

Abhigna Nagaraja

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RELEVANT EXPERIENCE

• Meta Platforms, Inc

Seattle, US

Oct 2021 – Present

Staff Software Engineer , Meta Platforms Inc

- Led a cross-functional efficiency initiative across serverless org, delivering \$139M/year in infrastructure savings - through workload tiering, traffic shaping and capacity optimization
- Designed and scaled an elastic tier from pilot to production, growing to 40% of the platforms worker capacity, reducing infrastructure costs by \$15M/year while enabling \$76M/year in new revenue
- Architected a traffic shaping framework adopted by 32+ distributed data services, enabling graceful degradation during peak loads and delivering \$26M/year in efficiency gains
- Established and drove clear boundaries (as SLOs) for real-time job processing, achieving 100% SLO compliance with zero critical incidents
- Launched synchronous function execution capabilities, expanding the serverless compute model to support latency sensitive workloads
- Led the successful migration of 10 year old distributed system (used by 2400+ teams) processing > 24 trillion operations daily in a 2 year+ migration effort. This reduced operational events by 60%, and achieved substantial savings (95+ million dollars) from the migration
- Spearheaded the development of a capacity pooling concept that helped 300+ teams optimize their server usage generating \$6 million in annual capacity savings and improving system responsiveness by 10–20%
- Built a generic backpressure mechanism that helped improve reliability of meta products like recommendation systems
- Co-authored the research paper "XFaaS: Hyperscale and Low Cost Serverless Functions"

• Amazon Web Services

Seattle, US

Sr Software Engineer , Amazon API Gateway

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

Seattle, US

Software Development Engineer II, Amazon API Gateway

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.
- Led the effort to deliver customization of error responses for API Gateway ([official blog post](#)).

• Amazon India

Bangalore, India

Sept 201 India5 – Jan 2016

Software Development Engineer II, Product Aggregator

- 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 India

Bangalore, India

Software Developer Engineer I, Product Aggregator

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.

- **Akamai**

Associate Solutions Architect, APAC

Bengalore, India

July 2012 – April 2013

EDUCATION

- **Ramaiah Institute of Technology**

B.E., Information Science and Engineering

Bengaluru, India

GPA - 9.28 / 10

2008 - 2012