterprise customers. Drove cross-site collaborations; craft roadmaps for improving both APIs' reliability and scalability; spearheaded projects to build custom ASR models, custom voices.

Google Assistant

Role: Tech Lead, 2017 (~2 years)

Dialogflow is a developer platform for building conversational UX / chatbots. Some of its competitors are Amazon Lex, IBM Watson Assistant, Microsoft LUIS.ai, and Facebook wit.ai. Dialogflow services are offered in 3 different channels: through Actions on Google, through Dialogflow Enterprise (a Cloud ML API), or directly through Dialogflow's web console and API.

I worked with a distributed team of 6 to 12 developers, 2 QAs, and 3 linguists. I orchestrated the design, implementation, verification and live migration of the platform from AWS to GCP; then built and led the infrastructure team to stabilize, scale up, and modernize the stack.

Geo Imagery

Role: Tech Lead, 2013 (~4 years)

Geo Photo Catalog is the indexing system for Geo Photo Search Service. It acquires geotagged imagery from many different sources, converts them to indexable form, eliminates duplicates, attaches signals for ranking, applies takedown and moderation, finally writes eligible entries to Union and other serving time storage. I spearheaded the project in September 2013, launched the system in April 2014 as a unified repository of imagery metadata for enabling local and spatial search, then oversaw various client teams' migration from old indexing systems to this new system, continued to add innovative ways for indexing

images, scaled the system to serve lookup traffic needed for imagery rendering in September 2015, with low latency. This system catalogs billions of geo-relevant images, refreshing search indexes weekly, daily and instantly.

Tech Infra

Role: Senior Software Engineer

Backend software developer, using Java. Built components for Google's internal computing resources (machines, various storage) management systems.

Makara Inc. 2009 Oct - 2010 August

Makara was a startup that specialized in software for managing cloud-based applications, it was cluster management (before there was Kubernetes) + container (before there was Docker) + IDE for Cloud. Our platform could run on virtual machines on Amazon EC2, or on local VMWare instances. It provides an intuitive web based interface for devops to deploy, edit (on-the-fly or offline, with version control), and monitor Java and PHP web applications. Our platform aggregates logs, collects performance data. We aimed to enable devops to move their precious web application from cloud A to cloud B (before there was Anthos), or from their server farm into cloud with ease. I was Jackie of all trades, spent most of my time doing distributed system development that involves file system and configuration, job state coordination.

Google 2008 March - 2009 Sep

Google Search Appliance

We sold Dell computers installed with Google search software to enterprise customers. Our team specializes in identity management and access control. I built multiple Java extensible components to support many authentication methods and authorization mechanisms that are most commonly used in enterprise IT environments:

- SAML
- Kerberos
- NTLM
- SSL client certificate
- HTTP authentication with HTML forms

Juniper Networks 2002 Feb - 2008 Mar

2007 Sep - 2008 Mar Engineering Manager
2002 Feb - 2007 Sep Software Engineer, Juniper Networks
Go-to person for the configuration management infrastructure of JUNOS.

- Management Daemon: highly complex module that centralizes configuration data management, command parsing and dispatching. This component is the backend to all admin applications running on various Juniper networking equipments.
- CLI: Command Line Interface client, takes XML data from Management Daemon, converts it into command line output.
- JUNOScript/Netconf: RPC-based mechanism for configuration & monitoring. I implemented Netconf based on original JUNOScript implementation.
- AAA: admin user authentication, role based access control.
- Service Deployment Daemon: this is a neat independent module that multiplexes NETCONF channels and syslog channels. The purpose is to have an external service provisioning system use one TCP connection for all its administration needs.
- JUNOS virtualization: I drove the User Interface aspect of the project from phase I to phase II by developing full-fledged admin separation.

Procket Networks 2000 Nov - 2001 Dec

Procket Networks was an ambitious start-up that bet on custom ASIC and top tier routing software to compete with Cisco and Juniper in the core router market.

- Built SNMP agent using SNMP Research's protocol stack, authored enterprise MIB.
- Maintained/ported xntpd onto LynxOS, a real-time operating system.
- Designed and implemented a flexible software packaging solution for the router, so that software upgrade and restart can be done per component.

Wytec Inc. 1999 Jul - 2000 Oct

Wytec was a start-up set out to build fixed broadband wireless (LMDS) systems. I led the development of the Element Management System, and contributed to embedded software modules.

Element Management System:

- Designed remote software upgrade application, web-based node (both base station and CPE nodes) management application.
- Worked with 3rd party Network Management Software vendor on the overall interface definition between their NMS and our EMS.
- Proof-of-concept integration with HP OpenView Network Node Manager.
- Supervised two junior software engineers

Embedded Software:

- CPU board/Network Interface Board redundancy control design
- IDT77211 NICStAR PCI ATM controller driver debugging (bought from H&J)
- Cirrus Logic CS8900 Ethernet controller driver performance tuning
- Tundra Universe VMEbus-PCI bus bridge driver debugging
- Upstream bandwidth provisioning algorithm

EDUCATION

- Johns Hopkins University, Master in Computer Sciences, 1998
- Chinese Academy of Science, Master degree, Computer Vision, 1996
- Xi'an Jiaotong University, Bachelor in Electrical Engineering, 1993