## **Core Package**



## **Key Infra Setup for New Beginnings**

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Component	Challenges addressed	How it works
Infrastructure as Code	Manual infrastructure setup prone to errors, lack of reproducibility.	- Create infrastructure templates using IaC tools to automate provisioning Ensure version control and collaboration for infrastructure configurations.
Multi environments	Lack of segregated environments, challenges in version and configuration management	- Creating isolated environments using IaC - Implementing versioning and change strategies
VPC (networking)	Inefficient resource allocation, complex setups, lack of isolated environments for development, testing, and production.	- Design and provision environments with proper segregation (e.g., VPCs, subnets).
Kubernetes	Complexity in container orchestration, scaling issues, inconsistent deployments.	<ul> <li>Set up Kubernetes clusters with best practices for scalability and reliability.</li> <li>Implement Helm charts for deployments and provide kubectl access control.</li> <li>Configure monitoring and logging for Kubernetes workloads.</li> </ul>
Database	Unscalable databases, high latency, lack of redundancy and failover mechanisms.	<ul><li>- Provision managed databases (e.g., RDS, Aurora, DynamoDB).</li><li>- Set up backups, replication, and performance monitoring.</li></ul>
Monitoring, alerting and logging	Lack of observability, slow response to failures, difficulty in diagnosing issues.	<ul><li>Set up monitoring tools to track infrastructure health.</li><li>Configure alerts for thresholds, incidents, and anomalies.</li></ul>
Basic security	Vulnerabilities, lack of security controls, unauthorized access risks.	- Set up firewalls, and Identity Access Management (IAM).
Secret Management	Poor handling of sensitive information like API keys and credentials.	- Set up secure secret management solutions to store and rotate sensitive data Prepare documentation for a team with secure practices for secret usage.
ElastiCache	Vulnerabilities, lack of security controls, unauthorized access risks.	- Conduct security audits and implement basic security policies.
Cost Optimization	High latency in database queries, repeated fetching of frequently accessed data, and slow application performance.	<ul> <li>Set up and configure caching solutions</li> <li>(e.g., Redis, Memcached) to improve application performance.</li> <li>Monitor cache usage to ensure efficient resource allocation.</li> </ul>