**Prajwal Koirala**

Certified Multi-Cloud Architect | AWS, GCP & Azure | Software Engineer Specializing in Scalable Systems and Infrastructure Optimization

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**Summary**

* I am a Certified Multi-Cloud Architect with extensive expertise spanning AWS, Google Cloud, and Microsoft Azure. For over a decade, I have been at the forefront of designing, deploying, and managing scalable cloud infrastructures that power mission-critical systems in industries including finance, healthcare, e-commerce, and technology.
* My career in software development and cloud engineering is driven by a passion for innovation and a commitment to excellence, transforming legacy systems into agile, modern environments that leverage automation and continuous integration.
* I have led diverse teams in implementing robust Infrastructure as Code (IaC) practices using tools such as Terraform and CloudFormation to ensure that cloud deployments are repeatable, secure, and cost-effective. My work emphasizes both technical precision and strategic foresight, adhering to stringent security and compliance standards like GDPR, HIPAA, and CCPA while integrating CI/CD pipelines and DevOps methodologies to reduce deployment times and optimize performance. This balanced approach enables organizations to achieve operational resilience and sustainable growth.
* My credentials include AWS Certified Solutions Architect – Professional, Google Cloud Professional Cloud Architect, Microsoft Azure Solutions Architect Expert, and HashiCorp Terraform Associate, reflecting a deep and proven ability to execute complex multi-cloud strategies. I actively contribute to open-source initiatives and mentor emerging professionals, fostering collaborative environments that drive continuous improvement and innovation.
* By aligning cutting-edge technical solutions with strategic business objectives, I ensure that every project delivers tangible, long-term value. Dedicated to staying ahead of emerging trends, I consistently explore new technologies to solve intricate challenges and pioneer transformative change.
* Whether modernizing existing systems or architecting new cloud-native solutions, I work closely with stakeholders to deliver outcomes that are secure, scalable, and forward-thinking. I welcome opportunities to collaborate on initiatives that redefine cloud architecture and drive digital transformation. My unwavering commitment to innovation, security, and efficiency is the cornerstone of every project I lead, ensuring that organizations remain agile and competitive in a rapidly evolving digital landscape.

**Experience**

**Mapping United 2023 - Nov 2024**

**Lead Software Developer**

* Developed a real-time drone-based parking detection system using Python and OpenCV for computer vision.
* Integrated YOLO object detection algorithm to identify available parking spaces in real-time.
* Combined drone cameras with IoT devices to communicate with a central system, streamlining data processing.
* Designed a multi-cloud architecture across AWS and Azure, processing 500,000+ transactions per second with 20% lower latency for real-time data processing
* Leveraged AWS Lambda, Azure Functions, and Kafka to create a scalable, serverless microservices-based data pipeline for event-driven processing and real-time data stream management.
* Implemented A/B testing frameworks and automated event tracking using tools like Google Analytics and Mixpanel to optimize user interactions for user engagement improvement
* Analyzed user behavior to continuously improve platform features and enhance engagement.
* Developed an automated reporting system with AWS IoT Core, Lambda, and S3 to monitor 200+ locations, improving stock accuracy.
* Integrated IoT devices and cloud services to process and report real-time tracking data.
* Developed time-series forecasting models using Azure AutoML and an ETL pipeline with AWS Glue and Redshift to improve demand predictions.
* Integrated historical sales data and seasonal trends to optimize resource allocation and reduce inefficiencies.
* Led security audits to ensure GDPR and CCPA compliance, implementing AES-256 encryption and secure key management with AWS KMS and Azure Key Vault.
* Automated compliance processes, reducing risks and ensuring consistent data protection.

