

BAIHU QIAN

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EXPERIENCE SUMMARY

I am an Engineering Lead with extensive hands-on experience in the design, implementation, and optimization of distributed software systems and Project Manager capable of delivering high-impact, large-scale, and complex projects across teams and organizations. Proficient in:

- Service-oriented architecture and micro-service architecture;
- High-availability (HA) and scalability best practices;
- Large-scale distributed software system;
- High performance, event-driven and asynchronous software systems;
- Architect and build software systems for the cloud.
- Continuous Delivery, DevOps, and operation best practices.

EMPLOYMENT

AWS Transit Gateway, Amazon Web Services

Herndon, VA

Software Development Engineer II

September 2017 - Present

I am the lead engineer of the development of [AWS Transit Gateway](#), a Software-Defined Cloud Networking service first of its kind that enables customers to easily provision and scale connectivity across thousands of Amazon VPCs, AWS accounts, and on-premise networks, and centrally manage and monitor traffic flows.

- Architect the software system in native AWS. Responsibilities include service-oriented architecture design, infrastructure planning, and technology selection.
- Design the user experience of the Transit Gateway product, including API and AWS Management Console, and its integration with other AWS services.
- Implement high-performance software services, frameworks and libraries, including the common data access layer with DynamoDB, resource provisioning and scheduling system, and real-time route processing and distribution system.
- Manage complex development projects across organizations with an impeccable record of on-time delivery.
- I am an inventor of multiple U.S. patents (pending) for the technologies that enable Transit Gateway.
- Work with product management on product definition, documentation, cost/pricing, and product roadmap.
- Develop other engineers, perform design and code reviews, and improve engineering standards.

VPN, Amazon Web Services

Herndon, VA

Software Development Engineer II

May 2015 - September 2017

[AWS VPN service](#) provides highly-available managed connectivity between on-premise networks and VPC using industry-standard IPSec technology. It is one of the fastest growing AWS services.

- Developed public features. Responsibilities include feature definition, customer experience design, task planning, implementation, and project management. I delivered the following high-demand features:
 1. [Configurable Amazon-side ASN on Virtual Private Gateway](#);
 2. [VPN Custom PSK, Inside Tunnel IP, and SDK update](#);
 3. [VPN support for VPC expansion](#).
- Optimized the performance, efficiency, and scalability of the provisioning system that builds customers' VPN Connections and manages the lifecycle of over 350,000 EC2 instances.
- Improved the latency, efficiency, and scalability of the routing engine, a stateful distributed system that maintains millions of route tables, computes and distributes routing rules to millions of devices in real time.
- Proposed and implemented architectural changes to reduce the load on the MySQL database.

SIDE PROJECT

Robinhood Portfolio Management

August 2017 - Present

It provides automatic portfolio management for Robinhood at a zero cost, while popular financial management apps (e.g., Mint, PersonalCapital) do not support Robinhood.

- It is a Python application hosted by AWS Lambda. It leverages AWS Secrets Managers to manage credentials and sends daily reports with Amazon Simple Notification Service (SNS).
- Data is persisted to Google Sheet for analysis and visualization.
- Apex and Terraform are used to manage AWS resources.

TECHNICAL SKILLS

Programming Language	Scala, Python, Java, Go, Ruby, C
Framework	Akka, Spring
Web Technology	Ruby on Rails, AngularJS, GWT, Node.js, Twisted
Logging & Testing	Log4j, JUnit, ScalaTest, Mockito, Hamcrest
Tools	Git, Distutils, Ant
Relational Database	MySQL, SQLite, Squeryl, SQLAlchemy, JDBC
NoSQL Database	DynamoDB, HBase
Data Warehouse	Redshift
Stream Processing	Kinesis
Data Analytics	ElasticSearch, Kibana, Hadoop, MapReduce, Hive, Spark
Operating System	Major Linux distributions (Ubuntu, Amazon Linux, RHEL), MacOS

CERTIFICATION

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|---|---------------|
| · AWS Certified Solutions Architect - Associate | April 2018 |
| · AWS Certified Developer - Associate | December 2017 |
| · Juniper Networks Certified Associate - Junos | February 2016 |

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

M.Sc. in Electrical & Computer Engineering

August 2013 - May 2015

Zhejiang University

Hangzhou, China

B.Eng. in Information & Communication Engineering

September 2009 - July 2013

Summa cum laude, Chu Kochen Honors College.