

BAIHU QIAN

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EXPERIENCE SUMMARY

I am an engineering lead with extensive hands-on experience in leading highly-productive engineering teams to deliver complex projects with critical business values in fast-paced environment. Proficient in:

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

EMPLOYMENT

AWS Transit Gateway, Amazon Web Services

Chicago, IL

Senior Software Development Engineer

April 2019 - Present

Software Development Engineer II

September 2017 - March 2019

I am the lead engineer of [AWS Transit Gateway](#), a Software-Defined Cloud Networking service 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. It is one of the most successful services among AWS's leading IaaS offerings.

- Architect the software system. It is presented as a single IP router that is able to horizontally scale to process any amount of traffic among any number of networks using any number of routing rules, and is always available. Yet it is a massive multi-tenant distributed system that can achieve over-subscription and economy-at-scale. Components are loosely coupled with full CI/CD and automated testing to ensure rapid development and release.
- Design the user experience of the Transit Gateway product and its integration with other AWS services.
- Implement high-performance software services, frameworks and libraries, including the common data access layer based on DynamoDB, resource provisioning and scheduling system, and real-time route processing & distribution system.
- Deliver [AWS Direct Connect Support for AWS Transit Gateway](#), the most-asked feature for Transit Gateway.
- Manage complex development projects across organizations with a consistent 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 Manager on product definition, documentation, cost & pricing, and product road map.
- Develop other engineers, perform design and code reviews, and improve engineering standards.

VPN, Amazon Web Services

Herndon, VA

Software Development Engineer II

April 2017 - September 2017

Software Development Engineer I

May 2015 - March 2017

[AWS VPN service](#) provides highly-available managed connectivity between on-premise networks and VPC using industry-standard IPsec technology.

- 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 provisioning system that builds customers' VPN Connections and manages the lifecycle of over 500,000 EC2 instances.
- Improved the efficiency and scalability of the routing engine, a stateful distributed system that manages millions of route tables by computing and distributing routing rules to millions of nodes in real time.
- Proposed and implemented architectural changes to reduce the load on the MySQL database.

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, Amazon Athena, Hadoop, MapReduce, Hive, Spark
Operating System	Major Linux distributions (Ubuntu, Amazon Linux, RHEL), MacOS

CERTIFICATION

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

EDUCATION

Carnegie Mellon University	<i>Pittsburgh, PA</i>
<i>M.Sc. in Electrical & Computer Engineering</i>	August 2013 - May 2015
Zhejiang University	<i>Hangzhou, China</i>
<i>B.Eng. in Information & Communication Engineering</i>	September 2009 - July 2013
Summa cum laude, Chu Kochen Honors College.	