**IpEngine.xyz Apr 2023 - Dec 2023**

**Senior Software Developer**

* Performed IP Intelligence Platform Development and developed core features for real-time IP risk scoring and classification using Python for data processing and Go for performance-critical tasks.
* Built scalable data pipelines to ingest, analyze, and classify IP data in real-time, improving data accuracy by 20%.
* Backend System Optimization, optimized database indexing and refined API efficiency to achieve 99.9% uptime.
* Implemented caching using Redis and enhanced PostgreSQL performance with efficient indexing strategies.
* Multi-Cloud Deployment Strategy, architected a multi-cloud deployment strategy using AWS and GCP, leveraging Docker containers and Kubernetes for orchestration.
* Implemented a CI/CD pipeline using Terraform, Helm, and GitHub Actions for seamless deployment across clouds.
* Legacy System Migration to Cloud-Native, led the migration from a monolithic architecture to a microservices-based, cloud-native model.
* Re-architected applications using Kubernetes for orchestration and gRPC for efficient communication between services.
* Mentored junior developers and led code reviews to improve code quality and team collaboration.
* Established engineering guidelines for CI/CD pipelines, automated testing, and infrastructure as code.
* Implemented proactive monitoring using Prometheus, Grafana, and AWS CloudWatch.
* Developed automated incident response systems with Terraform and Ansible, reducing downtime by 25%.
* Worked with product managers and design teams to deliver user-centric features.
* Implemented feature flags and A/B testing for smooth rollout of new features, ensuring minimal disruption.
* Identified and optimized backend bottlenecks, database queries, and API calls to increase system throughput by 30%.
* Used Redis caching to improve response times and PostgreSQL’s EXPLAIN ANALYZE to optimize slow queries.

**Cloud Native Computing Foundation Nov 2020 - Mar 2023**

**Lead Cloud Engineer**

* Performed multi-Cloud Architecture Design, designing multi-cloud architectures using AWS, GCP, and Azure, leveraging AWS Lambda, Azure Functions, and Google Kubernetes Engine (GKE) to create fault-tolerant, scalable solutions.
* Built cloud-agnostic systems with infrastructure automation to ensure seamless operation and dynamic scalability across different cloud platforms.
* Led the migration of legacy systems to cloud-native solutions, re-architecting monolithic applications into microservices and adopting serverless architectures.
* Utilized Docker for containerization, Kubernetes for orchestration, and AWS Lambda for serverless compute, enabling better scalability and reducing infrastructure costs by 30%.
* Automated Deployment Pipelines
* Automated CI/CD pipelines using Terraform and AWS CloudFormation, integrating testing and security checks to ensure code quality and compliance.
* Developed pipelines that accelerated deployment times by 40%, improving release cycles and developer productivity.
* Optimized cloud usage for clients by analyzing resource consumption with AWS Cost Explorer and Azure Cost Management, implementing right-sizing strategies, and enabling auto-scaling.
* Reduced annual cloud costs by 25%, ensuring clients paid only for necessary resources while maintaining performance.
* Designed highly available, fault-tolerant systems using multi-region and multi-AZ architectures, integrating cloud-native backup solutions and automated failover mechanisms.
* Achieved 99.9% uptime, ensuring services remained operational during disruptions and minimizing data loss.
* Led the adoption of containerization using Docker and Kubernetes for managing microservices.
* Used Helm for Kubernetes to streamline deployment management, ensuring faster, reliable deployments, centralized resource management, and seamless scaling.

**Nvidia 2017 - Sep 2020**

**Cloud Operations Specialist**

* Cloud Operations for SaaS Applications, managed SaaS applications on AWS and Azure using auto-scaling and load balancing to handle traffic spikes.
* Ensured 99.9% uptime by dynamically adjusting resources with auto-scaling and distributing traffic evenly with load balancing.
* Designed disaster recovery solutions with cross-region replication, automated failover, and real-time backup strategies to achieve recovery times under 10 minutes.
* Used AWS Route 53 for DNS failover, AWS S3 for backup, and Azure Site Recovery for automated failover.
* Automated cloud resource provisioning with AWS CLI, PowerShell, and Google Cloud SDK, reducing manual workload by 40%.
* Created reusable scripts for provisioning EC2 instances, VPCs, and storage resources.
* Developed custom monitoring dashboards using CloudWatch, Azure Monitor, and Google Cloud Operations Suite to track application health in real-time.
* Provided proactive insights into CPU, memory, and network performance metrics.
* Optimized cloud costs by rightsizing instances, implementing reserved instances, and using auto-scaling.
* Reduced cloud spending by 20% while maintaining system performance and scalability.
* Developed automated scaling policies for AWS EC2, Azure VMs, and Google Cloud Compute Engine instances.
* Ensured cost-efficiency and optimal performance by scaling resources based on traffic demand.
* Implemented multi-factor authentication (MFA), role-based access control (RBAC), and encryption for data in transit and at rest.
* Enhanced security, reduced vulnerabilities, and maintained compliance with regulations like GDPR and CCPA.
* Managed and streamlined CI/CD pipelines with Jenkins, Azure DevOps, and GitLab CI to automate testing, integration, and deployment.
* Reduced deployment time by 30% and ensured secure and consistent code delivery.
* Deployed proactive alerting and monitoring systems with AWS CloudWatch, Azure Monitor, and Google Cloud Operations Suite.
* Improved response times by resolving issues before they affected end-users, minimizing downtime.

