

# Abhigna Nagaraja

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## RELEVANT EXPERIENCE

### • Meta Platforms, Inc

*Staff Software Engineer, Meta Platforms Inc*

*Seattle, US*

*Oct 2021 – Present*

- Led the effort to improve the operational efficiency of the Async Tier, a large-scale serverless computing platform handling trillions in traffic volume daily.
- Re-architected and migrated the Async Tier to a new system, resulting in significant enhancements in reliability, scalability, and efficiency.
- Reduced operational events, accelerated development of newer capacities, and achieved substantial server savings due to the enhanced efficiency of the newer components.
- Empowered thousands of engineers within Meta to build business applications at scale with improved efficiency, directly translating to Meta's ability to deliver products quickly and at a lower cost to billions of users.
- Positively impacted the reliability of features in Meta products such as WhatsApp, Instagram, Facebook, and Thread.
- Co-authored the research paper "XFaaS: Hyperscale and Low Cost Serverless Functions," shedding light on the intricacies of serverless computing within hyperscale environments and contributing valuable insights to the field of cloud computing.

### • Amazon Web Services

*Sr Software Engineer, Amazon API Gateway*

*Seattle, US*

*April 2019 – September 2021*

- Lead engineering for one of the highest traffic volume AWS service - Amazon API Gateway - a highly configurable reverse proxy with tight integration with many AWS services.
- Guide API Gateway's architectural vision on scalability, availability and operational posture. Sponsored a cross team re-architectural effort to build a scalable shuffle sharded data plane.
- Represent API Gateway's engineering in broader AWS-wide initiatives like regular availability risk review.
- Lead API Gateway's technical strategy in new initiatives to support gRPC protocol, private connectivity to APIs, improve rate limiting customer experience for API Gateway's customer (Limitless).
- Led effort to deliver complex customer impacting features for API Gateway like Mutual TLS ([official blog post](#)). Built consensus on approach with AWS-wide stakeholders, designed and led the core development team. Efforts led to the successful delivery of the critical requested feature for enterprise customers.
- Drive API Gateway's architectural vision to separate frontend layer into a separate layer and led the effort to build the initial version. Built consensus on approach with cross-team stakeholders, developed and delivered a Rust based frontend layer for API Gateway that handles an initial set of usecases with a vision to solve future product usecases.
- Led API Gateway's engineering effort to evaluate the next gen data plane technology. This resulted in the new platform that powers the HTTP API platform ([official blog post](#))
- Designed and built a custom networking protocol using TUN to eliminate a vertical scaling cliff in API Gateway's internal mechanism to support VPC integration. The mechanism eliminated the scaling issue entirely which resulted in a much simpler architecture.

### • Amazon Web Services

*Software Development Engineer II, Amazon API Gateway*

*Seattle, US*

*Feb 2016 – March 2019*

- Led the effort to build a new stateful data plane to support WebSocket protocol in API Gateway ([official blog post](#)). Designed and developed the core pieces of data plane while mentoring junior engineers. WebSocket data plane handles some of API Gateway's largest customers.
- Led the effort to deliver Private API for API Gateway ([official blog post](#)). Scoped requirements with Product, designed and developed a new data plane to handle the Private API traffic.
- Helped deliver VPC integration for API Gateway ([official blog post](#)). Developed the low level design and delivered feature as part of a team.
- Led the effort to deliver customization of error responses for API Gateway ([official blog post](#)). Scoped the requirements, designed and developed the Gateway Responses feature that helped with customizing errors from API Gateway.

### • Amazon

*Software Development Engineer II, Product Aggregator*

*Bangalore, India*

*Sept 2015 – Jan 2016*

- Led effort for utilization improvements on a high throughput web service that's on the critical path for all product page loads. Re-architected the caching mechanism which resulted in significant capex savings for the service.

### • Amazon

*Software Developer Engineer I, Product Aggregator*

*Bangalore, India*

*April 2013 – Aug 2015*

- Developed an internal web portal to help analyse traffic patterns from hundreds of internal callers. Its used by the team during operational events to look at traffic patterns.

**Tools and Technologies:** Java, Perl, Python

- **Akamai**

*Associate Solutions Architect, APAC*

*Bengalore, India  
July 2012 – April 2013*

- Delivered integration solutions for Akamai customers by evaluating the web architecture, security requirements, DNS configuration that satisfies the customer's business and technical requirements.
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## EDUCATION

- **Ramaiah Institute of Technology**

*B.E., Information Science and Engineering*

**GPA - 9.28 / 10**

*Bengaluru, India  
2008 - 2012*