

## **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**

**2024**

**Lead Software Developer**

**2023 - Nov**

- 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**  
**Software Developer**

**Apr 2012 - Jun 2017**

- 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**  
B.S. Computer Science

**Certifications**

**HackerRank**  
Software Engineer Certificate

**Feb 2025**

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