**ComplexOrganizations Apr 2012 - Jun 2017**

**Software Developer**

* Designed and implemented IaC solutions with Terraform for automated resource deployment across AWS and Azure.
* Reduced manual intervention by 60% and lowered infrastructure costs by 30% through automation of VPCs, EC2 instances, S3 buckets, RDS databases, Virtual Networks, Virtual Machines, and Blob Storage.
* Ensured security best practices with IAM roles, security groups, and encryption policies using AWS IAM, Azure RBAC, and AWS KMS/Azure Key Vault for key management.
* Team Leadership and Project Delivery
* Led a team of 10 developers, delivering 10+ successful projects on schedule.
* Collaborated with product owners to define technical requirements and mentored junior engineers on cloud architecture, IaC, and containerization technologies.
* Fostered a culture of continuous improvement, reducing technical debt and improving team productivity.
* Implemented CI/CD pipelines with Jenkins, GitLab CI, and Azure DevOps, automating build, test, and deployment processes.
* Increased deployment frequency by 50% and improved system stability with automated testing, security scans, and zero-downtime releases.
* Utilized Helm for Kubernetes and incorporated security and testing tools like SonarQube and OWASP Dependency-Check.
* Containerized applications using Docker and deployed them on Kubernetes clusters managed by AWS EKS and Azure AKS.
* Reduced provisioning time by 70% and improved uptime with Horizontal Pod Autoscaling, Cluster Autoscaling, and integration with Prometheus and Grafana for monitoring.
* Simplified deployments and improved resource utilization for highly available applications.
* Achieved SOC 2 and GDPR compliance by implementing MFA, RBAC, and encryption for data in transit and at rest.
* Strengthened security posture and built customer trust through regular security audits with AWS Inspector and Azure Security Center.
* Ensured secure access and reduced vulnerabilities through robust data protection and compliance efforts.

**Education**

**State University of New York College at Potsdam** **2015 - May 2019**

B.S. Computer Science

**Certifications**

**HackerRank Feb 2025**

Software Engineer Certificate

SQL (Basic) Certificate

SQL (Intermediate) Certificate

Software Engineer Intern Certificate

SQL (Advanced) Certificate

Rest API (Intermediate) Certificate

React (Basic) Certificate

R (Basic) Certificate

Python (Basic) Certificate

Node (Basic) Certificate

JavaScript (Basic) Certificate

Java (Basic) Certificate

Go (Basic) Certificate

CSS (Basic) Certificate

C# (Basic) Certificate

Angular (Basic) Certificate

AWS Certified Cloud Practitioner Sep 2022

AWS Certified Developer – Associate Oct 2022

AWS Certified Solutions Architect – Associate Oct 2022

AWS Certified SysOps Administrator – Associate Oct 2022

**AWS Certified Solutions Architect – Professional Oct 2022**

**AWS Certified DevOps Engineer – Professional Nov 2022**

**AWS Certified Advanced Networking – Specialty Nov 2022**

**AWS Certified Security – Specialty Nov 2022**

**AWS Certified Machine Learning – Specialty Nov 2022**

**AWS Certified Database – Specialty Dec 2022**

**AWS Certified Data Analytics – Specialty Dec 2022**

**AWS Certified SAP on AWS – Specialty** Dec 2022

HashiCorp Certified: Terraform Associate (002) Dec 2022

GCP **Professional Cloud Architect Jan 2023**

**GCP Professional Cloud Developer Jan 2023**

**GCP Professional Data Engineer Jan 2023**

**GCP Professional Cloud Security Engineer Jan 2023**

**GCP Professional Cloud Database Engineer Jan 2023**