Abhigna Nagaraja

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RELEVANT EXPERIENCE

- **Meta Platforms, Inc** — *Seattle, US*
  Staff Software Engineer , Meta Platforms Inc — *Oct 2021 – Present*
  - 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 initiates 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*
  Software Development Engineer II, Product Aggregator — *Sept 201 India5 – Jan 2016*
- **Amazon India** — *Bangalore, India*
  Software Developer Engineer I, Product Aggregator — *April 2013 – Aug 2015*
- **Akamai** — *Bengalore, India*
  Associate Solutions Architect, APAC — *July 2012 – April 2013*